



UNIVERSITAT_{DE}
BARCELONA

The Consequences of the Social Contract in Income Inequality

A comparison study of Germany and Brazil

Christian Büdgen Escario



Aquesta tesi doctoral està subjecta a la llicència **Reconeixement 4.0. Espanya de Creative Commons.**

Esta tesis doctoral está sujeta a la licencia **Reconocimiento 4.0. España de Creative Commons.**

This doctoral thesis is licensed under the **Creative Commons Attribution 4.0. Spain License.**



UNIVERSITAT DE
BARCELONA

Facultat d'Economia
i Empresa

The Consequences of the Social Contract in Income Inequality

A comparison study of Germany and Brazil

DOCTORAL THESIS

PhD Candidate: *Christian Büdgen Escario*

Director: *Marisol García Cabeza*

University of Barcelona

INDEX

INDEX.....	3
ACKNOWLEDGEMENTS	8
LIST OF ABBREVIATIONS.....	10
LIST OF TABLES	12
LIST OF FIGURES	13
CHAPTER 1. INTRODUCTION	15
1. CAUSES OF INCOME INEQUALITY.....	17
2. WHY SOCIAL CONTRACT?.....	18
3. COMPARATIVE GERMANY VS. BRAZIL.....	20
4. RESEARCH QUESTIONS AND HYPOTHESES.....	22
5. DESIGN OF THE THESIS AND OUTLINE	25
6. THESIS OVERVIEW	27
CHAPTER 2. THEORETICAL BACKGROUND AND ARGUMENTATION OF THE THESIS.....	30
1. INTRODUCTION	30
2. FLOWCHART OF THE CHAPTER	31
3. INEQUALITY	34
3.1. INEQUALITY: SOCIOLOGICAL DEBATES	35
3.1.1. MARX.....	37
3.1.2. WEBER.....	39
3.1.3. DURKHEIM.....	41
3.1.4. BOURDIEU	42
3.1.5. POST-CLASS ANALYSIS	43
3.2. DEBATES IN ECONOMICS AROUND INEQUALITY	44
3.3. WHY INCOME INEQUALITY: EQUALITY OF OPPORTUNITIES VS. EQUALITY OF OUTCOMES..	49

3.4. THE MEASUREMENT OF INCOME INEQUALITY	50
3.4.1. GINI INDEX & DISTRIBUTION RATIOS	52
4. SOCIAL CONTRACT	53
4.1. ORIGIN OF SOCIAL CONTRACT	54
4.2. SOCIAL CONFLICT AND CITIZENSHIP	59
4.3. INSTITUTIONALISATION OF THE SOCIAL CONTRACT: FROM CITIZENSHIP TO WELFARE STATES	61
4.4. WELFARE STATES.....	63
4.4.1. WELFARE STATE CLASSIFICATIONS.....	66
4.5. FORMALITY OF THE SOCIAL CONTRACT: SOCIAL EXPENDITURE AND SOCIAL SECURITY CONTRIBUTORS.....	70
4.5.1. SOCIAL EXPENDITURE.....	73
4.5.2. SOCIAL SECURITY CONTRIBUTORS	74
4.5.3. GERMANY AND BRAZIL: DIFFERENT EVOLUTIONS OF SOCIAL CONTRACTS.....	76
4.6. THE EFFECT OF EDUCATION ON INCOME INEQUALITY LEVELS.....	79
CHAPTER 3. COMPARATIVE GERMANY AND BRAZIL: ECONOMIC MODEL, REDISTRIBUTION POLICIES AND SOCIAL CONTRACT	82
1. INTRODUCTION	82
2. HISTORICAL SOCIOECONOMIC BACKGROUNDS.....	83
2.1. BRAZIL.....	85
2.1.1. 1950s – 1960s FOUNDATIONS OF STRUCTURALISM: ECONOMIC MODEL OF BRAZIL....	87
2.1.2. 1970s – 1980s: END OF STRUCTURALISM AND THE LOST DECADE	92
2.1.3. 1990s: NEW WAVE OF NEOLIBERALISM AND 1988’S CONSTITUTION.....	97
2.1.4. 2000s: PLANO AVANÇA AND PLANO BRASIL DE TODOS.....	101
2.2. GERMANY	104
2.2.1. HISTORICAL ROOTS OF THE GERMAN CME.....	107
2.2.2. BISMARCK ERA: FIRST CME	108

2.2.3. POST-WAR ERA: SECOND CME & NEW SET OF INSTITUTIONS.....	110
3. CONCLUSIONS	123
CHAPTER 4. METHODOLOGY.....	126
1. INTRODUCTION	126
2. COMPARATIVE STUDY	127
2.1. RESEARCH QUESTIONS: CASE-ORIENTED VS. VARIABLE ORIENTED STUDY	128
2.2. HYPOTHESES.....	130
2.3. LIMITATIONS OF THIS COMPARATIVE STUDY	131
3. OPERATIONALISATION OF THE CONCEPTS	132
4. DATABASES.....	136
4.1. INCOME INEQUALITY.....	137
4.2. SOCIAL EXPENDITURE.....	137
4.3. SOCIAL SECURITY CONTRIBUTORS	138
4.4. SECONDARY SCHOOL ENROLMENT.....	138
5. DESCRIPTIVE ANALYSIS OF WELFARE MODELS	139
CHAPTER 5. QUANTITATIVE ANALYSIS.....	141
1. INTRODUCTION	141
2. STATISTICAL TREATMENT: THE MULTIPLE LINEAR REGRESSION	141
2.1. DESCRIPTION OF THE REGRESSIONS AND INTERPRETATION OF THE PARAMETERS	143
2.2. ADDITION AND COMBINATION OF NEW VARIABLES	145
3. FIRST SET OF REGRESSIONS: GERMANY AND BRAZIL TOGETHER	149
4. SECOND SET OF REGRESSIONS: BRAZIL.....	158
5. THIRD SET OF REGRESSIONS: GERMANY.....	166
5.1. ALTERNATIVE SET OF REGRESSIONS FOR GERMANY: PERCENTILE RATIOS AS A DEPENDENT VARIABLE.....	169
6. SUMMARY OF THE RESULTS.....	185
6.1. BRAZIL AND GERMANY.....	185

6.2. BRAZIL.....	187
6.3. GERMANY	189
6.3.1 GERMANY: PERCENTILE RATIOS AS A DEPENDENT VARIABLE	190
7. CONCLUSION	192
CHAPTER 6. COMPARATIVE ANALYSIS BETWEEN GERMAN AND BRAZILIAN: KEY ELEMENTS OF THEIR WELFARE	194
1. INTRODUCTION	194
2. DIRECTION OF SOCIAL EXPENDITURE: WHERE SHOULD GOVERNMENTS SPEND THE SOCIAL BUDGET TO REDUCE INCOME INEQUALITY?.....	195
3. SOCIAL SECURITY AND SOCIAL ASSISTANCE: <i>WHO FINANCES THE WELFARE STATE?</i>	197
3.1. ORIGINS AND RECENT TRENDS OF SOCIAL SECURITY SCHEMES.....	198
4. SOCIAL EXPENDITURE AS A POLITICAL MATTER	201
4.1. PARADIGMATIC EXAMPLE: INTER-INTRA GENERATIONAL REDISTRIBUTION (A POLITICAL MATTER).....	201
5. BRAZILIAN AND GERMAN WELFARE MODELS	203
5.1. BRAZILIAN WELFARE MODEL	205
5.1.1. CALLS FOR THE RENEGOTIATION OF THE SOCIAL CONTRACT IN BRAZIL.....	209
5.1.2. UNIVERSALISM ELEMENTS IN BRAZILIAN WELFARE MODEL VS. LIBERAL ECONOMIC ELEMENTS	211
5.2. GERMAN WELFARE MODEL.....	211
5.2.1. DOES STILL GERMANY REPRESENT A CORPORATIST MODEL?	215
5.2.2. NEW SOCIAL CONTRACT IN GERMANY OR JUST AN EVOLUTION OF THE BISMARCKIAN MODEL?.....	216
6. WELFARE STATES IN DEVELOPED VS. DEVELOPING COUNTRIES	217
7. PRE-DISTRIBUTION DEBATE	223
7.1. ROLE OF EDUCATION AS A PRE-DISTRIBUTIVE POLICY	226
7.2. CONCLUDING REMARKS AND CRITICS ABOUT PRE-DISTRIBUTION	229
8. CONCLUSIONS	229

CHAPTER 7.- CONCLUSIONS OF THE THESIS	232
1. INTRODUCTION	232
2. RESEARCH QUESTIONS AND HYPOTHESES.....	232
3. ANSWERS TO THE RESEARCH QUESTIONS	233
3.1. EMERGING CONSIDERATIONS: LDCS VS. OECD COUNTRIES, CLOSING THE GAP?.....	235
4. LIMITATIONS & CONSIDERATIONS FOR FURTHER RESEARCH DIRECTIONS.....	236
BIBLIOGRAPHY.....	240
APPENDIX	257

ACKNOWLEDGEMENTS

Inequality in Latin America became an eminently important topic for me, ever since I participated on a university exchange programme in Aracaju (Brazil), which was in the last semester of my bachelor's degree in 2011. During this period it became obvious to me that there were and are high levels of inequality in different terms: income, gender, racial, geographical among others. This experience inspired me to research deeper into this matter. At the same time, I was overwhelmed by the richness of culture and its people. Hereby I officially also have to commit that I am a big fan of the Latin American mentality and astonished how the process of intercultural communication worked out well throughout the whole time in Brazil.

During the thesis of my Master's degree I have revised the literature since decolonisation after the second world war written by Latin American authors, to get into the causes and consequences of inequality in the Latin American region. One of the main motivations of this work was to understand the development theories coming not from foreign authors (usually Western), but from the same countries that suffer inequality issues. During the pursuit of solutions to the systemic problem of inequality in the region, I have come to experience the richness and quality of research on the topic, far from western recipes which, in most cases, overlooks Latin American contexts.

Of special importance for me was to give this thesis a different angle than the studies within similar regions by comparing the evolution of social contracts and their relation to income inequality in two very different countries. This risky comparison, even provocative for some, has supposed a challenge during the whole thesis. Yet, I feel personally satisfied by humbly contributing to the state of the art regarding welfare states in emerging countries, especially given the traditional western hegemony around this topic. For supporting my idea I would like to thank my tutor Dr. Marisol García who was not only of great help in the process of collecting and finding ideas before actually writing the thesis, but especially also throughout the whole time. She always gave me concrete, critical and helpful advices and responded not only quickly but also very accurately. Even when she did not directly have an answer, she found resources as well as other experts on the topic. Also, I would like to thank professor Dr. Juan Tugores, the director of the Master's degree in Internationalisation and my mentor in international sciences, for his invaluable help. He recommended Dr. Marisol Garcia as director of the thesis and helped us both with key elements of the thesis, such as the methodology or with the access to current debates in economy about inequality.

I am very thankful to the members of the supervisory commission: Dr. Marc Pradel, Dr. Aurelia Mañé and Dr. Ramón Ribera; who have contributed to the final result of the thesis with their feedback every year. For preparing and getting involved into the methodology part of thesis, I would like to thank Xavier Romero from the Leuphana University of Lüneburg, whose contributions on the regression analysis with STATA software were extremely valuable. As well as my colleague Renato Martín Lopez from the same sociology department of the University of Barcelona who gave me priceless feedback for the interpretations of the regression analysis. The expert advice from Dr. Oriol Angera has also contributed to the limitations and further analysis section.

Apart from the mentioned support, and during the process of writing the thesis, I had the opportunity to participate and present this research in different congresses: XIX ISA World Congress of Sociology and XIII Congreso Español de Sociología (Spanish Congress of Sociology), which both provided me with extremely valuable feedback from academics of different research backgrounds: Judith Muñoz, Dr. David Benassi, Dr. Enzo Mingione, Dr. Gibrán Cruz, Dr. Agustín Salvia and Dr. Ildelfonso Marqués among many others. I would also like to extend my thanks to Paula Libfeld who has helped me with the edition of the thesis.

Last but not least, I would like to express my appreciation and gratitude for the most important persons that supported me mentally and personally throughout the whole time. My partner Claudia Langer (also writing a PhD) for her professional advices and her constant support; my close friends for always listening to my problems, ideas and experiences, and finally my family who always gave me the strength, especially in the last period of the thesis. Everybody has been indispensable in their support, patience and encouragements.

LIST OF ABBREVIATIONS

BPC	Benefício de Prestação Coninuada (Continuous Contributive Benefit)
CIS	Centro de Investigaciones Sociológicas (Spanish Centre of Sociological Reserach)
CME	Coordinated Market Economy
ECLAC	Economic Commission for Latin America and the Caribbean
EU	European Union
FLACSO	Facultad Latinoamericana de Ciencias Sociales
FRG	Federal Republic of Germany
GDP	Gross Domestic Product
GDR	German Democratic Republic
IFS	International Financial Statistics
ILO	International Labour Organisation
IMF	International Monetary Fund
IPEA	Instituto Pesquisa Econômica Aplicada (Research Institute of Applied Economics)
ISI	Import Substitution Industrialisation
LDC	Less Developed Countries
LME	Liberal Market Economies
MDGs	Millennium Development Goals
MTPS	Ministério Do Trabalho E Previdência Social (Ministry of Labour and Social Security)
OCM	Organised Capitalism Model
OECD	Organisation for Economic Co-operation and Development
PAYGO	Pay-As-You-Go
PNAD	Pesquisa Nacional por Amostra de Domicílios (National Sample Household Survey)
PPP	Purchase Parity Power

PREALC	Programa Regional del Empleo para América Latina y el Caribe (Regional Employment Programme for Latin America and the Caribbean)
SEDLAC	Socio-Economic Database for Latin America and the Caribbean
SIAFI	Integrated System of Financial Administration (Brazil)
SDGs	Sustainable Development Goals
TTIP	Transatlantic Trade and Investment Partnership
UK	United Kingdom
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
US	United States
WID	World Wealth and Income Database
WWI	World War One
WWII	World War Two

LIST OF TABLES

Table 1. Dimensions of Inequality according to Asset Groups	35
Table 2. Scheme of Analysis for Social Inequality	37
Table 3. Marx Scheme of Social Inequality.....	38
Table 4. Weber Scheme of Social Inequality	39
Table 5. Durkheim Scheme of Social Inequality	41
Table 6. Bourdieu Scheme of Social Inequality	42
Table 7. Earnings from work	48
Table 8. Earnings from Capital	48
Table 9. Political Economy Evolution for Brazil	85
Table 10. Political Economy Evolution for Germany	104
Table 11. Summary of the results Brazil and Germany	151
Table 12. Summary of the results Brazil	160
Table 13. Summary of the results Germany	168
Table 14. Summary of the results Germany ratio P90/P10	171
Table 15. Summary of the results Germany ratio P90/P50	176
Table 16. Summary of the results Germany ratio P50/P10	184

LIST OF FIGURES

Figure 1. Flow Chart of the Chapter 2	32
Figure 2. Concept of Inequality	33
Figure 3. Variable and Indicator of Inequality	33
Figure 4. Dependency Relation of Inequality & Social contract	33
Figure 5. Concept of Social Contract	34
Figure 6. Variables and Indicators of Inequality	34
Figure 7. Cases of Study	34
Figure 8. Bourdieu’s Social Structure Scheme	43
Figure 9. Esping-Andersen Welfare Matrix	68
Figure 10. Income Inequality Rates (Gini Index) for Brazil and Germany (1990-2014)	77
Figure 11. Concepts, variables and sources	133
Figure 12. Design of the study	142
Figure 13. Welfare States models according to entitlements, finance and extension	204
Figure 14. Summary of the evolution of the Brazilian welfare model (1990-2015)	205
Figure 15. Evolution of the main social expenditure budget allocations in Brazil	207
Figure 16. Evolution of health expenditure (% total social expenditure), social assistance (% total social expenditure) vs. social expenditure (%GDP) in Brazil	208
Figure 17. Social Assistance and Social Security Expenditure vs. Health and Education Expenditure in Brazil	210
Figure 18. Summary of the evolution of the German welfare model (1990-2015)	212
Figure 19. Social security budget allocation (unemployment, old age, health expenditure) vs. social security contributors in Germany	214
Figure 20. Social security vs social assistance expenditure in Germany	216
Figure 21. Social Security Contributors vs. GDP in Brazil	218
Figure 22. Social assistance in Germany and Brazil from 2000 to 2013 (% of the total social expenditure)	219

Figure 23. Social security expenditure vs. social security contributors Brazil.....	220
Figure 24. Brazil Social Assistance vs. Social Security Expenditure	222
Figure 25. Evolution of the percentile ratios in gross salaries in Germany	225
Figure 26. Brazil: % of Education Expenditure vs. Total Social Expenditure	227

CHAPTER 1. INTRODUCTION

Recently, inequality has been recognised as a more pressing issue than ever before, especially since they have been named the most likely global risk by the World Economic Forum and the International Monetary Fund (IMF), as pronounced by its chairwoman Christine Lagarde (2014).

Income inequality rates have steadily been increasing for the past three decades (Milanovic, 2011). However, it was not until 2008, the moment the global financial crisis showed the perverse consequences of the dualization of the national societies, when most influential institutions put inequality at the centre of global debate. On January 17, 2014, inequality reached the first position in a ranking carried out by the World Economic Forum on global risks for the second year in a row (2014).

Reputable international organisations, such as the Organisation for Economic Co-operation and Development (OECD) and the Economic Commission for Latin America and the Caribbean (ECLAC) have revealed in their respective works “Structural Change for Equality: An Integrated Approach to Development” and “Divided We Stand: Why Inequality Keeps Rising,” that although the tools actually do exist to tackle inequality, policy-makers have not been able to implement effective policies to face this phenomenon (ECLAC, 2012) (OECD, 2011). The global financial crisis has put socioeconomic inequality in the centre of the debate. According to reputable economists such as Joseph Stiglitz, the stagnation of workers' wages on the one hand and the incidence of patrimony among the wealthiest on the other, constitute two of the main causes of the growth in inequality, which was further fuelled by indebtedness and speculation before the financial bubble burst. People with medium-low income paid for this more than any other group, especially in those countries in which a policy of austerity has been undertaken (Crouch 2011) (Atkinson, 2015). High unemployment rates, the decrease of real wages, and a long recession were the consequences of this policy. After the reopening of the casino, so to speak, and next boom in stock markets with the help of central banks, inequality still increases in practically every country.

Even IMF economists, traditionally known as one the most orthodox economic institutions, have written about inequality in these terms: “Because crises are costly, redistribution policies that prevent excessive household indebtedness and reduce crisis-risk ex-ante can be more desirable from a macroeconomic stabilization point of view than ex-post policies such as bailouts or debt restructurings” (Kumhof et. al, 2010: 3). Conversely, other IMF texts demonstrate the relation between low inequality levels and the robustness of economic growth (Berg et. al, 2011).

The recent crisis has changed the way we look at inequality. Decades ago inequality was characterised as an incentive to increase economic performance; it was not seen as a problem but as a requirement to obtain economic growth. Currently, inequality is not seen as a solely social phenomenon, but is also perceived as an economic issue which negatively influences economic performance¹. In EUA since 2009, 95% of all the increases of incomes are gained by the richest 1% of the population (Stiglitz, 2013). This fully coincides with other similar trends: between 1976 and 2007 the same highest proportion had secured 58% of the increases of incomes (Atkinson et al., 2011). However if one looks at patrimony distributions, inequality figures are far greater than income distribution. Almost half of the worldwide patrimony belongs to the richest 1% of the world (Credit Suisse (2018)). Despite these pieces of evidence, economic growth and material well-being of most of the population are two concepts which are clearly: which are often treated separately in contemporary discourse.

The main aim of this study is no more than to shed light on the role of social contract in inequality rates. This is undertaken through a comparative study between two paradigmatic examples, namely Germany and Brazil, whose income inequality levels are dramatically different: On the one hand, (a) in Germany, the richest 5% earn 4.5 times the income of the poorest 20%, performing far better than the rest of the world on average. (Dauderstädt/ Keltek, 2011). (b) On the other hand, in Brazil the numbers look radically differ from the German ones. Branko Milanovic (2011) analyses the position every ventile of the Brazilian population compared with the world income distribution. The results demonstrate that Brazil contains almost the full spectrum of income populations from the poorest to the richest worldwide, however, the proportion of poor Brazilians is much larger than the middle and upper ones. For example, Milanovic (2011) states that just 50% of the Brazilian population is richer than the poorest 5% in the US.

Despite these differences in terms of income inequality, if one looks at the figures in relative terms the picture changes. Brazil has been able to reduce income inequality since 1990 while Germany has experienced the opposite trend. Figure 10 shows that the difference of the Gini coefficient has steadily been reduced by almost 0.1 points from 1990 to 2014 in Brazil. The surprising and even provocative statement that Brazil has performed better than Germany, the former being one of the paradigms of the welfare state and the latter one of the most unequal countries in the world, represents one of the main reasons to study the causes of this phenomenon.

¹ As it has been pointed out by economic institutions such as IMF by its chairwoman Christine Lagarde (2014).

1. CAUSES OF INCOME INEQUALITY

How can income inequality be reduced? There is a vast literature regarding this topic. One of the most recent studies: *Global Inequality: A New Approach for the Age of Globalization*, undertaken by the influential Branko Milanovic (2016), former Chief Economic Director of the World Bank, brings out an updated and thorough view of the current situation of income inequality worldwide, as well as its main drivers. However, this same author stated in a recent interview: “The new solutions against income inequality are not invented yet.”² According to this view the traditional approaches combating inequality are not effective anymore in developed countries, however they could work in developing countries. While it is true that global inequality between countries has been extraordinarily reduced, inequality within countries is steadily increasing. The richest are richer whereas the poorest are poorer. Furthermore, Milanovic (2016) argues that education is perhaps the only serious determinant of inequality that remains important to improve income distribution. He stresses the fact that this is not a matter of quantity but quality, above all in developed countries where universal education is already massively extended and young people must stand out among their peers to overcome the barrier of poverty. By contrast, redistribution of income through taxation does not have much margin of manoeuvre, since the middle-class is already straining under the limits of this pressure. Furthermore, the misuse of public funds may increase the unrest of taxpayers.

Other authors, such as the sociologist Wolfgang Streeck (2016) goes even further in respect to the causes of increasing inequality within countries, especially in the developed countries during the last two decades. He shows intrinsic reasons to justify the *systemic* high inequality rates, directly correlated with the characteristic institutions of capitalism which serve and are made around the market. In his last book, *How Will Capitalism End?* he anticipates the end of capitalism. According to him, the protagonistic role of capital after the victory of capitalism at the end of the Cold War is undermining the relation between democracy and capitalism which has been seen as the predominant socioeconomic paradigm or model since then. He states that “before capitalism goes to hell, it will remain in limbo in the near future, dead or close to it due to an overdose of itself but still kicking, because no one will have the power to remove the decomposing corpse” Wolfgang Streeck (2016). According to him, the systemic inequality is so high that the implicit agreement, in

² Retrieved from *El País* newspaper: http://elpais.com/elpais/2017/04/09/planeta_futuro/1491760474_036764.html

terms of social contract, between the middle class and the richest is about to break down. The proportion of wealth of the latter is increasing to a greater extent than most of the society from which they obtain their wealth. The main problem is that this marriage of democracy and capitalism is coming to an end because the power of redistributing the resources is not in the hands of national governments. Instead, it rests on international institutions and central banks, all of which exist within an opaque sphere in comparison to the public sector which is subjected to public scrutiny (Streeck, 2016).

2. WHY SOCIAL CONTRACT?

The concept of social contract comprises two counterparts: the state on the one hand and the citizen on the other. This simple but powerful fact is one of the key arguments of the thesis' reasoning. If the social contract may affect the income inequality of individuals and citizens who participate in the social contract, in a democratic country its citizens may have certain margins within which they can affect income inequality. In other words, Brazilians and Germans are affected by the income inequality of one another's country, however, they theoretically have the power to change it³. Hence, the results of this logic are remarkably interesting due to its link with politics. It is paradigmatic of how every country reacts politically in different ways in regard to inequality rates and their different consequences. For instance, while in one country with low rates of inequality, politicians might be punished, in another with a higher degree of inequality politicians might be approved or legitimised by its citizens. The conception of social justice is intrinsically linked with these phenomena. The origin of social contract departs from the Rousseau's concept of natural law related to this concept of social justice. In Germany, for example one headline of a reputable newspaper states: "The battle over perceptions of inequality and justice could be at the heart of September's national election"⁴. This in a country whose income inequality rates have been historically low, especially compared to developing countries such as China, India, or Brazil (UN, 2013: 36). Still, the Germans' feeling that theirs is a society of social justice is declining dramatically. This dilemma about income inequality and its perception by the citizens brings up the question:

Why is the social contract not broken yet in a country with high level income inequality rates, such as Brazil, yet in Germany, with much lower degree of

³ Considering a perfect democracy, complying with freedom and transparency standards.

⁴ Retrieved from Aljazeera: <http://www.aljazeera.com/indepth/features/2017/04/germany-booming-left-170409073343721.html>. Date of consultation???

inequality, the social contract is experiencing an increasing stress with political and social tension and unrest?

Many authors have tackled economic inequality and have tried to understand the causes of income inequality rates (Atkinson, 2015; Piketty, 2014; Niehues, 2010; Anderson, D'Orey, Duvendack, & Esposito, 2017; Rudra, 2004). The socioeconomic institutions that define a specific welfare state of a country according to Esping-Andersen are family, market, and state. This set of institutions that define the welfare state of a country evolve together with the concepts of social conflict and citizenship. Therefore, the evolution of the configuration of social contracts is explained with the dynamics of social conflict and citizenship up to the present, taking welfare state policies as the outcome of the social contract. In line with research on welfare states, this thesis follows a new current of studies regarding the welfare states in emerging countries.

This study focuses on both: (a) the formal character of the social contract, in other words, how the division between population under formal versus the ones in informal conditions affects income inequality; and (b) the configuration of social contract through welfare state policies as a key determinant of income levels in a country. Within the welfare state, I analyse the institutions that shape the social contract and their function as a welfare provider to understand their redistributive character, as measured by a quantitative study and a descriptive analysis. Social security systems, generally, are based on contributory benefits whose entitlement is related to the contribution to the social security budget. On the contrary, social assistance policies are based on citizenship and/or need and put the focus on the poorest strata. Thus, to measure the degree of formality of the social contract I chose two variables: public social expenditure and social security contributors; both variables are used as the explanatory variables for income inequality, the dependent variables.

Later, I undertake a descriptive study using the welfare state classification of Esping-Andersen (1990) to explain the results of the quantitative study. I define the different welfare state institutions of both countries through their financing (who pays it) and entitlement (who benefits from it). The main goal of this analysis is to understand the effect of the variations in the welfare policies in different contexts of development (very different cases). But it is also to understand the dynamics of welfare states within each country from 1990 to 2016.

- Similar approaches from social contract

My proposition regarding the determinants of income inequality differs from other studies that describe the relation between social contract and inequality. Here I show other studies that have contributed to this topic:

Firstly, while on the one hand, generally workers who have access to collective bargaining experience an increment in their salaries, those who are underemployed or working in precarious labour markets suffer consistent decrements in their real income (Stockhammer, 2013). On the other hand, the rents from capitals have been steadily growing since 1980 to a higher degree than the real economy, resulting in greater patrimonial concentration and reduction of middle class (Piketty, 2014)

Secondly, other authors such as Stiglitz (2013) mention that welfare levels and economic growth may not necessarily be correlated. For instance, taking the United States as the paradigm of developed countries, since 2009 95% of the increments in income are concentrated in the richest proportion of the population. But this trend is not only present in the United States; a study undertaken by Credit Suisse (2018) demonstrates that the richest percentile of ODCE countries overall have had their income increase unequally.

Finally, fiscal and redistribution policies have not been able to soften the above mentioned divergences to the same proportion. It is a fact: tax rates coming from capital income are far lower than the ones coming from work. In Germany, for example, the rate for the former is 25% whereas the maximum rate for the latter is around 45%. The difference is even higher when accounting for patrimony and work taxes, the wide range of possibilities regarding tax evasion, and fraud. Some studies mention that the richest 85 people worldwide possess more patrimony than half of the global population (Oxfam, 2013) and the income from the richest 1% of the population is equal to the poorest 50% (Credit Suisse, 2018).

3. COMPARATIVE GERMANY VS. BRAZIL

The question, *inequality of what?* is particularly relevant when introducing a comparison between Brazil and Germany, given the notable contrast between them regarding Sen's idea of functionings and capabilities⁵. One person, in order to achieve a certain level of wellbeing does not enjoy the same number of functionings in Germany as they might in Brazil. For example, the macroeconomic performance of one or another country has influence over the wellbeing of their citizens. Interest rates and inflation during the last two and a half decades (considering the time frame of the present

⁵ Functionings are defined by Sen as the set of beings and doings that constitute the well-being of a person. On the other hand, capability represents the aggregate of functionings that the person can, in fact, reach. This set of vectors of functionings indicate one's freedom to have one kind of life or another. Nevertheless, the capability to achieve functionings will show a person's freedom to reach his or her feeling of wellbeing (Sen, 1992: 5).

thesis) varied widely between Brazil and Germany. While for the latter the inflation has evolved with relative stability, for the former it has been the central issue because of its unprecedented growth during the early 1990s, regardless of the attempts of the government to control it by increasing interest rates that affect private consumption rates, which in turn affect the wellbeing of Brazilians. Sen (1992) highlights this trade-off between freedom and wellbeing, and he puts the focus on countries instead of individuals as a subject of study for inequality, raising political implications regarding this issue. These political aspects⁶ refer to the capability (also called entitlement) of a citizen to enjoy certain arrays of goods or benefits (functionings) solely because of their nationality. Even though the absolute wealth of a country may, to some extent, influence the amount of functionings or benefits their citizens may enjoy, the principle of equality of opportunities rests mainly on political decisions, in relative terms.

Much has been written about welfare states in developed countries by authors such as Titmuss (1947); Esping-Andersen (1990) (1999); Pierson (1998); Gough et. Al. (1997); Mishra (1999); Korpi & Palme (1998); Ferrera, Hemerijck & Rhodes (2001); Pierson & Castles (2000). However, the welfare classifications created by Titmuss (1947) and later, Esping-Andersen (1990) only fit developed countries. Latin American countries do not necessarily fall into these welfare classifications since they have developed more heterodox ways of facing the socioeconomic inequalities in which they have fallen since the early 1980s, also called the lost decade. Brazil is an example that shows one of the sharpest declines in income inequality terms from 1990 to the present, despite the remaining huge gaps between the different spheres of their society. Brazil has achieved this through a hybrid model named liberal neo-developmentalism (Cornel, 2013) which does not purely fit into any category of the western classification of welfare states provided by Titmuss (1947) or Esping-Andersen (1990). On the other hand, Germany, as one of the pioneers of the welfare state along with Bismarck, still represents the paradigm of the corporatist welfare model, according to Esping-Andersen (1990). However, when external and internal shocks, such as unification and globalisation, hit the German socioeconomic structures, income inequality steadily increased from 1990 until 2004 (OECD, 2016) (Eurostat, 2017). These opposite trends in income inequality terms, Germany being a paradigm of the welfare state unlike Brazil, one of the world's most unequal countries, raises one's interest in determining the reasons for this unexpected phenomenon.

The selection of Germany and Brazil was in response to some similarities that render them comparable: (a) during the time-frame chosen for this study, from 1990 to 2016, both have faced

⁶ Developed in Chapter 2, section 3.2. Debates in Economics around Inequality.

internal shocks. In 1989 Brazil enjoyed its first year of democracy after 29 years of dictatorship, and the first elected government, with Fernando Collor's administration, faced a difficult economic situation characterized by hyperinflation and stagnation inherited from the lost decade. In Germany, the reunification of the country took place in 1990 and it has posed a tremendous challenge to the country that even today, in 2018, still needs to be overcome as demonstrated by the fact that the general tax *Solidaritätszuschlag*⁷ remains in place. (b) Both are the most populated countries in their respective regions, Europe and Latin America. Therefore both are representative of their regions in quantitative terms if one extrapolates the results to their respective regions. In Chapter 2 historical backgrounds of Brazil and Germany are described with the touchpoints that sustain the argument for the comparison of these two countries is relevant given recent history.

While it is true that the comparison of these two very distinct countries present a challenge and some limitations are going to be difficult to overcome, all the data needed for the study is treated by the author to make the information comparable and thus does not compromise the reliability of the analysis.

4. RESEARCH QUESTIONS AND HYPOTHESES

Two different socioeconomic models of social contract are being compared in this thesis. While social security policies have traditionally been more important for Germany in improving inequality levels after the reunification process, social assistance policies seem to have been more important for Brazil in tackling the systemically high levels of income inequality. The first research question is focused on the effect of the independent variables, namely social security contributors and social expenditure, on the explained variable, income inequality. For this purpose, the statistical model is applied to Brazil, Germany, and both together as a case study. The answer to the following research question will shed light on the formality of social contracts:

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

However, by answering this first question, the effects of social contracts in income inequality, when analysing different institutional contexts, remain unclear. Correspondingly in the second research question, Germany and Brazil are analysed separately to analyse the influence of these variables in

⁷ Solidarity surcharge: Introduced in 1991 to fund the rebuilding of East Germany after reunification, it was supposed to be temporary but there is no agreement on when to end it yet.

their national institutional configuration. The second research question is not only variable, but also case oriented. This shall clarify, which of the two welfare approaches is more effective in terms of redistribution:

To what extent may the lessons from a developed country such as Germany, which is a paradigm of the corporatist welfare state, be applied to Brazil to reduce its high income inequality levels?

In order to answer this question, two very different approaches of welfare state policies from Brazil and Germany are taken to study their impact on income inequality from 1990 to 2016. On the one hand the (a) Corporatist-welfare model, represented by Germany (Esping-Andersen, 1990), and on the other hand; the (b) hybrid between a Residual and Universal model (Cornel, 2013). Both have been proven to possess advantages and drawbacks regarding their impact on income inequality:

- (a) The social contract in Germany rests on the Corporatist-Statist welfare approach (Esping-Andersen, 1990). This welfare model derives from the Coordinated Market Economy which has characterised Germany since WWII, which is based on a strong job market characterised by high added value industry, as well as a high wages model (Streeck, 1995). During the following two and a half decades, most of the employment offered by the system was under these conditions and people not covered or included by this model were assumed as collateral damage and covered by the welfare state benefits, including health and education (Streeck, 1995). The generous welfare state model of Germany was financed mainly by employers and workers and was only affordable so long as the country kept its high level of employment and decent growth rates. After the shock of the re-unification in the 1990s, rising competition due to globalisation, and later the financial crisis in 2007, growth rates substantially decreased, especially in comparison to the former thirty glorious years denominated by the *Wirtschaftswunder* (Economic Miracle). This phenomenon together with the growing proportion of the elderly in the population provoke strain on the welfare system, with a lot of people finding themselves outside of the high-skills high-wages model, either unemployed or working in lower conditions (Leisering, 2000) (Allen, 2010). The unemployed do benefit from the welfare system. However, the system can not provide the same social services as it had in past years because the number of contributors, and therefore the re-distribution budget, is lower. To sum up, even though the welfare system still *works* in Germany the duality of social contracts within the country has increased income inequality and thus social unrest and political tensions have arisen.

(b) The other model identified to articulate the social contract is a mix between the citizenship basic goods approach used in Brazil and a strong contributory social security system, which benefited the Brazilians working in the formal labour market. The formal social contract in Brazil has traditionally represented a substantial portion of the social budget, although only a small proportion of the total society benefited from it (IPEA, 2016a) (MTPS, 2014). Apart from those just mentioned, the high level of informal economy has left the majority of people out of the social security system. This results in dependence on non-contributory subsidies and public services such as health or education, which perpetuate the situation of the worst-off of the population (Fleury, 2017). In 1990, the strategy of the newly elected government paid more attention to poverty alleviation policies than its predecessors. In order to improve inequality rates, and despite the remaining differences between social security and social assistance expenditure, there was an increase in social policies based on means testing, bringing 25.4 million Brazilians out of extreme poverty⁸ between 1990 to 2015 (World Bank, 2018a).

Three hypotheses of this thesis are related to the set of social policies used in each country, namely the corporatist and the basic goods approach in income inequality terms. Germany represents the characteristics of a developed country and Brazil represents the Latin American socioeconomic structures:

H1: Generally, an increase in the social budget⁹ is important in reducing income inequality. However, the direction of the social expenditure determines the effect of this measure. The social policies based on the formal social contract, which are focused on the middle-working class working under the formality conditions, are predictably more effective in income inequality reduction than the residual ones. However, non-contributory social policies with low levels of social security contributors may improve inequality in high poverty contexts with a significant number of citizens living under informality conditions.

H2: Using the Esping-Andersen's welfare classifications (1990), the corporatist welfare model is effective in reducing income inequality as long as the formal labour market remains strong in the country. The combination of both elements has proven very effective for Germany, as it has enjoyed one of the lowest income

⁸ Number of poor at 1.9\$ a day.

⁹ According to the OECD (2018) definition of social expenditure.

inequality levels by following this Bismarckian approach after WWII until the late 1980s when the reunification happened. While the hybrid welfare model of Brazil, which pays more attention to the poor, has been characteristic of capitalist societies. And traditionally the most capitalist societies, such as the US, represented arguably the most unequal ones among the developed countries. While, at the same time, Brazil maintains a public social security system whose beneficiaries do not represent the whole working class of the country due to the high levels of informality.

H3: The socioeconomic structures, in terms of development, suppose a determinant for income inequality when the same welfare model is followed by different countries. In a context of high levels of informality, such as Brazil, residual policies may reduce income inequality levels until a certain level of formality is reached, then a corporatist welfare model might be more effective in reducing income inequality levels.

5. DESIGN OF THE THESIS AND OUTLINE

This study belongs to the body of literature that tries to identify the determinants of income inequality through a cross-national comparative institutional perspective. These kinds of comparisons are less studied, probably because of endogeneity problems (Niehues, 2010). Comparative analysis has always been a universal method in the social sciences, and in a broad sense, all social-empiric analysis is comparative in some way. In particular, the term comparative analysis has been used for large macrosocial units, in the case of this study the macrosocial units are the nations Brazil and Germany. The more specific discipline within the social science sphere, comparative social science, encompasses the cross-societal differences and similarities (Ragin, 1987).

For the quantitative study, Germany and Brazil represent the cases of this longitudinal comparative study, which are analysed from 1990 to 2016, or the latest data available depending on the source of the database. The concepts of the study, which have already been introduced, have to be converted into variables to undertake the quantitative analysis and this operationalisation process is done as follows¹⁰: (a) The dependent variable, income inequality, is measured by the Gini index

¹⁰ Figure 12 shows a visual representation of the design of the study.

composed by different indicators. (b) The concept of social contract is measured through two variables, social expenditure and social security contributors, which represent the explanatory variables. (c) Also, a control variable is added to the analysis to test the inference between the independent variables and the explained one and solving problems of endogeneity of the regression study. Education as the control variable is measured by the secondary school enrolment indicator.

The dependency relation between the explanatory variables together with the control is tested through a multiple linear regression. This statistical model is commonly used to test the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Specifically, the chosen model is the linear regression with panel-corrected standard errors, which is used by the STATA software to analyse the relation between the chosen variables. "The xtpcse is an alternative to feasible generalized least squares (FGLS) for fitting linear cross-sectional time-series models when the disturbances are not assumed to be independent and identically distributed (i.i.d.). Instead, the disturbances are assumed to be either heteroskedastic across panels or heteroskedastic and contemporaneously correlated across panels. The disturbances may also be assumed to be autocorrelated within panel, and the autocorrelation parameter may be constant across panels or different for each panel"¹¹. This model is chosen in order to try to resolve the limitations that may arise from the nature of this study: a longitudinal analysis with a small number of cases.

The descriptive study, undertaken in Chapter 5, attempts to give an explanation for the results of the empirical study from Chapter 4 by analysing the following elements: the direction of social expenditure (*how to spend the social budget*) and the finance of this social budget (*who contributes to the welfare state*). Social expenditure allocations are divided and analysed through a longitudinal study from the early 1990s to the mid-2000s to understand the modifications in the social expenditure function in both countries. Afterwards, the different components of the social budget are classified from a sociological perspective following the so-called welfare classification of Esping-Andersen (1990). This descriptive analysis frames the results of this study within the current debates about the different outcomes of a welfare model in one and another socioeconomic context, especially within the discussions between less developed and OECD countries.

¹¹ Retrieved from: <https://www.stata.com/manuals13/xtxtpcse.pdf>

6. THESIS OVERVIEW

The first Chapter after the introduction of this thesis (Chapter 2) presents the conceptual architecture of the thesis. In this Chapter I delve into the main concepts of this dissertation and the current debates around them. The main concepts developed and analysed during the first part of the thesis are: inequality, social contracts and welfare states. From these primary concepts there are other secondary ones that are more specific: income inequality, social conflict, citizenship, and welfare states in emerging countries. Also, I introduce the main indicators to be used to measure these concepts during the thesis. The Chapter unfolds in this way: First, the relevance of income inequality is highlighted as the dependent variable of the study as well as its desirability (or not), different kinds of income inequality and its measurement; Atkinson, Piketty and Amartya Sen are among the main references. Then, origins of the concept of the social contract is explained, starting with the philosophers Rousseau, Home and Locke. Then I revise the Esping-Andersen's welfare classification. Lastly, the new concept of welfare states in emerging countries is explained through references to its main figures, such as Fernando Filgueira and Juliana Martinez.

In the following Chapter (Chapter 3), a historical analysis of the evolution of the socioeconomic models in both countries is undertaken. First, the historical sequence will be divided into the most relevant periods that later will be analysed in detail. The main aim of this Chapter is to contextualise the analysis in both countries and to provide a solid background analysis of both countries that may help in understanding the current social contract and income inequality outcomes. To follow a logical pattern, the dichotomy presented in the book *Varieties of Capitalism* by Hall & Soskice (2001) between Liberal Market Economies (LME) and Coordinated Market Economies (CME) serves as a guiding tool to analyse and understand the German model. This reasoning is also followed by Wolfgang Streeck, Kathleen Thelen (2005) and Christopher Allen (1997), being that Germany is repetitively named as exemplifying the paradox of CME, as opposed to Anglo-Saxon countries such as the UK or US. The Structuralism current of thinking, first named by Raul Prebisch after WWII, is the central threat that guides the analysis of Brazil. Structuralism put into question the equality of international free-trade relations encouraged by Western countries, since primary-export countries lose against more industrialised regions (Prebisch, 1962).

After the historical analysis, I start with the core of the empirical analysis in Chapter 4 and Chapter 5. First, I show the design of the study. Given the fact that this thesis is defined as a comparative study, throughout Chapter 4 I frame this thesis within the spectre of comparative studies in sociology, in this case it will be defined as an apple and oranges comparative study. Moreover, the

election of both variable oriented as well as case oriented studies¹² is explained since they answer different research questions. Then, I go through the operationalization of the concepts, namely income inequality, social contract, and education. Thereafter, datasets used for the study are named as are the amendments to make them suitable for the empirical study. Lastly, the limitations of this methodology are highlighted. In the same line, in Chapter 5 the empirical analysis is undertaken. First, the specific formula and the different elements of the regression are described so that the results may be interpreted. Then the lagged and lead variables are named and explained before the analysis is conducted. Lastly, a first general summary of the results is presented to the reader with the most striking points emphasized, and the gross results from every regression is also shown in the appendix.

Once the results of the empirical study are shown, in Chapter 6 they will be interpreted through a more in-depth analysis of the welfare states of both countries. Specially, I focus on the direction of social expenditure (*how to spend the social budget*) and the finance of this social budget (*who contributes to the welfare state*), social security contributors or taxpayers. Social expenditure allocations are divided and analysed from the early 1990s to the mid-2000s (depending on data availability) to understand the modifications in the social expenditure function in Brazil and Germany. All the different components of the social budget are descriptively classified from a sociological perspective following the so-called welfare classification of Esping-Andersen (1990). Through this analysis I aim to explain the results of the empirical study, but also the dynamics in welfare state policies in both countries. The main aspects of welfare policies that I tackle during this Chapter are related to: (a) the social security versus the social assistance policies, (b) the in-kind versus the cash transfers social policies, (c) the entitlements of social policies, (d) the financing of social policies and, (d) the different effect of social policies according the degree of development.

Lastly, in the Conclusions section of this thesis I include the main contribution it makes, its limitations, and considerations for further studies. Chapter 7, therefore aims to provide the main contribution of this thesis to current debates around welfare studies and above all the welfare state in emerging countries. Additionally, I show the most striking points from the empirical and the descriptive analyses to answer the research questions of this thesis and test the hypothesis stated at the beginning of the thesis. I conclude with some recommendations for further research related to the limitations of the dissertation which are also mentioned at the end of this Chapter.

¹² A variable-oriented study aims to generalise relations between variables. A case-oriented study aims to understand the complexity of the case.

CHAPTER 2. THEORETICAL BACKGROUND AND ARGUMENTATION OF THE THESIS

1. INTRODUCTION

The main aim of this Chapter is to show the reader the conceptual framework in which this thesis is based on. This task is extremely important not only for procedural reasons but to frame this thesis within the current debates in the social sciences. The vast literature about the two concepts namely, inequality and social contract, represent opportunities as well as challenges for the author. On the one hand, the topic of inequality has traditionally been discussed at length by social scientists due to the relevancy of the topic throughout modern history, especially since the industrial revolution and the beginning of capitalism as it is currently known. The social contract has also been widely discussed since the philosophers Hobbes, Hume, and Rousseau started to deal with these issues. On the other hand, it is a challenge to try to fill a gap within the ocean of literature regarding both concepts and the relation between them. This thesis does not pretend to be more than a modest contribution to this debate.

In this Chapter the concepts are described one at a time, starting with inequality. There is an interdisciplinary character to inequality, as both sociologists and economists have spilled much ink discussing. While it is true that sociology has been more prolific in discussing the dimensions of inequality, economists, traditionally reluctant to discuss topics outside of the market, have recently focused on the concept of inequality, its causes and consequences. Furthermore, in this Chapter I outline the operationalisation process of inequality, from the concept to the variable, and I will justify why I take the Gini Index as the indicator to measure income inequality.

Then, the concept of the social contract will be described as a determinant of income inequality. The philosophical origins of the concept will be traced through to the construction of the current institutions of social contract, namely welfare states. The institutions that shape the social contract are the pillars of this analysis, particularly their function as a welfare provider and their redistributive character. This set of institutions represent the result of an historical evolution that may be interpreted through different angles. The evolution of the configuration of social contracts is undertaken following the rails of social conflict and citizenship up to the present when welfare states represent the maximum manifestation of the social contract. Within the welfare states section, I highlight the emergence of a new current of studies regarding the welfare states in emerging countries. The following section delves into the formality character of the social contract, given the fact that this thesis classifies welfare states according to their degree of formality and social

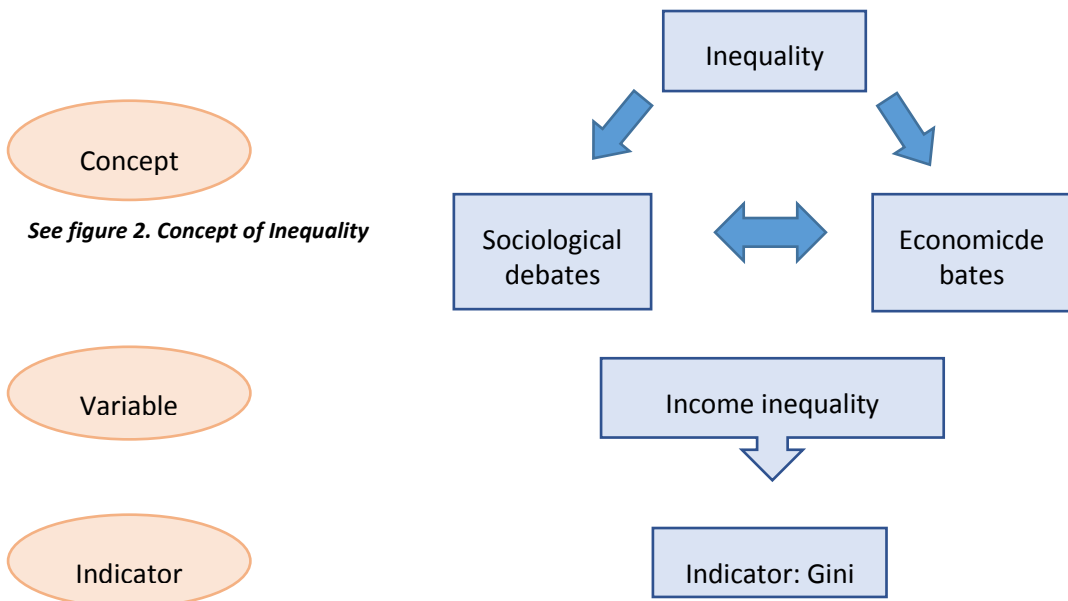
expenditure. Lastly, I show the way in which I measure the complex concept of social contract through the two variables, namely social expenditure and social security contributors. I will explain why I take these two variables. At the end of the Chapter, I argue why I chose education as a control variable for the analysis in this thesis. Education is assumed to be a driver of socioeconomic equality by both economists and sociologists, and I show the arguments for this from the perspective of social scientists belonging to each of those disciplines to support this assumption.

2. FLOWCHART OF THE CHAPTER

I start the Chapter with a flowchart in order to show its structure to the reader. By doing this I try to facilitate the comprehension of the conceptual framework of the thesis. This flowchart is divided into two parts: (a) the general summary of the concepts to be used in this thesis. (b) A brief explanation of the operationalisation process from the concepts to the variables, to advance the elements to be further developed.

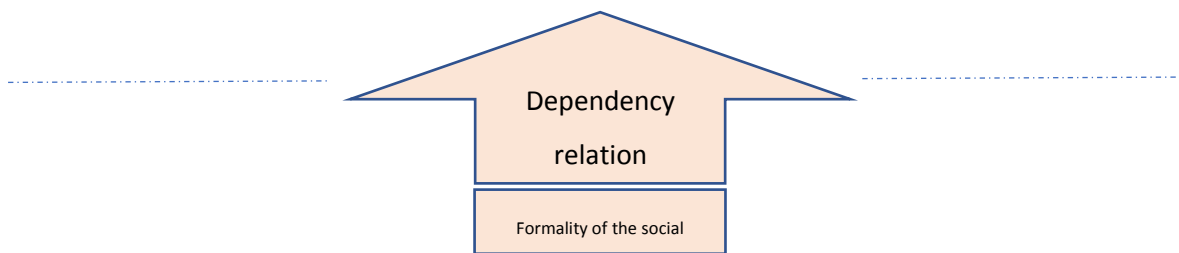
As the main concepts of this thesis are inequality and social contract, I start by defining the two concepts and I subsequently show the way to measure these concepts through the chosen variables and indicators. I name the most significant elements such as the authors, the questions to be answered, the cases of the study, and the dependency relation between concepts.

Figure 1. Flow Chart of the Chapter 2

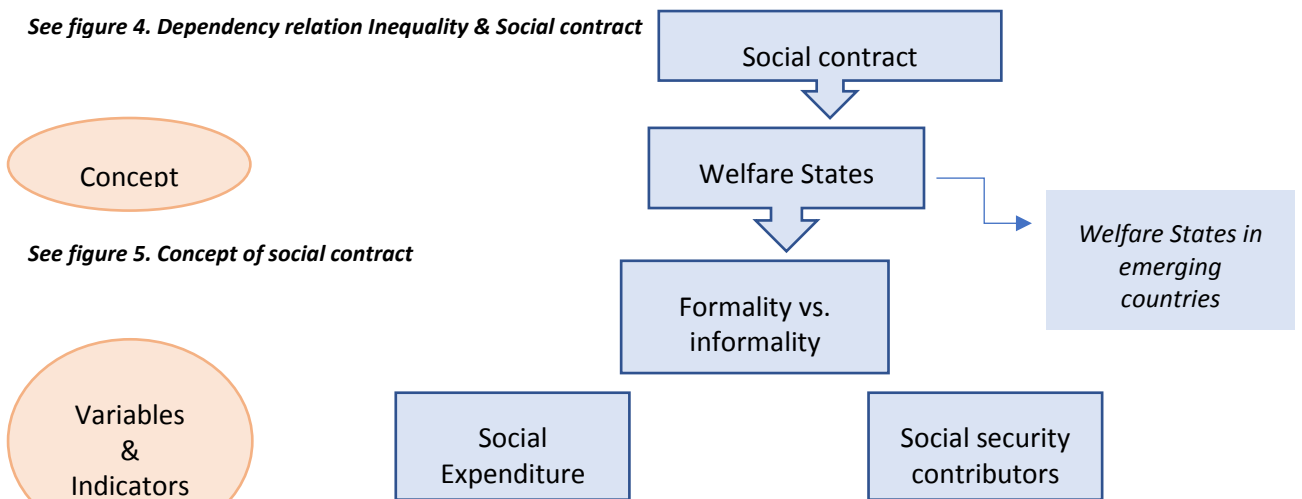


See figure 2. Concept of Inequality

See figure 3. Variable and Indicator of Inequality



See figure 4. Dependency relation Inequality & Social contract



See figure 5. Concept of social contract

See figure 6. Variables and Indicators of Inequality



See figure 7.- Cases of study

Figure 2. Concept of Inequality

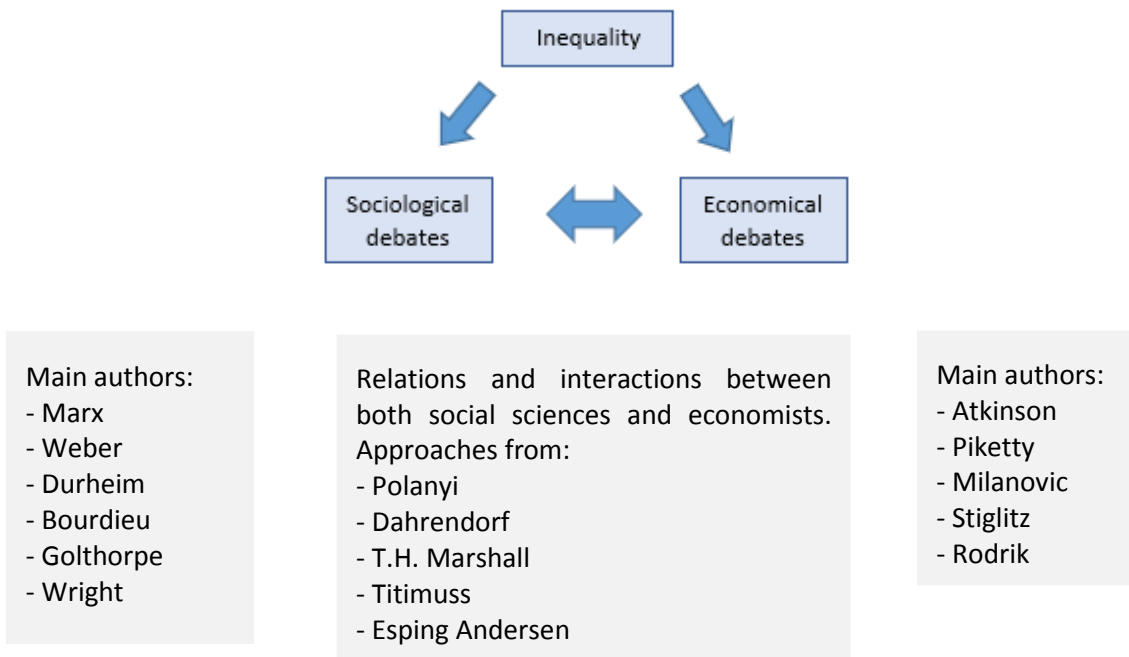


Figure 3. Variable and Indicator of Inequality

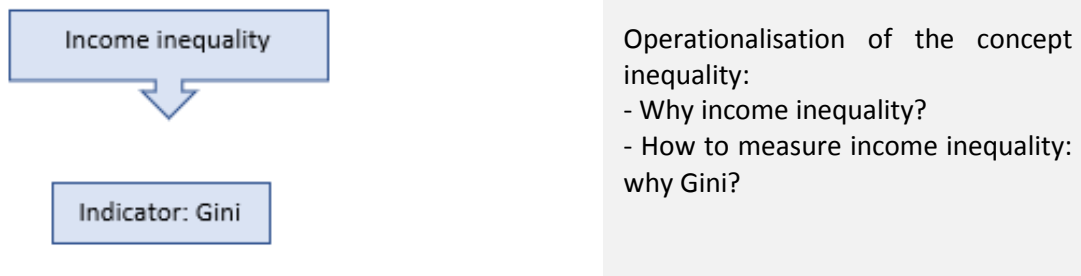


Figure 4. Dependency Relation of Inequality & Social contract

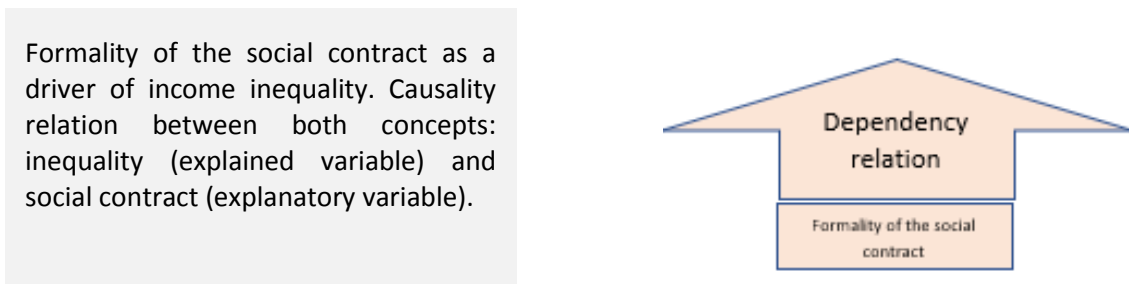


Figure 5. Concept of Social Contract

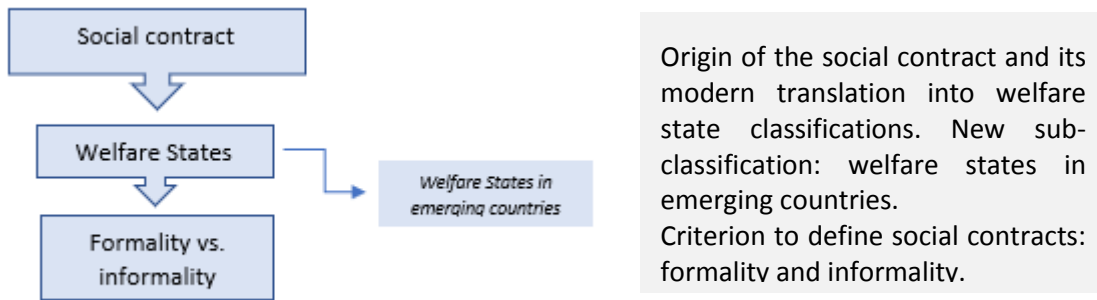


Figure 6. Variables and Indicators of Inequality

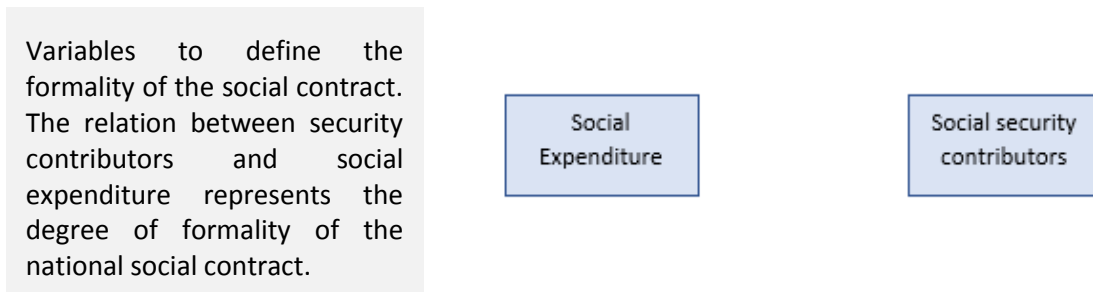
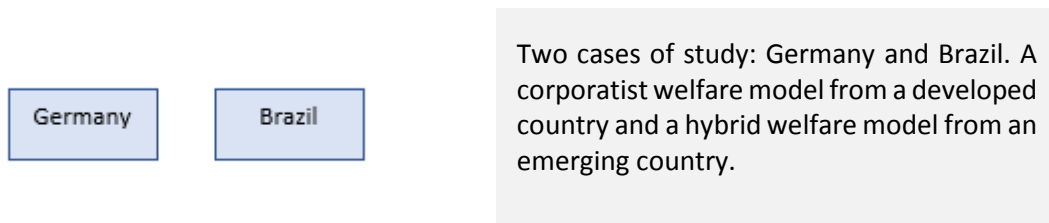


Figure 7. Cases of Study



3. INEQUALITY

I will begin with the debates around the concept of inequality, starting with the sociological literature, which is traditionally more prolific on this topic than other disciplines. Later, I show and confront the debates around inequality for economists, who tend to be more reluctant to work on topics outside of the market. However, some authors and international institutions have recently shown concern about the consequences of high levels of inequality. In this section, I will try to explain key decisions about the selection of inequality as the phenomenon to be explained by this thesis, why income inequality in particular, and how to measure income inequality.

3.1. INEQUALITY: SOCIOLOGICAL DEBATES

Even though this thesis focuses on the economic aspects of inequality, a decision which will be explained later on, it is useful to frame this thesis within the wide sociological literature explaining the different factors that contribute to social inequality. In the Marxian and Weberian traditions (Wright, 2005; Goldthorpe, 1980; Dahrendorf, 1959; T.H. Marshall, 1981) as well as from the functionalist perspective, studies of social inequality have produced a rich body of analysis (Parsons, 1970; Davis, 1953; Moore, 1963). Sociologists have developed sophisticated analyses that cover different stratification models which lead to various types of social inequalities. The main three approaches are related to the distribution of wealth (Marxist tradition), the distribution of power (Weberian traditions) and the stratification of systems (Functionalism). Moreover, social inequality manifests itself across gender, age, place of residence and among groups with diverse ethnic and cultural origin. The combinations of these variables make the study of social inequalities highly complex according to sociological perspectives and require considerable nuances. In order to understand social inequality and make the different models of stratification comparable I have taken the classification of Grusky (2001) (see Table 1) of assets that can be valuable intrinsically (e.g. consumption goods), excluding secondary goods (e.g. investments) that may be convertible into them.

Table 1. Dimensions of Inequality according to Asset Groups

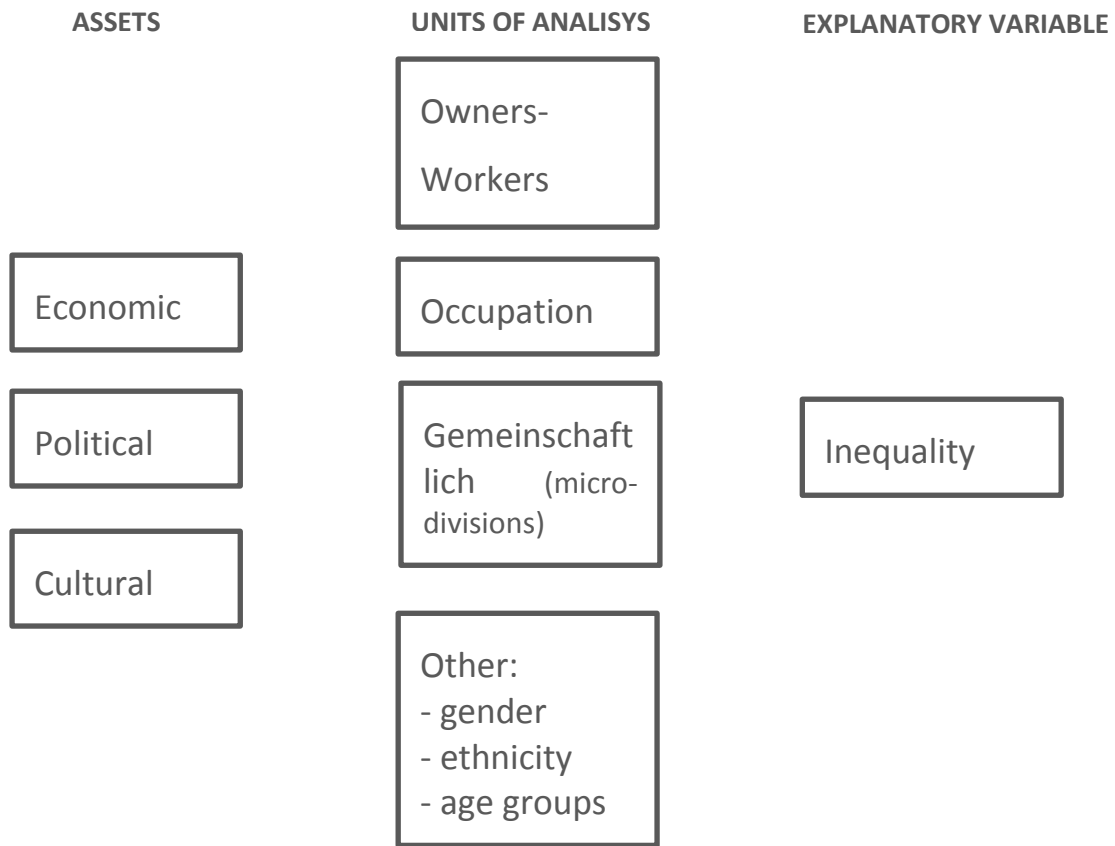
Asset Group	Selected Examples	Relevant Scholars
1. Economic	<i>Ownership of land, farms, factories, professional practices, businesses, liquid assets, humans (i.e., slaves), labour power (e.g., serfs)</i>	Karl Marx; Erik Wright
2. Political	<i>Household authority (e.g., head of household); workplace authority (e.g., manager); party and societal authority (e.g., legislator); charismatic leader</i>	Max Weber; Ralf Dahrendorf
3. Cultural	<i>High-status consumption practices; "good manners"; privileged lifestyle</i>	Pierre Bourdieu; Paul DiMaggio

4. Social	<i>Access to high-status social networks, social ties, associations and clubs, union memberships</i>	W. Lloyd Warner; James Coleman
5. Honorific	<i>Prestige; "good reputation"; fame; deference and derogation; ethnic and religious purity</i>	Edward Shils; Donald Treiman
6. Civil	<i>Rights of property, contract, franchise, and membership in elective assemblies; freedom of association and speech</i>	T. H. Marshall; Rogers Brubaker
7. Human	<i>Skills; expertise; on-the-job training; experience; formal education; knowledge</i>	Kaare Svalastoga; Gary Becker

Source: (Grusky, 2001: 4)

Taking this stratification model as a reference, Table 2 was constructed to describe and compare the main theories of social inequality and the debates among them. In the first column I name the asset as the reward package which differentiates the social classes; in the second column the unit analysis is taken, which is the unit which is used as the object of analysis by each author; lastly, the combination of assets in different units of analysis create different causal paths towards social inequality, the phenomenon that is to be explained by these authors as well as this thesis. Through the construction of this generic scheme I aim to simplify the different theories of social inequality and, more importantly, make them comparable to understand the social stratification debate. This section will hopefully help to better explain the position of this thesis within the debates of socioeconomic inequality.

Table 2. Scheme of Analysis for Social Inequality

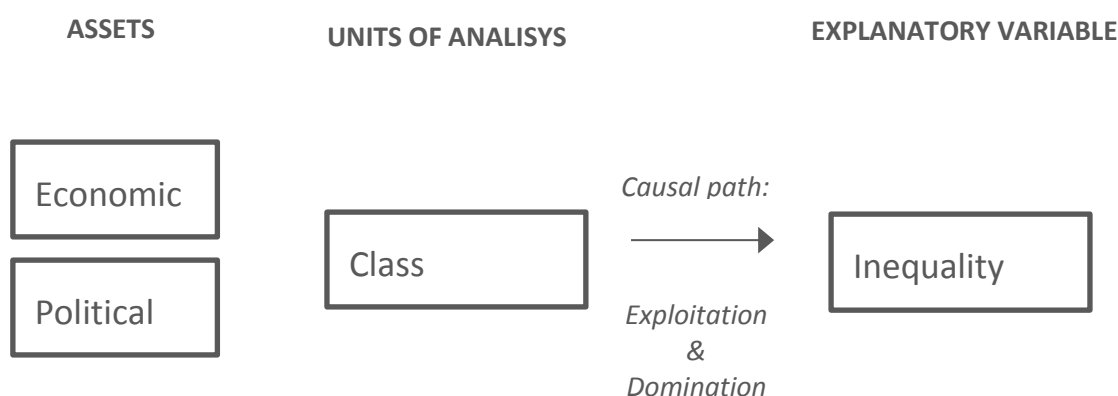


Source: Own elaboration based on Grusky (2001)

3.1.1. MARX

Marx presents the concept of social class as a radical two-classes dichotomy between workers and capital owners (Grusky, 2001). For him, the differences in social classes are based on the ownership of the means of production. He saw domination and power as inherent to class as a driver of inequality. Marx's class understanding was framed by social conflict and therefore class conflict was inevitable. This conceptualisation was later challenged by Weber, who referred to inequality in relation to the differences in life chances inherent to the position in the labour market. Marx advocates for a social-conflict perspective to understand socioeconomic inequality from a historical perspective. This control over resources influences the bargaining power of owners and workers, which involves a conflict over production, not over distribution, as Weber points out. The only way to undermine this control over resources (and therefore to limit the exploitative relation), is by the organisation of the proletariat who will eventually overturn capitalism after leading a social revolution. A milder more reformist version of Marxian ideas puts the emphasis on unionisation (Esping-Andersen, 1990). By counterbalancing the control over resources, the workers ostensibly

Table 3. Marx Scheme of Social Inequality



Source: Own elaboration based on Grusky (2001)

obtain property rights over the means of production. This control is present through co-determination schemes, representation in the board of directors, or employee stock options (Wright, 2005)

Weber and Marx do share some views about class-stratification as Parkin (1979: 25) claims: “inside every neo-Marxist there seems to be a Weberian struggling to get out”. The contributions of Marx to the class debate derive from the insight that control over the means of production leads to exploitative relations between the owner and the worker. The term ‘exploitation’ became the pivotal anchor on which the class theory from Marx is constructed. This interdependence of material interests fulfils the following three criteria¹³:

- *The inverse interdependence principle*: which means that the interests of the owners are satisfied at the expense of the workers and vice versa.
- *The exclusion principle*: the interdependence relation between owners and workers necessarily comes from the exclusion of the exploited to the means of production.
- *The appropriation principle*: this exclusion benefits the exploiters as it comes with the ownership of the workers’ labour.

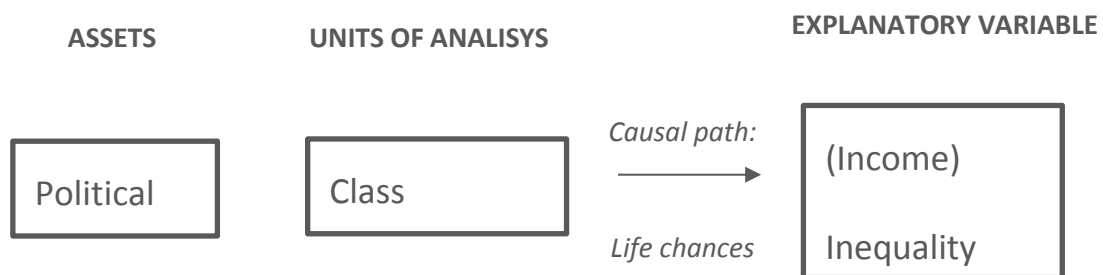
Even though Marx advanced a two-class division, he acknowledged the existence of transitional classes (e.g. Peasants or *lumpen proletariat*), however, he expected that these third groups would position themselves on one side or another as “the centrifugal forces of class struggle and crisis flung all *dritte personen* to one camp or the other” (Parkin, 1979: 16). The neo-Marxist debates have

¹³ Retrieved from: (Wright, 1997, pp 9 -19).

revolved around the new concept of middle-class that has evolved from artisans to managers, professionals, and non-manual workers due to the new characteristics of the capitalistic forms of production (Dahrendorf, 1959). Neo-Marxist authors such as Wright (1985) navigate very close to neo-Weberian waters by proposing a working-class model in which he differentiates a semi-autonomous and managerial class from other kinds of workers. This class division has been developed to create more complex divisions based on the concept of exploitation. Sørensen (2000) has circumscribed the exploitation as the limitation of access to the qualified labour that secure the excess of earnings of the high-skilled positions in terms of the cost of education (e.g. tuition fees). Again, these arguments could also fall into the neo-Weberian approaches which refers to a more disaggregated model of social stratification rather than the radical dichotomy concerning the ownership of the means of production.

3.1.2. WEBER

Table 4. Weber Scheme of Social Inequality



Source: Own elaboration based on Grusky (2001)

For Weber the one-dimension approach followed by Marx to define classes is too narrow and he advocated for a more multidimensional perspective, taking the labour market competition for jobs and valued goods as the main criteria in forming class structure (Weber, 1968). Neo-Weberians such as Erikson & Goldthorpe (1992) defined class location through the employment conditions of the employee (salary, pension rights, assurance or type of contract) to determine the social class (unit of analysis). However, Weber highlighted the fact that there is a multiplicity of status groups within classes, determined by variables such as ethnicity or nobility within the classes, but knowing this, he saw the labour market relations as the main criterion in defining social stratification.¹⁴ Yet, the main contribution of Weber (1968) to the social class debate is related to the causal path between classes

¹⁴ See table 4.

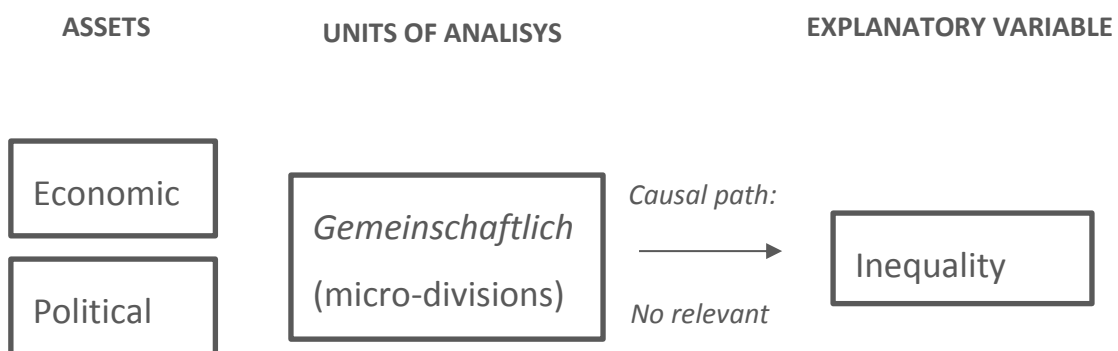
and inequality. The differences in life chances are determined by the labour market relations, according to Weber, and Giddens provides an accurate definition of the Weberian term of life chances: “the chances an individual has for sharing in the socially created economic or cultural ‘goods’ that typically exist in any given society” (Giddens, 1973, pp. 130–1). For Weber, the enjoyment of these goods depends upon the position in the social class, in other words, the members of the same class share the same life chances. Unlike Marx, Weber not only delimited classes according to the property of the means of production, but he stated differences such as status within groups regarding their life chances. For Weber, the conflict between social classes do not represent a zero-sum situation in which one improves its well-being at the expense of another social class. Rather, he highlighted the complexity of factors that shape the socioeconomic order, and therefore inequality, within a capitalist society.

The Weberian approach was later operationalised by neo-Weberian authors such as Goldthorpe and Ericsson (1992). They try to explain why different positions within the labour market, resulting from the capitalist system, leads to a different array of outcomes in many different respects. Unlike the Marxist theory of social classes, Goldthorpe and Ericsson talk about working relations as the criterion to differentiate social classes within the labour market, instead of the ownership of the means of production. For them, the important classification is related to the positions that are regulated either through a labour contract or service relationship. Goldthorpe (2000: 213) mentions the degree of “asset specificity” and the extent of monitoring as the crucial dimensions involved in this dichotomy between labour contract and service relationship. For the former, he refers to the specific job-skills, whereas for the later the difficulty for the employer to monitor the work of the employee represents a higher degree of autonomy in respect to other kinds of labour relationship. In accordance with both of these elements Goldthorpe constructs a class schema from upper service to the semi- and unskilled workers in agriculture (Goldthorpe, 2000) with several divisions in between such as: small proprietors with employees and skilled manual workers. This class division is valid insofar as it explains the differences in life-chances in Weberian terms (or other kind of outcomes).

3.1.3. DURKHEIM

Most of the authors mentioned throughout this section take a macro-level unit analysis to delimit social classes. In contradistinction, Durkheim provides one of the main contributions to the class debate as it is related to the addition of *Gemeinschaftlich* (micro-divisions) as a unit of analysis that form the classes under a social stratification model.¹⁵ Grusky (2001: 18) explains the four main reasons to disaggregate the level of class-division: (a) the agency of incumbents operates to have like-minded employees do similar jobs. (b) The interactions between colleagues reinforce the common interests and values. (c) Also, specific training or apprenticeships operate as some formal forms of socialisation. (d) Lastly, the incumbents share common interests to be pursued inherit to their occupation (e.g. certifications). Weber agrees that this kind of class-unification only happens very seldomly when taking the macro-level unit of analysis (Weber, 1968).

Table 5. Durkheim Scheme of Social Inequality



Source: Own elaboration based on Grusky (2001)

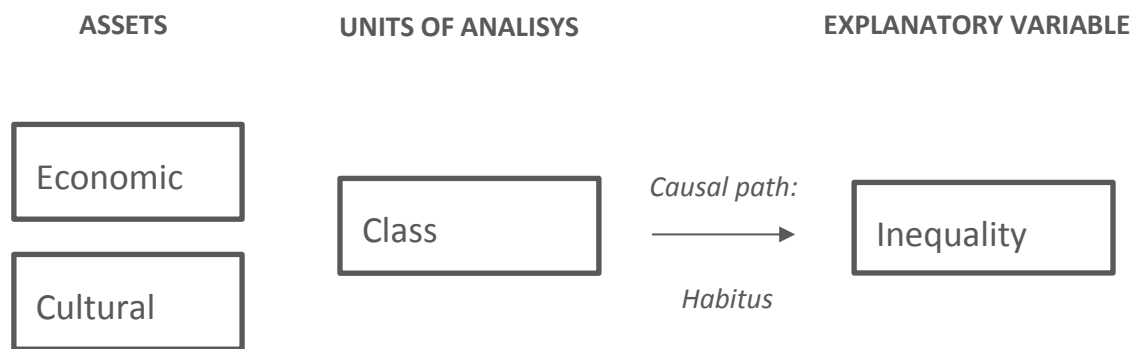
Some authors (Casey, 1995; Baron 1994; Drucker) from the post-occupational view of class-distinctions seem to follow the Durkheimian vision of the current stratification of social classes, due to increasing job-divisions and skill-based differences. While the Marxian and Weberian contributions to class debates have become somewhat obsolete for most analysts during the last few decades, especially given the regulations and contentions at the macro-level, at the same time those occupational groups have arisen as the anchors of the new labour markets (Wright, 2005: 61).

¹⁵ See table 5.

3.1.4. BOURDIEU

While Marx and Weber departed from the market relations of people to define their social-class model,¹⁶ Bourdieu differentiates economic capital from cultural capital (and social capital) to establish the differences between classes. He proposes a multidimensional stratification model with two axes, namely cultural capital and economic capital (see figure 8). Bourdieu ascribed to the former the specific culturally competences – as a resource of power – that matter in the hierarchical scale of social-class (Lareau & Weininger, 2003). Therefore, he developed the concept of life chances from Weber and exploitation from Marx to conceptualize the class habitus: each social class shares a different habitus, a combination of cultural capital and social capital. This habitus is composed of the common actions that come from the agencies of the incumbents that form each social class.

Table 6. Bourdieu Scheme of Social Inequality



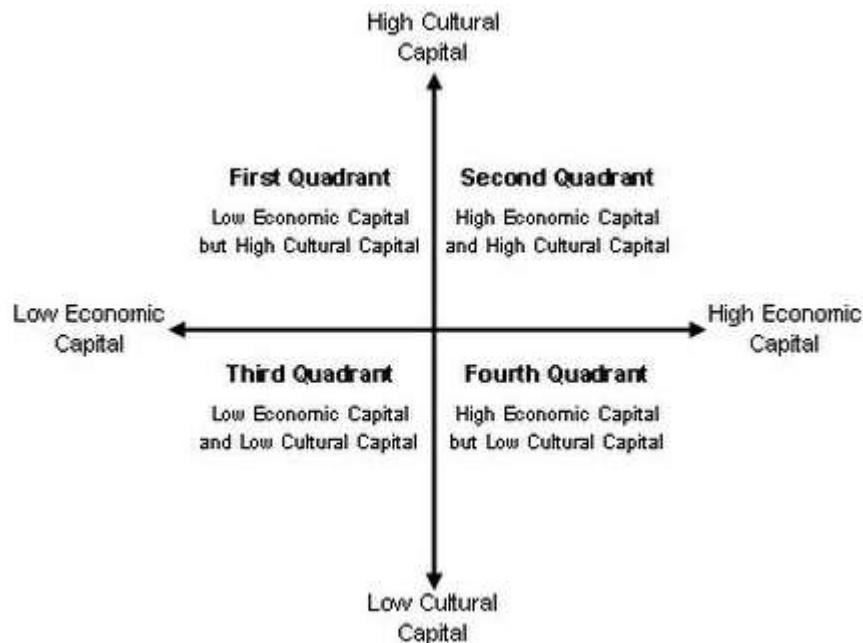
Source: Own elaboration based on Grusky (2001)

According to this model of stratification, the highest classes become the “taste-makers” who compete for the distinguished practices that downward classes adopt later on (Bourdieu, 1984). Thus, from Bourdieu’s point of view the social struggle is based not only on material goods but also on distinguished practices. By constructing this multidimensional model of social stratification, Bourdieu tries to avoid clear boundaries between classes and provides a more continuous character to the social space (Bourdieu, 1990). Furthermore, he names two different agents in determining the life trajectory of the incumbents that shape their habitus: family and school (Bourdieu, 1986: 244). This continuous character of the class position differs from the Weberian and Marxist class structures. The continuous multidimensional class-division approach from Bourdieu opens a new

¹⁶ In different terms though. While Marx was focused on the exploitative relation between owners and workers, Weber uses the concept of lifestyle to define the social-classes.

way of analysing new forms of social mobility and social conflict that other models of stratification

Figure 8. Bourdieu's Social Structure Scheme



Source: Bourdieu, 1984: 128-129

ignore (Weininger, 2002). This redefinition of the boundaries between social classes and the trajectories of the incumbents convert the social space into a more fluid arena than that of his predecessors, Marx and Weber. These contributions to the class debate have provided a new way to analyse social mobility and social conflicts that other models ignore. Lastly, in later works Bourdieu (2001) accepts that even though social mobility is the primary factor of habitus distinction there are other dimensions that compete with it such as gender, ethnicity, age, or place of residence.

3.1.5. POST-CLASS ANALYSIS

The class stratification model has been criticised from very different angles due to its simplification of a more complex phenomenon, socioeconomic inequality. For example, classical stratification theorists have not taken factors such as gender and ethnicity as seriously as labour (Gruski, 2001). Multidimensional models of social stratification have gradually given way to new conceptual dimensions for inequality beyond the economic one. People from different countries have started to emphasise the importance of their group distinction, in terms of ethnicity for example (Glazer & Moynihan, 1975). Not only racialized groups but women too have laid claim to political representation through social movements, which are not class bounded. It is currently common to

hear about intersectional groups of stratification (e.g. white male working-class), which share lifestyles and experiences (Gruski, 2001: 29). These multidimensional stratification models compete with multidimensional post-Weberian approaches that focuses more on rare combinations such as a poorly educated lawyer.

3.2. DEBATES IN ECONOMICS AROUND INEQUALITY

Even considering that economists traditionally focused only on the market, leaving the rest of the social spheres to other social science' disciplines, the literature in favour of considering inequality relevant to economists has been gradually increasing in recent years in quantity and quality. Let us start with a comprehensive report on inequality: The Global Inequality Report (Alvaredo, et al.; 2018). This study relies on the WID (World Wealth and Income Database) (WID.world), which represents a huge effort to gather data from National Accounts and make then comparable throughout years and between countries. Even the most orthodox economic institution, the IMF, named inequality as the most likely global risk, as pronounced by its chairwoman Christine Lagarde¹⁷. Other international organisations, such as OECD and ECLAC have revealed in their works *Structural Change for Equality: An Integrated Approach to Development* and *Divided We Stand: Why Inequality Keeps Rising* respectively, that although the tools actually do exist to tackle inequality, policy-makers have not been able to undertake effective policies to face this phenomenon (ECLAC, 2012) (OECD, 2011). Furthermore, there have been prominent groups of economists that make claims for new approaches towards socioeconomic equality. A new team of researchers, led by Dani Rodrik, have created a network named Economics for Inclusive Prosperity (ECONFIP) (econfip.org). In their introductory brief, they claim that the economy is not only the foundation of the market, but it should serve for the inclusive prosperity of all, not only for the top 1% (Rodrik, Naidu & Zucman; 2019). This ECONFIP group take some of their institutional approaches from Karl Polanyi, namely the double movement and embeddedness: "crucial markets (e.g. the "fictitious commodities" of labour, land, and capital) must be embedded in non-market institutions, the "rules of the game" supplied by government" (Rodrik, Naidu & Zucman; 2019: 6).

Also, Kate Raworth (2018) in her best seller *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, takes a more multidimensional approach. She even delves into the correlation of income inequality with health - life expectancy – as well as education levels (Raworth, 2018: 171).

¹⁷ As pronounced in 2014 World Economic Forum: <https://www.ft.com/content/b3462520-805b-11e3-853f-00144feab7de>

Following the same line of research, Paul Krugman, Nobel Prize economist and prolific columnist, has repeatedly made claims for inequality reduction policies and other development indicators than the very popular (among economists) GDP.¹⁸ In this section of the Chapter I will go in depth into other economist's views that are in favour of more redistributive approaches in economics, such as Thomas Piketty, Branko Milanovic and Amartya Sen.

I divide the economic debate regarding the desirability of reducing inequality into two main grounds, namely (a) extrinsic and (b) intrinsic reasons:

(a) Extrinsic reasons:

A lack of social cohesion, high crime rates, poor health, and the vast array of social problems are named as the main consequences of high-income inequality rates by authors such as Stiglitz (2012) in his book *The Price of Inequality: How Today's Divided Society Endangers Our Future*. Secondly, the quality of democracy is correlated with the degree of inequality in a country, according to Atkinson (2015) in his last book *Inequality: what can be done?* He lays out the role of money in determining the results of elections. Therefore, low levels of inequality may improve politics and public institutions in general.

Economic Growth: one the most controversial arguments in favour of high-income inequality levels is represented by the debate about economic growth and income inequality, which is not new. However, until recent years it has not been pointed out as a serious risk for overall economic performance, rather, it was seen as a collateral damage of growth. To quote Atkinson: "For much of the twentieth century the topic (income inequality) had been ignored, whereas I believe that it should be central to the study of economics" (Atkinson, 2015: 14). One of the pioneers in analysing the relation between income inequality and economic development, Simon Kuznets, defined the relation between both concepts. According to him, at the early stages of industrialisation, economic growth leads to higher income inequality levels due to the dualization between agricultural and industrial income. Subsequently, as countries develop further, higher levels of education and social protection can result in lower levels of income inequality (Kuznets, 1955). This point seems crucial for the developing countries, such as South America and Brazil, whose struggle with income inequality have traditionally been seen as part of the process of development of a region. This could be true for developed countries, such OECD countries (including Germany). On the other hand, there are a decent number of countries where this theory does not hold true: middle income countries such as Brazil, India, and China

¹⁸ See the following press release: <https://www.nytimes.com/2018/08/30/opinion/economy-gdp-income-inequality.html>

have been widely studied in this regard. The findings of these analyses are ambiguous, at best. While it is true that Brazil still experiences notably high levels of inequality, the last years of steady growth have benefited the poor to a greater degree than in China and India, whose growth rate levels have not led to a decrease of income inequality (UNDESA, 2013). Therefore, the relation between economic growth and income inequality does not follow a universal pattern, to say nothing of its being automatic, but rather, it depends on its active pursuit by national policy makers and by the country's specific context. Furthermore, as Nancy Birdsall (2012: 4) has stated: "Inequality can inhibit growth and slow poverty reduction". Recently, some authors like her have emerged to state the fact that low levels of inequality result in higher levels of economic performance, *ceteris paribus*.

(b) Intrinsic reasons:

The principal idea of human well-being cannot be abandoned by legislators, since philosophers such as Hobbes and Locke depart from the concept of Natural Law as the preservation of humankind through the formation of a political pact, (Locke, 1988). Jeremy Bentham (1907), English philosopher and father of utilitarianism, was the first to identify well-being with utility. Subsequently, Hugh Dalton, also a British scientist,¹⁹ argued that the sum of utilities is lower as the level of inequality rises. He reached this conclusion by assuming that the same amount of income increases the well-being of the worse-off to a greater degree than the wealthy. Therefore by redistributing one unit of income from the richest to the poorest the sum of utilities improves (Dalton, 1920). This positive relation between redistribution and economic justice contrasts with the theories of other influential economists such as Keynes. He argues that high levels of income inequality benefit the whole community. To use his words: "In fact, it was precisely the inequality of the redistribution of wealth which made possible those vast accumulations of fixed wealth and of capital improvements which distinguished that age from all others" (Keynes, 1920: 19).

This concept of wellbeing (for all) has recently been revisited by different economists and political philosophers. John Rawls (2006) advocates for an array of basic goods that all human beings without exception must enjoy regardless their circumstances, which in his theory of justice he called primary goods. Later, Amartya Sen (1992) criticised Rawls in this regard, by stating that the same good would affect the well-being of a person in a different manner. Both Sen and Rawls stress the importance of a set of primary goods and social rights although Sen

¹⁹ English social scientists were prolific regarding socioeconomic inequalities and, above all, its measurement (Dalton, 1920).

points out in his book *Inequality Re-examined* (1992) the difference between himself and Rawls. Sen took the theory of primary goods from Rawls, which sets a common base of goods that are desirable for every human regardless of other external factors such as culture, gender, or national background (Sen, 1992: 20). However Sen explicitly differentiates himself from Rawls, especially in the “difference principle” (Sen, 1992: 21), which states that even when two people enjoy the same primary goods, they have the liberty of having different conceptions about what is good or not. Sen states Rawls’ approach regarding the equality of opportunities does not consider the diversity of human beings and their capabilities.

- *Earnings from work vs. earnings from capital*

Piketty, (2014: 549) whose work is based on authors such as Rawls and Sen, highlights the importance of a modern, effective, and strong state to administer the resources collected through taxes fairly and accurately, stressing the fact that taxes are mainly a political tool rather than a technical one. According to Piketty, income inequality can be divided into its different elements to ascertain their influence on income inequality more broadly, as well as their implications for the elections in Brazil and Germany, as the objects of this study. Market forces are generally considered a powerful factor in determining economic inequality. Piketty, one of the most notable authors of recent years who has addressed economic inequality, states that this is not only driven by exogenous forces. Instead, he contends that a reduction in income inequality is possible (even in a capitalistic scenario) through distinct mechanisms outside the market, such as public policies. To this point, the main elements of economic inequality examined in his book *Capital in the Twenty-First Century* are: (1) earnings from capital and (2) earnings from work. More specifically, the question he attempts to answer is: To what extent do earnings of capital affect social inequality compared to earnings of work?

In his book, Piketty²⁰ sheds some light on the weight of both elements, earnings from work and capital, as they affect the total income inequality rate. To measure this, Piketty chooses three different countries according to their degree of inequality in different times: United States (year 2030, estimation), United States (year 2010), Europe (2010) and Scandinavian countries (1970-1980) (Piketty, 2014). For earnings coming from work, inequality (measured by the Gini index) ranges from 0.19 to 0.47 (Table 7). Whereas, for earnings from capital, inequality levels vary from 0.58 to 0.85

²⁰ . The work of Piketty has been named as one of the most comprehensive and relevant studies which have been published on this regard, according to different Nobel prizes in Economy such as Paul Krugman, Robert Solow and Joseph Stiglitz.

(Table 8). In other words, the very high inequality level of earnings coming from work is less than the lowest inequality level of earnings coming from capital.

Table 7. Earnings from work

	10% richest	1% richest	Gini coef.
Low Inequality	20%	5%	0.19
Average inequality	25%	7%	0.26
High inequality	35%	12%	0.36
Very high inequality	45%	17%	0.47

Source: (Piketty, 2014: 271)

Table 8. Earnings from Capital

	10% richest	1% richest	Gini coef.
Low Inequality	20%	5%	0.58
Average inequality	25%	7%	0.67
High inequality	35%	12%	0.73
Very high inequality	45%	17%	0.85

Source: (Piketty, 2014: 272)

According to this study, earnings from capital represent an extraordinary driver of income inequality rates compared to earnings from work, regardless of the level of total inequality of the country namely. While it is true the variation from low inequality countries as compared to very high inequality ones are slightly higher for earnings from work, by 0.01 points, the difference is not substantial. This point is critical for the present study given the fact that levels of economic inequality of Brazil and Germany show notable divergences during the period analysed (1990 to 2015).

3.3. WHY INCOME INEQUALITY: EQUALITY OF OPPORTUNITIES VS. EQUALITY OF OUTCOMES

The goal of this section is to mention and analyse the limits of the selection of income inequality as a means of examining the different dimensions of social inequality. The current trend followed by sociologists regarding social inequality have switched from opportunities, measured through the distance between origins and destinations of individuals, to income mobility (Gruski, 2001). The development of this wave of thinking may be related with the impossibility of disregarding poverty as an intergenerational phenomenon (Corcoran & Adams, 1997). However, Sen (1992) in his book *Inequality Reexamined*, is the one that puts on the table the question: how equal is equality in a world of diversity? This brings to the forefront the debate between inequality of opportunities versus inequality of outcomes. Considering that human beings have been born in different countries as well as in different environments, to what extent does equality in one aspect could mean inequality in the other one? He pointed out: “equal incomes can still leave much inequality in our ability to do what we would value doing” (Amrtya Sen, 1992: 20).

The question, equality of what? incorporates implicitly the debate of liberty versus equality. This debate has been present for a long time in philosophy²¹. Libertarians often demand equal liberty, but this can conflict with other people who demand equality of income or well-being, for example. At the end they are mutually exclusive— both cannot be obtained together. Sen (1992) emphasises the fact that whatever aspect of equality one concentrates on it will only come at the expense of the other. The problems of conversion of income into wellbeing can be complex social issues or simply physical differences such as gender, metabolic rates or weather conditions. That illustrates two different perspectives: (a) the freedom to achieve and, (b) the actual achievement:

(a) In order to deal with the central question, equality of what? Sen concentrates on the capability to obtain the valued functionings which comprise a person's life. Firstly, functionings are defined by Sen as a set of beings and doings that constitute the well-being of a person. Next, capability is defined as the aggregate of functionings that the person can, in fact, reach. This set of vectors of functionings indicate one's freedom to have one kind of life or another. Nevertheless, the capability to achieve functionings will show a person's freedom to reach his or her feeling of wellbeing (Sen, 1992). These functionings mentioned by Sen may be reached through money or through other means, depending on its nature (for example one cannot buy the weather but can buy a car). While it is true in capitalist economies, certain functionings such as food, health and education depend on the income levels of their citizens, not all the functionings to achieve one's well-being rest on income

²¹ See for example Richard Norman (1987): Free and Equal.

levels and the assumption of regional differences worldwide is to be considered to this point. Even so, income inequality is considered to cover a substantial number of functionings and for this reason income inequality has been chosen as a dependent variable of this study.

(b) In the case of the actual achievement, it is pertinent to mention the limits of the utilitarian notion of value to measure individual utility in terms of mental conditions, for example pleasure or happiness. Though this mental state is seen as desirable it is difficult to measure or evaluate by those who advocate welfare policies. The principal difficulty of this utilitarian perspective lies in its psychological evaluation. Even if this evaluation is done in terms of happiness the rest of the functionings would be excluded or only used indirectly to the extent that they contribute to happiness. In a similar line of research Atkinson, in his last book *Inequality: What Can Be Done?* discusses the so-called dichotomy: inequality of opportunity and inequality of outcome (Atkinson, 2015). According to him, the former is widely used in political rhetoric nowadays, with the result that the relevance of the latter is underestimated. In other words, the focus on inequality of opportunity is important to create an environment in which all individuals may reach their potential (in economic terms). However it is crucial to consider the circumstances under which goals are achieved. For example, if one wants to be an architect the opportunity of entering the university should be provided by the government, not by parents' aid. However, the actual outcome must not be forgotten, which is that there should be other, deeper reasons the person's goal is or is not accomplished, and the system provides highly unequal incentives for them. That is the reason why inequality of outcomes is relevant for this study.

Despite the acknowledged limitations of choosing income as the main variable for measuring economic inequality and having highlighted the argument in favour of this decision, the universality of its use and the availability of data were relevant factors in favour of choosing this variable.

3.4. THE MEASUREMENT OF INCOME INEQUALITY

David Ricardo (1817), one of the first classic economists interested in income distribution in societies, distinguished in his book *Principles of Political Economy* three different sources for the total income of an individual: dividends, rent from real estate, and wages. In the early 19th century, the division between owners and workers was basically equivalent to the division between rich and poor. Therefore, capitalists increased the likelihood of greater income inequality and vice versa. With the advent of the middle class the approach to income inequality changed. One of the few researchers on this topic during mid-19th century, Vilfredo Pareto, introduced the principle of Pareto improvement (Scapparone, 2017) by which a political decision will be socially accepted if it improves

the situation of everybody or keeps it the same. However, Pareto's principle seems difficult to accomplish because there are always some losers when political decisions are made regarding distribution. Moreover, he stated that historically there had been a sort of iron law regarding income inequality among individuals (feudalism, capitalism or socialism) (Scapparone, 2017).

The next step in the history of income inequality represents the leap from kinds of societies to degrees of development. In that regard, Simon Kuznets' hypothesis of the inverted U attempted to show the relation between the level of industrialisation and income distribution. At the early stages of the industrialisation process high income inequality levels are assumed to raise as a kind of collateral damage. There are two very different levels of earnings at that time: (1) the people in the agricultural sector with lower productivity and salaries and (2) the workers in the cities working in the new industrial sector. However, as the workers move from one sector to the other the salary levels become more homogeneous. The inverted U of Kuznets has been much tested in relation to different kinds of countries, and the findings show that this theory better fits very developed countries. However, Latin American countries (such as Brazil) do not comply with the hypothetical evolution of income inequality rates according to inverted U theory (Milanovic, 2011). The general reason given for the exception of Latin American countries is the colonial legacy of the region and the unequal terms of commerce that they were subjected to since the decolonisation process (Prebisch, 1962).

Milanovic (2016), former chief economist of the World Bank, discussed the problems he went through in the process of gathering the income data in order to compare the global evolution of income inequality in a longitudinal perspective. Among the various limitations in obtaining reliable and comparable data between countries, he finds critical issues such as, (a) the sources of information are limited in availability due to legal or technological (difficulty to use the statistical software) restrictions. (b) There is also a methodological limitation: even though, administrative data is more reliable than survey data, it only measures the citizens who pay taxes, thus all the people working under informality conditions are not included (Alvaredo, et al.; 2018). (c) There are differences in purchase power: even if one converts the national currency into another foreign currency there is the problem of converting both into an amount of materials goods²². To solve this problem of comparability, the income of different countries is converted through the Purchase Parity Power (PPP) coefficient to make them comparable in value terms. (d) Nevertheless, another problem arises in constructing the basic goods basket since there are notable differences between

²² For example: one person in small town in Switzerland may not spend the same money to buy a house than a person from small town in India.

the goods that cover the same level of well-being in different countries. To sum up, there are countless limitations in measuring income inequality between countries (the kind of inequality analysed in this thesis) and I have tried to mention most of the major ones. Even though enormous efforts have been made in order to resolve limitations, some still remain insurmountable.

3.4.1. GINI INDEX & DISTRIBUTION RATIOS

The Gini index is the indicator used for measuring income inequality in this thesis. The index was developed by Corrado Gini in 1912 and built on the work of American economist Max Lorenz. In 1905 Lorenz published a hypothetical way to depict total equality — as a straight diagonal line on a graph (Ceriani & Verme, 2012). The difference between this hypothetical line and the actual line produced by people's incomes is the Gini ratio.

The Gini ratio converts all income distribution into one single number. It ranges between 0 and 1, where 0 represents perfect income equality and 1 is maximal inequality among individuals. Even though there are many ways to measure income inequality, the Gini index is chosen for two main reasons: (1) the availability of data in the main databases, (2) because it is widely used among social scientists, economists, as well as sociologists (Atkinson, 2015). Even though Gini is the most popular index to measure income inequality due to the simplicity of the interpretation, being 0 perfectly equal and 1 perfectly unequal, it is not the only indicator to measure income inequality. Other indicators measure the distribution of income across different segments of the population. They are grouped into (a) indexes and (b) ratios: (a) Gini is, arguably, the best-known index to measure income inequality. However, there are others, such as Theil index. This index, unlike Gini, is decomposable into the income sources, and it uses a parameter α , which assigns a weight to distances between income. That is, for higher values of α , it becomes more sensitive in the upper tail, whereas, it would be more sensitive in the lower tail for smaller values of α (Atkinson and Bourguignon, 2015). (b) There are also ratios that measure income distribution between different groups of the population. For example, the Palma²³ coefficient divides the income share of the top 10% between that of the bottom 40%. This index tackles the insensitivity of the Gini to the variations in the richest strata as well as the oversensitivity in the middle of the distribution. The UN uses the 20:20 ratio, which is more focused on the difference between the poorest and the richest and omits the middle 60% of the distribution. The 20:20 ratio results are more useful for social stability and development purposes. Lastly, the concentration of the share of income by the top groups (1%-

²³ Named after the Gabriel Palma, the Chilean economist who created it.

10%), it is also in a simple way to understand the wealth condensation of a country or a region, without complex formulas (UN, 2015)

The main drawback of using Gini index is that it cannot show where the inequality exists within the population as a whole. In fact, two countries may enjoy same Gini coefficient with very different distributions of income. The over-sensitivity of Gini to the middle classes neglects the variations in the share of incomes at the extremes, and the opposite is the case with the Palma index. To sum up, much ink has been spilled about income inequality between individuals (Atkinson, 2015) (Piketty, 2014) (Stiglitz, 2012) (Milanovic, 2011) (Naidu, Rodrik & Zucman; 2019) and it would be rather ambitious to attempt to fill a gap in this topic with this thesis. The role of income inequality, measured by the Gini index, is comparable with other major studies and is clearly understood, hence the selection of Gini as the way to measure the above-mentioned dependent variable, income inequality. Even knowing the limitations of making this decision, the availability of data and the desire that this thesis will be compared with other analysis, does not leave much room for another option.

After realizing that the results of the German set of regressions do not prove any statistical inference between the explicatory variables and the explained one, I decided to go deeper into the distribution of income in Germany to obtain some insights. I acknowledge that the Gini index does not perform perfectly for the whole population and that, in fact, two countries may have the same Gini coefficient with very different distributions of income given the over-sensitivity for middle classes which neglects the variations in the share of incomes at the extremes. I decided to test a similar hypothesis²⁴ against different income inequality measures. Instead of an index, I choose three ratios that supplement the Gini Index and help to fill the gap missed by the Gini index, namely the P90/P10, P90/P50 and the P50/P10 ratios. Therefore, after this analysis I will be able to obtain different conclusions than the other analysis that use the Gini as the dependent variable.

4. SOCIAL CONTRACT

This thesis tests the hypothesis that the social contract may explain income inequality. Therefore, it is relevant to go deeper into the origins of the concept starting with political philosophers, follow it through the social conflict and then address the major institutional construction of the social contract — the welfare state. The different evolutions of national social contracts have prompted

²⁴ It is true that these ratios do not measure the disposable income but rather gross earnings. See point 4.1 in chapter 4 for more information.

the classification of different welfare regimes as manifestations of the evolution of social contracts between the state and its citizens (Esping-Andersen, 1990).

Concretely, in the following sections, I first address the origins of the social contract and the philosophical traditions that influenced current analysis. From this, the study will follow the foundations upon which the current social contract is based, particularly in western societies. The main concepts taken to be relevant in this process of framing the social contract are citizenship and social conflict. Both transversal elements have been in debates from various reputable authors from Dahrendorf or Polanyi to Esping-Andersen; the main contributions by them are discussed during this part of the thesis. Then I focus on welfare state institutions as the institutions that currently constitute the materialisation of the social contract. I explain the main welfare classifications, specifically the one from Esping-Andersen and the former one from Titmuss. Also, I focus on welfare states in emerging countries, taking into account some of the main contributors to this debate. Lastly, I deal with the formality of the social contract as a dimension that may explain its redistributive character and, therefore, the explained variable of this study, income inequality. Even though the definition of informality it is still ongoing, I try to show the different approaches to it. Furthermore, I outline the evolution of the social contract in Brazil and Germany following the formal-informal classification before the next Chapter where both countries are thoroughly described.

4.1. ORIGIN OF SOCIAL CONTRACT

In medieval times, before the advent of the school of Natural Law, the head of state, the King, participated implicitly in a contract with his feudatories by guaranteeing good government. However, in case of a breach of contract the only right of the people to withhold the power of the King derived from the Pope. He embodied divine power, thus only he could take away the divine right of authority through excommunication. With the emergence of the school of natural law, whose precursor was Hobbes, divine power ceased to be the element which legitimated the authority in favour of natural law and natural rights.

Authors such as Hobbes, Locke, Hume and Rousseau have much to tell us, now more than ever, when the worst financial crisis since the Great Depression has fiercely hit western economies (Crotty, 2008). The so-called Global Financial Crisis brought national and international socioeconomic structures to their limits and the ability of the government to secure a certain level of well-being for its citizens was put into question. This function, attributed to national governments, of constituting the right of citizens originally derive from the ideas of natural rights,

which were already analysed centuries ago. These classic authors set the fundamental pillars of this relation that is also called the social contract and today's western civilisation would not be the same without their contribution. The goal of this section is to summarise and highlight the rich debate that led to the concept of the social contract which, in turn, was subsequently developed and applied by an array of social scientists.

4.1.1. STATE OF NATURE AND NATURAL LAW

According to Locke, the state of nature is a state in which human beings are in perfect freedom to conduct their actions and to do with their belongings and other people as they see fit. As per Locke, all people have the same capacities and opportunities to enjoy the benefits and advantages given by the nature to humans. However, in the state of nature one does not have the capacity to harm others' freedom, health, or possessions and has no autonomy to destroy himself. This natural law, called *fundamental law of nature* by Locke, consists of "man being to be preserved, as much as possible" (Locke, 1988: 6) or "*salus populi suprema lex* (The health of the people should be the supreme law)" (Locke, 1988: 134). Natural Law defines the general framework that limits the actions of individuals and determines, in a sense, future laws. This means when humanity decides to leave the state of nature and institutes the state through a political pact, fundamental ideas such as preservation of human life and society imposed by natural law cannot be rescinded by the instituted legislator (Locke, 1988). The fundamental natural law can be known through the reason. "Reason, which is that law, teaches all humankind" (Ibid, 1988:6). This is related to the idea that humans have been born free to the extent we have been born rational and we know the natural law due to the reason. Therefore, those who do not have reason cannot know the natural law (Locke, 1988). Locke claims that individual rights have priority over the will of the legislator. For him the concepts of state of nature, reason, natural law, freedom, and general well-being are closely related. This is a state in which mankind is associated as their reason dictates (Locke, 1988).

- Liberty and justice as main elements of social contract:

Both Thomas Hobbes and John Locke use elements of social contract theory to justify the origin of political power and both also assume the individual as a free, equal, and rational being. They both view the pact as an anchor of political power. Lastly both propose that a state was built to overcome insecurities and inequalities specific to the state of nature. However, there is a significant difference between the authors: Locke advocates for a model of the liberal state whereas Hobbes believes in absolutism as a model of the state. In the *Second Treatise on Civil Government* Locke argues that people have the right to legitimately resist against the power holder (Barker, 1947).

In his model of the state, Hobbes, considers human beings to be individuals oriented to the attainment of their basic interests, defined by the *Leviatan*²⁵ in terms of the natural rights of life, freedom, and property. But Hobbes goes further and shows that the individual accepts limits to their freedom in favour of a sovereign so that they can enjoy their civil freedom as a member of the state. Locke, however, intends to demonstrate that absolutism is incompatible with a legitimate government. He believes that absolute government can never be legitimate because, in his opinion, absolutism is worse than the state of nature. To summarise, Locke argues that a legitimate government can only emerge from the consent of people who are subject to themselves. He uses the idea of the social contract to warrant freedom and security. In other words, Locke maintains that the legitimate government can only be based on the consent of free and equal people that are all sovereign themselves. Locke thereby tried to restrict possible forms of absolute political regimes and justify the resistance against the crown on the basis of constitutional division of powers (Cortés, 2010).

4.1.2. CONTRACT OF SOCIETY (SOCIETAS) AND CONTRACT OF GOVERNMENT (POTESTAS)

Two kinds of social contracts will now be described in order to clarify the different dimensions of the concept (Barker, 1947). Firstly, the contract of society can be defined as a prior condition before the contract of government. Secondly, the contract of society or *pacte d'association* represents the social will which subsequently will legitimise the fact of being subjected to a ruler. The result of this agreement between the potential ruler and subjects represents the idea of the contract of government

A society can be constituted by either the contract of society, or the contract of society and the contract of government. The former, named self-government, consists of a community where the rulers and subjects are the same, without any contract between them whatsoever. This was Rousseau's theory. On the contrary, the latter would represent a society where all the subjects of the community renounce their political rights right in favour of a sovereign Leviathan which is not a part of any contract. This was Hobbes' theory. In the middle, there might be a community where the subject may name a fiduciary government which can be dismissed for a breach of trust about the understanding of the nature of trust. This was Locke's theory (Barker, 1947).

- *Conception of trust*

²⁵ Book written by Hobbes; it stands for a social contract rule by an absolute sovereign.

Locke also delves into the idea of trust and its role within the social contract. First, he distinguishes three parties of the term trust: trustor (the creator of the trust), trustee, and beneficiary. The trustee accepts an obligation that emerges from the trustor towards the third party (beneficiary) but this obligation is unilateral; thus, the beneficiary does not have any obligation towards the trustee. In political context this means that, from Locke's point of view, the community is both the trustor and beneficiary while the government is the trustee. Therefore, the government would accept unilaterally an obligation towards the community within the limits of the law of nature, which rest on trust (Barker, 1947).

This trust-conception of government is therefore more unfavourable for the government than a mere contract whereby both community and government would have obligations. In Locke's theory the trustee has duties and not rights. As Ernest Barker says: "the government only exists through, and for the community" (Barker, 1947: 30).

4.1.3 COMMUNITARIAN TRADITION: ROUSSEAU

Rousseau, in his theory, distinguishes the will of all (*omnes ut singulis*) from the general will (*volonté générale*). For him it is a matter of quality versus quantity; the will of a particular quality, general intention, versus the mere will of all. Actually, he renounces the mere will of all and points to the general will, which may be expressed by only one legislator. This idea can become a double-edged sword because instead of defending democracy (which seems to be his intent), his theory ends up being not far from the Leviathan. Here Rousseau finds a major difficulty: on the one hand he wants to defend primary democracy within the boundaries of the small state, but on the other hand he has already denied democracy by rejecting quantity. It can be affirmed that Rousseau is like Hobbes in the sense that he too empties each individual in the moment of the contract. However, in the case of Rousseau, but not Hobbes it is a submission to no man. Individuals are active as well as passive bodies of the community. He expresses this idea like this: "Each, giving himself to all, gives himself to nobody" (Barker, 1947: 46). In this line of thought, Rousseau claims that property, like everything else that is covered under the rights of the subject, is the creation of government, and as such is subject to the control of its creator.

For Rousseau, the most important function of the general will is to inform the creation of the laws of the state. These laws, though codified by an impartial, noncitizen "lawgiver," must in their essence express the general will. Though all laws must uphold the rights of equality among citizens and individual freedom, Rousseau states that their particulars can be made according to local circumstances. Although laws owe their existence to the general will of the sovereign, or the

collective of all people, some form of government is necessary to carry out the executive function of enforcing laws and overseeing the day-to-day functioning of the state (Barker, 1947). He states that to maintain informed of the general will, the sovereign must convene in regular, periodic assemblies to determine the general will, at which point it is imperative that individual citizens vote, not according to their own personal interests, but according to their conception of the general will of all the people at that moment. As such, in a healthy state, virtually all assembly votes should approach unanimity, as the people will all recognize their common interests. Furthermore, Rousseau explains, it is crucial that all people exercise their sovereignty by attending such assemblies or elect representatives to do so in their place. For whenever people stop doing so, their sovereignty is lost. Foreseeing that the conflict between the sovereign and the government may at times be contentious, Rousseau also advocates for the existence of a court to mediate in all conflicts between the sovereign and the government or in conflicts between individual people (Barker, 1947).

4.1.4. LIBERAL TRADITION: LOCKE AND HUME

Regarding the liberal tradition, Locke distinguishes two separate acts which differentiates his theory from Hobbes idea of contract as surrender. First, the idea of majority is introduced in order to make one body politic once a man has consented to make a community. Second, he points to legislative power as the supreme power, provided that the trust whereby government has formed is not broken. In cases where trust is broken, he notes another higher power to remove or alter the legislative power. The general conception of the power of government, according to Locke, consist of two main powers: (1) legislative (as discussed above) and (2) executive, which apparently include judicial power. Regarding the later one, he notes that there should be a power which should see to the execution of the laws (Barker, 1947).

Furthermore, Locke was truly the author who inspired Adam Smith in his system of natural right, which became the basis of the Liberal State. According to Locke no political society can subsist without having the power to preserve property (life, liberty and state in the law of nature); there, and there only, is where all its members relinquish their natural power, and hand to a community. There is a right of property, because each person has property over their labour. They construct the idea of a paternal State in which we are born free as we are born rational, but it is age that brings about the exercise of both. Just as health, necessities, and information are subject to the parents, in the case of a paternal state the national government would guarantee these “public goods” (Barker, 1947).

Property and freedom have also been linked by Hume, one of the first institutional economist. Before the 18th century, only landowners were allowed to vote, which is the reason why, according to him, freedom and property were very interrelated. For this reason, the main goal of the state should be providing security (security to enjoy the fruits of their labour) for its citizens and this can only be done through political freedom, with the universal right to vote as the best way to guarantee this security. This, in turn, means that property rights also bring equality, not only because of common human nature, but also speaking to facts. By this he does not mean equality of results, (income) which are not possible according to him, but equality of opportunities, by which every person has the same opportunity to obtain wealth (Hume, 2003).

4.2. SOCIAL CONFLICT AND CITIZENSHIP

Before dealing with the different models of social contract, it is important to point out that it would not have developed without the need to approximate positions and negotiate conflicts between social agents and the state. These negotiations between social agents such as trade unions, firms, and states have evolved by establishing different kinds of relations between them that have resulted in different social contracts. As Dahrendorf (2008: 25) points out: "There are times in which social conflicts as well as their analysis assume a fundamental or constitutional character. The issue then is not just an improvement of pensions, or even the extension of suffrage, but the social contract itself."

Social contracts define, among other considerations, the rights to entitlements to be enjoyed by different societal groups. Sen (1981) referred to entitlements in relation to the access people have to commodities. Sen did not limit entitlements to material commodities but also opened the door to non-economic commodities such as education or the right to vote, and actually infinite choices are opened by this term. Dahrendorf (2008) refers to the provision and entitlement scheme and states that the preservation of the current entitlement structure is a cause of famine and redistributive failure. This explains why there is famine in countries in Asia or Africa when they have enough quantity of goods to survive. He defines entitlements as follows: "entry tickets to open doors, but for those who do not have them these doors remain closed" (Dahrendorf, 2008: 11). In fact, provisions represent the objects you can choose instead of the right to choose (which we have defined as an entitlement). They are the array of alternatives people have in order to make a choice (Dahrendorf, 2008). They can be classified by the amount, variety or quality. This reasoning may help to understand modern social conflicts. For example, the French Revolution could be interpreted in terms of a revolution of entitlements whereas the Industrial Revolution would be seen as a

provisions Revolution. Starting from the 18th century, *provision* parties and *entitlement* parties have struggled until today. They represent the dichotomy of modern political thought.

Recently, Atkinson, in his latest book *Inequality: What can be done?* (2016) included the entitlements and provisions theoretical framework in his analysis by assumed the standard objection against redistributive policies: redistribution undermines economic growth (Atkinson, 2015: 243). However, by embracing this assumption he does not validate all efforts or *side damages* in pursuit of this goal of economic growth. Following this reasoning, he mentions other scenarios in which greater distribution of wealth weakens growth that could be possible and even desirable for most of the citizens given the fact that there are both winners and losers that result from political decisions between economic growth and inequality. Therefore, according to him, inequality depends not only on exogenous factors but also on internal ones influenced by national governments, through their political decisions. By facing this trade-off between growth and inequality, and its consequences regarding citizens' welfare, the debate strongly tilted towards political grounds rather than economic. Finally, Atkinson highlights the possibility and even the convenience of using wealth distribution to improve the economic performance of a country (Atkinson, 2015: 244). However, the success of combining both elements (equality and economic growth) are determined by the socioeconomic institutions, whose role is decisive in shaping an economic model. This thesis is supported by Andrea Brandolini (1992), who points out that entitlement rules, distribution of the economic output, is a major determinant of inequality. This last element that links institutions with the performance of economic growth and inequality is dealt with in this thesis.

The social contract also includes the relation between citizenship and entitlements, that is, the array of entitlements that every person enjoys just for being a citizen. Citizens' aspirations for the extension of entitlements could lead to social movements or even civil wars. Social conflicts over entitlements also occur when they do not include the majority of the population. Historically, the creation of a nation-state represents the beginning of the idea of citizenship which also means the end of legal entitlement boundaries. It must be emphasized that modern social conflicts rest on this new status quo of civil society. Modern social conflicts are not about legally binding obstacles but about tackling inequalities that limit full civic participation in the political community. Equality before law within a territory was the very first definition of citizenship²⁶, yet unless all citizens have the chance to participate in the law-making process, citizenship will involve inequalities of entitlement. This in turn means that if people are not educated, they cannot defend their interests

²⁶ See point 4.1.1 in this chapter: State of Nature and Natural Law.

before the law and therefore social, political and civil rights are extremely enmeshed from the beginning. Specifically, the concept of citizenship may be gathered in three main groups: (a) Civil rights: represent equality before the law and the right to be judged (bourgeoisie during the 18th century linked entitlements with provisions by civil rights). (b) Political rights: universal suffrage. (c) Social rights: minimum welfare level guaranteed by law to be a citizen of a country. In Europe, social rights were included tacitly, in opposition to civil and political rights that were drawn up in the constitution Citizen struggles for social inclusion, such as the suffragette movement stand for the right to vote as a way to extend citizenship (Dahrendorf, 2008).

According to Dahrendorf this would lead to a concept of a worldwide citizen who each have the same rights and thus same legal framework (Dahrendorf, 2008). Atkinson in his last book, just before he passed away, refers to the idea of a global citizen in terms similar to Dahrendorf's: "a set of basic human rights which must be protected for people everywhere regardless of circumstances"²⁷ (Atkinson, 2014: 235). Furthermore, "merit goods" are mentioned in the same book to refer to the same idea of minimum welfare standards to be guaranteed to every person worldwide, extending the concept of national citizenship as it is known to world citizenship. However, global wealth distribution is not as *easy* a task as domestic redistribution, especially considering the 1% bar set as the standard for international aid by the international community (Atkinson, 2014: 233). The logic behind world citizenship is that nation states are severely limited by the power of global actors and particularistic interests, which was proved in the 2007 economic and financial crisis. Other authors such as Sen and Rawls also stress the importance of enjoying a set of primary goods and social rights linked to citizenship. Although it should be noted again²⁸ that Sen distinguishes himself from Rawls by way of the "difference principle" (Sen, 1992: 21) and through stating that Rawls approach regarding the equality of opportunities does not consider the diversity of human beings and their capabilities. To reiterate, according to Sen, even when two people have the liberty of holding different conceptions about what is good or not even when they enjoy the same primary goods.

4.3. INSTITUTIONALISATION OF THE SOCIAL CONTRACT: FROM CITIZENSHIP TO WELFARE STATES

While it is true that civil rights provide access to the markets, the markets might offer a fair standard of living. Politics and economics do enter into a conception of citizenship insofar as provisions and entitlements are part of the political economy of a country' understanding of citizenship. The debate between market ideas and socialised ones may be better understood by considering Polanyi's

²⁷ Paraphrasing David Miller (Miller, 2007)

²⁸ See point 3.2. Debates in Economics Around Inequality in this chapter 2.

concept of double movement. By this idea, Polanyi stresses the evolutive character of the process of embeddedness, de-embeddedness and re-embeddedness between the market and society (Block, 2003) (Andreotti, Benassi & Kazepov; 2018). In every new economic stage (i.e. the industrial revolution) a process of economic de-embeddedness from social and institutional relations takes place. As a counter movement, active citizens engage in creating new social and institutional structures for re-embeddedness. As T.H. Marshall (1992) states, citizenship has brought many changes, some of them related to class. In former times inequalities required political actions but currently they depend more strongly upon the markets. Through a comprehensive study of the evolution of citizenship from feudal times to the modern welfare state, he highlights the role of the state as a mediator/ regulator between the working class claim for equality and capitalists struggling to keep their positions. It is in this spirit that citizenship represents a social contract. Within the framework of a social contract, work relations are regulated under a private contract since markets regulate all of the elements of industry, including labour markets. Marshall (1992) advocates for a moderate capitalism in which social citizenship plays a major role in absorbing the tensions generated by extreme inequalities inherent to capitalist societies.

Some critical institutions regulating social life in modern societies, like trade unions, are rooted in both the re-embedding instantaneous necessity to invent new bonds of social protection and in the emancipation trends that fight social oppression. To quote Maucourant: “Institutionalising means shaping economic facts according to certain social relations” (2013: 524). The commodification of the labour force supposes a deficit of social protection (Polanyi, 2001). For example, in Germany the strength of trade unions, materialised according to the principle of codetermination with the board of a company, shows one way to de-commodify labour in favour of social protection. It is true that the evolutive character of this double movement is seen in Germany as the tensions from the market gain more power.

Although the nation state is the unit of analysis for this thesis, it is important to remember that an international process of commodification also occurs and erodes social bonds the same way nationwide. One example that affects Brazil (cited again later in this work) is the unequal global exchange that has a devastating impact on employment conditions and therefore the social bonds of society. Nevertheless, in this case it is difficult to de-commodify labour, given that in the context of a global economy there is no political body at the appropriate scale (beyond the national one) that can legislate de facto in the international sphere (Prebish, 1962). In relation to this point, Joseph Stiglitz in his book *Globalisation and Its Discontents* (2002) puts on the table the failure of international institutions to mitigate capitalist collateral worldwide (Stiglitz, 2002).

In a post-capitalist society, fictitious commodities (labour, land, and money) are abolished and institutions controlled by society such as trade unions, cooperatives, schools, or churches will emerge from a democratically elected management. All institutions beyond the control of society define their destinies and therefore the economy will never be social without the control of society. This is what Polanyi points out in his book *The Great Transformation* (1944). One cannot see this sort of interference in a capitalist system: "It is not the economy that is framed by the social system, but rather the social system that is framed by the economy" (Cardoso, 2011: 15). The de-commodification process may occur in three different ways, according to Esping-Andersen (1990): through the family, market, or welfare state. In the present thesis social expenditure and social security are the indicators that are taken as independent variables to explain inequality, which in turn is chosen as the re-embeddedness variable with previously discussed limitations.

4.4. WELFARE STATES

The welfare state is the modern institution responsible for the implementation of social rights and entitlements. The importance of economic institutions has been stressed by new institutional economics. During the post war years, the economy was conceived as a specific segment of a wider social order, and society's economic subsystem was domesticated by institutionalised social values, particularly in the Western world. In fact, all social spheres were ruled by values such as solidarity rather than by economic rational decisions (Streeck, 2008). The thirty glorious years after WWII are an example of the double movement of de-embeddedness and re-embeddedness (Polanyi, 2001) with the expansion of the urban economy as well as the expansion of social rights and entitlements. As more and more societies modernise through industrialisation and urbanisation, the central role of the economy in the destruction of rural social bonds was compensated not only by the accommodation of new market opportunities, but also by the constitution of new socially oriented institutions within the scope of the welfare state.

However, nowadays utility-maximizing principles currently govern much of the economic science, and this change in favour of a rational choice approach defines institutions (unlike former times) as devices for maximization of efficiency. After the 1980's, faith in the economy as a wealth machine waned in comparison to the previous decades. However, politics nonetheless gave way to economy as the organiser of society. Elements such as privatisation, reorganisation of public services, commodification of labour markets (encouragement of labour market participation), and the use of economic rules that manifested in normative notions of justice demonstrate the influence of economics in socioeconomic institutions (Streeck, 2008).

Tensions between markets and society have historically led to the construction of institutions to organise social life and re-embeddedness movements. Trade unions, for instance, have become a powerful tool to confer new bonds of social protection. This is especially relevant in the case of Bismarckian influenced region, above all in central and northern European countries, such as Germany. In his book *The Three Worlds of Welfare Capitalism*, Esping-Andersen, following Karl Polanyi, describes the intrinsic process of commodification of work characteristics of capitalist economies. He refers to commodification as the obligation of a worker to sell their labour-power so as to have a regular income in order to survive (Esping-Andersen, 1990). Hence, the importance of welfare institutions as part of the de-commodification not only of labour-power but of different areas of social life. This double movement of commodification–decommodification conforms to the model of welfare capitalist societies over different times in modern history. However, the debate in the present study will start after World War II when current welfare states had been framed (Esping-Andersen, 1990).

- *Role of institutions: case of unionism in Germany*

Currently, in developed economies such as Germany, there is a negative trend regarding unionism enrolment. This fact has led to a debate about the relevancy of this historically important institution in Germany that set salaries and generally represented an important part of income dispersion in a country (Piketty, 2014). The labour market has become more flexible and so-called labour commodification is more visible than ever (Eichhorst, 2009). This is especially critical in a corporatist country whose socioeconomic model is based on a high-skills and high wages model. Not belonging to this high-skills and high wages model entails notable differences regarding not only salaries but certain social services provided by the government. This is especially true in Germany over the last two decades, since reunification, when social security policies began to rest increasingly on means-tested methods (Seeleib-Kaiser, 2008).

Unionism has historically been a powerful counterweight to employment abuses and therefore it could be assumed that different degrees of power might allow trade unions to influence inequality rates through the creation of fairer working conditions including, for example, instituting higher salaries and fewer working hours. However, the OECD report *Divided We Stand* shows that trade union membership decreased in all OECD countries apart from Spain between 1980 to 2008 (OECD, 2011). There is a current debate about how this phenomenon may affect inequality regarding salaries. Atkinson (2015) has made contributions to this debate, referencing a study undertaken by David Card, Thomas Lemieux, and Craig Riddell which demonstrates the low level of influence of union membership in various countries, such as the UK, Canada, and the US. The findings show that

only a fraction of wage dispersion can be explained by union membership in these countries (Card et. al., 2004: 555). In other words, there are other factors that have greater influence. They are also mentioned by Atkinson: supply and demand shifts as well as technical changes (Atkinson, 2015: 93-94). Regarding the latter, there are some authors that argue that technological changes amplify the gap between high skill workers and the least skilled ones (Acemoglu et. al, 2001c). This may create, on the one hand, a lack of union coalition and, on the other hand, wage dispersion between both groups. These findings are in line with trends in Germany where unions are losing power within corporations as well as nationwide in political decisions as the labour market is becoming more polarised (Allen, 2004). In the case of Brazil, high levels of informality within the labour market has limited the power of unionism in improving working conditions. Most social improvements have followed a top down flow, that is, major changes have come from the will of governments that support working classes.

Furthermore, decisions about the supply of jobs are more under the control of companies than governments, now more than ever given the fact that “Economies of high taxations are not possible anymore since people can move their investment from one country to another” (Atkinson, 2015: 103)²⁹. Thus, unions and even governments have seen their power in setting wage standards lessen as that power increases for companies due to the free movement of capital.

A political approach to setting wage levels in a country is also relevant for the study. Minimum wage is a paradox of political influence on salary dispersion in a given country. On the one hand, critics of a high minimum wage usually arise from right wing parties arguing that it raises unemployment rates. This simple argument comes from the supply and demand model in which higher salaries suppose less demand for workers and greater supply. On the other hand, advocates of setting higher salaries such as Nobel Prize-winners George Akerlof and Janet Yellen (1986) argue that the productivity of a worker depends on factors related to health, formation, energy levels, and wellbeing, which, in turn, rest on his consumption level, namely his salary. The gain in the salary of the employee supposes a higher cost of leaving his job and, hypothetically, more loyalty to the employer. Thus, in this debate about setting a minimum salary, there are some winners and losers in each scenario and who those are differ with different authors and approaches. Hence, economic output is not the only relevant determinant of earnings inequality, but rather politics too may influence inequality rates to a great degree.

- *Role of Firms in welfare state policies*

²⁹In the words of George Osborne, addressing the 2014 Conservative Party Conference.

Even though companies are not the subject of this thesis, it is relevant to mention the role of firms not only due to their direct impact on individual income, but also because of their contribution to public budgets and social security systems. Welfare state policies rely on contributions by both companies and workers, above all corporatist welfare states in which the entitlement to certain social policies is dependent upon the condition of being an employee, not just a mere citizen. Therefore, even though the main goal of firms is to satisfy the shareholders' interests, they play a key role in welfare state policies, and for that reason regulations from the national governments that stimulate the contributions from firms to the welfare system may affect income inequality levels. Hence, firms become a transversal element in this thesis that will be brought up systematically given their influence on the social contract and, in particular, on welfare states. Firms have a direct impact on personal incomes. The role of firms in income inequality may be powerful, but their rules are not democratically elected and therefore their foremost commitments are to their shareholders, rather than their workers. Hence, the decisions undertaken by the managers of a company are focused on profit, which is in the interest of their shareholders. Although there can be cases in which companies promote income inequality reducing policies, due to their structures the cases are scarce, and regulations are not tight enough in most of the countries to promote this. The free capital movement combined with the lack of an international body to regulate it makes an actual regulation in that regard within companies impossible (Atkinson, 2015).

4.4.1. WELFARE STATE CLASSIFICATIONS

Institutions, such as welfare states, play an important role in wealth redistribution. However, the difficulty of measuring the well-being of a person and the collective has traditionally represented a challenge to classify them. Therefore, before defining the different welfare state regimes I outline the debates around well-being measurement. The lack of tools to measure the level of welfare of a society in former times created a rich academic debate around the individual versus the collective unit of measurement about welfare levels, represented by the egalitarians and the marginalists respectively. They are defined and explained as follows: On the one hand, the marginalists (also called paretians), represented by Paul A. Samuelson, Abram Bergson, and Kenneth Arrow were the first to construct the welfare function to measure the welfare level of a society. In the construction of the welfare function, they followed a scientific-positive perspective, by which it is only possible to note an improvement in the degree of welfare in a society insofar as individual X may increase their level of welfare without any harm to individual Y (Sen, 1970). On the other hand egalitarian currents of thinking, represented by authors such as Gunnar Myrdal, criticize the lack of ethical elements in a utilitarian welfare function focused on the poor (Myrdal, 1953). Likewise, John Rawls,

whose theory of social justice recalls the Contractualism of Rousseau, refers to a mandatory set of primary goods to be provided to guarantee the freedom of every citizen (Rawls, 2006). Therefore, this debate between marginalists and egalitarians lays down different issues such as social justice, redistribution, and freedom of opportunities (among others); which set the stage for subsequent welfare state classifications. Those main welfare state classifications, which take some of the elements debated by the pioneers of welfare measurement, are defined later in this paper.

To start with the first welfare state classification, before Esping-Andersen, Richard Titmuss (1974) goes beyond social policies and introduces the welfare classifications as a new tool for cross-national analysis in the field of social policy. This model assigns a significant role to welfare as a major integrated institution, procuring universal services outside the market on the principle of need. It is grounded in the principle of social equality and the multiple effects of social change (Titmuss, 1947). Furthermore, he introduces new dimensions to the welfare state analysis such as targeted versus universal policies, working life within citizen rights, quality versus quantity of social services, and entitlement to social policies. He was a pioneer in defining the three welfare models that are presented here:

1. The Residual Welfare Model of Social Policy:

This model is based on the idea that there are two ways in which an individual's needs are correctly met: private market and the family. Only when both fail do social welfare institutions come in to attend these citizens temporarily (Titmuss, 1947).

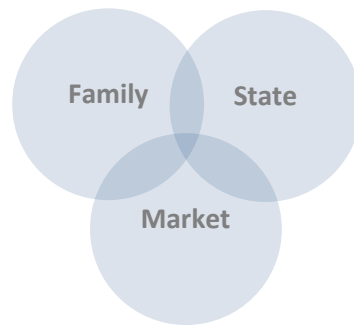
2. The Industrial Achievement-Performance Model of social policy:

This model links social welfare institutions with economic institutions. According to this model social needs should be met on the principles of merit, work performance, and productivity (Titmuss, 1947).

3. The Institutional Redistributive Model of Social Policy:

In more recent times, Esping-Andersen, updates Titmuss' classification and the new three welfare models are: Residual, Universal, and Corporatist (Esping-Andersen, 1990). This classification of welfare models is defined by the role of the following three institutions in providing social protection to the individuals of a country: the family, the state, and the market respectively. The classification of Esping-Anderson represents a solid and reliable reference to interpret the results of the study undertaken in chapter 5 from a sociological perspective beyond the purely redistributive function of social expenditure.

Figure 9. Esping-Andersen Welfare Matrix



Source: Elaborated by the author adapted from (Esping- Andersen, 1990)

In light of the foregoing discussion, a welfare state model, as we know it today, is understood as the result of the conflict between social agents. Hence, the historical background of each country would define its own welfare system. According to this reasoning, there should be as many welfare models as the number of countries worldwide. However Esping-Andersen (1990) has defined the three main types of welfare states (in developed countries), namely: Liberal, Corporatist-Statist, and Social Democratic. He categorises the different welfare systems according to the interrelation between the family, the state, and the market in the welfare systems as it is shown in figure 9. Korpi & Palme (1998) also describe the market and the politics which intervene in the welfare construction in terms of trade-off between them: If there is less market influence there is more political influence and vice-versa.

The classification defined by Andersen shows the balance of power of the family, the state and the market in their role of social protection (basically, unemployment compensation, pensions, education, and health) in a region or country. Each one of the models rest on different institutions:

- a. Social democratic regimes rely mainly upon the public system and the criterion to be covered under this protection is citizenship since the government is mainly responsible for it.
- b. Corporatist-statist regimes are based on mandatory contributions from workers who are, in turn, the ones entitled to the social protection scheme provided in a manner related to the breadwinner model. Employment not only guarantees a salary but security against unemployment, pension after working age, and maternity/paternity leave.

c. Liberal regimes under which social protection is neither mandatory nor covered through citizenship. Only the lowest strata of the population are covered by a safety net and means-tested methods are the most common to describe who is entitled to social aid.

However, apart from Titmuss and the often-cited classification of Esping-Andersen, which define the welfare states constructed in developed countries, there have been other definitions or approaches to the concept of social policies, before the welfare state definition was even created. For example, the definition given by Professor Macbeath (1957: 1): “Social policies are concerned with the right ordering of the network of relationships between men and women who live together in societies, or with the principles which should govern the activities of individuals and groups so far as they affect the lives and interests of people”. As one may notice there is no mention of altruism, solidarity, or redistribution (connotations that usually are linked with this term); he simply puts the life of the community as the central issue to be tackled by social policy. This broad definition is useful because it would be valid for social as well as economic social sciences. This definition is compatible with another by Professor Hagenbuch (1971: 205), who argues that “the main goal of social policy is ensuring every citizen of a country certain standard of living and opportunities”.

4.4.2. WELFARE STATE CLASSIFICATIONS IN EMERGING COUNTRIES

This thesis is in line with literature that describe the welfare state models in emerging countries and more specifically in Latin American countries. Given the fact that the most well-known welfare state classifications from Titmuss (1974) and later Esping Andersen (1990) mainly focus on European countries, Latin American countries have not been the object of welfare state classifications until recently when Julianna Martinez (2007) undertook one of the most comprehensive studies regarding Latin American welfare state classifications (Ubasart-González & Minteguiaga, 2017). It is true that some authors such as Mesa-Lago (2005) and Filgueira (1998) have tried to categorise not welfare states but the social policies according to time of introduction and degree of coverage (among other criteria), respectively. However, these last two studies were based on the period from the 1920s-1930s to the 1970s while the one from Martinez (2007) is more recent, covering the last part of the Washington Consensus period from 1998 to 2005.

Martinez (2007) considers the role of the state and the family in the welfare provision. She defines a common root for all Latin American countries: the informality of the welfare provision. However, there are differences between the countries in terms of the level of commodification of the labour market, the access to the basic needs provided by the state, and the degree of welfare relying family, mainly non-working mothers (Martinez, 2007: 85). Following these criteria, three welfare models

are defined: (a) state based-productivist, (b) state based-protectionist, and (c) family based. In the first two models the state play an important role in providing welfare to its citizens, however according to the first the state only acts in case of a lack of provision from the market, while in the second the state intervenes in areas where the market also acts, and applies mostly to people working under formality conditions. The last one refers to welfare models relying on the family, mainly on the role of non-working women. She describes Brazil as following a state based-productivist model, that is, a welfare model in which people working under formality conditions are the main focus of the welfare model (Martinez, 2007:24).

The informality of the welfare provision seems to be a common element for the majority of Latin American countries, particularly during the neoliberal period from 1990 to the mid-2000s. Barrientos (2004) also highlights this informality. However, he points out a transition from an informal-conservative to an informal-liberal model with the release of the Consensus of Washington policies to Latin America. The informal-conservative model gives way to an informal-liberal one, characterised by a privatisation process in which social security, labour protection, health, and education have steadily gone from public to private hands.

However, the literature regarding welfare states in emerging countries is still very recent. This is in part due to the presence of welfare regimes instead of welfare states in these regions, but it is also because of a lack of tools to understand different socioeconomic configurations of capitalist economies and consolidated liberal democracy as named by Gough & Geof (2004). This thesis aims to contribute to the analysis of social welfare in a Latin American country by comparing the two aspects of social policy - social security contributions and social expenditure - in Brazil and Germany and departing from the welfare state classification of Esping-Andersen.

4.5. FORMALITY OF THE SOCIAL CONTRACT: SOCIAL EXPENDITURE AND SOCIAL SECURITY CONTRIBUTORS

The formality of the social contract represents an important dimension of the concept of a social contract, and this is particularly the case for social expenditure. This dimension together with social security contributions are considered drivers of income inequality in this thesis. The dichotomy between the people under the umbrella of the social protection and the ones left out of the formal

social contract is included in the welfare state classifications³⁰. Therefore, the definition of the concept of informality, and the debates around it and its measurement will now be dealt with.

Informality has not been considered an important phenomenon in economics until recently when developing countries such as India, China and Brazil (among others) have started to play a major role in the global economy. The importance of informal economy in those developing and very populated countries creates a different configuration of socioeconomic relations, which are more informal, and also represents difficult challenges in political terms. That is the reason why international organisations have recently focused on informality. The World Bank (2019) for instance has included a chapter on this issue enclosed to the Global Economic Prospects: January 2019. The global numbers regarding informality are remarkable and account for “about a third of GDP and 70 percent of employment (...) in emerging market and developing economies” (World Bank: 129). Later, I will go into more depth regarding the numbers for the specific cases of study: Brazil and Germany.³¹ However, first it is important to outline the different approaches to defining informality.

The first definition of informality come from an ILO report in 1973 which differentiates paid employment from self-employment, with the term informality applying to the latter (Hart, 1973: 68). The definition soon evolved within ILO towards a synonym of poverty, above all in urban areas. Various studies from ILO, PREALC (Regional Employment Programme for Latin America and Caribe) and the World Bank (Sethuraman, 1981; Gerry, 1978; Pérez Sáinz, 1992) have worked on this correlation between urban poverty and informality, using the term subemployment for people who cannot integrate into the modern economy. Other studies, however, have shown the positive side of informality as a driver of economic dynamism due to the opportunities that informality provides for entrepreneurship outside of the tight regulations from the state (Hart, 1990: 158). More contemporary definitions of informality avoid judgements and highlight the intuitional aspect of the concept outside of the legal framework (Feige, 1990: 990). It is important to mention that these definitions do not address the entire extent of the concept, given the huge range of activities that fall under informality (Portes & Haller, 2004): Other analyses have contributed to the classification of informality following a functional approach, (Portes, Castells & Benton, 1989) demarcating three kinds of informality according to the goal of the informal relation: (a) survival, (b) flexibility, and (c) growth. The first refers to people that have no alternative to this kind of labour relation and must engage in it to survive. (b) The second revolves around the flexibility of companies to choose the

³⁰ See section 4.4.1 of the same chapter.

³¹ See the point 4.5.3 of this chapter.

informal sector over the formal one by outsourcing tasks to informal workers. (c) The third emphasises the benefits of solidarity relations that individuals may obtain from merging all together.

One of the main characteristics of informality is the difficulty in measuring the degree of informality of a country. The main and obvious reason for this is the illegal character of informality, it being a condition that nobody wishes to recognise. Nevertheless, there are different degrees of social acceptance of informality depending on the country. Generally speaking, the more developed a country is the more difficult it is to measure informality due to the lack of validity of surveys and also because of the hiddenness of this phenomenon. There are different methodologies for measuring the degree of informality: (a) labour market approach, (b) household consumption, and (c) macroeconomic discrepancies (Portes & Haller, 2004: 29). However, the measurement of informality still represents a huge challenge for most countries, which makes it extremely difficult to implement policies such as welfare policies. If governments are not able to assert with accuracy the socioeconomic situation of their citizens, which includes people under conditions of informality, it is nearly impossible to implement the right policies, regardless of the aim of the government. However, it is true that the more open the conception of informality is, the better informality is measured, due to the good quality of the surveys conducted (Portes & Haller, 2004). According to this argument, the Brazilian government would be more aware of the degree of informality of their citizens than the German government. Thus, welfare policies may be more oriented to people within formal or informal social contracts depending on two criteria: (a) the accuracy of the measurement, as well as (b) the actual degree of formality in the society.

We will now return to the explanatory variables in this thesis: social spending and social security contributors. On the one hand, investments in social assistance, social security, health, labour, education, housing, and sanitation may arguably be related to the social contract since they improve the quality of life of their recipients. On the other hand, the number of social security contributors is especially relevant for the social contract in the comparison between Brazil and Germany. The fact that the German social contract is based on social security contributions by workers – the formal social contract – contrasts with the Brazilian one, which is to a greater extent based on providing basic goods to the bottom of the social strata outside of the formal social contract – the informal social contract. In the following sections, I take into consideration the two variables – social expenditure and social security contributions – as the main variables to explain social inequality. Both variables considered within the framework of formality remind us that the world of informality is left to the side.

4.5.1. SOCIAL EXPENDITURE

Most of the literature on social expenditure is based on OECD countries and their welfare state structure and institutions (Huber et al., 2008). Therefore the question about the determinants of social spending in Latin American countries and particularly the case of Brazil remains partially unanswered. Moreover, some authors argue, like Rudra (2004) did in a study that covered the years from 1972 to 1996, that social spending affects inequality rates to a greater degree in developed countries than in less developed ones. The reasons for this are related to the institutional constraints and clientelism that favour the middle-upper classes, which characterise less developed countries. A more orthodox international organisation like the IMF states that social expenditure may be a powerful tool to improve equality levels, and above all it points out education investment as a key determinant of income disparity levels (Clements, 1997).

One of the main reasons why social spending is selected as an explanatory variable for the present study is its hypothetical relation with the political forces behind it; within a democratic regimen (assuming their differences) all strata of society participate, to a greater or lesser extent, in the policy making process by choosing one or another party and their political programmes. It is known from OECD scholars and experts that the left-right political spectrum has a strong correlation with social spending and redistribution policies throughout recent history (Bradley et al., 2003). Firstly, left wing parties generally promote higher redistributive and welfare policies whereas right wing ones tend to rely on means testing welfare policies and a small budget for social expenditure (Bradley et al., 2003). Lastly, right wing Christian democratic parties usually result in strong welfare state policies, although they heavily rely on private investments and keep a low profile on redistribution matters (Bradley et al., 2003). Other studies show inconsistent results regarding the partisan effects in social spending (Iversen et al., 1998). Finally, still more studies demonstrate the opposite thesis; Armingeon et al. (2001) state that leftist parties are more prone to reducing social budgets given that they have more credibility when it comes to retrenchment, this argument is consistent with the social democratic Schröder government in Germany, where social policies suffered a substantial budget cut back.

Regarding Germany, one of the main elements of social expenditure that it shares with Brazil would be that both practice cooperation between the state, unions, and corporations in the policy making process (which include social spending) (Streeck et al. 2004). The fact that employees' and employers' interests become extraordinarily closed strongly affects social policies. Furthermore, the lack of unilateral enforcement powers to some degree necessitates that national as well as federal governments cooperate with social actors such as unions and employers' associations. This

cooperation between social actors is also reflected in what Streeck called: “delegation of public responsibility” (Streeck, 2005: 139). By this Streeck means how public institutions take advantage of the proximity between employees and employers in delegating the negotiation of social insurance provisions to companies to be done directly with workers (or their representatives).

Despite social policies first being undertaken as far back as the 1970s in Latin America (Huber et al., 2008), the variation in political regimes compared to OECD countries (Germany in this case) as well as political institutions supposes a real challenge for the analysis. Despite this, the period starting in the 1990s was intentionally chosen to represent the coming of democracy to Brazil after nearly three decades of military regime in order to minimise the deviations that may have been caused by that political regime.

While it is true that Latin American parties have generally been perceived as weaker and less consolidated than those in longer standing democracies, some authors have already demonstrated that Latin American parties really care, and they represent the electors’ preferences despite their “youth” (Luna et. al, 2005). Having said this, social spending and political forces both represent a relevant variable to be considered to analyse the effects of either a left or a right set of social policies in two countries with different (but comparable) structural and historical circumstances, namely Brazil and Germany.

4.5.2. SOCIAL SECURITY CONTRIBUTORS

Keynes made the argument after the crisis in 1929 that the economic society of that time failed to provide full employment. Furthermore, it was incapable of addressing unequal distribution of wealth and income. This statement was perceived as the end of capitalism for some and the salvation of it for others. In fact, he switched the focus from the supply side to the demand side by proposing certain political and social changes to promote economic growth (Dahrendorf, 2008). Apparently, market institutions were not enough to mitigate the cyclic crisis intrinsic to the market economy, and hence Keynes suggested that the entitlements structure had to be modified to increase provisions. In other words, he states that better incomes lead to higher growth rates, the final goal of a capitalist country.

Inherited from these Keynesian ideas to increase entitlements of citizens, the concept of welfare state was re-defined during the period after WWII until the mid-1970s, the so-called thirty glorious years. During this period the most industrialised countries in the world reached high levels of economic growth, employment and productivity thanks to the standardisation of work. The figure

of a worker-citizen resulted from the social conflict that shaped the social contract in these countries and was made possible because of its system of protection and rights that provided a certain level of well-being. The nature of the benefits from the welfare state systems, ranging from legal to economic, became intrinsic to the participation of workers in the society. This implies that the unemployed or those in the informal economy did not enjoy the same social contract as those *contributing* with their work and thus well-being was not necessarily improved by welfare state policies for them. Only workers in the formal economy could have the right to unemployment benefits and social services as part of the de-commodification process. It is important to remember that the link between formal work and citizen rights depends on the country's type of social contract.

In the specific case of Latin America, at the beginning of 1950s social security schemes in the region were rather fragmented, which is linked to the ISI strategy (Huber et al., 2008). First with the left parties of several countries coming to power, privileged groups such as militaries and civil servants received benefits from these programmes. However, employers only covered the contributions of blue-collar employees. Latin American (and especially Brazilian) governments kept tariffs high in order to protect domestic markets, leaving informal workers out of any social security system (Huber et al., 2008). For this reason, it is more relevant to focus on the allocation of social spending instead of the magnitude of the overall expenditure. A study undertaken by the World Bank on social security policies in Latin America sheds light on this topic and reveals that regressive components exceed progressive ones in the region (De Ferranti et al., 2004). Another study (ECLAC, 2002) demonstrates that social security systems in the Latin American region benefit the middle and upper classes to the detriment of the lower ones. Moreover, the same study (ECLAC, 2002) states that the most progressive areas of social spending, in terms of redistribution, are education and health care in that order. That is one of the reasons why the proportion of social security contributors is relevant, and it is taken as an explanatory variable for inequality rates in this thesis. Social expenditure is hypothesised to explain, in part, income inequality rates but also the number of people who contribute and benefit from it.

Therefore, assigning security contributors as the second independent variable for the regression study takes into account two main arguments: (1) reputable authors such as Polanyi through his theory on entitlements and provisions points out the notion of the citizen as recipient of certain rights or privileges (Polanyi, 2001). But this entitlement is not always linked with a nationality or residence, and so either a formal job or the figure as contributor to the public social security scheme become more relevant criteria in order to receive most public services. (2) The citizen in an informal situation outside of the social security public system is benefited, depending on the country they

are in, from non-contributory benefits (universal or means tested) in the form of subsidies or public services provided by other institutions. By taking social security contributors as an independent variable I define as formal the situation of people who do contribute to social security system in a country and define the situation of other as informal. I am aware that this operationalisation of the concept of formality has its limits, and so during the design of the study I identify its advantages and drawbacks as well as the way that I try to overcome these limitations.

4.5.3. GERMANY AND BRAZIL: DIFFERENT EVOLUTIONS OF SOCIAL CONTRACTS

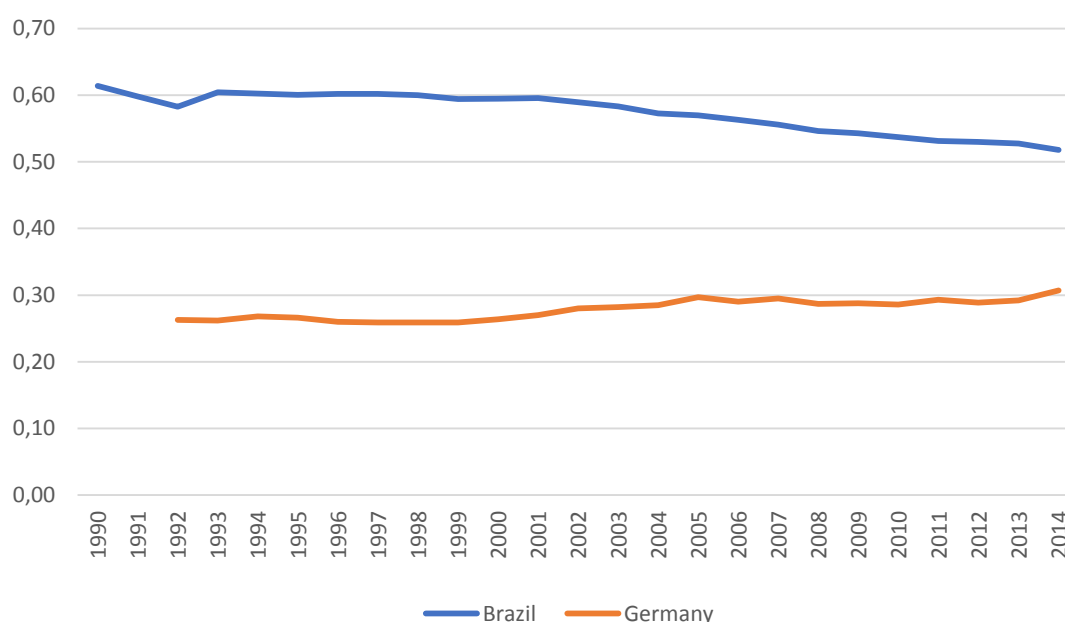
As previously mentioned in the introduction to this thesis, Brazil and Germany have been chosen as two paradigmatic countries in terms of the evolution of their social contracts. Brazil as a decolonised region is arguably the most populated country in Latin America and is known to have been one of the most unequal countries in the world for years. Germany also represents one of the most populated countries in the European region, and it was reconstructed in post-war years and caught up with the western economies in an extraordinarily short period of time while dealing with the shock of the unification process at the beginning of the 1990s. Both societies have struggled, to a greater or lesser extent, to provide welfare to their population through different mechanisms: redistribution policies (direct and indirect taxation), education, social security programmes, and/or subsidies.

The efforts of both countries to reach low income inequality levels, in the case of Brazil; or maintain them, in the case of Germany, during the last decades has been the main motivation of this thesis. While Germany has been a solidly developed country since WWII, it has paradoxically seen an increase in income inequality levels since 1990. Brazil, being far less developed in economic terms (GDP) has enjoyed a steady decrease in income inequality terms. While it is true that the income inequality level has decreased in relative terms in Brazil and it has increased in Germany between 1990 to 2014, looking at the gross figures the differences between Brazil and Germany hover around 0.2 and 0.3 (see figure 10) depending on the year. That is still a tremendous difference. At the starting point, in 1990, the Gini index for Brazil was twice as large as Germany's. It is particularly important to investigate the causes of this opposite evolution in Brazil and Germany in terms of income inequality since the different countries' trends appear to go against the main theories about the relation between development and income inequality (Rostow, 1962).

In this thesis I hypothesize that the social contract is one of the reasons for this opposite evolution of their income inequality. In Brazil, the informal sector is very robust as compared to other developing countries, accounting for one-third of the population and representing one-third of the

GDP of the country³² (World Bank, 2019). At the same, the people in this informal situation represent, arguably, the lowest strata of the population. Thus, if the direction of the social policies focuses on this informal sector it may be able to tackle the high inequality rates through two kinds of policies: (a) the ones focused on poverty alleviation and (b) the ones that facilitate the entrance of citizens from informal conditions to formal activities. The same argument is valid for Germany, where the alarm bells have rung during the past decades showing some fragilities to the German socioeconomic model, which is seen as one of the most equals models. Quoting Christopher S. Allen the “siren song of deregulation” (Allen, 1997: 19) has challenged the German corporatist welfare model based on a social security system in which contributions and entitlements are closely linked.

Figure 10. Income Inequality Rates (Gini Index) for Brazil and Germany (1990-2014)



Own elaboration adapted from (IPEA, 2016a) (OECD, 2016) (Eurostat, 2017)

Informality has been assumed as an anomaly of the system and therefore the hypothesis of this thesis is that higher levels of informality in a system based on contributions has led to higher income inequality rates in the case of Germany.

³² This figure is higher than other developing countries with similar levels of informal economy such as Pakistan where, representing two-thirds of the population it accounts for one-third of the total productivity (World Bank, 2019: 138)

In Germany, one of the main examples of a strong welfare state after WWII, the implicit agreement between firms, government, and unions has proven to be a successful formula for the *Wirtschaftswunder*³³. The principle of codetermination between unions and firms has provided a stable framework in which participation of employees in the decision-making process was encouraged.

However, different external shocks such as the oil crisis in the early 1970s, the unification in the 1990s, and the financial crisis in the mid-00s have challenged the formal social contract articulated by the welfare state. Especially since the unification process (an object of study of the subsequent analysis) a wave of liberalisation has given rise to low rates of economic growth and has left many German citizens out of the welfare state model.

In Latin America and especially Brazil, after WWII structuralism was followed as a new economic current of thinking. Prebisch (1962), the precursor of structuralism, stated that the new economic order after the war was not fair for the Latin American regions. He focused on the unfair terms concerning international trade, since primary-export countries suffer as more industrialised developed regions benefit. He highlights two elements: (1) the deterioration in the terms of added value compared to Western developed economies, (2) the unlimited work-force supply with low-wages, and (3) weak institutional structures reluctant to invest in new technologies (Bielchowski, 2009). The solution proposed by Prebisch (1962) in order to overcome this unequal situation of peripheral countries such as Brazil was the Import Substitution Industrialisation Strategy (ISI). Through the implementation of this model Brazil has attempted to modify not only industrialisation patterns, but also the living conditions of Brazilian citizens through improvements in productivity rates that resulted in the model being able to become competitive (Bielchowski, 2009). This industrialisation strategy and protectionism were the two most characteristic elements of Brazilian socioeconomic model until the late 1970s and early 1980s when the Consensus of Washington policies substituted for the ISI strategy, provoked by strong social tensions resulting from the ISI in Brazil only benefiting a small fraction of the Brazilian population due to accumulation of capital (Furtado, 1966:32).

With the coming of democracy and the new constitution of 1988, Brazil sought to change the former social contract based on contributory systems in which mostly workers in the formal labour market were benefited by the social security system. However, people in rural areas working under informality conditions, the unemployed, and domestic workers did not benefit from any social

³³ German economic miracle.

policy. The new constitution contained terms such as citizenship understood as a body of rights and obligations. However, the reality did not truly reflect the spirit of the new constitution in regards to social rights. The inherited social institutions were founded on a contribution system in which the contributor was also the receiver of the social system. These weak foundations presented a limit to be faced by the Cardoso's administration at the beginning of its mandate. In these circumstances the main pillar in which the welfare systems relied upon during the 1990s and 2000s were focused on poverty alleviation.

4.6. THE EFFECT OF EDUCATION ON INCOME INEQUALITY LEVELS

Finally, I will introduce the secondary school enrolment variable, which is included to control the effects of social expenditure and social security contributors on income inequality. Education is taken as an important driver of income inequality and it is assumed to play a determining role in income equality rates according to numerous authors from different currents of thinking and reputable organisations. Both economists and sociologists agree, regardless of their political orientation, that education is negatively correlated with income inequality, which is to say that the higher the level of higher education is, the lower income inequality rates will be. This section does not aim to discuss the debates about the role of education in income inequality levels but only mentions relevant studies and authors that support this assumption about the relation between education and income inequality.

Starting with the economists, institutions such as the IMF explicitly name: "extreme disparities in educational attainment levels" (Clements, 1997: 10) as a determinant of income inequality in countries such as Brazil. Furthermore, a study undertaken by Rudra (2004) points out that education is a powerful driver to decrease inequality rates. In fact, the outcomes of this study show that this is valid for both developed and less developed countries. Also, official institutions, for instance the Department of Economic and Social Affairs of the United Nations in its work: *Inequality Matters - Report of the World Social Situation 2013*, have stated that improvements in secondary education levels are closely related to a decrease in equality levels in fourteen out of twenty Latin-American countries, (UNDESA, 2013). Therefore, secondary education has been taken as the control variable so as to draw out the inference between social contract and inequality. It is true, however, that the same authors encourage further studies at different levels, such as tertiary education (Rudra, 2004).

Education, as a pre-distributive concept³⁴, became a key area in order to provide highly skilled workers to develop an industrialisation strategy coordinated by the state. The German social security model (anchor of German corporatist welfare state) relies on highly skilled and educated workers to be competitive in high added value markets, and this requires an education programme which meets the requirements of those industries. In the case of Germany, the dual educational system has become an essential part of their industrial model, in addition to the universal education system with almost free tertiary education. In LDCs such as Brazil, there are institutional limitations and governmental clientelist practices that allocate resources to middle and upper-middle classes, which leaves education as one of the only escape routes towards a better income opportunity for the poorer strata. Education became one of the main drivers to improve the position of a son/daughter in respect to his/her parents, according to different institutions and scholars (IMF, 2017). Di Stasio and Solga (2017: 1) mention: “all authors critically engage with the social investment state approach that sees in education and training investment the lynchpin of a pre-distribution agenda protecting individuals from the new social risks of a competitive, knowledge-driven economy”.

In the same vein, sociologists such as Gruski (2001) refer to education as an asset that can be converted not only into future income streams, as economists do, but also as a cultural resource or social reputation asset. However there is no agreement about education in terms of its classification between: (a) the assets that are valuable in their own right and, (b) the second order goods that may provide access to former ones. Maybe the clearest relation between education and social stratification is represented by the range of occupations that an incumbent may reach. Weberian authors, such as Goldthorpe (2000: 213), mention the degree of monitoring as the mechanism to divide social classes, and he refers to the dichotomy between labour contracts and service relationships. The higher the job-skills, the more difficult it is for an employer to monitor the work of an employee, it may therefore be deduced through the Weberian argument that education may define, at least partially, the life-chances of individuals. Bourdieu (1986) is more explicit about the role of education as the ultimate asset that sets the division between different social strata. School is named as one of the two different agents in life trajectories that shape the habitus of incumbents (Bourdieu, 1986: 244). But it is not only that education may affect social mobility through cultural capital, which is the social environment around different social strata. To sum up, there is a great degree of agreement regarding the role of education as a mechanism of social stratification. To quote Gruski (2001:13): “In nearly all models of advanced industrial society, it is further assumed

³⁴ The pre-distributive character of education is discussed in Chapter 5, 8.1.

that education is the principal mechanism by which individuals are sorted into such classes, and educational institutions thus serve in this context to "license" human capital and convert it to cultural currency".

CHAPTER 3. COMPARATIVE GERMANY AND BRAZIL: ECONOMIC MODEL, REDISTRIBUTION POLICIES AND SOCIAL CONTRACT

1. INTRODUCTION

The main goal of this chapter is to determine the main drivers of the construction of the current social contract in Brazil and Germany. In order to achieve this, one has to go through other challenges such as: (1) finding the historical roots of the national economic model that shape the socioeconomic panorama in Germany and Brazil today. (2) Comparing the evolution of the actors and institutions which determines the social contract in Germany and Brazil, that is, the dynamics and behaviour of national socioeconomic institutions as internal and external shocks happened. How to increase or at least maintain economic outcomes as well as welfare levels when these shocks hit Germany or Brazil is the secondary question this chapter aims to answer. Therefore, this chapter highlights the transformation of socioeconomic national institutions as they assimilate different realities in different periods of time. (3) Analysing the redistribution policies undertaken in each country through certain periods of time and their influence on the social contract. (4) Finally, the chapter argues that cultural aspects and welfare models are closely related to economic models as well. Esping-Andersen's (1990) work, *The Three Worlds of Welfare Capitalism* is one of the main references.

This analysis of the evolution of both socioeconomic models is important in order to interpret the results of the empirical studies of both countries and understand the different traditions upon which the two social contracts are based. The historical sequence will be defined and divided into its most relevant periods, which will later be analysed in detail one by one. This is necessary, as a social contract is not a static phenomenon, it evolves alongside the internal and external socioeconomic context. One recent paradigmatic example that shows the fragility of social contracts in a national context may be the situation of southern European countries, such as Greece, Portugal, or Spain during the 2007 global financial crisis. In these cases, when the socioeconomic circumstances changed, the current social contract was broken insofar as it was meant to provide jobs, social policies or public services such as health or education. Here, the diachronic study of the current social contract and its determinants in both countries will become the core of the study.

Before going deeper into the historical analysis, it is important to clarify some definitions. The term economic model is understood in this thesis as an institutional arrangement and it may only be explained *a posteriori*. By this I mean that the recognition of a model requires a backward look in

time since the creation of an economic model is an experimental (trial-error) process (Streeck, 2005). The major components to be taken for the characterisation of a model are institutional as well as ideational. More specifically, much of the success (or failure) in constructing the correct institutions to be able to accommodate any circumstance rests on the capacity of the economic and political actors to understand their own socioeconomic circumstances. For this reason, the analysis of both German and Brazilian economic models takes the actor-centred perspective from Peter A. Hall and David Soskice (2001) in *Varieties of Capitalism*. I will use the dichotomy presented in *Varieties of Capitalism* between Liberal Market Economies (LME) and Coordinated Market Economies (CME).

The chapter unfolds the following way: first, it examines the historical socioeconomic backgrounds of Germany and Brazil that shape their current socioeconomic institutions. Next, the most important turning points in their modern history are pointed out and described in more depth. Lastly, I analyse the concrete welfare policies undertaken from 1990 to 2016 and the national political contexts that prompt them. Then I present the conclusions with a brief summary of the socioeconomic pillars of both societies and their similarities and differences that are relevant for this thesis. At the beginning of the analysis of both countries I have constructed a historical framework with the structure of each country to show the reader the most striking points to be further analysed.

2. HISTORICAL SOCIOECONOMIC BACKGROUNDS

Before delving into the analysis of Germany and Brazil, a time-framework is presented in order to provide an architecture to be taken for further analysis. This has two main goals: (a) framing the period to be analysed and, (b) setting the points to be developed subsequently. During this task, one finds it difficult to choose which is most suitable factor between two options: relevancy and comparability. If the former is chosen, the analysis would then attempt to go as far back in as much depth as would be necessary to understand the actual political and socioeconomic situation in Brazil and Germany. For the latter, the period of time chosen for the study should be homogenised for both countries in order to make them comparable and consistent as otherwise the outcome would lack reliability.

Taking all these elements into account, four periods are clearly distinguished to establish a base framework. (1) Both countries set the basis of their economic and/or welfare model, to a greater or lesser extent in Germany and Brazil, at the end of the 19th century. (2) Subsequently, the post-war era between the 1950s and 1990s is when Germany accomplished the *Wirtschaftswunder* and Brazil

assimilated the idea of endogenous growth as its own with more or less success. (3) Thirdly, the period from the 1990s to the beginning of the 2000s will form the core of the chapter as in this period major transformations happened in both countries and it helps a great deal to be able to understand the current socioeconomic national contexts. (4) Lastly, the last decade is studied through the lens of the drivers of social contract formerly named. I will proceed by examining first Germany, in the following section, followed by Brazil.

In order to better understand the German reality, it is relevant to introduce the term 'Coordinated Market Economy' (CME) since it is being used as the backbone of German socioeconomic analysis. Two political economic models are differentiated in this chapter, namely CMEs and Liberal Market Economies (LMEs). This distinction has been taken from Hall and Soskice's *Varieties of Capitalism* and represent the two poles a nation can be closer or further from. LMEs are characterised by their central role in the market; the supply of goods and services are adjusted according to price indicators and the relation between economic actors is regulated by formal contracts. On the other hand CMEs believe in non-market systems of coordination, whereby actors rely more on collaborative relations as opposed to the more competitive behaviours of LMEs. Strategic long-term relations are promoted in CMEs to a greater extent as compared to LMEs whose relationship durations commonly rest on competitive rules (Hall/Soskice, 2001: 8). The main reason for the selection of CME and LME classification to define the German economic system is the temporary character of it. Germany as a latecomer industrialised country was able to catch up with Great Britain because of the variety of capitalism it created, not only based on market principles but cooperative forces from different agencies towards the same direction. Furthermore, the fact that reputable scholars writing about the German economic model such as Wolfgang Streeck & Kathleen Thelen (2005) and Christopher Allen (1997) have followed the same rhetoric, encouraged me to take the same perspective. Germany has repeatedly been named the paradox of CME, in contrast to Anglo-Saxon countries such as the United Kingdom or the United States which are identified as the best examples of LME (Hall/Soskice, 2001). Through this debate, I attempt to characterise the German economy and to understand the institutions as well as mechanisms which configure its functioning.

Even though the same classification is not used for Brazil, structuralism, which names the theory behind the current Brazilian socioeconomic system, shares the Hall & Soskice's (2001) view of the decolonised Latin American countries after WWII. However, in this case being a latecomer to industrialisation is not the only barrier to overcome but rather there are other challenges that other less developed countries face, such as the unequal terms of exchange in international markets, and these define its modern socioeconomic historical context (Prebisch, 1962). The structuralism theory

links development (or the lack of development) to exogenous factors and is the reason for the Import Substitution Industrialization Strategy (ISI). This strategy meant focusing on constructing its own national industries which provide higher added value than primary goods. This strategy may share some characteristics with the German CME, for example the development of national industries to improve the quality of the jobs and therefore the standard of living for workers. However, the main goal for Brazil was providing manufactured goods for their internal market and substituting for imports from developed countries with them. Germany meanwhile focused on beating the competition in the international markets.

From these departure points of Brazil and Germany I will describe the evolution of both socioeconomic systems. These descriptions will follow the same scheme divided into four dimensions: the international economic context, national politics, redistribution policies, and economic models. By describing both historical roots of the socioeconomic systems of both countries I aim to lay the foundations for the results of the empirical analysis.

2.1. BRAZIL

In this section I conduct a similar descriptive analysis for Germany and Brazil. The following table summarises the main features of the political economy evolution for this country.

Table 9. Political Economy Evolution for Brazil

<i>INTERNATIONAL ECONOMIC CONTEXT</i>	<i>NATIONAL POLITICS</i>	<i>REDISTRIBUTION POLITICS</i>	<i>ECONOMIC MODEL</i>
50s-60s Beginning of cold war era. With two polarised models, namely capitalist and communist. Emergence of ECLAC as a main	Second Republic (1946–1964) Military Regime (1964–1970)	Social inclusion is pursued by ISI model of development: using the surplus of export sector to develop industrial network. Strong role of state	Foundations of Structuralism: economic model followed by Brazil lead by Prebisch. Structural heterogeneity as a source of inequality

source of development strategies in Latin American region (maximum exponent of structuralism).		in improving living conditions through more qualified jobs and reducing the dependency on primary exports.	and poverty (Pinto, 1970).
70s-80s Fall of Bretton Woods, Oil crisis, (Atienza, 2002) Rise of neoliberalism in developed countries Latin America: Exterior Debt. 80s: Lost decade, IMF policies were followed by the majority of Latin American countries.	Military Regime (1970–1985) New Republic: José Sarney (1985-1990)	Breach in the social contract: Dualism between pre-capitalist and modern sectors. Incapacity of the latter to improve standards of living of the majority of the population (Ocampo, 2008).	Decadence of ISI: strong social tensions resulted from the dynamics of ISI in Brazil only benefiting a small fraction of Brazilian population due to accumulation of capital (Furtado, 1966:32)
90s Capitalism appeared as a winner against communism: <i>The End of History?</i> (Fukuyama, 1992) Consensus of Washington recipes	Fernando Collor (1990-1992) Itamar Franco (1992-1995)	Brazil social expenditure increased from 10.4% at the beginning of 1970s of the GDP to 25.6% one decade later (Pereyra, 2008:7)	Constitution of 1988: Presidential era, guarantor of economic stability (growth, inflation and unemployment) constraining any other priority, following the

as the main option followed by Latin American countries.	Fernando Henrique Cardoso (1995-2003)	thanks to these programmes: <i>Projeto Brasil Novo</i> (1991) <i>Plano Real</i> (1996) (Senra, 2010)	orthodox recipes (Alston, 2006: 72)
2000s & 2010s Global Financial Crisis generates economic shocks in practically all developed countries.	Luiz Inácio Lula da Silva (2003-2011) Dilma Rousseff (2011-2019)	<i>Plano Avança Brasil</i> (2003) <i>Plano Brasil de Todos</i> (2006) Subordination of explicit social policies in favour of economic stability as a precondition to achieve better standards of living (Senra, 2010).	Continuity of orthodoxy with significant advances in terms of poverty alleviation, especially the last part of Lulas mandate.

2.1.1. 1950s – 1960s FOUNDATIONS OF STRUCTURALISM: ECONOMIC MODEL OF BRAZIL

Structuralism, as a new economic current of thinking, was first named by Raul Prebisch after WWII. He stated that the new economic order after the war, which was based on classic economic theories³⁵, undermined the economic development of Latin American regions (Prebisch, 1962). Specifically, he questioned the equality of international free-trade relations encouraged by Western countries, since primary-export countries lose out against more industrialised regions (Prebisch, 1962). Furthermore, he named the condition of Latin American countries ‘periphery’ as opposed to the ‘centres’: Western developed countries. The main arguments he put forth for this distinction

³⁵ In particular, he referred to the theory of comparative advantage whose author was David Ricardo.

were: (1) the deterioration in the terms of added value compared to Western developed economies, (2) the unlimited work-force supply with low-wages, and (3) weak institutional structures reluctant to invest in new technologies (Bielchowski, 2009).

The solution proposed by Prebisch (1962) in order to overcome the unequal situation of peripheral countries such as Brazil was the Import Substitution Industrialisation Strategy. By modifying industrialisation patterns, Prebisch attempted to improve the living conditions of Latin American citizens through improvements in productivity rates that resulted in the model being able to reach levels of competitiveness on international markets (Bielchowski, 2009). This industrialisation strategy and protectionism were the two most characteristic elements of the years between the 1950s and 1970s, according to Jose Antonio Ocampo (2011). Furthermore, he highlighted that these ideas supposed the continuity of an economic model whose success was already tested during WWII, when Latin America together with United States were the regions with the highest growth rates (Ocampo, 2011). The controversy of protectionism during the cold war period when this term might sound close to soviet positions, above all for more orthodox economists, was nuanced in its articulation by the CEPAL as well as by development authors such as Hirschman (Ocampo, 2008). More specifically, they stated that Latin American regions did not take an explicitly protectionist position after WWII, and supported this with the following arguments: (1) during the war and given the difficulties importing in key sectors, Latin American states had to play a stronger role in developing their national industry; (2) this, together with the abandonment of the gold standard, the control of exchange rates, and the countercyclical macroeconomic policies demonstrated the general recognition of industrialisation as a source of economic growth for any nation and not only for Latin American countries (Ocampo, 2008).

With the coming of the 1960s, came the first outcomes of the ISI strategy. The optimism of the Economic Commission for Latin American and Caribbean countries (ECLAC) about industrialisation was moderate since problems derived from urbanisation, such as urban poverty and inequality of income, became collateral damage of this new production pattern (Bielchowski, 2009). Therefore, the issue of unequal growth observed during this process of industrialisation became a major line of research and has been since then. ECLAC researchers such as Tavares, Furtado, and Pinto increasingly delved into the causes of disparities between sectors, regions, and people. Pinto defined those differences as structural heterogeneity (Bielchowski, 2009: 175), which as a term was taken by other CEPAL authors and embodied the inequality between the industrial and primary sector. The former was barely able to employ the total workforce due to insufficient investments, and therefore even if the surpluses had become substantially higher in the industrial sector than the primary sector (which was apparently true) the benefits would have been extremely concentrated

(Di Filippo, 2009). Since then, institutional reforms in the fields of agriculture, taxation and finance were proposed by the ECLAC in order to deepen and improve the industrialisation strategy (Bielchowski, 2009).

- *Structural heterogeneity* (Bielchowski, 2009)

During the 1950s and 1960s there were a few authors such as Pinto, Furtado, Tavares, and Serra that linked poverty with the unequal distribution of incomes related to the growing disparities between productivity and remuneration. This is the origin of the concept of structural heterogeneity according to Bielchowski (Bielchowski, 2009).

Pinto (1970) in his work *Naturaleza e Implicaciones de la Heterogeneidad Estructural de la América Latina*, delved into the causes of this phenomenon and its consequences for the development patterns in Latin American countries, particularly in Brazil. Unlike the dualism theory which approaches the analysis of primary-export countries through the distinction of two enclaves, namely the export complex and the rest, Pinto, with the advent of modern technology and the ISI strategy, points out the differences in productivity between primary and secondary sectors. These *banana republic* countries (Pinto, 1970: 550) represent the paradox of primary-export countries whose population was not to be benefited from the profit of the export specialisation. This divorce was less pronounced in countries such as Brazil with lower grades of specialisation where the production was shared between local and export markets. With the introduction of the process of Import Substitution Industrialisation (subsequently explained in more detail) in Brazil, structural heterogeneity was slightly modified. Inward-oriented diversification raised the grade of modernisation together with average levels of productivity, especially in comparison to the primary-export production model.

From the same article written by Pinto, and only considering two broad sectors, namely primitive³⁶ and modern³⁷, it can clearly be seen that in 1960 the modern sector employed 14% of Brazilian population while it contributed 42% of the GDP. The primitive sector only contributed 10% of the GDP, however the percentage of workers in this sector comprised 42% of the Brazilian population (Pinto, 1970: 566). Other authors such as Tavares and Serra point to this unequal income distribution as well as the demand structure in Brazil during the 1960s as the main causes of the decadence of the ISI model (Serra and Tavares; 1998: 584)

³⁶ Primary sector goods.

³⁷ Goods of capital.

2.1.1.1. IMPORT SUBSTITUTION INDUSTRIALISATION STRATEGY

Albert Hirschman (1958), who is considered not only a reputable economist but also a social scientist, explained the industrialisation in Latin America by comparing it with Gerschenkron's concept of the late industrialisation characteristics of Europe's industrialisation period. Through this analysis, Gerschenkron (1962) deduced four common features of the Continental European process of industrialisation: (1) historical discontinuity, (2) focus on big corporations resulting in a tendency towards monopolists' agreements, (3) production oriented to intermediate goods over consumption goods, and (4) this process took place in an organised manner either by private organisations or public institutions, usually in the earlier steps of the process in the case of the latter. In the case of the Latin American process of industrialisation, commonly called ISI³⁸, none of the four above characteristics of the European late industrialisation strategy were met, according to Hirschman (1958). On the contrary, in Latin America the development of the industrial network took place gradually, from the export of consumption goods in relatively small plants, compared to European counterparts. In fact, the primary sector by 1950s still played a major role in the trade balance of Latin American countries, and therefore attempts to switch from primary to manufacturing goods was not as effective as expected, as stated by Ocampo (2008).

Although the local industrial sector was growing (inward growth), WWII hampered the import of intermediate and capital goods from more industrialised countries. Both facts, outward and inward growth, contributed to the construction of the ISI Strategy. In countries such as Brazil, the export of primary goods was seen as a way of obtaining foreign currencies in order to finance the import of capital goods to increase the importance of the industrial national sector. Therefore, export and industrial sectors were not perceived as enemies, in contrast to the way orthodox literature tried to present them (Ocampo, 2008: 43). This fact gave way to an explicit set of policies undertaken by national governments in Latin American countries. Developments were rapidly resulting in an academic discussion, which started, in the words of Prebisch (1962: 5), with the following: "The doctrinaire discussion, however, is far from being ended. In the economic field, ideologies follow at distance events."

³⁸ According to Ocampo, this is not the most accurate term to define the process of industrialisation in Latin America given the fact that it embodies only one part of the general industrialisation strategy. He would rather call it "industrialisation managed by the state" (Ocampo 2008: 43)

2.1.1.2. ISI IN BRAZIL

Brazil, after WWII, became one of the most successful examples of the Import Substitution Industrialization model (ISI). Brazilian employment issues, like other countries, were faced through Keynesianism³⁹, rather than specific labour policies. Still, it is also true that the Brazilian government at that time undertook a massive training programme to accommodate the rural workforce (specialized in the agriculture sector) in new urban manufacturing, although this set of policies was secondary (Ramos, 2002).

During the government of Getúlio Vargas⁴⁰ a great process of industrialisation was undertaken following the development currents of the region. The efforts to improve the industrial strategy during the 1950 and 1960s were remarkable; the Brazilian state used all its capacities to assure the success of this strategy. The same state assumed the role of a productive agent in strategic sectors such as infrastructure and basic goods, which was not very attractive for private investors. This new industrial model was based on various institutions created for the same purpose. They were intending to embrace the demands of such a challenge in terms of human resources, technology, and funding. As a result, the main institutions created for the purpose of industrialisation in Brazil were the following (CEPAL, 2014):

- SESI (*Servicio Social de la Industria*), CAPES (*Coordinación de Perfeccionamiento de Personal de Nivel Superior*) and ITA (*Instituto Tecnológico de Aeronáutica*): all related to the formation of Human resources (CEPAL, 2014: 88)

- CNP (*Consejo Nacional de Investigación*), BNDE (*Banco Nacional de Desarrollo Económico*) and later FINEP (*Financiadora de Estudios y Proyectos*) which assumed the management of these two funds in turn: FNDCT (*Fondo Nacional de Desarrollo Científico y Tecnológico*) and FINEP (*Fondo de Desarrollo Técnico-Científico*). Also, local Institutions from different states of Brazil supported investigation projects, for example, the FAPESP (*Fundación de Amparo a la Investigación del Estado de San Pablo*). Subsequently other regions followed the same model with a set of institutions that intended to provide for financial, technological, and research sectors to improve the dimension and productivity of the industrial sector (CEPAL, 2014: 89).

³⁹ The belief that economic growth would improve unemployment rates.

⁴⁰ He governed from 1930 to 1945 and from 1951 to 1953 until he committed suicide during his second mandate.

2.1.2. 1970s – 1980s: END OF STRUCTURALISM AND THE LOST DECADE

The 1970s started with a discussion on two main topics: the difficulties of improving economic growth, and inequality in the distribution of incomes. Regarding the former, ECLAC highlighted the limits of the ISI strategy in providing stable economic growth resulting from (1) the lack of institutional frameworks focused on investment and technological innovation, as well as (2) the excess of protectionism. The proposal from ECLAC to overcome these boundaries was oriented towards improving the position of Latin American countries not only in internal markets but also in foreign ones to face the external vulnerability they were suffering. This strategy was presented in contrast to the opposite option, external debt, whose risk was pointed out by ECLAC. In terms of the latter, the debate between supply as capital accumulation and demand as distribution of income was intensified and it was evident (according to ECLAC authors) that the current model at that stage perpetuated inequality and undermined the efforts to decrease poverty rates. The solutions proposed by ECLAC were oriented towards moderating inequality of income levels to recover real democracy (in part lost during the last decades) through fairer economic growth (Bielchowsky, 2009).

The following decade, also called the *Lost Decade* due to the general fall in income per capita caused by the debt crisis, changed the focus of the work within the ECLAC organisation. They moved to macroeconomic topics that had not been explored as much by the institution that until then had put the emphasis more on development and equality issues. This shift was strongly precipitated by the disagreement with the orthodoxy represented by the IMF about the response to the inflationary process in the region. The solution of IMF to advance big sums to Latin American countries was criticised because of the short-term perspective of the matter and the ECLAC proposed in turn a more structural solution (in line with its own principles) combining the control of inflation and the renegotiation of the terms of the external debt in order to support investment and growth. However, ECLAC researchers did not forget economic development completely, especially not its productive and distributive spheres. While the main exponent of structuralism was Prebisch, Fernando Fajnzylber (1990) represented the face of the new current in the ECLAC called Neostructuralism. The major work by him, *Industrialization in Latin America: From the "black box" to the "empty box": a comparative of contemporary industrialization patterns*, was erected as one of the texts of reference of this new stage within the ECLAC organisation. Broadly, in his work Fajnzylber (1990) disagreed with neoliberals on the weak role of the state in developing the economy. Instead, he put the state in the centre of the development model (Bielchowsky, 2009).

Also, the lost decade supposed a breach in the social contract in Brazil. Furtado (1966) stressed the fact that ISI strategy was not able to provide high skill jobs for most of the population. The combination of pre-capitalist structures, focused primarily on the export industry with some modern features of the modern sector, was trying to move towards manufacturing goods and has not been proven successful in labour terms.

2.1.2.1. DECADENCE OF ISI

Celso Furtado focused his analysis on the causes of the decline of ISI and the demand structure which depended upon the distribution of income in turn. In his opinion the industrialisation process undertaken in Brazil was not able to modify the concentration of income patterns inherited from the primary export model before the 1950s. The demand was increasingly oriented to high-middle income classes, instead of reaching a more socially integrated market which was the goal at the instatement of the ISI model (Serra, Tavares; 1998: 576). Rama stated that while ISI contributed to improving the quality of life of wide sectors of society, the benefits of the process were concentrated in the medium-high layers of the population. Those urban areas whose consumption is not concentrated on industrial goods fell outside the ISI purview (Rama, 1987: 20). CEPAL gave numbers to support the same idea of unequal distribution of outcome; the rate of poverty in Latin America in 1950 was 50% and it dropped to 35% in 1980 while the GDP doubled during the period (Rama, 1987: 20). Therefore, according to this data, it is clear that low social strata were not benefiting from the industrialisation process to the same extent as middle upper-strata. This is even more plausibly the case in Brazil where the relation of income between the 10% richest and the 20% poorest in 1970 was 51 five times more than in Argentina, where the same relation was 8,8 in 1972 (Rama, 1987: 22).

There were scholars such as Hirschman that refused to use the term 'exhaustion' (used by other authors) to define the limits of the ISI. He did not agree with either the orthodoxy or the more heterodox explanations of the causes of the decline of the ISI. On the one hand, critics of the ISI argued that the economies of scale, generated at the advanced stage of the process, generate rising costs and, therefore, diminishing the profit rates. They pointed out the inaccurate assignation of resources, forgetting the main principles of macroeconomics and focusing on the balance of payments more than on fiscal discipline. On the other hand, from the left side of the argument, they highlighted the new forms of dependency (on foreign capitals) that arose with the implementation of ISI due to the strong polarisation of the world's economy. These critics, coming from both sides, undermined the efforts of policy makers in most Latin American countries to maintain the ISI.

However, Hirschman stresses that there is more emphasis on the struggle between different economic ideologies than on the actual inefficiencies or dynamics of the process (Ocampo, 2008).

2.1.2.2. EXTERNAL DEBT AND THE LOST DECADE

The 1980s are remembered as the 'Lost Decade' due to the structural adjustments undertaken by Latin American countries. These measures were a consequence of the growing debt assumed in the region that started with the first oil crisis in 1973 and got worse at the end of the 1970s, anticipating the economic meltdown. The rise in the price of oil increased the income of oil exporting countries, whose money in turn was deposited in European banks. Those oil exporting countries lent part of this money with low rates of interest and flexible conditions to developing countries, mainly, and for this thesis most importantly, to Latin American ones. At the beginning, all these amounts were used to finance the growing public expenditure in these countries. During the years when the prices of *commodities* were rising, those countries could regularly pay back the debt without difficulties, however, at the beginning of the 1980s notable changes took place: (1) The prices of the commodities dropped sharply, deteriorating the exchange terms⁴¹ in Latin American countries. (2) Given the fact that oil prices rocketed, inflation in developed countries grew accordingly and national governments decided to use monetary policies increasing interest rates, dramatically affecting the debts incurred by its borrowers. Both circumstances, together with the lack of dynamism of the ISI model to diversify production and exports⁴², left Latin American countries in a similar position as in the past in world markets — depending again on primary goods.

The national governments tried to compensate for their weak position in the balance of payments with internal financing; in Brazil the public expenditure rose from 35.9% of the GDP in 1970 to 52.7% of the GDP ten years later (Pereyra, 2008: 7). Also, massive amounts of capital were taken outside the countries due to the evidence of economic unrest within the region. Subsequently, the first country in the region, Mexico, failed to pay back the external debt contracted in 1982. This resulted into something like a domino effect, with the whole region collapsing and paralysing most of its economic activity and consequently depleting finance resources (Pereyra, 2008). The IMF entered the scenario at the beginning of the 1980s providing resources to keep the region functioning, however these came with conditions called structural adjustments plans. The receipts coming from IMF were related to: (1) fiscal and monetary restrictive policies, diminishing public expenditure

⁴¹ Exchange terms: relation between import and export prices.

⁴² Already discussed in the point 2.2.2

considerably and likewise consumption rates and aggregate demand; (2) interest rates were not raised in order to attract foreign capitals, therefore incoming capitals had merely speculative purposes and did not enhance the macroeconomic situation; (3) the national currency was devalued in order to improve the balance of payments and, together with the control of capital movements, import quotas were established (Pereyra, 2008).

ECLACs fields of study moved during the 1980s from equality and productive development to macroeconomic analyses which were for the most part not studied during former decades (Bielchowski, 2009). This may be explained by the fact that inflation rates rose by around 1750% between 1980 and 1990 (Pereyra, 2008: 8) and in countries such as Brazil this consequently left other topics to the side until the primary problem was solved. The position of the institution about the way of fighting against this hyperinflation was not clear at the beginning. ECLAC authors debated between more orthodox sides closer to IMF policies and more familiar heterodox positions in favour of renegotiating the external debt to recover the path of economic growth. Finally, the latter was taken as the general position of ECLAC, avoiding the significant short-term sacrifices imposed on creditors to reach medium/long term competitiveness in foreign markets. This message followed the traditional ECLAC position from its birth, focussing again on the long-term perspectives rather than facing short term issues and providing structural solutions related to increasing and diversifying production and exports (Bielchowski, 2009).

2.1.2.3. BREACH IN THE SOCIAL CONTRACT

The already mentioned structural heterogeneity resulting from the ISI strategy did not only have economic implications, but also had social consequences in Latin American countries. The fact that only a very small fraction of the population was benefiting from the national economic growth was reflected in the political sphere. It can be observed that extremely dependent political groups were unable to take political actions given their situation under clientelistic practices together with other parties whose cultural level allowed them to pursue different logics of development (Rama, 1987). Related to this idea, it is paradoxical that the most developed regions were the ones most against the model adapted in the name of equality. That is the reason why countries that reached high degrees of development had undertaken measures to integrate lower social strata in the development strategies (Rama, 1987).

Nevertheless, the emergence of new political groups was relatively weak compared to the traditional groups of interest. The influence of a new *bourgeoisie* had been affected by its double relation of dependency, on the one hand internally on the state and on the other hand externally

on transnational companies. This political instability was reflected in the fact that alliances between dominant groups and the popular ones were conceived not as alternatives but as tactical ways to overcome the resistances within the same dominant party. In that situation, amongst the population, whose role was merely to be a passive spectator, the social legitimation of national governments steadily decreased. Therefore, during the 1970s the population's demands could not be fulfilled by promises anymore, regardless of the colour of the party in charge, but instead resulted in a call for political voice as well as participation in the national income (Rama, 1987).

The middle class played a key role in the development style in Latin American regions. According to Rama (1987), the dominant groups divided the middle class. On one hand it pushed the lowest strata to extreme poverty, from which they could not grow an accumulation of capital. On the other hand, it improved the accumulation levels of the higher strata through the appropriation of their own incomes. The main channel to improve the socioeconomic level was education and the subsequent recognition of these achievements through rewards such as higher incomes or social reputation. These structural channels are object of restrictions and tend to precipitate claims either in its own interests or representing lower strata (Rama, 1987).

In the case of Brazil, the dynamics of the ISI together with the advance of the concentration of capital, characteristic of capitalist economies, caused strong social tensions and only benefited a small fraction of Brazilian population. Furtado (1966) pointed to this unequal redistribution of income as one of the main causes of the stagnation of the ISI in Brazil and stated that there was no evidence of significant changes in the social structure, although the process could last a few more years. Both authors, Furtado (1966: 33) and Hirschman,⁴³ agreed with the idea that the development model in Latin America through the ISI was not comparable with the one undertaken by capitalist countries decades or centuries ago. Furtado (1966: 34) highlighted that the dualistic paradigm of Brazil, which combines pre-capitalist structures with the modern sector, was not able to provide a substantial amount of jobs to Brazilian citizens. The attempt to move from a primary export model towards an ISI model to keep high value industries in the country had not succeeded in terms of equality. To the contrary, the dualism characteristic of capitalistic countries arose between the participants in the sector and the underemployed (in urban areas) or agricultural sectors (between rural and urban areas). The fact that there was no redistribution between both pre-capitalist and modern-industrial society may have limited the success of the ISI model due to the lack of domestic demand for manufactured goods. At the same time, the decrease in agricultural investment in new

⁴³ Hirschman, according to Ocampo (2008:50), compared the patterns of development of late-industrialising countries and he concluded that ISI model was closer to Marxist development model.

equipment had harmed the productivity of the primary sector, creating a vicious circle of dualistic society (Furtado, 1966).

2.1.3. 1990s: NEW WAVE OF NEOLIBERALISM AND 1988'S CONSTITUTION

Latin American politicians were exposed to enormous pressure after the Lost Decade. Inequality rates, social unrest, and commodity prices together with internal macroeconomic difficulties obliged governments to undertake a set of political reforms to overcome these issues. The countries of the region adopted different measures. However, all were strongly influenced by orthodoxy that aimed to reply to the success of emergent countries in Southeast Asia. The World Bank stated that these reforms should be undertaken as soon as possible to reduce further possible cost (Bauman, 2001: 151).

Financial institutions as well as academics agreed to the indispensable policies that immediately had to be adopted in what today is known as the Washington Consensus.⁴⁴ These policies were taken as the main *handbook* to face economic matters in the region, especially hyperinflation. In general, the recommendations were to focus on the market and, based on economic liberalisation, the arguments presented were for: (1) the reduction of inefficiencies generated by inadequate distribution, (2) stimulating the learning process, (3) opening economies so that they could better face external shocks, and (4) market economies that do not promote clientelist relations (Bauman, 2001).

The application of neoliberal measures together with the lack of competences in economic issues of Latin American governments caused, according to Pereyra, breaches in the social contract. By putting economic topics before social matters, developing countries such as Brazil showed notable deficiencies, namely high levels of unemployment, deficiencies in the public health system, increase in poverty rates, and social exclusion (Pereyra, 2008).

In the case of Brazil, the arrival of Fernando Collor, the first president democratically elected after the dictatorship, supposed even deeper changes than in the rest of the Latin American countries. Because it was after a long period of inflation and because it had been one of the most closed economies in the region, with the state as the main provider of goods, Brazil undertook market-oriented measures. At the end of the decade, Brazil was able to have the longest period of price stability to date, reducing the inflation dramatically from 2439% in 1993 to 5.3% in 1996 (Bauman,

⁴⁴ Group of experts from different institutions such as the US congress, IMF, World Bank and Federal Reserve.

2001: 154). Nevertheless, this plan was criticised for lacking long and even medium perspective, all fields having been subordinated to the reduction of inflation (Bauman, 2001).

2.1.3.1. WASHINGTON CONSENSUS AND THE WAVE OF NEOLIBERALISM

The crisis of debt during the 1980s had negative consequences in economic terms, and the so-called hyperinflation phenomenon became a major issue for countries such as Brazil. Furthermore, these economic matters affected governability and democratic institutions. Within this context, at the beginning of the 1990s, neoliberalism was established as the new pattern of development in Latin American countries. The Consensus of Washington materialised this new economic current in ten broad points to be further developed (Pereyra, 2008):

- Change in the patterns of public expenditure to health, education, and infrastructures;
- Budget discipline, balancing the public expenditure, and reforming fiscal system;
- Reforming the fiscal system, aiming at broader tax bases and moderate marginal rates;
- Financial liberalisation through deregulation of the financial system and promoting the competition in this sector;
- Pursuing competitive exchange rates;
- Trade liberalisation in order to improve the position of developing countries in world markets;
- Liberalisation of capital markets allowing the entry of foreign direct investments;
- Privatisations so as to undermine the role of the state in the economy aiming for more efficient services;
- Deregulations, above all in administration;
- Guarantee of property rights.

During the first years of the application of these policies, growth rates and economic stability improved, providing economic relief for the region. However, the sudden opening of national markets through sharply lowering the tariffs from 105% in 1988 to 35%⁴⁵ in 1993, provoked negative effects given the lack of competitiveness of local industries compared to their European or North American counterparts (Pereyra, 2008).

- Critics to Washington Consensus:

⁴⁵ Maximum tariff applicable each year.

Joseph Stiglitz advocated for using the market as a tool for development, notwithstanding the reforms that had to be undertaken in a sequenced way. He proposed that before market liberation, other reforms should be implemented to increase the competitiveness of the industrial net so as to promote the creation of jobs. Subsequently, when the country opened the borders to foreign capital, most of the population could benefit from this (Stiglitz, 2002: 87).

Additionally, he was slightly sceptical about the leading role of the market in the reforms proposed by the Washington Consensus to detriment of governments. According to him the IMF's view of the market as a panacea for all ills is exaggerated. It had already been demonstrated that for the developing countries which had embraced orthodox (market oriented) recommendations and had been able to achieve decent levels of growth, the concentration of benefits that took place were ephemeral. On the contrary, the same countries that opted for more state streams-oriented policies and supported domestic industries to compete against imports achieved a more stable growth. For example, during the 1960s when the Import Substitution Industrialisation Strategies were enacted the Latin American growth average was 5.4%, whereas during the 1990s when the Consensus of Washington was implemented as the economic paradigm the growth average was just more than half that - 2.9% (Stiglitz, 2002: 86).

2.1.3.2. CONSTITUTION OF 1988: TOWARDS ECONOMIC STABILITY

The *recent* constitution written at the end of the 1980s sharply demarcated the role of the executive, legislative, and judicial powers. One of the main changes in the role of public institutions was the drastically increased power given to the President. Their main role (after the so-called Lost Decade) was none other than to guarantee the economic stability, focussing on economic growth, inflation and unemployment. Basically, the President became the advanced student of the Washington Consensus policies and the Brazilian electorate held the president accountable for maintaining this economic stability in turn. The motivations for pushing the President towards orthodoxy could not provide the outcomes that were expected. However, international financial markets saw this as a positive signal and any deviation would be punished by the electorate (Alston et. al., 2006: 72). Nonetheless, this move towards orthodoxy supposed instability in other socioeconomic spheres, such as poverty alleviation, health care, education, and infrastructure. All these were defined as residuals compared to the main goal of economic stability and therefore the constitution of 1988 constrained the policymaking process in these fields secured by judicial power and therefore being highly independent on issues of constitutionality. Legislative power, in turn, represented the only institution really enforcing legislation on education and public health.

2.1.3.3. EVOLUTION IN THE SOCIAL CONTRACT

The application of the Consensus of Washington Decalogue has been criticised as having only focused on economic matters, especially the inflationary process. Nevertheless, the consumption rates diminished dramatically, provoking in turn an increase in unemployment levels. Moreover, one of the main problems, according to Pereyra, lay in the fact that equality was never pursued by neoliberal mandates. This was especially detrimental in Latin American countries, where inequality has been a major issue since the end of WWII: GDP per capita of the 20% richest was 18.7 times higher than that of the 20% poorest, while world average of the same indicator was 7.1%. While neoliberal policies achieved a certain degree of success in economic matters, such as lowering inflation rates or diminishing fiscal deficit, it proved to be unable to improve social indicators: unemployment rates, the public health system, poverty rates, or social exclusion (Pereyra, 2008: 13).

The stability of prices together with public transfers generated positive effects on the real income of employees, reducing the number of homes under the poverty line by 22% from 1990 to 1996 (Bauman, 2001). Income inequality still constituted the Achilles' heel of Brazilian society, as between 1990 and 1997 the Gini index remained similar, around 0.7, and the Theil index also showed the same trend at around 0.6 (Bauman, 2001: 167). More qualitative analyses⁴⁶ of these results revealed that the participation of the richest strata in the total income of Brazil was still very high. The reasons these individuals obtained much higher incomes were related to different factors, namely (1) greater levels of qualification, (2) kind of activity, and (3) financial profit coming from higher interest rates (Neri & Camargo, 1999).

In respect to the employment situation during the 1990s there is a study undertaken by ECLAC, ILO and UNDP (ECLAC, ILO, UNDP; 2008) that measured the deficit of the jobs through four dimensions: (1) kind of job, (2) employment rights, (3) social protection, and (4) social dialogue. The conclusions of the study showed that the deficits of jobs in Brazil during this decade were notably high regarding both quantity and quality. Women were still far from being completely integrated in the job market, same for people of black ethnicity whose income was also far lower than the average. Minimum salary barely increased during this decade and the people working excessive hours remained notably high. Regarding the rights of employees, there was a clear advance in the field of child labour as the proportion of children working dropped by 50%. Furthermore, the number of affiliates to a Union

⁴⁶ (Neri, Camargo; 1999)

grew notably, especially amongst black women. Finally, it has to be mentioned that the percentage of the population contributing to the existing social security system was moving steadily towards around 50% of all workers in Brazil (ECLAC, ILO, UNDP; 2008).

2.1.4. 2000s: PLANO AVANÇA AND PLANO BRASIL DE TODOS

The second government of Fernando Cardoso (2000-2003) was marked by the *Plano Avança Brasil*. In the same context of neoliberalism that pursued both market economy as well as reforming the state, the so-called *custo Brasil* (Brazil cost) appeared as a limit to the economic development of the country. In order to overcome this boundary and reduce this cost, the Brazilian state undertook a set of measures: (1) eliminating restrictions of foreign capitals; (2) stopping public monopolies, and (3) promoting new regulations on energy, telecommunications, oil, and ports. Moreover, the directives of this plan were focused on: (1) consolidating the economic stability so as to generate employments and improve incomes, (2) facing poverty and promoting social inclusion, (3) consolidating democracy and human rights, (4) reducing regional inequality rates, and (5) improving the rights of minorities, usually victims of discrimination. The rationale of this plan was that by investing in social development, environment, and research and development a virtuous circle would be created improving socioeconomic indicators, such as employment rates, income per capita, GDP and equality rates amongst others (Senra, 2010).

The subsequent three-year plan (2003-2006), *Plano Brasil de Todos* (Brazil plan for all), undertaken by the president Luis Inácio Lula da Silva followed the same goals of economic stability, but above all highlighted the importance of economic growth and competitiveness. The plan sought to improve the former indicators through creating a favourable environment for private investments as well as a reduction of the so-called Brazilian Cost. Regarding social policies, *Plano Brasil de Todos* included measures oriented to increasing income levels as well as consumption rates. The plan especially aimed to improve poverty incomes to a greater degree amongst the poorest and not only through direct transfers, but by raising the salaries of the lowest qualified jobs above market levels. Additionally, inequality was not only faced vertically in this plan, horizontal differences between regions were prioritised and it was taken into consideration that regional policies could not be subordinated to the market principles which promoted economic concentration and therefore worsening inequality rates. It pursued reducing inequality among regions, but also considered regional disparities. Next, multi-year plans followed the same line of work, with the difference of adding research and development as a priority to the other factors already mentioned (Senra, 2010).

There were also critics of the overemphasised inflation-focused policies in Latin American countries and especially in Brazil during the 1990s and 2000s. Joseph Stiglitz in his book *Globalisation and its Discontents* (Stiglitz, 2002) stated that putting inflation in the centre of the table resulted in automatically taking other necessary reforms off the table. For example, land or financial reforms were under-emphasised and the excessive focus on inflation therefore led to high interest rates as well as high exchange rates, provoking unemployment. With this orientation of reforms, financial markets benefited to the detriment of their own workers (Stiglitz, 2002: 81).

2.1.4.1. REDISTRIBUTION POLICIES

Lulas administration shifted the orientation of the poverty alleviation strategy. While *Comunidade Solidaria* (Solidarity Community) represented the flagship programme in this field, *Fome Zero* (Zero Hunger) became the major programme at the beginning of Lulas government. When Lula took power, he created the *Ministério Extraordinário para a Segurança Alimentar e Fome* (Ministry for food security). The programme *Fome Zero* managed by this ministry prioritised the poorest regions over the richest, and lower incomes over the highest. After ten months of the application of the programme, it was already criticised from different sectors, such as NGOs or other political parties, to be extremely uncontrolled (not attached to any condition) before it was finally ended by the administration. Thereafter, the same ministry was renamed *Ministério para o Desenvolvimento Social e Combate à Fome* and the *Cartão Família* (single card) was introduced. This card entitled families to receive food as well as other conditional benefits, namely vaccinations and school admission. This initiative supposed a merger of cash transfer programmes during Cardoso's period: *bolsa escolar*, *bolsa alimentação* and gas benefit. Thus, the idea of creating a single card was already undertaken by former administrations, but the Lulas government tried to emphasise the positive effects of the *Fome Zero* programme, in particular that it would use few resources than the ones planned at the beginning (Alston, 2006: 53).

Another important leg of the redistribution policies was health policy. Regarding this, the Constitution of 1988 merged pensions, social assistance benefits, and health care into one budget. The fusion of these three expenses caused a pernicious effect in health care policies since pensions were named a contractual expenditure, whereas health care was a current expenditure by definition. The former finished when the pensioner died, however the latter may vary depending upon the fiscal management. Furthermore, the civil servants under the umbrella of a pension system notably grew together with the equalisation of rural pensions to urban standards. These changes provoked a shock in the health care system just at the beginning of implementation. All these

matters turned the health sector into a major problem for every coming government: infant mortality rates for example were considerably higher than in other similar countries (according to GDP *per capita*). The development of the country rested partially on its health system, with the executive being well informed about this critical fact. For this reason, they tried a great deal of proposals in order to overcome this major issue, until it was finally stopped by finance planners as the implementation would have added even more rigidity to the budget. Finally, the decentralisation of health care (by the Constitution) limited the freedom of action of the federal government, which depends mostly on voluntary health transfers from one state to another (Alston, 2006: 59).

Finally, education represents a key to shedding light on redistribution policies. Despite the critics of the Workers party during Cardoso's administration in the field of education, Lula did not increase the federal funding allocated to it. They tried to control sub-national competences such as education, but at the same time they wanted to maintain the federal fiscal priorities. Municipalities sought as many pupils as possible as federal transfers depended on this. Thus, the same states decentralised education even further to the local sphere, following the preferences for fiscal expansion at local levels to meet the government's priority of raising national universal per capita levels in a manner similar to those amongst the health policies they created (Alston, 2006: 62).

2.1.4.2. MODERN SOCIAL CONTRACT

Regarding the employment situation during the 2000s, the same tools that were used for the decade before have been considered⁴⁷ (ECLAC, ILO, UNDP; 2008), which measured the deficit of jobs through four dimensions: (1) kind of job, (2) employment rights, (3) social protection, and (4) social dialogue. The conclusions of the study showed that the deficit of jobs in Brazil during this decade were lower than in the decade before both in terms of quantity and quality of jobs. The representation of women in the active job market was indeed higher, though nevertheless there were around 24% less women than men holding occupations in 2006 (ECLAC, ILO, UNDP; 2008: 72). The same was true for the black population whose income was 47% less than that of the white population (ECLAC, ILO, UNDP; 2008: 72). Despite these figures, equality of income improved in general. In respect to the minimum salary, it can be stated that it remained similar, however, for the people earning exactly around this amount it was still considerable. Regarding employees' rights, indicators of child labour continued to improve considerably and the number of affiliates to a Union

⁴⁷ Point 3.3.2

was still in plain growth. Last but not least, the percentage of the population contributing to the social security system went up steadily (ECLAC, ILO, UNDP; 2008).

The Consensus of Washington was not especially focused on the social contract when they set the patterns of development for developing economies. Indicators such as redistribution of income or poor alleviation were not on its agenda. According to Stiglitz (2002), one of the main critics of the institutions behind it, namely the IMF, WB and Federal Reserve of US; they trust on *trickle-down*⁴⁸ economics to eventually reach the poor. While it is true that economic growth is important to fight poverty, the opposite is not necessarily true (growth itself does not benefit all strata of society). As the Nobel Prize winner Simon Kuznets stated, at the beginning of the development process inequality rates grow but the trend changes to its opposite in more advanced stages. In the case of Latin America, the growth during the implementation of orthodox policies was not accompanied by poverty reduction or reduced inequality rates. They looked promising in terms of advances in market reforms but less was said about poverty (Stiglitz, 2002: 79). He argues that there are three kinds of policies which may improve economic growth as well as poverty rates: (1) win-win, the ones that improve both indicators, (2) lose-lose, the ones that do very little in favour of one in a short term but worsen the other and (3) the ones that present trade-offs between both. In respect of the latter, trade liberation could be considered an example since it improves growth but affects poverty rates negatively. All this is said without considering the political risks assumed in the long term when a society is polarised to the detriment of the so-called middle class who traditionally are the drivers of new laws in favour of citizen rights such as education or universal public health. Moreover, Stiglitz named this group as “essential” (Stiglitz, 2002: 82) for a healthy economy and the construction of a social net.

2.2. GERMANY

Table 10. Political Economy Evolution for Germany

<i>INTERNATIONAL ECONOMIC CONTEXT</i>	<i>NATIONAL POLITICS</i>	<i>REDISTRIBUTION POLICIES</i>	<i>ECONOMIC MODEL</i>

⁴⁸ Term usually associated with criticism of laissez-faire capitalism. It refers especially to the policies that favoured the rich or privilege.

<p>Hegemony of free market economy in developed countries. UK and US economic leadership. Until its decadence linked to the weaknesses and dangers inherent to an autoregulated market (Polanyi, 2001).</p> <p>Germany with the leadership of Bismarck sets the base of Coordinated Market Economy as a counterpoint of Liberal Market Economy (Hall/Soskice, 2001).</p>	<p>1871-1890 Bismarck era</p> <p>1890 – 1894 Conde Leo von Caprivi</p> <p>1894 – 1900 Prince Chlodwig zu Hohenlohe-Schillingsfürst</p> <p>1900 – 1909 Prince Bernhard von Bülow</p> <p>1909 – 1917 Theobald von Bethmann-Hollweg</p>	<p>Late nineteenth century, First OCM</p> <p>Beginning of the welfare state: underemployment is socially accepted and protected as long as the number of people in situation of in this situation is small enough to be socially acceptable (Streeck, 1995)</p>	<p>Visionary ideas: close coordination between banks, firms and unions (Streeck, 1995).</p> <p>Construction of male-breadwinner model with family as the main provider of welfare (Morel, 2006).</p>
<p>WWI & WWII</p>			
<p>Post-war era: beginning of the Cold War</p> <p>1945 – 1971 Boom free market economy versus communism until the end of Bretton Woods</p>	<p>First stable democracy in the Federal Republic of Germany, <i>Stunde Null</i> (zero hour) (Allen, 2010: 13).</p> <p>Adenauer and Erhard “fathers” of social</p>	<p>Mid twentieth century to 1990 (reunification): Second OCM</p> <p>social protection as one of the key elements of the strategy, so as to minimise social tension and political</p>	<p>Continuity with the late nineteenth century economic policies: again rapid re-organisation of resources through close cooperation among banks, corporations and</p>

<p>1970 – 1990 global economic recession in western economies except for Western Germany and Japan</p>	<p>market economy (Allen, 2010: 9).</p> <p>1949 – 1963 Konrad Adenauer</p> <p>1963 – 1966 Ludwig Erhard</p> <p>1966 – 1969 Kurt Georg Kiesinger</p> <p>1969 – 1974 Willy Brandt</p> <p>1974 – 1976 Walter Scheel</p> <p>1976 – 1982 Helmut Schmidt</p> <p>1982 – 1990 Helmut Kohl</p>	<p>opposition from SPD party (left wing) (Allen, 2010)</p>	<p>trade unions (codetermination)</p>
<p>1990s Acceleration of Globalisation phenomenon, expansion of <i>laissez-faire</i> model with the expansion of the EU.</p>	<p>1990–1998 Kohl Government</p> <p>1998 – 2005 Gerhard Schröder</p>	<p>Reunification constraints challenge the German welfare state. Most efforts are focused on horizontal redistribution West-East, compared to the former vertical perspective, high to low wages.</p>	<p>Bismarckian German model was originally thought to “catch up”, but once this model competes with world economic powers, such as Japan, it raises the concern whether this model is suitable to lead (Allen, 2010)</p> <p>Dual path to flexibility in the</p>

			labour market (Eichhorst, 2009).
Global Financial Crisis generates economic shocks in practically all developed countries. Profound debt crisis in Europe that hits harder southern European countries. The debate about European versus National sovereignty raises.	2005 – present Merkel Era	Financial Crisis of 2008 National social protection policies decline in favour of globalisation forces, this includes the erosion of economic institutions, “exit” options seem apparently more likely rather than the use of “voice” so as to re-built them (Allen, 2010).	Economic Crisis challenges the leadership of Germany in the European project. Doubts about German Economic Model, <i>siren-song of deregulation</i> (Allen, 2010).

2.2.1. HISTORICAL ROOTS OF THE GERMAN CME

Two stages of German CMEs are highlighted, the first CME with Bismarck as the main leader and subsequently the second CME during post-war times with Adenauer in charge. Both rest on the same pillars, although they also have their singularities.

According to Christopher Allen (2010), much can be understood of a Country by observing the timing of industrialisation as well as democratisation. Germany may be named as one of the latecomers (among others such as Japan) while the UK and the US were the pioneers regarding the free-market and laissez-faire economy, The latter ones are in the best position to have relatively easy access to resources, markets, and capital compared to the former ones, the latecomers. Lacking this

advantage at the end of the nineteenth century, Germany faced the dilemma of how to overcome this, especially considering the underdevelopment of its own domestic market. They needed to build a model that provided efficient access to resources, targeting foreign markets for growth, which they did so by allocating investments to improving the likelihood of this success. The architect of an Economic model able to face this great challenge was Bismarck. The route chosen by him was to form a tight net of coordination between firms, employees, and their financial partners. The role of the State consisted mainly in providing a legal framework to encourage strategic long-term relations between economic actors. Latecomers such as Germany did not have time to follow the “trial and error” undertaken by the earlier industrialisers.

Other authors such as Wolfram Fisher as Economic Historian use the rivalry between Britain and Germany to explain the decline of Britain through the success of Germany, as he states: “The early winners became a late loser” (Fisher, 1997: 298). The lack of common historical ties and the rise of a recently unified country allowed Germany to design a made-to-measure economic model according to its own peculiarities and promoting science and education above all their applications. The capacity of German innovation and its leader at that time, Bismarck, precipitated another path to success never undertaken before, instead of following the pioneer of industrial revolution, Great Britain (Fisher, 1997).

2.2.2. BISMARCK ERA: FIRST CME

By the latter half of the nineteenth century, Bismarck, according to Christopher S. Allen an architect more than interventionist, designed a set of institutions to accomplish quick and stable growth based on easy access to resources and by focusing on certain sectors that had high potential in foreign markets: (1) Banks played a crucial role in CME, later called *Modell*. Large sums of money were needed to start the economic model tried by Bismarck, where this financing was provided through loans, acquiring ownership of a company, and allowing the banks to have seats on the board of directors (with voice and vote in the main German companies). These long-term loans and investments allowed the firms to compete in world markets with guarantees. (2) Domestic firms, acting as a cartel, did not see each other as competitors as they were working together to gain position in foreign markets. Their common adversaries were other industries abroad. (3) The education system; skilled labour was also one of the anchors of the *Modell* whereby highly skilled workers were able to provide the knowledge to be competitive in sectors which assured a high added value. (Allen, 2010)

Alongside the creation of this set of institutions, there were two visionary ideas that backed the development of this *Modell*: (1) “Marriage of iron and rye” (Allen, 2010: 11); feudal Prussians needed a way to transport their grain to the market and the new industrialists needed a road to transport in turn. (2) “Iron fist in a velvet glove” (Allen, 2010: 11); in 1878 Bismarck forbade the SPD (Social Democratic Party) party, however, he had to deal with one of its major strikes for a welfare system during the 1880s. As soon as the SPD party was legalised the behaviour of its members was far less revolutionary due to the concessions made by Bismarck.

However, this model had its shadows since it relied upon aggressive nationalism as well as political repression. It showed a great degree of success in political and economic fields, but it ended in World War I and finally in its own destruction. Moreover, a combination of exogenous/ endogenous factors fuelled the end of the first OCM: (a) Endogenous factors were: the lack of resources needed for feeding the *Modell* led to an aggressive late imperialism. The weak commitment to democracy and the division of German left sphere and dysfunctional economic policy were problematic (b) Exogenous factors included: the strategy of anticipating WWI and the Russian revolution influenced a weak basis upon which Bismarck built the second Reich (Allen, 2010).

- *Beginning of the welfare state in Germany*

The CME was based on high value industries and a high wages model and not everyone could fit into the CME labour market to the same extent. However, providing social protection to the citizens who did not benefit from the CME was another important pillar of Bismarck’s strategy, not because of the altruistic spirit of the leaders of this model, but to minimise social tension and political opposition. This *Bismarckian* view of state as entrepreneur needed a completely new set of institutions that could achieve a fast economic and political development, which was clearly needed in the light of the advances of its main competitors, the UK and the US. The institutional pillar of this new CME was the unification of a universal banking system and large-strong firms. This economic policy model embodied both fast growth and social protection at the same time. (Allen, 2010).

The origins of the corporatist-statist welfare state model can also be found in this period. In response to the mistrust of some traditional sectors of society such as the church, Catholic doctrine started to be redefined. With the rise of these kinds of movements, the welfare state model was also influenced and was molded by this way of thinking. The principle of subsidiarity that remains predominant today and marked the Bismarckian welfare regimes as the German way. This important principle states that family is the first provider of welfare to its members, religious or charity institutions are entitled to provide them next, and the state only appears as the last resort. This Catholic doctrine also established the male-breadwinner role as a welfare provider within the

family, whose members would only be entitled to benefits or subsidies through the male-worker figure (Palier, 2010).

2.2.3. POST-WAR ERA: SECOND CME & NEW SET OF INSTITUTIONS

After WWII, the challenge for Germany was to maintain the success of the first CME, in terms of providing rapid economic growth for everyone under circumstances that the *Modell* had not yet proven, namely a truly democratic system, political accountability, and a commitment to pacifistic relations after the events of the former decades.

The new institutions born in the post-war era could be defined as a compromise between two counterbalanced forces: (1) the new current of liberalism and (2) socialism. They could also be named capital versus labour. Wolfgang Streeck (1995) delves into the new set of institutions in his work *German Capitalism: Does it exist? Can it survive?* He points out the following five main changes in the institutions that shape the new socioeconomic structure in Germany: (1) Markets, (2) Firms, (3) State, (4) Business Associations, and (5) German Culture:

(1) The freedom of the market was limited by the state, for example certain sectors such as education, health care, or social insurance do not follow market principles. In the sectors where competition was allowed, the market was combined with a generous welfare state which acted as a floor for employees (Streeck, 1995: 9).

(2) German firms were far from being classic the Capitalist Corporations that characterises LME (Hall/Soskice, 2001). They were considered a public matter as such, which means they were strongly regulated by law, and the involvement of capital as well as labour in the daily life of the firms was evident (Streeck, 1995: 9).

(3) Streeck defined the role of the German state as “neither *laissez-faire* nor *etatiste* and is best described as an *enabling state*” (Streeck, 1995: 10). The lack of sovereignty in economic affairs that the constitution provided the government leaves a high degree of flexibility to the agents of the economy. In compensation, the government spent a notable share of the GDP in research and development, and social protection (compared to its competitors) (Streeck, 1995: 10).

(4) Probably the most particular institution within Western economies at the time were the business associations. They behave as *quasi-public* institutions that fill the gap of in the role of the state in controlling market forces and they do so by establishing high quality standards and avoiding low-cost strategies. Nevertheless, cartel agreements were explicitly forbidden, which banned the setting

of prices or similar activities. Vocational training programmes were one of the most important outcomes of these associations since a high-skilled workforce is the basis of the high-wage, high-tech model that Germany aspires to (Streeck, 1995: 11).

(5) In the German economic culture short-term decisions were rare and not well-supported by decision-makers. It is commonly known as traditionalist, and their commitment to and support of a tax redistribution system reflected this historically long-term view. Collectivism is also seen as one of the main features of this marked traditionalism, and privacy, autonomy, and low participation in paid unemployment represent the German economic culture which backs the *Modell*. Finally, vocational trainings likewise reflected how institutions were constructed according to long-term values (Streeck, 1995:12).

A very interesting point related to the German economic tradition is the high rate of savings compared to other developed countries. Consumer credits were growing far less than in other countries with traditionally higher saving rates, such as The Netherlands or Italy⁴⁹.

This graph, displayed in appendix 1, on household savings shows that Germany was by far more traditional than the UK and the US for example and it was the only country which hovered around 12% - 15% savings rates, making it the least unstable country since reliability as well as availability of data made comparisons in terms of harmonisation possible.

- *Principle of co-determination*

Important decisions were continuously being approved by all parties, employers, unions and banks; this system was called co-determination. However, shareholdings were highly concentrated, with only a small fraction of capital traded on the stock exchange. Within this economic model, banks participate jointly through equity, thus they may control the performance of the companies and occasionally influence decision making. Moreover, this system facilitates long term loans for firms thereby avoiding the speculation of stocks (Hall/Soskice, 2001).

Also, the role of unions was far stronger within the firms than in liberal countries, such as the UK or the US. The principle of co-determination, enforced by law, makes it very difficult for employers to dismiss employees. Aside from this, the presence of the representatives of workers in the supervisory board as well as in banks, which has already been mentioned, reflects the so-called long-term approach that characterised the OCM. All this, together with collective bargaining made Germany one of the countries where the workers were employed by the same company the highest

⁴⁹ See Appendix 1.

number of years within western economies, close to Japan and far ahead of the US and the UK (Streeck, 1995).

- Long term approach

The so-called German long-term approach can be seen transversally in all institutions that shape the new *Modell*. Three main features characterise German economic institutions: (1) German industrial improvements are typically slow but steady, and institutional constraints limit low-cost production though they adapt conveniently to high-quality industries; (2) long-term decisions are also common in German institutional structures, and co-determination between unions and firm associations make the decision-making process arduous, whilst it encourages the industry to move to quality-competitive markets through improving skills, cooperative training programmes, and technology; (3) they offer opportunities for continuous growth in existing sectors, but do not foster the development of new ones, and lastly; (4), the German pattern of innovation provides high average outcomes with sharp variations being extremely unusual (Streeck, 1995).

2.2.3.1. WELFARE STATE: SOCIAL PRESSURE FOR AN EGALITARIAN DISTRIBUTION OF OUTCOMES

High skilled labour capacity is a key component of the OCM, which corresponds to high salaries. That is why this model must focus on high quality markets. It is true that this strategy could leave out the low-skilled workers within the labour market, although there are two ways this matter can be faced: (1) a market policy that improves the skills of employees and introduces them to the high-skilled labour market that characterises the OCM; (2) Redistribution policies could also be possible as long as the demand for high-quality products (in national or international markets) is large enough to provide a workplace for the majority with the state still providing welfare for a small unemployed group out of the system (Streeck, 1995).

Social institutions which rule out underemployment are able to maintain the *status quo* under the provision that the number of people in situations of underemployment is small enough to be socially acceptable. However, if this number exceeds the level at which the majority of society is benefited by the *Modell*, and underemployment turns into high levels of unemployment, two main risks might arise: (1) the expenditure to support them must increase, deteriorating competitiveness in international markets and (2) social unrest resulting from unemployment would challenge the political stability necessary for the success of the CME. Therefore, a high degree of equality among the employed would result in sharp inequality between the employed and long-term unemployed (Streeck, 1995, 16).

2.2.4. REUNIFICATION OF GERMANY

The analysis of the period between early-1990s and mid-2000s supposes the start of a more detailed conceptualisation of the recent German socio-economic model. Two important aspects must be noted. Firstly, during this time Germany witnessed not only one crisis but two, namely reunification and the decline of the conservative welfare state⁵⁰, both widely recognised by scholars years later (Morel, 2006). Secondly, the solidification of redistribution policies undertaken during this period will be crucial at this point since their outcomes will be tested in further empirical analyses. In this one, I will attempt to answer the research question regarding the success of the redistribution policies undertaken by Germany, and will also look to how it was done in Brazil.

The reunification period challenged the previous German socio-economic structure even more than in the post-war era. The process of reunification put the so-called German institutional scheme under limits unheard of since the Bismarckian era. The chancellor in charge during this period, Helmut Kohl (the governmental force was formed by centre-right CDU in coalition with the liberal FDP by then), misjudged the difficulty of the reunification project not only economically but politically as well. In retrospect it was more than a political change, the 1990s necessitated a critical re-examination of the Coordinated Market Economy system for Germany. The same economic foundations that had guided Germany for the last century and had achieved the *Wirtschaftswunder* during 1950s after WWII were being rethought (Allen, 1997).

Moreover, apart from the Reunification process, during late-1980s and early-2000s there were two other phenomena, namely Europeanization and Globalisation; the three of them formed a triple shock to *Modell Deutschland*. Both the process of reunification as well as the subsequent Europeanization brought into view the rigidity and singularity of the German set of institutions. The difficulty of replicating them in other national or regional levels was remarkable, as had already been demonstrated with the integration of East Germany and how European regulations affected the German *Rahmenbedingungen* (legal framework). (Allen, 1997).

⁵⁰ Esping-Andersen had divided welfare states system into three: Social Democratic, Conservative, and Liberal. Esping-Andersen himself defined German welfare state as conservative.

2.2.3.2. REUNIFICATION CRISIS: KOHLS MISJUDGEMENT OF REUNIFICATION COSTS

First of all, it is relevant to point out that the structural challenges of this period were far deeper than any other since 1950. Having mentioned this, Helmut Kohl, the political leader responsible for such a challenging task, might not have understood the risks of reunification, according to Allen. Firstly, the resources used by the mid-1990s considerably exceeded the ones Kohl had planned for at the beginning; secondly, the difference in productivity levels between East and West Germany remained higher than expected, with the consequence that the *Treuhand*⁵¹ privatised more than 60% of the companies. Finally, the unemployment rate did not improve substantially in the former GDR, despite the substantial amount of money budgeted for the reunification project (Allen, 1997).

Delving into concrete policies undertaken during this period, these three were the main set of mistaken policies according to Allen (1997): (1) property ownership, (2) currency reform, and (3) *Treuhand*:

(1) With regard to property ownership, before any investment took place in East Germany, property title issues had to be resolved. There were the property questions emerging from the soviet regime, but also confiscations conducted during the Nazi period. Compensations became a major issue for the Kohl government and the reunification treaty emphasized that all compensations must be paid at “current” prices. This in fact implied that there were big differences between rural and developed locations. However, private property was not the only problem. Importantly commercial property also posed a problem. Massive reinvestment was necessary to make industrial tools and electrics (which represented the pillars of the German high wages economic model) profitable in the five *Länder* of East Germany. Despite these difficulties, experts have stated that a solid base was constructed in order to succeed in setting a long term sustainable industrial structure in the East that was similar to the West (Allen, 1997).

(2) One of the big concerns about reunification was how this massive amount of money was supposed to be paid. At the beginning, Kohl said that this was not going to be paid with new taxes, but there was no choice in the end. East German *Reichsmarks* were exchanged at a favourable rate for the former GDR citizens, encouraging consumption rather than long-term investment (property-holders). This short-term approach (in contrast to the so-called German long-term perspective inherited from Bismarckian times) applied to the monetary policy was largely criticised. Critics also mention the controversial issue concerning the salary differences between the former GDR and

⁵¹ Government reconstruction agency (institution created ad-hoc for the reunification process in charge of privatisations of national firms in East Germany).

western Germany (Silvia, 1997), plus the increase in basic goods and services in market conditions (Allen, 1997).

(3) One of the new institutions created *ad-hoc* for the reunification, the *Treuhand*, was seen, in words of Allen, as: “very un-German state vs. market set of choices” (Allen, 2004: 19). The German legal framework represented a substantial boundary to entering the game, however once you were inside it was extraordinarily flexible. The *Treuhandanstalt* (Trusteeship Agency) represented the contrary, on the one hand it provided an easy entry to the market but on the other hand the state assumed the role of regulating market irregularities, more characteristic of *laissez faire* economic models. The *Treuhand* was seen by many observers as a way of “selling the reunification” (Allen, 2004: 18).

2.2.3.3. CRISIS OF CONSERVATIVE WELFARE MODEL

Much ink has been spilled since Esping-Andersen distinguished the so-called three welfare models at the beginning of the 1990s decade, namely liberal, corporatist-Statist (conservative) and social Democratic (Esping-Andersen, 1990). The German welfare model was classified as corporatist-Statist or conservative. The main feature of this model was the central role of the family in providing care for its members. The state only appeared if families failed to do so. Apart from this principle of subsidiarity, this conservative model was dominated by the figure of the male bread-winner, and women were not supposed to work after giving birth and lacked individual social entitlements which were addressed through the husband (Morel, 2006).

Many of the redistribution policies undertaken during the 1990s and early 2000s by German governments were related to the decline of the conservative welfare model based on the role of the male-breadwinner, above all the aspects concerning childcare and elder care. Two periods may be distinguished: (1) during the early 1990s policy-makers strengthened the male-breadwinner model and (female) labour shedding strategy to maintain the salary of the male-bread-winner who was usually the only welfare provider. (2) The increase in unemployment rates during the late 1990s have shown the unsustainability of the conservative model as an increasing number of women took part in the labour market for the first time. Nevertheless, the dichotomy of working conditions was evident: “care policy reforms have provided a backdoor for the introduction of labour” (Morel, 2006: 620).

- Towards a new model: the new role of the state

A new model of care was emerging in Germany as both childcare and care for the elderly became the focus of the Kohl and above all the Schroeder governments. They became aware of important societal changes taking place in the country. On the one hand the crisis of the male-breadwinner model and ageing population implied the increase of women in the labour market but on the other hand, this meant that the family could not provide care either for elderly people or for their children. Therefore, the trend in the 1990s showed an enlargement of the role of the state in providing care instead of the families, thereby moving away from the principle of subsidiarity⁵². Although laws had changed, the investment needed to implement them was scarce and slowly released (Morel, 2006).

- Dual path into employment

If one looks at the evolution of unemployment rates together with the reforms initiated by the different political parties between the 1990s and early 2000s, a clear dual path of flexibility can be observed. Both atypical and standard jobs have progressively been deregulated. Nevertheless, the reforms undertaken in the former ones have increasingly become more important in quantitative as well as qualitative terms during this decade (Eichhorst, 2009). Moreover, the concern of trade unions during this period was none other than to keep the male-breadwinner model whose heavy fixed cost spurred a rise in informal sector jobs so as to satisfy the job-demand (Morel, 2006).

Three different sets of reforms can be recognised according to political parties and unemployment levels. These reforms were introduced by specific political coalitions:

(1) For the Christian Democrats/ Liberals government: during early-mid 1990s the boundaries to the labour market became a problem rather than a solution. Despite strong efforts to maintain the *status quo* in the German labour market, high unemployment levels and the pressure of additional working women practically forced that government to begin the deregulation of atypical jobs in large measure, while the regulation of standard jobs remained practically the same. The difference in regulations between the former and the latter started. While the government aimed to keep the high wages model, external (women's pressure) and internal (ageing population, unemployment levels) strains forced them to offer other types of employment positions (Eichhorst, 2009: 7)

(2) The Social Democrats/ Green party (1998-2001 government): the red-green coalition started its legislature with the purpose of re-regulating at the margin, given the employment growth and the improvement of economic context. On the one hand This reform intended to extend the number of

⁵² The concrete welfare policies undertaken will be discussed later in the subsection: Redistribution policies undertaken during 1990s in Germany.

employees under social insurance scheme and on the other hand, to provide more incentives for long term contracts (Eichhorst, 2009: 9).

(3) The Social Democrats/ Green party (2002-2005) government: On the contrary, the second part of the red-green legislature supposed a setback regarding standard jobs. Firstly, the legal framework was modified in favour of atypical jobs, above all the expansion of Mini-jobs. Beside this, the erosion of collective bargaining meant that fewer employees worked under its umbrella. This set of reforms was called the Hartz package and together with the Agenda 2010 encouraged jobseekers to seek low-paid jobs (Eichhorst, 2009: 10).

Some scholars point out that instead of creating new high-quality jobs Germany was bypassing the rigidities of its labour market by creating a parallel low-paid job market through different sets of institutions and regulations (Morel, 2006)

- Reconfiguration of the German social contract

Following the firm-centred perspective of Hall and Soskice in their book *Varieties of Capitalism* (2001), welfare states rest partially on the role of firms. These authors challenged the common view that social policies are against business interests due to the rise in costs of labour. Hall and Soskice highlight the importance of social policies in improving the performance of the labour market from the perspective of the firms. Moreover, they note the relation between economic models and welfare systems. For example, in CMEs trade unions, business groups, and public officials are the ones in charge of the national social policy scheme and a company's specific skills are not only encouraged, but generously rewarded. (Hall/Soskice, 2001). Their analysis is useful for the German case.

The crisis of the conservative welfare model together with the dualized labour market have notably modified the German social contract configuration. The role of key social actors such as firms, unions, and families have changed at an accelerating rate since the unification process took place at the beginning of the 1990s. The great challenges that Germany faced during this period have proven its policy-makers experts at maintaining the level of welfare achieved after *Wirtschaftswunder*. Nevertheless, not only did unification challenge the German social contract, but the strains of *globalisation* and its small brother Europeanization did too (Streeck, 2005). To sum up, on the one hand the liberalisation of the German economy (Allen, 1997) challenged the role of unions, firms, and public officials in determining the national social policies in favour of the market and, on the other hand, the regionalisation process of the European states under the umbrella of the European Union seemed to be incompatible with the rigidity of the German set of institutions (the base of *Deutschland Modell*) (Streeck, 2005)

2.2.3.4. REDISTRIBUTION POLICIES UNDERTAKEN DURING 1990s IN GERMANY: TOWARDS A NEW WELFARE MODEL

Redistribution policies represent the relation between governments and citizens within the framework of a social contract. This link between social contract and redistribution policies is one of the crucial points of the present study. The more accurate the analysis of redistribution policies, namely social expenses and social security contributors, the more credible the further analysis (chapter 3) will be in relation to the outcome of these policies.

German welfare policies have not systematically been based on Keynesianism,⁵³ nevertheless, at the beginning of the 1990s, right after unification took place, German governments followed different approaches (rather than Keynesianism) probably due to the magnitude of the project. The German welfare system was consistently based on a stability approach through fiscal conservatism (avoiding sharp tax hikes), and policy-makers pursued the continuity of the socioeconomic model constructed more than a hundred years ago. Elected governments were committed to maintaining living standards (for breadwinners) through social insurance and benefits based on means-tests (Seeleib-Kaiser, 2008).

Regarding social expenditure during the 1990s, the trend did not show notable changes in Western parts of Germany, but the increase in social expenditure was remarkable in the East, reaching almost half of the GDP at the beginning of the 2000s. This massive increase in expenditure in the East had mainly been financed through West-East transfers whose amount totalled 160 billion between 1996 and 2010. Moreover, the traditional earning-related benefits method, based on the two main pillars of the German welfare system, namely pensions and unemployment benefits, had been gradually changed in favour of means-tested and privatisation methods since unification (ibid, 2008).

How did welfare expenditure change as a result of unification? To analyse welfare expenditure it is best to distinguish two periods: (1) the early 1990s (first period of unification) and (2) from 1993 to the early 2000s:

- The Early 1990s

Public deficit rose from 19.2 billion German marks to 46.7 billion, with this enormous increase being ascribed to the effort of the Kohl government to transfer western welfare structures to the former GDR and this was seen as a symbol of social justice across Germany. In addition to this expense,

⁵³ This means using public expending so as to increase domestic demand.

active labour market policies (ALMP) were implemented. (1) Firstly, the government increased the number of apprenticeships by almost one million and the number of public employees rocketed from 83000 in 1990 to 466000 in 1992. (2) Secondly, a short-term work benefit was given despite German aversion to Keynesian policies and was referred to as “unification Keynesianism against political will” (Beyme, 1994:265). The Kohl administration apparently did not have any choice. Unemployment rates were growing and policy-makers in charge of unification had an urge to preserve stability, at least at the beginning of the process (Seeleib-Kaiser, 2008).

In terms of the social security system: from the beginning of the unification process to 1993, substantial changes had been undertaken in regard to social coverage, though some programmes were more affected than others. Unemployment benefits were not modified until 1993, and the conditions of this programme followed similar lines as its last modification in 1987. However, in 1989, a Pension Reform Act was enacted to tackle early retirement options. There was a tendency among workers to seek early retirement and with this new law the government limited the ways of obtaining it.

In terms of family policies, with the crisis of the male-breadwinner model (Morel, 2006), new family policies were introduced in order to accommodate this new social reality. In 1992, conditions for working parents, such as time off or provisions (either for the mother or father), were considerably increased. Furthermore, by 1992 (and more effectively since 1996) childcare facilities were guaranteed for every child between from 3 to 6 years (Seeleib-Kaiser, 2008).

- From 1993 to early 2000s

Right after 1993 and as soon as the Kohl’s coalition realised that the costs of unification were misjudged, a process of budgeting took place. Public expenditure was decreased gradually until 2000, when it reached the lowest point of the last 40 years. On one hand, the ALMP (Active Labour Market Policies) measures had decreased. In 1993 for instance, less than one year later, the number of people under the umbrella of these policies decreased to 642 000. Moreover, the number of beneficiaries was further reduced with the advent of the red-green coalition in 1998 and reached their lowest numbers in 2000 with roughly 400 000 recipients. On the other hand, around 4% of the GDP was transferred from the West to the East. Considering their situation, it was extremely difficult for Germany to comply with the European Union stability criteria during this decade. However, even under all these financial strains income and corporate tax were progressively lowered, first by the Kohl government and later by the Schröder red-green coalition. Therefore the costs of unification were paid through debt and social insurance contributions, thereby avoiding increased taxes (Seeleib-Kaiser, 2008).

Social security programmes: right after 1993, with its unusually high rates of unemployment, unemployment insurance benefits based on earning-tested methods were under severe strain, gradually giving way to a means-tested system through assistant employment benefits. Later on, the red-green coalition abolished the ordinary unemployment assistant benefit and tightened the criteria to be eligible for unemployment compensation payment and thus jeopardising their chances of finding a new job. During this period the number of early pensioners soared despite the measures undertaken at the beginning of the 1990s to prevent this. The conservative government reacted to this situation with the Pension Reform of 1999 and a commitment to abolishing early pensions by 2012 (Ibid, 2008).

Family policies: the red-green coalition reinforced the work and family conciliation improvements which had started at the beginning of the decade since the traditional model of the male-breadwinner was no-longer the model of a German family. They have done so by (1) extending child allowance, (2) increasing time devoted to child-rearing, and (3) improving parental leave benefits (Ibid, 2008).

2.2.3.5. "SIREN SONG OF DEREGULATION" ⁵⁴

One might think that the Kohls years may look like the Bismarck or Adenauer periods; characterised by an organised, flexible, and controlling state, but without being autocratic like in Bismarckian times. However, there were no clear signs that Kohl chose the route of his predecessors, despite the system having proven successful before in similar "departure form." ⁵⁵ Moreover, a debate about the continuity of the so-called German Modell that has been present since reunification occurred anew in the early 1990s. Christopher Allen, for instance, sees Anglo-American deregulatory features in the German economic model, such as:

(1) Historical complexity: Countries such as Germany and Japan put all their energy into economic growth between the 1950s and 1980s; the political role in world order was determined not to be a top priority at that time. Nevertheless, with the fall of the Berlin wall and the end of the cold war Germany was *forced to* take international political responsibilities. This meant that talking about a

⁵⁴ Taken from Christopher S. Allen: "Institutions Challenged: German Reunification, Policy Errors and the 'Siren Song' of Deregulation". It represents the dichotomy of laissez-faire vs. Coordinated Market Economy characteristic of Germany.

⁵⁵ Allen used this expression in: "Ideas, Institutions and the Exhaustion of Modell Deutschland" so as to set a benchmark for analysing further political prescriptions from the fall of the Berlin wall onwards.

German model might be seen as a new form of German hegemony, something which Germans avoided given their recent historical baggage (Allen, 2010) (Streeck, 2010).

(2) Lack of explanation of CME: Institutions are not immobile entities - they are flexible (Stainmo et al., 1992) and are continuously transformed by policy-makers' wills. The lack of an explicit model influenced German policy makers since they lacked the tools necessary to respond to advocates of a laissez faire model, which was far more explicit. Also, this argument may demonstrate a lack of capacity to use the past to solve current issues (Allen, 2010; Streeck, 2010).

Other authors, such as Jürgen Habermas (*A Pact for or against Europe*, 2011), point out that Germany could be classified as a civilian power up until reunification, however since then the German military force has become more confident and willing to behave as a global actor. Furthermore, according to Habermas since 2005 the role of Germany within Europe has increased notably and vice versa; Germans have witnessed the Europeanization of Germany. Therefore, German CME is likely to be influenced by the openness of Germany to Europe and correspondingly the European legal framework increasingly crashes into German *Rahmenbedingungen*. Nevertheless, the historical responsibilities of Germany from WWII still constrain its diplomatic role in certain critical issues, such as issues related to Israel (Habermas, 2011)

Another authority on this topic, Wolfgang Streeck is also sceptical about the continuity of the German CME economic model. He notes three specific *malalties* of the German economic *Modell*: (1) The exhaustion of the model based on high-wages and high-skills. Unemployment rates during the late 1980s and early 1990s were unsustainable, and this together with high welfare costs propitiated a movement towards more flexible labour markets. (2) The aforementioned costs of reunification, not only in economic terms but also in terms of the massive task of transferring West German institutions to the East. The commitment to establish the high-wage model in the East was met with fear that this would have the opposite effect in the West: the erosion of the quality-competitive West German market in favour of a price-competitive one given the low-cost opportunities in the East. (3) Boundaries of national politics have become increasingly indeterminate with the advent of globalisation. As it has already been noted, the German economic model CME requires a higher degree of control by national governments than more liberal ones. Therefore, the phenomenon of globalisation might be expected to affect CMEs to a greater degree than Liberal Market Economies, as pointed out by Streeck (2003).

- Continuity of the German Economic Model?

Despite the *alarm of laissez faire*, the economic model that Germany has never been able to assimilate, there are still strong arguments to believe in the German organised capitalism model as a better way to face the three above-mentioned strains of reunification:

(1) Streeck and Yamamura (2003) in their book *The End of Diversity? Prospects for German and Japanese Capitalism*, state that features such as long-term orientated capital investments, the relevance of the secondary sector, and highly skilled workers are crucial for any internationally oriented economy, all of which were present in the German economic system.

(2) Close relations between the main social actors has been a key element since Bismarckian times. High quality industry requires a high level of education and retraining. This is only possible with the coordination of employers' associations and unions who shape the structure of the educational programmes together with the government. Furthermore, strong employers' associations would not have been possible without the involvement of banks in the management of the companies through long-term investments (Allen, 2004).

(3) Adaptive institutional structures have been needed and sought by many countries and they have also attempted to obtain them by emulating the German institutional design. However, Germany has nurtured its institutional patterns for decades and implementing this strategy in the former GDR was going to be a tremendous challenge. One of the key elements of this structure, flexibility, could only be preserved with the collaboration of all social stakeholders, employers, employees, banks, and the state. This association was only possible under the umbrella of a complex framework regulation (*Rahmenbedingungen*), (Allen, 2004).

(4) One of the main differences between CME and *laissez faire* (or LME) economic models was that while the former was characterised by relations between the social actors, the latter was defined by deals. The consequences of the two different ways of shaping relationships had significant implications on their respective models: deals are far more rigid due to the legal regulations they are submitted to, whereas relations maximise the use of voice⁵⁶ and show further flexibility to assimilate environmental changes, which make long term relations easier and more adaptive (Allen, 2004).

- Double challenge German Reunification & European integration

⁵⁶ This term is widely used in Social science. It was created by Albert O. Hirschman in his book: *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations and States*. It has already been analysed in chapter one.

All these tensions would be enough to be concerned about the success of German reunification but the German administration had to deal with the European integration process over and above all its internal strains. On the one hand, Europeanization symbolised the consummation of the post-cold war spirit and the European common project; but on the other hand, it represented a great challenge for the German economic model. European finance standardisation threatened German characteristic economic relations, which were based on the *Wirtschaftswunder*. European integration confronted, to some extent, the German economic model, which is based on codetermination and consensus-oriented principles (Allen, 1997).

3. CONCLUSIONS

After analysing the two development models for Germany and for Brazil through historical perspectives, it has emerged that there are some structural characteristics that define each of the two models. There are also circumstantial features that depended on different factors such as: the international context, different ideologies concerning power relations, changes in political regimes, and dynamics in the social conflicts in one or another country.

Firstly, the historical roots of Germany (and Western Germany) are founded on the pillar of stability as one of the main anchors of the German socioeconomic model and the German social contract. In the field of economics, the hyperinflationary process that suffered at the beginning of the 20th century has marked the political economy until today. However, the Bismarckian welfare state model to some extent still represents the paradigm of German welfare state policies currently undertaken. All this is said with some reservation, due to the role of circumstantial factors, such as the division of Germany after WWI and the reunification. However they can be broadly defined by these two-main characteristics: an anti-inflationary monetary approach, and the Bismarckian welfare state model.

Secondly, Brazil in comparison to Germany, lacks continuity concerning its socioeconomic model. On the contrary, disruption would be the best term to define the development process in the country. Both internal as well as external shocks have hit the Brazilian economy and society. Regarding the former, the shifting of political regimes and macroeconomic imbalances have interrupted many attempts of development. As regards the latter, the crisis of oil in the 1970s shed light on the excessive dependency on the export of natural resources.

To sum up, the principal differences between Brazil and Germany regarding policy making process are the following:

Brazil represents a Presidential model (since the 1988 constitution) and the major changes in social policies have to be passed through the executive power, which means social policies and redistribution policies are commonly volatile and unstable. It is also characterised by a deep uneven development despite the influence of mandates from ECLAC authors and the heterodoxy — inequality has always been a structural matter in the country. The policies undertaken to overcome this problem have always been focused on the formal sphere of society but there is a dualism between the ones inside and outside of the formal economy and there has not been a government able to face this phenomenon. This gap between the ones inside the system and the *outsiders* still challenge the political stability and the socioeconomic development of the country. This is despite the efforts of the social-oriented political parties in power during the last two decades, whose policies have focused on poverty alleviation. However, most of the Brazilian population still lack representation in the main institutions, government, corporate world, or unions, as they work under informality conditions. The cultural aspects related to privileged sectors of society inherited from long-lasting authoritarian governments are still present and they contribute to this unequal power relation. Finally, the enormous dimension of the country and the federal state have made all the decision-making processes very slow and the institutions have become bureaucratic and inefficient instruments when it comes to facing the difficult challenges of the country.

In Germany on the contrary, the role of institutions is much stronger in comparison to Brazil and more relevant in the decision-making processes of laws and regulations. Accordingly, the development of the country has followed a far more even path than Brazil with solid pillars of the model since Bismarck setting the basis of it, in particular the strong role of the state as a coordinator of the national economic strategy, which involves financial institutions, firms, and unions. Also, the inherited Bismarckian culture of long-term vision has helped to develop a sustainable model that has been able to adapt to internal and external shocks. However, this aversion to sharp short-term changes is a double-edge sword as it limits its agility and ability to adapt to rapidly changing international contexts. This path dependent model, although it has suffered serious shocks, has been able to stick to its principles. Traditionally, the German development model has been characterised as even and equal, despite the fact that in the last decades the number of underemployed citizens is rising and that put the Bismarckian model under strong pressures. The traditionally equal relations of power between different actors, above all unionism, is threatened by the new currents of neo-liberalism that do not embrace these principles. This hypothesis of the precarisation of the German labour market is to be tested empirically for the period from 1990 to

2016 in Chapter 5, when the number of social security contributors is used as explanatory variables of percentile ratios of income distribution (P90/P10, P90/P50 and P50/P10)⁵⁷.

The different income opportunities, levels of education, and opportunities for social mobility in the two countries have also contributed to major difficulties to stable political legitimacy and social and political consensus. In Germany this social and political consensus has reinforced the social contract whereas in Brazil strong social inequalities and political dissensus have operated against a stable configuration of a social contract. However, the stability of Brazilian governments during the first decade of 21st century have supposed an era of consolidation of the major socioeconomic institutions, establishing the liberal neo-developmentalism model (Cornell, 2013). In Germany, the collaboration of major socioeconomic institutions remains strong. However, internal and external tensions such as competition in international markets and an ageing population represent challenges to the stability of the model.

⁵⁷ See Table 14, Table 15, and Table 16.

CHAPTER 4. METHODOLOGY

1. INTRODUCTION

This chapter explains the design of the study. First, I describe the comparative study, which tests the causality relation of the chosen concepts: social contract and income inequality, and then I explain the redistributive aspects of each of the welfare states. Also, I highlight the limitations of a methodology linked to the selection of this kind of comparative study, most importantly the low number of cases. Thereafter, the design of the analysis together with the dependency relations between the concepts is described through a flow chart.

Then, I explain the operationalization of the concepts, namely income inequality, social contract, and education to identify the variables necessary to carry out the statistical analysis. Although the income inequality the variable is measured by the Gini index and composed of different indicators, this index is one of the most used by scholars and there are many ways to measure this concept. In this chapter my decision as to how to measure this concept is argued. Also, in the case, of Germany I use percentile ratios to better understand the direction of redistribution given the lack of statistical significance found with the Gini index.

The concept of social contract is operationalised by two variables, social expenditure and social security contributors. The indicator for social expenditure is taken directly from the OECD database for Germany, while for Brazil, it is constructed following the same definition of the OECD to make them comparable. In the case of social security contributors both are already constructed and taken straight from their databases - this will be discussed later.

Also, a control variable is added to the analysis to demonstrate the inference of the independent variables and the explained one. The level of education is chosen as the control variable and it is measured by the indicator secondary school enrolment, and data for this is available for both countries, Germany and Brazil. Also, the databases of all indicators or indexes are named and justified.

After the design of the empirical analysis is explained, I consider the descriptive study that is undertaken in chapter 6. The main goal of this descriptive study is to understand the evolution of the welfare models from 1990 to 2016 in Germany and Brazil. I consequently can answer the research question regarding the hypothetical results of the replication of the German welfare state in a developing country such as Brazil. The descriptive analysis is focused on the direction of social

expenditure (*how to spend the social budget*) and the finance of this social budget (*who contributes to the welfare state*), social security contributors or taxpayers. Social expenditure allocations are divided and analysed from the early-1990s to the mid-2000s to understand the modifications in the social expenditure function in Brazil and Germany. Afterwards, all the different components of the social budget are classified from a sociological perspective following the so-called welfare classification of Esping-Andersen (1990).

2. COMPARATIVE STUDY

Comparative analysis has always been a universal method in social sciences and, in a broad sense, all social-empiric analysis is comparative in some way. To quote Guy Swanson, “thinking without comparison is unthinkable” (Swanson, 1971:145). However, the term comparative analysis has been narrowly used for large macrosocial units. The more specific discipline within the large field of the social sciences, comparative social science, encompasses cross-societal differences and similarities (Ragin, 1987).

There are different definitions and limitations regarding the term comparative social science, and still today there is little agreement about it. One of the broader definitions could be the use of comparable data of at least two countries, however, this excludes studies that compare the situation of one aspect of a country and an ideal (hypothetical) scenario⁵⁸. Other definitions of comparative social science emphasise its multilevel character. That is the macrosocial level as well as the within-system level. A study that only focus on the former could not be defined as a comparative study, according to this definition. Ideally, in a comparative study, a macrosocial level should explain a within-system phenomenon. In fact, all studies whose explanatory variables are defined only by national-level aggregated data are excluded from this definition (Ragin, 1987). This definition is even narrower than the first one.

The common element among the above-mentioned definitions is the importance of the macrosocial level. According to Charles C. Ragin, “What distinguishes comparative social science is its use of attributes of macrosocial units in explanatory statements” (Ragin, 1987: 5). This definition encompasses the double goal of this methodological framework: to explain and to interpret the macrosocial variation. The selection of macrosocial units and the identification with one specific society (such a nation-state) differentiate comparative from non-comparative research. This

⁵⁸ Two examples: Tocqueville’s *Democracy in America* and Durkheim’s *Elementary Forms of the Religious Life*. Retrieved from (Ragin, 1987:4)

empirically implements abstraction, and the identification of the macrosocial units by name is the key element of comparative social science.

This definition has methodological implications in terms of the identification of social patterns within a certain society or country. Identifying one country with a concrete social phenomenon is remarkably difficult. The demonstration of cross-societal differences in disparate cases (say, countries) depends upon histories and identities in most cases and they must be thoroughly addressed, as has been done in Chapter 2 of this study with Germany and Brazil.

2.1. RESEARCH QUESTIONS: CASE-ORIENTED VS. VARIABLE ORIENTED STUDY

There is a great degree of duality within comparative studies and it is important to define them to frame the current study and its limitations. Most of the comparative analysis moves from a global understanding of the case to a more specific understanding of a set of features; from the tendency to expand the field of study to the tendency to limit it. In general, the reality is that most comparative studies concentrate on either a small number of cases or a notably high number of them, avoiding an intermediate number of cases (Caïs, 1997: 39). At this point, the desirability of one or another study according to the goal of the analysis is described to answer the proposed research questions.

First; one way to approach the comparative analyses is through variable-oriented studies. The focus of this method is to reach a high degree of generalisation with the findings of the study. The main goal is to test theoretical hypotheses about the relation among social units within a society and this is done through statistical treatment of the data. The effects of this kind of comparative analysis take the form of variables. The variables may be controlled (closer to the ideal experimental analysis), in which case the empirical analysis is simpler than with case-oriented studies. Furthermore, causality is seen as an additive causality, which means the effect of one variable is the same in every context – which is in contradiction to case-oriented studies, which are more focused on case-specific characteristics than generalisations of the variable effect in different cases. Proponents of case-oriented studies state that this historical causality is circumstantial (Caïs, 1997). The case-oriented type of comparative analysis is here used to answer the first research question:

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

Specifically, to respond to the first research question and test the hypothesis, the methodology used to undertake the study is a multiple linear regression. By doing so the dependent relation between income inequality and the independent variables, namely social expenditure and social security contributors is tested. Furthermore, the causal relation is controlled by the variable secondary school enrolment (which represents the concept of education) chosen giving the general assumption of its influence on income inequality⁵⁹.

Second, case-oriented studies usually use a small number of cases (N). This fact usually limits the generalisation of the conclusions of the study. However, if the amount of evidence cited is remarkably rich, the degree of indeterminacy could be limited. Through this approximation of experimental studies,⁶⁰ researchers identify the similarities and differences between the cases to set the basis for further generalisations. This considerably small number of cases allows the researcher to delve deeper into the relation between variables within the cases. Max Weber is the main predecessor of this kind of comparative analysis. He uses qualitative techniques based on logic instead of statistics to demonstrate relations of association, but he is not able to explain the variation (Caïs, 1997). The case-oriented approach is more suitable to answer the second research question:

To what extent may the lessons from a developed country such as Germany, which is a paradigm of the corporatist welfare state, be applied to Brazil to reduce its high income inequality levels?

For this purpose, a descriptive study was undertaken to go deeper into the reasons of the results of the empirical study. The elements to consider for this analysis are the direction of social expenditure (*how to spend the social budget*) and the finance of this social budget (*who contributes to the welfare state*). Then, the elements of the social budget are divided and classified from a sociological perspective by following the welfare classification of Esping-Andersen (1990), which is explained in his book *The Three Worlds of Welfare*. This in-depth analysis is more appropriate when trying to understand the behaviour of specific elements of the welfare states, such as formality, the type of social benefit (in-kind versus cash transfers), the state of development as a determinant of the effect of social policies, or the redistribution character of different social policies. Whereas the quantitative analysis is more focused on the generalisation of the results and the causality effect of the independent variables in the dependent one but omitting the reasons of these numbers.

⁵⁹ See the point made in section 3.4. The influence of education on income inequality levels in chapter 2.

⁶⁰ The full experimental method is impossible to use in social science.

2.2. HYPOTHESES

Two very different approaches to welfare state policies in Brazil and Germany are taken to study their impact on income inequality from 1990 to 2016. On the one hand the (a) Corporatist-welfare model, represented by Germany, and on the other hand; the (b) hybrid between a Residual and Universal model according to the Esping-Andersen (1990) classification, represented by Brazil. Both have been proven to possess advantages and drawbacks regarding their impact on income inequality:

The two hypotheses of the thesis are related to the effect of social policies and social security configuration on the income inequality levels of a country. These are the three specific hypotheses to be tested by this study:

H1: Generally, an increase in the social budget⁶¹ is important in reducing income inequality, however, the direction of the social expenditure⁶² determines the effect of this measure. Social policies based on the formal social contract, which are focused on the middle-working class who work under formality conditions, are predictably more effective in income inequality reduction than the residual ones. However, non-contributory social policies with low levels of social security contributors may improve inequality in high poverty contexts where a significant number of citizens are living under informality conditions.

H2: Taking the Esping-Andersen's welfare classifications (1990), the corporatist welfare model is effective in reducing income inequality as long as the formal labour market remains strong in the country. The combination of both elements has been proven very effective for Germany, as it has enjoyed one of the lowest income inequality levels by following this Bismarckian approach after WWII until late-1980s when the reunification happened. While the hybrid welfare model of Brazil pays more attention to the poor, it has been characteristic of the most capitalistic societies, which have arguably represented the most unequal societies among developed countries. At the same time, this approach maintains a public social

⁶¹ According to the OECD (2018) definition of social expenditure.

⁶² It refers to the weight of each social budget allocation compared to the whole social budget.

security system whose beneficiaries do not represent all of the working class of the country due to the high levels of informality.

H3: The socioeconomic structures, in terms of development, represent a determinant when same welfare model is followed by different countries. In a context of high level of informality, such as Brazil, residual policies may reduce income inequality levels until a certain level of formality is reached, then a corporatist welfare model might be more effective in reducing income inequality levels.

2.3. LIMITATIONS OF THIS COMPARATIVE STUDY

The research questions as well as the hypotheses of the thesis provides a framework under which the methodology has to be constructed. The number of cases in the present research is small, with there being two, namely Brazil and Germany. This could thus be clearly defined as a case-oriented comparative study according to the dichotomy⁶³ between this and the variable-oriented study. However, I use quantitative techniques, specifically regression analysis, which is more usual in studies with a high number of cases, to analyse the relation between the concepts in the form of variables.

The argument to overcome this limitation is based on different facts, not only statistical but also those regarding the design requirements of the study. Statistically, the number of cases bars this from being treated as a variable-oriented study. Nevertheless, the main goal of this study is none other than to demonstrate the casual relation between the concepts (and the corresponding variables) in two different welfare regimes represented by Brazil and Germany. Furthermore, the robustness of the distribution of the variables could compensate for the lack of cases⁶⁴. To a lesser extent this is mitigated by the analytical generalisation of the outcomes to different countries, which are always intended with an eye to the reservations implicit in the impossibility of a statistical generalisation.

To sum up, on the one hand, this kind of analysis would not fit perfectly within the category of conventional case-oriented comparative research because of the statistical analysis. While it follows the variable-oriented techniques, the number of cases is much smaller than recommended (Caïs,

⁶³ It has already been mentioned in Section 2.1 that this is a false dichotomy, they are not mutually exclusive.

⁶⁴ This limitation will be tackled with the other limitations of the empirical study in chapter 5.

1997: 20). In conclusion, this study prioritises the research question and the demonstration of the inference (or not) over the methodological limits of the research. Although these methodological issues are considered, they are tackled in the statistical design of the empirical analysis.

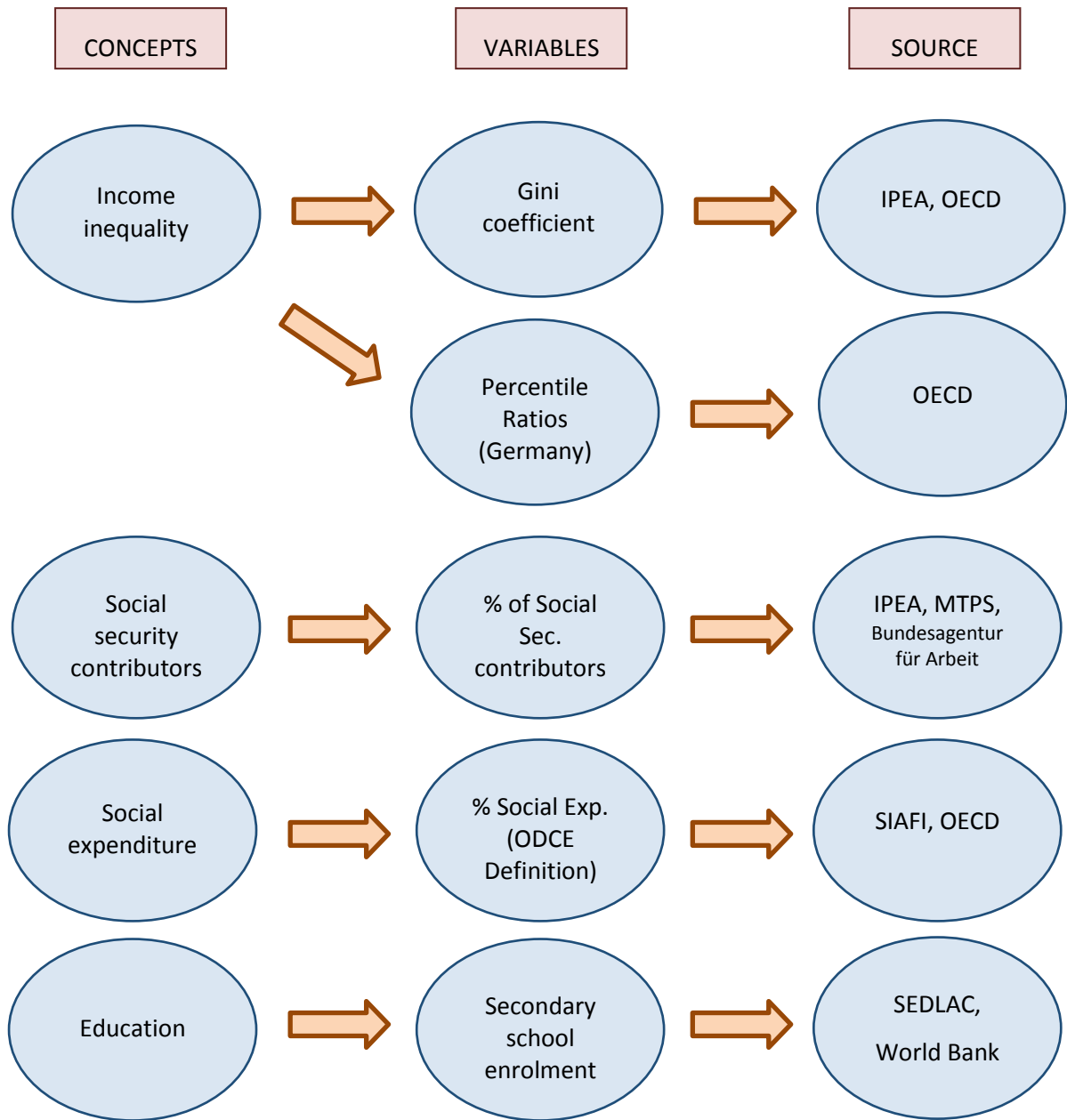
Another important challenge was figuring out how to demonstrate the inference. On the one hand, the statistical control of a small number of cases and the difficulty of statistical control represent one of the main methodological constraints, above all regarding the small degree of freedom – it limits the quality of the statistical inference. Trajectories analysed by longitudinal studies often require complex explanations that are difficult to prove with quantitative methods. However, the current availability of data bases with large numbers of samples from secondary sources to some extent compensate for this limit and improve the quality of the analysis.

On the other hand, even though both case-oriented and variable-oriented methods differ from one another, they are not incompatible. Both kinds of studies depart from the same level of study: concepts. From this point of departure, they use different ways to reach the same goal of finding causal relations between these concepts. Although causality may be obtained through both techniques, a limited number of cases makes it difficult to universalise this causal relation between concepts from a statistical point of view. But, from a design perspective this is “acceptable” (Caïs, 1997: 60) which is the main point. All in all, the methodology has no other function within this thesis than serve to the goal of the study in terms of cases, timeframe, concepts, and its relations. Therefore, the methodology is what has to fit to the design of the study, not the other way around. However, in any case, the selection of the former must fulfil as far as possible the methodological criteria.

3. OPERATIONALISATION OF THE CONCEPTS

Even though, the concepts that are empirically analysed in Chapter 5 have already been described at the beginning of the present thesis, these have to be converted into a variable in order to proceed with further statistical treatment. This process of operationalization of the concepts is necessary to undertaking the multiple linear regression study. For this purpose, the concept, variables related to them, and data sources are named as follows in Figure 11:

Figure 11. Concepts, variables and sources



Source: Own elaboration

Throughout the process of operationalization of the variables one should answer the question *why are these variables chosen to define the respective concept?* Given the fact that the same concept may be measured or defined through different variables, the selection of one or another has implications (methodological as well as theoretical) in the subsequent result of the analysis. Therefore, this process of operationalization into a variable is described for each concept:

Income inequality: The Gini coefficient is chosen to measure this concept for various reasons: (a) It is the most used index in the literature on this topic. (b) The simplicity of summing up this concept in a number; 0 being perfect equality and 1 being its opposite makes it easy for the reader to understand. (c) As regards the statistics, the fact that it is a continuous variable and therefore can be used in a linear regression analysis. (d) The availability of secondary data for both cases of the study (Germany and Brazil) is also an advantage compared to other measures such as the 20:20 ratio or Theil index.

Regarding the sources, the primary data of citizens' income are obtained by national institutions (via surveys) and the calculation of the coefficient is undertaken by official institutions. The sources for both Brazil and Germany are the IPEA (Institute of Applied Economic Research of Brazil) and the OECD (Organisation for Economic Co-operation and Development) respectively. The latter represents a reputable institution regarding socioeconomic matters of developed countries, although it includes sporadically developing countries such as Brazil in its reports. Unfortunately, in this case there is no available data. Therefore, for Brazil the data is taken from the IPEA, a national institution.

Furthermore, the lack of statistical significance of all the regressions for Germany encouraged me to test the effect of the same independent variables against other dependent variable which measure the same concept of income inequality. I chose the percentile ratios to understand some dimensions of income inequality that the Gini index neglects, namely the variations at the extremes of the income distribution. The three percentile ratios taken for Germany are: P90/P10, P90/P50 and P50/P10. Through these ratios I attempt to understand in more depth the direction of the income redistribution during the period from 1990 to 2016. Considering that, even though the data available through the OECD only measures the income coming from formal salaries, it should be representative enough in a country with low rates of unemployment.

- **Social security contributors:** The relative number of social security contributors, measured by the % of population in each country, is chosen to measure this concept. The main arguments that support this choice are the following: (a) The simplicity of the term make these data comparable among both countries. (b) The relative character of the variable is important due to the big differences among the dimension (in terms of gross population) of each country. (c) It is a continuous variable, which is necessary to undertake the linear regression analysis.

Regarding the definition of this variable, it is important to note some considerations about this term in reference to each country:

In the case of Germany, the social security contributors variable, on the one hand, covers all employees which are liable to pay sickness, pension, and nursing insurance, and/or the collectives specified in the employment promotion act: apprentices, student trainees, part-time retirement workers and persons who have been called to serve compulsory service. On the other hand, it does not include civil servants, self-employed persons, assisting family members, professional and temporary soldiers, and persons doing military or community service nor those who are subject to marginal employment (Bundesagentur für Arbeit, 2013)

Brazilian social security contributors which are subject to paying for sickness, pension, and nursing insurance and other allowances⁶⁵, comprises the following collectives under article 11 of the law 8.213/91: workers, domestic servants, independently employed persons,⁶⁶ self-employed persons, voluntary contributors and special contributors⁶⁷.

- **Social expenditure:** In order to define this concept, the variable chosen for this study is the social expenditure variable as a percentage of the total GDP. The reasons for this election are mainly these: (a) The relativity of the variable given the differences in the total budget of the countries object of study, gross number are not appropriate for the analysis to be not comparable. (b) The continuity of the variable represents methodologically requirement for the linear regression.

However, given the fact that there is no availability of the same variable for both countries, Germany and Brazil, the OECD's definition of social expenditure is taken as a reference. In fact, this definition has been used in other studies undertaken by reputable organisations such as the IMF (Clements, 1997) on social expenditure. However, the corresponding amount of *private social expenditure* is taken out of the variable specifically so that this study answers as accurately as possible the research questions of the thesis:

⁶⁵ For example, the child and family allowance. Retrieved from the National Institute of Social Security: <http://www.previdencia.gov.br/aceso-a-informacao/institucional/inss/>

⁶⁶ Person who works partially for one or more companies through an intermediary such as trade unions. Retrieved from the National Institute of Social Security: <http://www.previdencia.gov.br/aceso-a-informacao/institucional/inss/>

⁶⁷ Small farmers and fishers. Retrieved from the National Institute of Social Security: <http://www.previdencia.gov.br/aceso-a-informacao/institucional/inss/>

“Social expenditure comprises cash benefits, direct in-kind provision of goods and services, and tax breaks with social purposes. Benefits may be targeted at low-income households, the elderly, disabled, sick, unemployed, or young persons. To be considered ‘social,’ programmes have to involve either redistribution of resources across households or compulsory participation. Social benefits are classified as public when general government (that is central, state, and local governments, including social security funds) controls the relevant financial flows. All social benefits not provided by general government are considered private. Private transfers between households are not considered as “social’ and not included here. Net total social expenditure includes both public and private expenditure. It also accounts for the effect of the tax system by direct and indirect taxation and by tax breaks for social purposes. This indicator is measured as a percentage of GDP or USD per capita” (OECD, 2018).

- **Education:** secondary school enrolment as percentage of youths of secondary school age attending secondary school is the variable which embodies the concept of education. It is used as a control variable in this study and the main reasons for choosing this specific variable are that: (a) this indicator has already been chosen as an education variable by other studies on the relations of causality among education and inequality in Latin- America (UNDESA, 2013). (b) Like the other variables of this thesis it is a continuous variable, which is needed for this kind of statistical analysis. (c) The numbers of this variable are relative and given the difference among countries (in terms of population terms) it is necessary to express the concept of education in this manner instead of gross numbers.

4. DATABASES

Here the sources of the databases as well as their most striking points are described. All datasets used in this analysis are taken from secondary sources and surveys undertaken from third institutions. These datasets served to construct the following variables: income inequality, social expenditure, social security contributors and secondary school enrolment.

4.1. INCOME INEQUALITY

The Gini index which measures income inequality in a country is taken from secondary sources for both countries. For Brazil, data from the Research Institute of Applied Economics, in Portuguese: *Instituto de Pesquisa Econômica Aplicada* (IPEA) was used⁶⁸. The IPEA undertakes periodic surveys to obtain primary data regarding household income and then constructs the Gini index using the results from the surveys. For Germany, the Gini index was obtained from OECD.stat⁶⁹. However, the definition of income inequality underwent some changes in 2012. To quote the description taken from the OECD.stat: “Compared to previous terms of reference, these include a more detailed breakdown of current transfers received and paid by households as well as a revised definition of household income, including the value of goods produced for own consumption as an element of self-employed income” (OECD, 2017b). Also, for 2014 and 2015 Eurostat provides the Gini index for Germany.

Also, I use other dependent variables for Germany to test the causal effect between the independent variables (social expenditure and social security contributors) against income inequality, given the lack of statistical significance for the Gini coefficient. I have chosen the percentile ratios, namely the P90/P10, P90/P50 and P50/P10 ratios, given the over-sensitivity for middle classes which neglects the variations in the share of incomes at the extremes. These are obtained for Germany from earnings, gross earnings and decile ratios (Edition 2017), from the OECD Employment and Labour Market Statistics (database) (2018b). It is important to mention that this database measures salaries instead of disposable income as the Gini index does. There were other measures that take the disposable income for percentile ratios, however, the scarcity of data for the selected years (only every 5 years from 1990) pushed me to use the former database based on salaries. Also, the low unemployment rate of Germany does allow for the use of this database since it represents most of the population, even though other income coming from sources other than salaries are missed.

4.2. SOCIAL EXPENDITURE

The social expenditure data series from 1990 to the latest update for both Germany and Brazil meet the OECD’s definition to be comparable, although private social expenditure is taken out of the study since it was not deemed relevant for this study. For the former, the dataset (Appendix 4) is

⁶⁸ See Appendix 2.

⁶⁹ See Appendix 3.

taken from the same OECD database. For the latter, there was no dataset which encompassed the elements of the OECD definition of social expenditure. Therefore, the social expenditure variable for Brazil was constructed according to the same criteria of the German dataset (the OECD definition). For this purpose, first all the total public spending divided by function was obtained from SIAFI (SIAFI, 2016), and subsequently, the following elements which define the variable of social expenditure were selected: Social Assistance (Assistência Social), Social Security (Previdência Social), Health (Saúde), Labour (Trabalho), Education (Educação), Housing (Habitação), Sanitation (Saneamento). Apart from the fact that these elements fulfil the requirements of the OECD social expenditure definition, the same ones have been considered to define social expenditure in Brazil in other studies undertaken by reputable organisations such as the IMF (Clements, 1997). In appendix 5, all the expenditure items can be seen as they appear in the Brazilian Treasury. Once the total social spending is obtained from this statement (according to the OECD definition), it is divided by the Gross Domestic Product retrieved from the IFS (IFS, 2016) in order to finally come to a final indicator comparable to the German one: social expenditure as a percentage of the GDP from 1990 to 2015 (Appendix 6).

4.3. SOCIAL SECURITY CONTRIBUTORS

The variable social security contributors is taken from secondary sources as well. In the case of Brazil, the institution which provides this information is the Ministry of Labour and Social Security, in Portuguese: Ministério Do Trabalho E Previdência Social (MTPS) and they obtained, in turn, the primary data from the periodic survey: Pesquisa Nacional por Amostra de Domicílios (Pnad) (Appendix 7). The availability of the data was from 1990 to 2014. For Germany, the Labour Federal Agency, in German: Bundesagentur für Arbeit, provides the data on social security contributors from 1992 to 2016, due to the reunification process (Appendix 8).

4.4. SECONDARY SCHOOL ENROLMENT

For this variable two different sources have been taken for both Brazil and Germany. For the former, the database: Net enrolment rates: secondary school (SEDLAC et. al, 2016) is obtained from the Socio-Economic Database for Latin America and the Caribbean in collaboration with the World Bank (Appendix 9). For the latter, World Bank Open Data and more specifically the collection of development indicators provides: The Gross enrolment ratio, secondary, both sexes (%) (World

Bank, 2016) (Appendix 10). Although they embody the same idea of secondary school enrolment, it is important to highlight that both definitions of the databases slightly differ in their calculation.

They have been chosen according to the following criteria: first, they covered almost all of the time frame (1990 – 2014) chosen for this study. Here are other databases more appropriate for comparison, for example the Enrolment rate database for Germany in the OECD Data would fit better with the Brazilian dataset. However, that only covers 2013 and 2014. Secondly, both datasets are not going to be compared with one another but rather with the Gini coefficient of the same country. Thus, while it is relevant to mention, this difference in conceptualisation becomes less important for the precision of the present study.

5. DESCRIPTIVE ANALYSIS OF WELFARE MODELS

The empirical study, which has been explained in Sections 3 and 4 of this chapter, delves into the statistical inference between the dependent and the independent variables, in this case; social security contributors and social expenditure as the explanatory variables and income inequality as the explained one. This empirical analysis aims to answer this research question focused on the variables:

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

However, one is not able to answer to the other research question more related to the cases of study: Brazil and Germany:

To what extent may the lessons from a developed country such as Germany, which is a paradigm of the corporatist welfare state, be applied to Brazil to reduce its high income inequality levels?

To shed light on this matter I undertake a descriptive study of the welfare state for both countries, Brazil and Germany. The description of the welfare states is explained following the so-called welfare classification of Esping-Andersen (1990).⁷⁰ According to this classification the author defines the different welfare state categories as a function of the contributors and the entitlement structure

⁷⁰ See figure 13.

(beneficiaries) of the welfare system of a country.⁷¹ This social function encompasses the set of institutional welfare providers, the family, the market, and the state, which are combined with the entitlement structure of these social policies, that is, the beneficiaries of the social spending. The redistributive outcome of the welfare models may differ depending on who finances these social policies and who are entitled to benefit from them. This descriptive analysis relies on reputable authors on social policies from science, sociology, and economics. This analysis is done for both countries to ultimately understand not only which welfare state model for each country has been more successful in reducing income inequality⁷² but why they have (or have not) achieved those results in terms of income inequality.

Regarding the kind of comparative analysis this is, this descriptive analysis may be defined as a comparative case-oriented study as opposed to an empirical analysis, which refers to the variable-oriented part of the thesis. The causality effect between the independent and the dependent variables is tested through the empirical analyses. I analyse the welfare state systems through disaggregated elements of social expenditure and its influence in income inequality. To disaggregate the social expenditure, I take advantage of the work done in Chapter 6 in constructing the variable social expenditure for each country. Then, I combine different social spending allocations following the theories of different authors (e.g. Contributory and non-contributory) and test them for the cases being studied in this thesis.

⁷¹ See figure 14 for Brazil and figure 18 for Germany.

⁷² This question is answered with the empirical analysis.

CHAPTER 5. QUANTITATIVE ANALYSIS

1. INTRODUCTION

This chapter presents the statistical analysis that constitutes the core of the thesis. In Chapter 4, I explain the design of both analyses, namely the empirical and the descriptive one. The former, that is, the empirical analysis using statistical treatments, is undertaken in the present chapter.

The structure of the chapter is divided into four main parts: (a) Firstly, I explain and justify the statistical analysis that I choose to measure the inference effect between the independent and the dependent variables. Here the formula and the different elements of the regression are described in order to interpret the results. (b) Secondly, I name and describe the lagged and lead variables constructed for the statistical treatment together with the original ones. (c) Thirdly, I present the results of all the regressions undertaken to test the different hypotheses of the study. (d) Lastly, I present a summary of the results, highlighting the most striking points.

2. STATISTICAL TREATMENT: THE MULTIPLE LINEAR REGRESSION

The methodology used to answer the first research question:

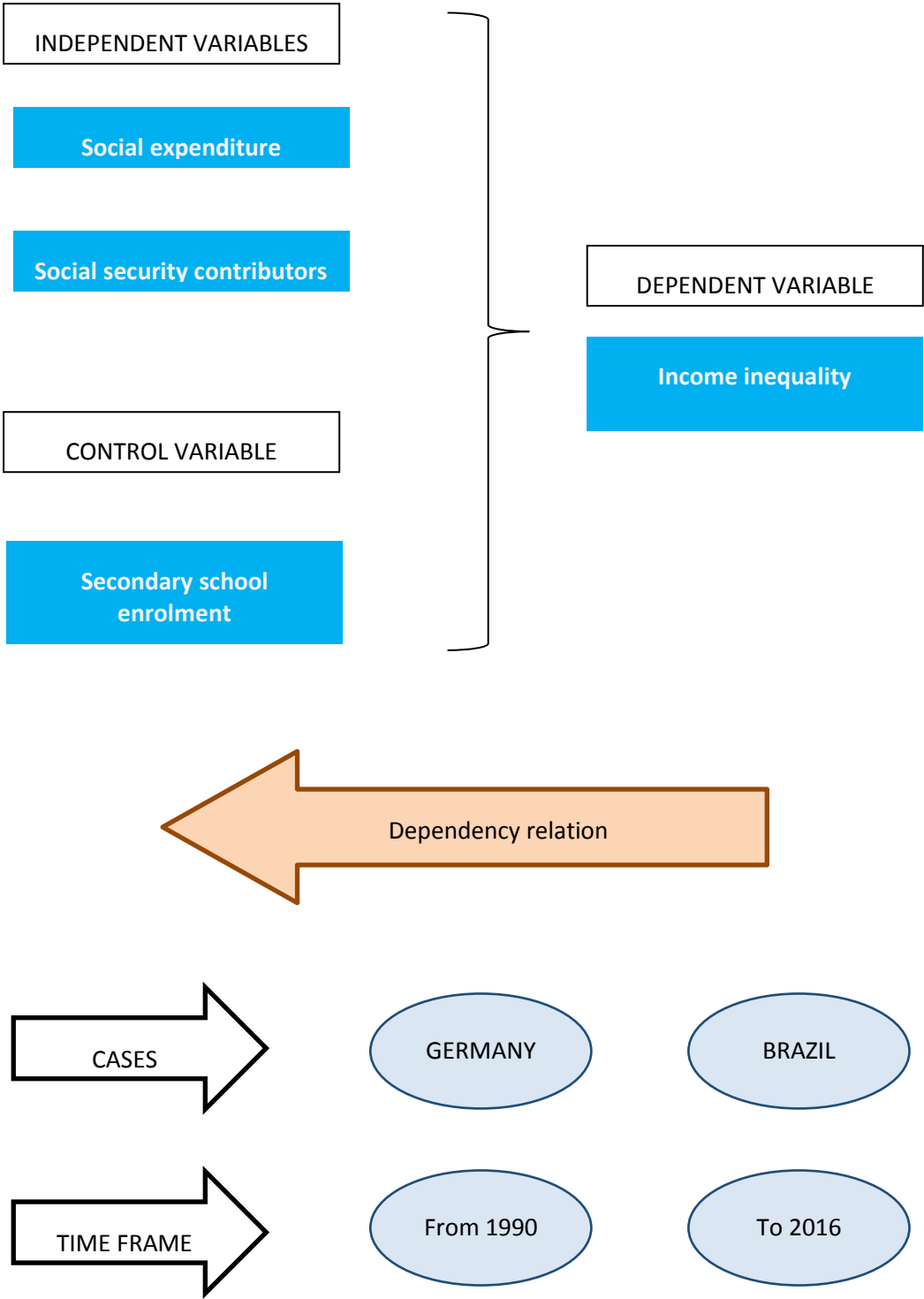
Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

and to test the hypothesis previously mentioned, will now be described. A multiple lineal regression is used to delve into the dependent relation between income inequality and the independent variables, namely social expenditure and social security contributors. The controlled variable secondary school enrolment (which represents the concept of education) is chosen given the general assumption of its influence on income inequality⁷³. The data treatment is undertaken through a multiple linear regression which attempts to model the relationship between two explanatory variables, one control variable and one response variable, by fitting a linear equation

⁷³ See the point 2.5. The influence of education on income inequality levels in Chapter 1.

to the observed data. Every value of the independent variable x is associated with a value of the dependent variable y . Here, in the figure 12, I describe the design of the study:

Figure 12. Design of the study



Source: Own elaboration

The following formula: Linear regression with panel-corrected standard errors

**xtpcse depvar [indepvars] [if] [in] [weight] [options]*

According to the STATA manual these are the main characteristics of this function: “xtpcse is an alternative to feasible generalized least squares (FGLS) for fitting linear cross-sectional time-series models when the disturbances are not assumed to be independent and identically distributed (i.i.d.). Instead, the disturbances are assumed to be either heteroskedastic across panels or heteroskedastic and contemporaneously correlated across panels. The disturbances may also be assumed to be autocorrelated within panel, and the autocorrelation parameter may be constant across panels or different for each panel”⁷⁴. The interpretation of the parameters obtained from the xtpcse formula is described as follows.

2.1. DESCRIPTION OF THE REGRESSIONS AND INTERPRETATION OF THE PARAMETERS

For every regression that is statistically significant I write a brief description with the results from the subsequent parameters explained below. These descriptions will follow the same structure to better understand the relation between the explanatory variables and the explained one, as well as the variations in the variables from one regression to another.

- R-squared

R^2 is interpreted as the proportion of response variation explained by the regressors in the model. It can be interpreted in this way:

$R^2 = 1$ indicates that the fitted model explains all variability in the dependent variable.

$R^2 = 0$ indicates no linear relationship between the response variable and regressors.

According to this reasoning, the value such as $R^2 = 0.6$ may be interpreted as follows: sixty percent of the variance in the response variable can be explained by the explanatory variables. The remaining thirty percent can be attributed to unknown, lurking variables or inherent variability.

A warning that applies to the R^2 and to other statistical descriptions of correlation and association, is that correlation does not imply causation. Correlations may sometimes provide important clues

⁷⁴ Retrieved from: <https://www.stata.com/manuals13/xttpcse.pdf>

in discovering causal relationships between variables. Nevertheless, a non-zero estimated correlation between two variables is not, on its own, the demonstration that a variation in the value of one variable would result in changes in the values of other variables. For example, the practice of carrying a lighter is correlated with the incidence of cancer but carrying a lighter does not cause cancer.

In the case of the present analysis, the interpretation of the R^2 would be in terms of the correlation of the regressors, namely social expenditure, social security contributors, and secondary school enrolment on the income inequality rates measured by the Gini coefficient.

- Semipartial correlations

In a multiple linear regression, the calculation of decomposition of the variance is conducted through the calculation of the semipartial correlations to know the explanatory power of each variable independent of the model:

$$R^2 = r_{xy1_semipartial}^2 + r_{xy2_semipartial}^2 + \text{join effect}$$

It tells us the part that explains each variable independent of the model. Apart of the variance that cannot individually explain each independent variable is the interaction between them or the joint effect. When the joint effect is high there is a high collinearity.

To address this, I calculate the semipartial correlations of each regressor to understand what proportion of the total explanation (R^2) is, in turn, explained by every independent variable.

- P-Value

The p-value is widely used in statistical hypothesis testing, specifically in null hypothesis significance testing as part of an experimental design. Before performing the experiment, one first chooses the null hypothesis and a threshold value for p, also called the significance level of the test, in this case it is 5% (Nuzzo, 2014) and denoted as α . On the one hand, if the p-value is less than the chosen significance level (α), that means the observed data is sufficiently inconsistent with the null hypothesis that the null hypothesis may be rejected. On the other hand, this fact does not demonstrate the tested hypothesis is true either. This test guarantees that the Type I error rate is at most α . For typical analysis, using the standard $\alpha = 0.05$ threshold, the null hypothesis is rejected when $p < .05$ and not rejected when $p > .05$. The p-value does indicate probabilities in relation to hypotheses but is only a tool for deciding whether to reject the null hypothesis.

In the case of the present analysis, the interpretation of the α would be related to the rejection (or not) of the null hypothesis regarding the regressors, social expenditure, social security contributors,

and secondary school enrolment, on the income inequality rates measured by the Gini index. If the null hypothesis is rejected ($p < .05$) the causation effect between this variable and the explanatory one is accepted. However, the level of causation is measured by another metric, the regression coefficient which is subsequently explained.

- Regression Coefficient

The lineal regression formula is defined by this:

$$Y = B_0 + B_1 * X_1 + B_2 * X_2 + e$$

Regression coefficients are represented by B_1 and B_2 in the formula above. This means that if X_1 differs by one unit (and X_2 did not differ) Y will differ by B_1 units, on average. The same interpretation could be applied for X_2 , if X_2 differs by one unit (and X_1 did not differ) Y will differ by B_2 units, on average.

In the case of the present analysis three regression coefficients are analysed for the three regressors, namely social expenditure, social security contributors, and secondary school enrolment.

2.2 ADDITION AND COMBINATION OF NEW VARIABLES

Variation in the already defined variables is added to the analysis in order to better understand the inference between the dependent and explanatory variables. Different hypotheses are tested to consider different behaviours of the variables: (a) the effect of a modification in the social expenditure budget of a country may be seen in the same year (e.g. conditional cash transfers); but some social expenses can have an impact on income inequality the subsequent year (e.g. health). (b) Furthermore, the number of social security contributors may also have an impact on the income inequality level of the following year. (c) Education, measured by the indicator secondary school enrolment, predictably impacts income inequality in a more delayed fashion than other social policies, which is why it is also tested against the income inequality ratios 5 years later. (d) Lastly, the fact that one country experiences certain level of inequality in the year X may influence the inequality level of the year $X+1$.

Thus, considering these four hypotheses, I undertake eleven regressions combining and testing different hypotheses regarding the behaviour of the variables. For this purpose, lagged⁷⁵ and lead⁷⁶ variables, based on the original ones, are constructed and combined for the three distributions: first Brazil and Germany together, then Brazil alone, and lastly Germany alone. The eleven regressions combining different independent, control, and dependent variables are listed and described as follows:

- I. Independent variables: social expenditure and social security contributors**
Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

In the first regression all the variables (independent and dependent ones) are taken from the same year. No control variable is introduced to the model. Therefore, this regression represents the base of the following ones where other variables are added (such as the control variable secondary school enrolment) or there is a variation in the same ones used in this regression.

- II. Independent variables: social expenditure and social security contributors**
Control variable: secondary school enrolment
Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

This is the same as the first regression however the variable secondary school enrolment is introduced to control for the effect of the relation between the independent variables and the dependent one.

- III. Independent variables: Social expenditure lagged (1 year) and social security contributors**
Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

The introduction of 1 year lagged variable for social expenditure is based on the hypothesis that social expenditure may have an influence on income inequality levels not in the same year that the government spends it but the year after. The rest of variables for the same year are kept the same.

- IV. Independent variables: Social expenditure lagged (1 year) and social security contributors**
Control Variable: Secondary School enrolment

⁷⁵ Past values.

⁷⁶ Future values.

Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

This is the same as the third regression however the variable secondary school enrolment is introduced to control for the effect of the relation between the independent variables and the dependent one.

**V. Independent variables: social expenditure and social security contributors
Dependent variable: income inequality measured by the Gini coefficient lead (1 year) (or percentile ratios in the case of Germany)**

In this case, all the explanatory variables are hypothesized to influence the dependent variable, income inequality, of the year X+1. Thus, the lead (1 year) variable is constructed and the regression is undertaken.

VI. Independent variables: social expenditure and social security contributors

**Control variable: secondary school enrolment
Dependent variable: income inequality measured by the Gini coefficient lead (1 year) (or percentile ratios in the case of Germany)**

This is the same as the fifth regression however the variable secondary school enrolment is introduced to control for the effect of the relation between the independent variables and the dependent one.

**VII. Independent variables: Social expenditure, Security contributors and the Gini coefficient lagged (1 year) (or percentile ratios in the case of Germany)
Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)**

In this combination the variable lagged income inequality is created and included in the regression as an independent variable. The aim in doing so is to test the influence of the same variable from one year to the next and thus check the regression coefficient of the independent variables to measure their effect only in the variation of the Gini coefficient (explained variable). This is unlike the other regressions where the Gini coefficient of a certain year is fully explained by the independent variables without taking into account the value for the former year.

VIII. Independent variables: Social expenditure, social security contributors and the Gini coefficient lagged (1 year) (or percentile ratios in the case of Germany)

Control variable: secondary school enrolment
Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

This is the same as the seventh regression however the variable secondary school enrolment is introduced to control for the effect of the relation between the independent variables and the dependent one.

IX. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

In this case it is hypothesized that the variable secondary school enrolment has more influence on income inequality levels five years following a change. Therefore, the variable secondary school enrolment of five years before is created to test the influence of it on income inequality levels, keeping the rest of variables from the same year.

X. Independent variables: social expenditure lagged (1 year) and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

Here the combined effect of the third and the ninth regression is measured. That is to say, the variable Social expenditure and Secondary school enrolment are lagged, 1 year and 5 years respectively.

XI. Independent variables: social expenditure lagged (1 year), social security contributors and the Gini coefficient lagged (1 year)

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by the Gini coefficient (or percentile ratios in the case of Germany)

Lastly, the tenth regression is modified with the introduction of the Gini coefficient lagged 1 year to measure only the effect on the variation of the Gini coefficient (from one year to the next) of the same independent variables.

In point 6.1. when the dependent variable is changed by the percentile ratios, the sets of regressions follow the same pattern, apart from the fact that Gini is substituted by the ratios P90/P10, P90/P50 and P50/P10 respectively.

3. FIRST SET OF REGRESSIONS: GERMANY AND BRAZIL TOGETHER

In general, all the regressions (Appendix 11 – 21) follow the same pattern, though there are some differences in the behaviour of the variables. The proportions of the explanation (R-squared) of the Gini coefficient are surprisingly high for all regressions (>80%). This is the main reason I decompose this R-squared into different semipartial correlations for each independent variable, to understand to what extent they contribute to the total explanation of income inequality levels. The semipartial correlations of social expenditure show higher values (around 30% in some cases), above all, for regressions III and IV; when social expenditure is taken from one year before, for the former, and when all regressors are tested against the Gini coefficient of the next year, for the latter. Apart from that the regressions coefficients, which indicate the predicted value that inequality levels are affected by the independent variables, are shown to be higher for social expenditure than social security contributors. These values are about -0,01 and -0,02 in most of the cases, except for regressions VII and VIII, when the Gini coefficient of the year before is taken as an independent variable. The analysis of the most striking points of the relevant regressions (whose p-values are lower than 5%) are presented as follows:

I. Independent variables: Social expenditure and social security contributors
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 11) presents an R-squared of 98%. One of the reasons for this high number could be the high correlation of the variables, which does not imply in any case a causal relation between the independent and the dependent variables. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 26% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 0.4% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, the two regressors, namely social expenditure and social security contributors, are statistically significant. The null hypothesis for secondary school enrolment, the control variable, is accepted. This fact does not directly imply an inference between the two

independent variables and the dependent one, but a correlation between them (always assuming 5% as a significance level threshold).

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,02 (measured by the Gini coefficient)
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

According to these results, social expenditure is more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against their contemporary dependent variable — income inequality measured by the Gini coefficient.

II. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 12) presents an R-squared of 98%. This is similar to the former distribution. In order to understand this R-squared deeper, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 4.71% indicates that at least this total R-squared can be explained by this variable. This number is significantly lower when the control variable is added, as compared to the former regression (without the variable secondary school enrolment)
- Social security contributors: the semipartial correlation squared of 0.2% indicates that at least this total R-squared can be explained by this variable. This is similar to the former regression without the control variable.

Regarding the P-values, the same two regressors are statistically significant, namely social expenditure and social security contributors. The null hypothesis for secondary school enrolment, the control variable is accepted.

Table 11. Summary of the results Brazil and Germany

	- IV: Social exp. - IV: SS contributors - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. - IV: SS contributors - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - DV: Gini	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini
R²	0.984	0.985	0.979	0.981	0.985	0.986	0.998	0.999	0.994	0.994	0.999
Semi-partial correlations											
Social exp.	0.26	0.05			0.22	0.04	0.00	0.00	0.01		
Social exp. Lag 1 year			0.25	0.04						0.01	0.00
SS contributors	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	
S. school enrolment		0.00		0.00		0.00		0.00			0.00
S. school enrolment lag 5 years									0.00	0.01	0.00
Gini lag 1 year							0.01	0.01			0.01
Regression coefficients											
Social exp.	-0,02**	-0,02**			-0,02**	-0,02**	0,00	0,00**	-0,01**		
Social exp. Lag 1 year			-0,02**	-0,02**						-0,01**	-0,00
SS contributors	-0,00**	-0,00*	-0,00**	-0,00*	-0,00**	-0,00**	0,00	0,00	0,00*	0,00	0,00
S. school enrolment		-0,00		0,00		-0,00*		0,00**			
S. school enrolment lag 5 years									0,00**	-0,00**	-0,00**
Gini lag 1 year							1,04**	1,06**			0,88**

Source: Elaborated by the author.

* p<0,05

** p<0,01

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,02 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

According to these results, social expenditure is still more important in reducing income inequality than social security contributors, having rejected the influence of the control variable, secondary school enrolment. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

III. Independent variables: social expenditure lagged (1 year) and social security contributors
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 13) presents an R-squared of 98%. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 25% indicates that at least this proportion of the total R-squared can be explained by this variable. This is similar to regression I with the correspondent social expenditure variable of the contemporary year.
- Social security contributors: the semipartial correlation squared of 0.6% indicates that at least this total R-squared can be explained by this variable. This is a barely representative number.

Regarding the P-values, the same regressors are statistically significant: social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,02 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

Similar conclusions are obtained from this analysis: social expenditure is more important in reducing income inequality than social security contributors, having rejected the influence of the control variable, secondary school enrolment. This takes into account, in this case, that social expenditure is measured from the former year against the contemporary dependent variable: income inequality measured by the Gini coefficient. Social security contributors for the same year as the Gini coefficient are chosen.

IV. Independent variables: social expenditure lagged (1 year) and social security contributors

Control Variable: Secondary School enrolment

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 14) presents an R-squared of 98%. This is similar to the former distribution. In order to understand this R-squared deeper, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 4.14% indicates that at least this total R-squared can be explained by this variable. This number is significantly lower when the control variable is added, as compared to the former regression (without the variable secondary school enrolment)
- Social security contributors: the semipartial correlation squared of 0.2% indicates that at least this total R-squared can be explained by this variable. This is similar to the former regression without the control variable.

Regarding the P-values, the same two regressors are statistically significant, namely social expenditure and social security contributors. The null hypothesis for secondary school enrolment, the control variable is accepted.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP in would decrease the income inequality level by 0,02 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

According to these results, social expenditure (even lagged 1 year) is still more important in reducing income inequality than social security contributors, having rejected the influence of the control variable, secondary school enrolment. However, the modification of the variable social expenditure does not have a meaningful influence on the results.

V. Independent variables: social expenditure and social security contributors
Dependent variable: income inequality measured by the Gini coefficient lead (1 year)

This regression (Appendix 15) presents an R-squared of 98%. In the same line with the former ones. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 21.64% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 0.55% indicates that at least this proportion of the total R-squared can be explained by this variable. This is not very significant.

Regarding the P-values, the two regressors are statistically significant, namely social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,02 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,004 (measured by the Gini coefficient).

According to these results, social expenditure is far more important in reducing income inequality than social security contributors which barely have an influence in the lead Gini coefficient. Therefore, the modification of the dependent variable does not significantly show a meaningful variation in the corresponding regression with the dependent variable of the same year.

VI. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by the Gini coefficient lead (1 year)

This regression (Appendix 16) presents again an R-squared of 98%. In order to understand this R-squared deeper, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 3,97% indicates that at least this proportion of the total R-squared can be explained by this variable. Extraordinarily lower than the former regression without the control variable.
- Social security contributors: the semipartial correlation squared of 0.25% indicates that at least this proportion of the total R-squared can be explained by this variable. This is not very significant either.

Regarding the P-values, the two regressors are statistically significant, namely social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,02 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

According to these results, social expenditure is far more important in reducing income inequality than social security contributors which barely have an influence in the lead Gini coefficient. Thus, with the introduction of the secondary school enrolment as a control variable the results do not really change.

VIII. Independent variables: social expenditure, social security contributors and Gini lagged (1 year)

Control variable: secondary school enrolment

Dependent variable: income inequality measured by Gini coefficient

This regression (Appendix 18) presents an R-squared of 99%, which makes sense assuming a high degree of influence between the Gini of one year to the next one. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- The squared semipartial correlations show exactly the same result — near to 0 in both cases, which indicates that the total R-squared cannot be explained by any of these variables, at least when taking both of them independently.

Regarding the P-values, none of the two regressors are statistically not significant. Therefore, the regression coefficients may not be taken as a result.

IX. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by Gini coefficient

This regression (Appendix 19) presents an R-squared of 99%. This number is even higher than the distribution II when the secondary school enrolment is taken from the same year. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 1.11% indicates that at least this proportion of the total R-squared can be explained by this variable. This number is significantly lower when the control variable is added, as compared to the former regression (without the variable secondary school enrolment)
- Social security contributors: the semipartial correlation squared of 0.06% indicates that at least this proportion of the total R-squared can be explained by this variable. This is similar to the former regression without the control variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social expenditure. In this case, the null hypothesis for secondary school enrolment is accepted when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,01 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,001 (measured by the Gini coefficient).

According to these results, social expenditure is still more important in reducing income inequality than social security contributors⁷⁷, however, the influence of the control variable is far more significant than in II regression⁷⁸. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

- X. Independent variables: social expenditure lagged (1 year) and social security contributors**
Control variable: secondary school enrolment lagged (5 year)
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 20) presents an R-squared of 99%. This number is similar to the former distribution in which the variable social expenditure is taken from the same year as the explained variable. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 1.10% indicates that at least this proportion of the total R-squared can be explained by this variable. This number is similar compared to the former regression (where social expenditure is taken from the same year as the dependent variable).
- Social security contributors: the semipartial correlation squared of 0.05% indicates that at least this proportion of the total R-squared can be explained by this variable. This is almost the same as the former regression.

Regarding the P-values, the same two regressors are statistically significant, namely social expenditure and social security contributors. In this case, the null hypothesis for secondary school enrolment is accepted when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, taking into account the Brazilian and German datasets together from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,01 (measured by the Gini coefficient).

⁷⁷ In fact, income inequality increases with the increment of social security contributors according to this regression.

⁷⁸ With the variable secondary school enrolment of the same year as the independent ones.

According to these results, social expenditure is still more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

4. SECOND SET OF REGRESSIONS: BRAZIL

The general trends in the set of regressions of Brazil (Appendix 22 – 32) show a degree of correlation between the regressors and the independent variables, ranging from around 80-90%. However, the semipartial correlations of the independent variables are notably higher for social security contributors than social expenditure. Also, the variable social security contributors become statistically significant in most of the cases (all regressions, but the VII and XI); whereas, social expenditure show p-values higher than 5% in only three of them (I, V and VIII). It is true that the regression coefficients of the social expenditure (when the p-value is >5%) show higher values compared to social expenditure. Here, I present the most striking points of the analysis for the relevant regressions (whose p-values are lower than 5%):

I. Independent variables: social expenditure and social security contributors
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 22) presents an R-squared of 81%. One of the reasons for this high number could be the high correlation of the variables but it does not imply in any case a causal relation between the independent and the dependent variables. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 7,95% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 26,25% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, the two regressors are statistically significant, namely social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, considering the Brazilian dataset from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,008 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,005 (measured by the Gini coefficient).

According to these results, social expenditure is more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

II. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 23) presents an R-squared of 94%. This is similar to the former distribution. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 0,4% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 13,89% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected.

As regards the regression coefficients, the interpretation, taking into account the Brazilian dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,003 (measured by the Gini coefficient).

According to these results, increasing social security contributors is more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

Table 12. Summary of the results Brazil

	- IV: Social exp. - IV: SS contributors - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. - IV: SS contributors - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - DV: Gini	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: Gini lag 1 year - CV: Sec. School enrolment lag 5 years - DV: Gini
R²	0,807	0,944	0,864	0,966	0,809	0,960	0,857	0,983	0,992	0,993	0,994
Semi-partial correlations											
Social exp.	0,08	0,00			0,11	0,00	0,01	0,01	0,00		
Social exp. Lag 1 year			0,02	0,01						0,00	0,00
SS contributors	0,26	0,14	0,33	0,18	0,28	0,15	0,00	0,01	0,01	0,01	0,00
S. school enrolment		0,14		0,10		0,15		0,03			
S. school enrolment lag 5 years									0,10	0,10	0,00
Gini lag 1 year							0,08	0,02			0,00
Regression coefficient											
Social exp.	-0,01**	0,00			-0,01**	0,00	0,00	0,01**	0,00		
Social exp. Lag 1 year			-0,00*	0,00*						-0,00	-0,00
SS contributors	-0,00**	-0,00**	-0,01**	-0,00**	-0,00**	-0,00**	-0,00	-0,00**	-0,00**	-0,00**	-0,00
S. school enrolment		-0,00**		-0,00**		-0,00**		-0,00**			
S. school enrolment lag 5 years									-0,00**	-0,00**	-0,00**
Gini lag 1 year							1,01**	0,62**			-0,4

Source: Elaborated by the author.

* p<0,05

** p<0,01

III. Independent variables: social expenditure lagged (1 year) and social security contributors
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 24) presents an R-squared of 86%. This is similar to distribution I when social expenditure is taken from the same year as the explained variable. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 2,3% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 33,44% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected.

As regards the regression coefficients, the interpretation, taking into account the Brazilian dataset from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,005 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,005 (measured by the Gini coefficient).

According to these results, social expenditure is still more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

IV. Independent variables: social expenditure lagged (1 year) and social security contributors
Control Variable: Secondary School enrolment
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 25) presents an R-squared of 97%. This is similar to distribution II when social expenditure is taken from the same year as the explained variable and the control variable is used. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 0,75% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 17,63% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is accepted.

As regards the regression coefficients, the interpretation, taking into account the Brazilian database from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would increase the income inequality level by 0,005 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,005 (measured by the Gini coefficient).

According to these results, social expenditure is still more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

**V. Independent variables: social expenditure and social security contributors
Dependent variable: income inequality measured by the Gini coefficient lead (1 year)**

This regression (Appendix 26) presents an R-squared of 81%. This is similar to distribution I when the explained variable is taken from the same year as the explanatory variables. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 11,12% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 27,94% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, the two independent variables are statistically significant, namely social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, taking into account the Brazilian database from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would decrease the income inequality level by 0,009 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,005 (measured by the Gini coefficient).

According to these results, social expenditure is still more important in reducing income inequality than social security contributors. This takes into account that all regressors are measured against the lead (1year) dependent variable: income inequality measured by the Gini coefficient.

VI. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by the Gini coefficient lead (1 year)

This regression (Appendix 27) presents an R-squared of 96%. This is slightly higher than distribution II when the explained variable is taken from the same year as the explanatory variables. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,18% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 14,5% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected.

As regards the regression coefficients, the interpretation, taking into account the Brazilian database from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,004 (measured by the Gini coefficient).

According to these results, increasing social security contributors is more important in reducing income inequality than social expenditure. This takes into account that all regressors are measured against the lead (1 year) dependent variable: income inequality measured by the Gini coefficient.

VIII. Independent variables: social expenditure, social security contributors and Gini lagged (1 year)

Control variable: secondary school enrolment

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 29) presents an R-squared of 98%. This is similar to distribution I when the explained variable is taken from the same year as the explanatory variables. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 1,4% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 1% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, the two independent variables are statistically significant, namely social expenditure and social security contributors.

As regards the regression coefficients, the interpretation, taking into account the Brazilian database from 1990 to 2016, may be defined as follows:

- Social expenditure: increasing social expenditure by 1% of the national GDP would increase the income inequality level by 0,005 (measured by the Gini coefficient).
- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,002 (measured by the Gini coefficient).

According to these results, increasing social security contributors is more important in reducing income inequality than social expenditure. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

IX. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 30) presents an R-squared of 99%. This number is significantly higher than the distribution II (by 5% concretely) when the secondary school enrolment is taken from the same year. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0% indicates that none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 1,3% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, taking into account the Brazilian datasets from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,002 (measured by the Gini coefficient).

According to these results, increasing social security contributors is still more important in reducing income inequality than social expenditure, however, the influence of the control variable is more significant than regression II. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

X. Independent variables: social expenditure lagged (1 year) and social security contributors
Control variable: secondary school enrolment lagged (5 year)
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 31) presents an R-squared of 99%. This number is significantly higher than in distribution IX when social security contributors is taken from the same year as the other regressors. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,1% indicates that at least this proportion of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 1% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, considering the Brazilian datasets from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would decrease the income inequality level by 0,002 (measured by the Gini coefficient).

According to these results, increasing social security contributors is still more important in reducing income inequality than social expenditure, the fact that social expenditure is lagged (1 year) in this regression does not really change the result of it. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

5. THIRD SET OF REGRESSIONS: GERMANY

For all the regressions (Appendix 33 – 43) with Germany as a case study, except for the IX and X, none of the two explanatory variables is statistically significant. Therefore, the regression coefficients may not be taken as a result for them. However, I present the results of the two relevant regressions (whose p-values are lower than 5%), regressions IX and X:

IX. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 41) presents an R-squared of 33%. This number is more notable than any former distribution from Brazil and Germany together or Brazil alone. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 2,37% indicates that barely none of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 18,38% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two independent variables is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, taking into account the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,004 (measured by the Gini coefficient).

According to these results, increasing social security contributors is shown to have a positive effect on income inequality. On the contrary, the control variable, school enrolment lagged (5 year), is the only regressor (statically significant) that has a negative effect on income inequality in this regression. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

- X. Independent variables: social expenditure lagged (1 year) and social security contributors**
Control variable: secondary school enrolment lagged (5 year)
Dependent variable: income inequality measured by the Gini coefficient

This regression (Appendix 42) presents an R-squared of 31%. This number is more notable than any former distribution from Brazil and Germany together or Brazil alone. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of almost 0% indicates that none of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 20,60% indicates that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one of the two regressors is statistically significant, namely social security contributors. In this case, the null hypothesis for secondary school enrolment is rejected when taken as 5 years lagged.

As regards the regression coefficients, the interpretation, taking into account German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,004 (measured by the Gini coefficient).

According to these results, which are similar to former distribution IX, increasing social security contributors is shown to have a positive effect on income inequality. On the contrary, the control variable, school enrolment lagged (5 year), is the only regressor (statistically significant) that has a

Table 13. Summary of the results Germany

	- IV: Social exp. - IV: SS contributors - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. - IV: SS contributors - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: Gini lead 1 year	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - DV: Gini	- IV: Social exp. - IV: SS contributors - IV: Gini lag 1 year - CV: Sec. School enrolment - DV: Gini	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: Gini	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: Gini lag 1 year - CV: Sec. School enrolment lag 5 years - DV: Gini
R²	0.037	0.019	0.132	0.090	0.009	0.010	0.859	0.874	0.332	0.311	0.834
Semi-partial correlations											
Social exp.	0.00	0.00			0.00	0.00	0.01	0.01	0.02		
Social exp. Lag 1 year			0.10	0.07						0.00	0.00
SS contributors	0.03	0.00	0.11	0.04	0.01	0.01	0.00	0.02	0.18	0.21	0.00
S. school enrolment		0.02		0.01		0.00		0.01			
S. school enrolment lag 5 years									0.18	0.17	0.00
Gini lag 1 year							0.82	0.86			0.52
Regression coefficient											
Social exp.	0,00	0,00			0,00	0,00	0,00	0,00	-0,00		
Social exp. Lag 1 year			0,01	0,01						-0,00	0,00
SS contributors	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00*	0,00*	0,00
S. school enrolment		0,00		0,00		0,00		-0,00			
S. school enrolment lag 5 years									-0,00*	-0,00*	0,00
Gini lag 1 year							0,94**	1,02**			0,94**

Source: Elaborated by the author.

* p<0,05

** p<0,01

negative effect on income inequality in this regression. This takes into account that all regressors are measured against the contemporary dependent variable: income inequality measured by the Gini coefficient.

5.1. ALTERNATIVE SET OF REGRESSIONS FOR GERMANY: PERCENTILE RATIOS AS A DEPENDENT VARIABLE

After knowing that the results of the German set of regressions does not prove any statistical inference between the explanatory variables and the explained one, I decided to go deeper into the distribution of income in Germany to obtain some insights. The Gini index has been chosen as an indicator for income inequality for two reasons: (1) the availability of data in the main databases, (2) because it is widely used among social scientists⁷⁹. However, it does not perform perfectly for the whole range of populations. In fact, two countries may enjoy the same Gini coefficient with very different distributions of income. The Gini index shows an over-sensitivity for middle classes and neglects the variations in the share of incomes at the extremes. Assuming this missing information from this index, I decided to test the same hypothesis posed before in the eleven regressions for Germany and Brazil against different income inequality measures. Instead of an index, I chose three ratios that may help to fill the gaps missed by the Gini index, namely the P90/P10, P90/P50 and the P50/P10 ratios. By taking the ratios as an independent variable of the analysis, I try to allocate the effects of the independent variables on the income distribution within these specific income percentiles of the population:

- P90/P10: in this ratio I focus on the differences in the extremes of the distribution.
- P90/P50: in this ratio I study the differences in the upper part of the income range.
- P50/P10: in this ratio the analysis provides an insight about the differences in lower income distributions.

Therefore, after this analysis I will be able to obtain conclusions that are different from those using the former set of regressions with the Gini index as the explained variable. These will be more closely related to the direction of the redistribution within the whole range of the population. The results are presented as follows:

⁷⁹ These reasons have already been mentioned in Chapter 2, point 3.4.3.

- Ratio P90/P10

From all the eleven regressions undertaken⁸⁰, four of them show relevant results to be analysed due to a p-value lower than 5%, the threshold marked as statistically significant for any of the regressors. However, the only regressor that show these low p-values (lower than 5%) is social security contributors in different combinations with other regressors which are subsequently explained:

I. Independent variables: social expenditure and social security contributors
Dependent variable: income inequality measured by P90/P10

This regression (Appendix 44) tests the effect of the contemporary independent variables against the dependent variables without the control variable, secondary school enrolment.

Regression I present an R-squared of 25,44%, this number represents a moderate proportion of the explanation of this ratio P90/P10. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 1,33% indicates that barely none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 15,14% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,05 (measured by the P90/P10 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P10 ratio.

⁸⁰ The comprehensive results from all regressions may be seen in the Appendix 44 – 54.

Table 14. Summary of the results Germany ratio P90/P10

	- IV: Social exp. - IV: SS contributors - DV: P90/P10	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P10	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P10 lead 1 year	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P10 lead 1 year	- IV: Social exp. - IV: SS contributors - IV: P90/P10 lag 1 year - DV: P90/P10	- IV: Social exp. - IV: SS contributors - IV: P90/P10 lag 1 year - CV: Sec. School enrolment - DV: P90/P10	- IV: Social exp. - IV: SS contributors - IV: P90/P10 lag 1 year - CV: Sec. School enrolment lag 5 years - DV: P90/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: P90/P10 lag 1 year - CV: Sec. School enrolment lag 5 years - DV: P90/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: P90/P10 lag 1 year - CV: Sec. School enrolment lag 5 years	
R²	0.254	0.167	0.246	0.145	0.058	0.036	0.542	0.522	0.409	0.361	0.777	
Semi-partial correlations												
Social exp.	0.01	0.02			0.01	0.00	0.01		0.01		0.05	
Social exp. Lag 1 year			0.00	0.00							0.00	0.01
SS contributors	0.15	0.06	0.21	0.11	0.06	0.03	0.01	0.00	0.25	0.21	0.00	0.00
S. school enrolment		0.01		0.01		0.00		0.00				
S. school enrolment lag 5 years									0.04	0.17		0.00
P90/P10 lag 1 year							0.29	0.36				0.42
Regression coefficient												
Social exp.	-0,04	-0,05			0,03	0,02	0,03	0,02	-0,07			
Social exp. Lag 1 year			0,02	0,01						0,01		0,04
SS contributors	0,05*	0,04	0,06**	0,05	0,03	0,03	0,01	0,00	0,06**	0,07**		0,00
S. school enrolment		0,01		-0,01		-0,01		-0,00				
S. school enrolment lag 5 years									-0,02	-0,02		0,00
P90/P10 lag 1 year							0,52**	0,53**				0,88**

Source: Elaborated by the author.

* p<0,05

** p<0,01

III. Independent variables: social expenditure lagged (1 year) and social security contributors
Dependent variable: income inequality measured by P90/P10

This regression (Appendix 46) tests the effect of social security contributors and social expenditure on income inequality not the same year but the next one, measured by the ratio P90/P50. The results are similar to the basic regression I:

Regression III presents an R-squared of 24,59%. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 0,48% indicates that barely none of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 15,82% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,06 (measured by the P90/P10 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P10 ratio.

IX. Independent variables: social expenditure and social security contributors
Control variable: secondary school enrolment lagged (5 year)
Dependent variable: income inequality measured by P90/P10

This regression (Appendix 52) tests the effect of both independent variables on income inequality, measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment from 5 years ago. I show the most striking points here:

Regression IX presents an R-squared of 40,92%, a higher proportion of the explanation of this ratio P90/P10 than the former two regressions I & III, which is logical given the inclusion of the regressor

secondary school enrolment lagged (5 year). In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,05% indicates that almost none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 24,81% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,06 (measured by the P90/P10 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P10 ratio.

X. Independent variables: social expenditure lagged (1 year) and social security contributors
Control variable: secondary school enrolment lagged (5 year)
Dependent variable: income inequality measured by P90/P10

This regression (Appendix 53) tests the effect of social security contributors and social expenditure on income inequality not the same year but the next one, measured by the ratio P90/P50 and it is controlled by the variable secondary school enrolment from 5 years ago. I show the most striking points here:

Regression X presents an R-squared of 36,06%, a lower proportion of the explanation of this ratio P90/P10 than the former regression with the social expenditure from the same year as the dependent variable. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 0,07% indicates that barely none of the total R-squared that can be explained by this variable.

- Social security contributors: the semipartial correlation squared of 31,24% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,07 (measured by the P90/P10 ratio).

According to these results, social security contributors is relevant in increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P10 ratio.

- Ratio P90/P50

This set of regressions⁸¹ whose dependent variable measures the upper part of the income distribution, shows robust results concerning the relation between social security contributors and the ratio P90/P50. However, they do not show conclusive data regarding the effect of social expenditure in the explained variable. Most of the regressions show statistical significance (p-values lower than 5%) for all of the independent variables except for those of VII and VIII ones. Also, the R-squared coefficients ranging from 30% to 60% show higher correlations between the explanatory and explained variables than the first set of regressions with P90/P10 as the dependent variable. They are subsequently explained with their most relevant points:

I. Independent variables: social expenditure and social security contributors

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 55) tests the effect of the contemporary independent variables on income inequality, measured by ratio P90/P50 without the control variable, secondary school enrolment. I show the most relevant points here:

⁸¹ Appendix 55 – 65.

Regression I present an R-squared of 44,17%, this number represents a notable proportion of the explanation of this ratio P90/P50. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 1,02% indicates that almost none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 29,59% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,016 (measured by the P90/P10 ratio).

According to these results, social security contributors is relevant in increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

II. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 56) tests the effect of both independent variables on income inequality, measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment. I show the most striking points here:

Regression II presents an R-squared of 32,19%, a lower proportion of the explanation of the ratio P90/P10 than regression I. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 2,3% indicates that some of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 15,39% shows that at least this proportion of the total R-squared can be explained by this variable.

Table 15. Summary of the results Germany ratio P90/P50

	- IV: Social exp. - IV: SS contributors - DV: P90/P50	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P50	- IV: Social exp. Lag 1 year - IV: SS contributors - DV: P90/P50	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P50	- IV: Social exp. - IV: SS contributors - DV: P90/P50 lead 1 year	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P50 lead 1 year	- IV: Social exp. - IV: SS contributors - IV: P90/P50 lag 1 year - DV: P90/P50	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment - DV: P90/P50	- IV: Social exp. - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: P90/P50	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: P90/P50	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: P90/P50 lag 1 year - CV: Sec. School enrolment lag 5 years
R²	0.442	0.322	0.490	0.366	0.274	0.258	0.457	0.368	0.722	0.644	0.668
Semi-partial correlations											
Social exp.	0.01	0.02			0.00	0.00	0.01	0.02	0.08		
Social exp. Lag 1 year			0.06	0.07						0.00	0.01
SS contributors	0.30	0.15	0.47	0.35	0.18	0.17	0.07	0.03	0.34	0.40	0.23
S. school enrolment		0.00		0.00		0.00		0.00			
S. school enrolment lag 5 years									0.00	0.00	0.00
P90/P50 lag 1 year							0.02	0.05			0.02
Regression coefficient											
Social exp.	-0,01	-0,01			-0,00	-0,00	-0,01	-0,01	-0,02*		
Social exp. Lag 1 year			0,01	0,01						-0,00	-0,01
SS contributors	0,02**	0,01*	0,02**	0,02**	0,01*	0,02*	0,01	0,01	0,02**	0,02**	0,03**
S. school enrolment		-0,00		-0,00		-0,00		0,00			
S. school enrolment lag 5 years									0,00	0,00	0,00
P90/P50 lag 1 year							0,20	0,32			-0,34

Source: Elaborated by the author.

* p<0,05

** p<0,01

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,013 (measured by the P90/P50 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

III. Independent variables: social expenditure lagged (1 year) and social security contributors

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 57) tests the effect of social security contributors and social expenditure on income inequality not the same year but the next one, measured by ratio P90/P50. I show the most relevant points here:

Regression III presents an R-squared of 48,95%, a higher proportion of the explanation of this ratio P90/P50 than regression I, which indicates that social expenditure lagged (1 year) explains the dependent variable better. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 5,81% indicates that some of the total R-squared can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 47,28% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,022 (measured by the P90/P10 ratio).

According to these results, social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

IV. Independent variables: social expenditure lagged (1 year) and social security contributors

Control Variable: Secondary School enrolment

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 58) tests the effect of social security contributors and social expenditure on income inequality not the same year but the next one, measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment. I show the most striking points here:

Regression IV presents an R-squared of 36,59%, a lower proportion of the explanation of this ratio P90/P50 than regression III, without the control variable secondary school enrolment. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure lagged (1 year): the semipartial correlation squared of 6,71% indicates that some of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 35,03% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,02 (measured by the P90/P10 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

V. Independent variables: social expenditure and social security contributors

Dependent variable: income inequality measured by P90/P50 lead (1 year)

This regression (Appendix 59) tests the effect of the contemporary independent variables on income inequality, measured by ratio P90/P50 lead (1 year) without the control variable, secondary school enrolment. I show the most relevant points here:

Regression V presents an R-squared of 27,36%, a lower proportion of the explanation of this ratio P90/P50 than regressions I-IV, which use the contemporary P90/P50 ratio. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,27% indicates that almost none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 18,30% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,014 (measured by the P90/P10 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

VI. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment

Dependent variable: income inequality measured by P90/P50 lead (1 year)

This regression (Appendix 60) tests the effect of the contemporary independent variables on income inequality, measured by ratio P90/P50 lead (1 year) with the control variable, secondary school enrolment. I show the most relevant points here:

Regression VI presents an R-squared of 25,77%, a lower proportion of the explanation of this ratio P90/P50 than the former regression V, without the control variable secondary school enrolment. In

order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,19% indicates that almost none of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 17,20% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, only one regressor is statistically significant (>5%): social security contributors.

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,016 (measured by the P90/P50 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

IX. Independent variables: social expenditure and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 63) tests the effect of both independent variables on income inequality, measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment lagged (5 year). I show here the most striking points:

Regression IX presents an R-squared of 72,18%, a higher proportion of the explanation of this ratio P90/P50 than the former regressions I - VIII. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 7,96% indicates that some of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 33,60% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, both regressors are statistically significant (>5%): social expenditure & social security contributors

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the social spending by 1% would decrease the income inequality level by 0,021 (measured by the P90/P50 ratio).
- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,013 (measured by the P90/P50 ratio).

According to these results, increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

X. Independent variables: social expenditure lagged (1 year) and social security contributors

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 64) tests the effect of social security contributors and social expenditure on income inequality, not the same year but the next one measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment lagged (5 year). I show here the most striking points:

Regression X presents an R-squared of 64,42%, a lower proportion of the explanation of this ratio P90/P50 than regression IX, with the contemporary social expenditure variable. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,21% indicates that some of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 39,57% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, both regressors are statistically significant (>5%): social expenditure & social security contributors

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,02 (measured by the P90/P50 ratio).

According to these results, social expenditure contributes to a decrease in income inequality, while increasing the number of social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

XI. Independent variables: social expenditure lagged (1 year), social security contributors and P90/P50 lagged (1 year)

Control variable: secondary school enrolment lagged (5 year)

Dependent variable: income inequality measured by P90/P50

This regression (Appendix 65) tests the effect of social security contributors and social expenditure on income inequality not the same year but the next one, measured by ratio P90/P50 and it is controlled by the variable secondary school enrolment lagged (5 year). Also this regression includes the P90/P50 lagged (1 year) as an independent variable. I show here the most striking points:

Regression X presents an R-squared of 66,84%, a higher proportion of the explanation of this ratio P90/P50 than the former regressions X, without the P90/P50 lagged (1 year) as an independent variable. In order to understand this R-squared in more depth, it is decomposed into the different independent variables namely:

- Social expenditure: the semipartial correlation squared of 0,94% indicates that some of the total R-squared that can be explained by this variable.
- Social security contributors: the semipartial correlation squared of 23,20% shows that at least this proportion of the total R-squared can be explained by this variable.

Regarding the P-values, both regressors are statistically significant (>5%): social expenditure & social security contributors

As regards the regression coefficients, the interpretation, considering the German dataset from 1990 to 2016, may be defined as follows:

- Social security contributors: increasing the number of social security contributors by 1% would increase the income inequality level by 0,027 (measured by the P90/P50 ratio).

According to these results, social expenditure contributes to a decrease income inequality, while increasing social security contributors is relevant to increasing income inequality. This takes into account that all regressors are measured against the contemporary dependent variable: P90/P50 ratio.

- Ratio P50/P10

For the lower part of the distribution of income there are no statistically significant regressors in any regression. Therefore, I cannot show any relevant information about the inference relation of the independent variables with the dependent variable, the ratio P50/P10.

Table 16. Summary of the results Germany ratio P50/P10

	- IV: Social exp. contributors - IV: SS contributors - DV: P50/P10	- IV: Social exp. contributors - IV: SS contributors - CV: Sec. School enrolment - DV: P50/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: SS contributors - DV: P50/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - CV: Sec. School enrolment - DV: P50/P10	- IV: Social exp. contributors - IV: SS contributors - DV: P50/P10 lead 1 year	- IV: Social exp. contributors - CV: Sec. School enrolment - DV: P50/P10 lead 1 year	- IV: Social exp. contributors - IV: SS contributors - IV: P50/P10 lag 1 year - DV: P50/P10	- IV: Social exp. contributors - IV: SS contributors - CV: Sec. School enrolment - DV: P50/P10	- IV: Social exp. contributors - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: P50/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: SS contributors - CV: Sec. School enrolment lag 5 years - DV: P50/P10	- IV: Social exp. Lag 1 year - IV: SS contributors - IV: P50/P10 lag 1 year - CV: Sec. School enrolment lag 5 years
R²	0.080	0.057	0.074	0.046	0.019	0.026	0.602	0.613	0.163	0.150	0.849
Semi-partial correlations											
Social exp.	0.01	0.02			0.02	0.01	0.03	0.02	0.02		
Social exp. Lag 1 year			0.00	0.01						0.00	0.01
SS contributors	0.04	0.01	0.04	0.01	0.00	0.00	0.00	0.00	0.09	0.13	0.00
S. school enrolment		0.01		0.01		0.00		0.01			
S. school enrolment lag 5 years									0.08	0.06	0.00
P50/P10 lag 1 year							0.52	0.56			0.70
Regression coefficient											
Social exp.	-0,01	-0,02			0,02	0,01	0,03	0,02	-0,02		
Social exp. Lag 1 year			-0,01	-0,01						0,01	0,01
SS contributors	0,01	0,01	0,01	0,01	0,00	-0,00	0,00	-0,00	0,01	0,02	-0,00
S. school enrolment		-0,00		-0,00		-0,00		-0,00			
S. school enrolment lag 5 years									-0,01	-0,01	0,00
P50/P10 lag 1 year							0,53**	0,54**			0,89**

Source: Elaborated by the author.

* p<0,05

** p<0,01

6. SUMMARY OF THE RESULTS

In order to make all the data resulting from this statistical analysis more understandable to the reader, I gather and sum up the values of the main parameters. Specifically, the parameters that one has to focus on so as to answer one of the following research questions (variables oriented) of this thesis are mainly: semi-partial correlations and regression coefficients.

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

The values of the former parameter indicate the proportion of the total R-squared⁸² that may be explained by a certain explanatory variable, in other words, up to what point one or another independent variable participate in the total explanation of the dependent variable. For the later parameter, the interpretation of its value indicates the sign (positive or negative) and the quantitative impact of the independent variable on the explained one. This summary of the comprehensive analysis is divided into three groups of regressions undertaken during the study: first Brazil and Germany together, then Brazil, and then Germany alone.

6.1. BRAZIL AND GERMANY

In general, the independent variable social expenditure seems to be more important than social security contributors, considering that the regression coefficient number for the former hovers around 0,00 and -0,02⁸³, whereas, the same value remains barely 0,00 for the latter variable. That means that in some regressions increasing the social expenditure of a country by 1% may decrease the income inequality to the extent of 0,02 points of the Gini coefficient (the explained variable). On the other hand a 1% increase in the number of social security contributors does not imply a significant change in income inequality. This takes into account that in this model Brazil and Germany are taken together as the case of study.

However, the proportion of the total explanation that both independent variables, taken separately, can have on the dependent variable is not very high in either case. In fact, this percentage varies

⁸² The total R-squared defines the proportion of the explanation by the model, but it does not give the specific information of the separate variables.

⁸³ See table 11.

from nearly 1% to 26% of the total explanation of the model (Table 1). Given the unusually high values of the R^2 of this group of regressions (circa 0,99), the analysis of covariances is especially important because collinearity between the explanatory variables is probable and the joint effect reflect that. Therefore, in order to solve this possible limitation of the study, the semi-partial correlations are calculated so as to delimit the values of the regression coefficients, which express the minimum effect that one independent variable has on the explanatory one. For this purpose, I have calculated the semipartial correlations of all regressors and therefore deduct the joint effect of the regression against the total R^2 of the regression model.

A more specific summary is subsequently presented showing the behaviour of the two explanatory variables: social expenditure and social security contributors. This focuses on the modification of the regressions, such as lagged and lead variables, the addition of control variables, and the introduction of the explained variable as an independent one:

- Social expenditure:

The most striking points in trend changes regarding this variable are the following: (a) the addition of the control variable substantially modify the value of the semi-partial correlation, while the regression coefficients remain about the same⁸⁴. (b) The effect of the independent variables on the Gini coefficient lead (1 year) is not significantly different than the contemporary one.⁸⁵ (c) When the variable Gini lag (1 year) is introduced as an independent variable, the semi-partial correlation as well as the regression coefficients plummet to 0⁸⁶.

- Social security contributors:

In the case of social security contributors, the most striking points in trend changes are the following: (a) the addition of the control variable does not cause substantial changes in either semi-partial correlations or regression coefficients, which remain almost the same.⁸⁷ (b) The effect of the independent variables on the Gini coefficient lead (1 year) is not significantly different than the contemporary one.⁸⁸ (c) When the variable Gini lag (1 year) is introduced as an independent

⁸⁴ See regressions I, II, III and IV (Table 11).

⁸⁵ See regression I, II, V and VI (Table 11).

⁸⁶ See regressions I, II, VII and VIII (Table 11).

⁸⁷ See regressions II and IV (Table 11).

⁸⁸ See regression V (Table 11).

variable, the semi-partial correlation as well as the regression coefficients do not exhibit any major variation.⁸⁹

Even though the purpose of the introduction of secondary school enrolment as a regressor is none other than to control the independent variables, a summary of its results may contribute to the study. For the semi-partial correlations of education, the values are 0% for all regressions apart from regression X whose value is 1%, in this case the variable secondary school enrolment is lagged 5 years. Likewise, the regression coefficients are also nearly 0,00 for all regressions. However, it influences the values of other regressors (especially social expenditure) as has been mentioned. Lastly, the effect of replacing the contemporary variable with the lag (5 year) secondary school enrolment is not relevant, since it presents the same results as the contemporary ones.

6.2. BRAZIL

For the set of regressions with Brazil as a case study, the values do not show that either of the independent variables (social expenditure and social security contributors) have a higher impact than the other on the Gini coefficient. The regression coefficient values for both variables hovers around 0,00 and -0,01⁹⁰ alternatively, for one and the other variable. That means, that in some regressions increasing either the social expenditure or the number of social security contributors by 1% in a country may decrease the income inequality to the extent of 0,01 points of the Gini coefficient (the explained variable).

With respect to the proportion of the total explanation that each independent variable can have on the dependent variable, the percentage fluctuates from nearly 1% to 26% of the total explanation of the model⁹¹. Given the unusual high values of the R^2 for this group of regressions (*circa* 0,99), it is especially important to analyse of covariances because of the high likelihood of collinearity between the explanatory variables. Thus, the results of the parameter which represents the sum of the semi-partial correlations of all regressors by the total R^2 are relevant for this purpose,⁹² same as the point 5.1. They vary from nearly 0% to 42%. Regressions I, III and V presents the highest values for this parameter (higher than 40%), followed by II and IV (close to 30%). This means that the regressors

⁸⁹ See regressions VII and VIII (Table 11).

⁹⁰ See table 12.

⁹¹ See table 12.

⁹² See table 12.

(independent variables and the control one) explain the result in the dependent variable to a greater extent than the rest of the regressions.

In this particular group of regressions where there is no clear “winner” between the two explanatory variables, it is especially pertinent to present a more specific summary showing the behaviour of the two explanatory variables, social expenditure and social security contributors, focusing on the modification of the regressions, such as lagged and lead variables, the addition of control variables, and the introduction of the explained variable as an independent one.

- Social expenditure:

The most striking points in trend changes regarding this variable are the following: (a) the addition of the control variable modify substantially the value of the semi-partial correlation. In fact, social expenditure represents almost 0% with the addition of the control variable, reduced from 8% without a control variable. Also, the regression coefficients change significantly from -0,01 to 0,00.⁹³ (b) The effect of the independent variables on the Gini coefficient lead (1 year) is not significantly different than the contemporary one. The regression coefficients are similar (-0.01 without the control variable and 0,00 with it) and the semi-partial correlations are slightly higher when the Gini lead (1 year) is taken (between 1-2%).⁹⁴ (c) When the variable Gini lag (1 year) is introduced as an independent variable, the semi-partial correlation plunge to 0 whereas the regression coefficients either remain 0 or rise to a surprising (because of the positive sign) 0.01.⁹⁵

- Social security contributors:

In the case of social security contributors, the most striking points in trend changes are the following: (a) the addition of the control variable has an effect in semi-partial correlations and regression coefficients, between 12% and 15% for the former and -0,01 for the latter.⁹⁶ (b) The substitution of the dependent variable by the Gini coefficient lead (1 year) represents a difference in 1% and 2% with and without the control variable respectively.⁹⁷ (c) When the variable Gini lag (1

⁹³ See regressions I and II (Table 12).

⁹⁴ See regressions I, II, V and VI (Table 12).

⁹⁵ See regressions I, II, VII and VIII (Table 12).

⁹⁶ See regressions I and II (Table 12).

⁹⁷ See regressions I, II, V and VI (Table 12).

year) is introduced as an independent variable, the semi-partial correlation as well as the regression coefficients plummet to nearly 0% for the former and 0,00 for the latter.⁹⁸

The most noteworthy points about the control variable, secondary school enrolment, are the following: the values of the semi-partial correlations range from 3% to 14%, representing 10% when the secondary school enrolment is lagged 5 years⁹⁹. Concerning the regression coefficients all regressions show a value of 0,00¹⁰⁰. Nevertheless, besides these numbers, it influences the values of other regressors as it is intended as a control variable.

6.3. GERMANY

Unlike the two former two groups of regressions, neither of the two independent variables (social expenditure and social security contributors) have a significant impact on the Gini coefficient. Most of the regression coefficient numbers for both variables cannot be considered because they are not statistically significant. Moreover, the values of the ones that are statistically significant are almost 0,00. However, there are some interesting points regarding the control variable, secondary school enrolment whose results vary when it is lagged 5 years. This takes into account that in this model only Brazil is taken as the case study.

Regarding the proportion of the total explanation that each independent variable can have on the dependent variable, the percentage fluctuates from (Table 5) nearly 0% to 21% of the total explanation of the model. In this case, the R2 of this group of regressions, between 0,1 and 33%, do not follow a clear pattern. For this reason, the behaviour, not only of the regression coefficient numbers but also the covariance matrix, is relevant. Even so, in this group of regressions with far lower values for the R2, the risk of collinearity between the explanatory variables is not as high as the two former regressions. The most striking point concerning this covariance matrix is the variation in the variable social security contributors representing 18 and 21% out of a total R2 of 33 and 31%, respectively; as well as secondary school enrolment (lagged 5 years) which accounted for 18 and 17% for the same R2 percentages. The sum of the semi-partial correlations of all regressors as a percentage of the total R2 shows a higher participation of the regressors in the total R2 than in the others (Table 3). They vary from nearly 63% to nearly 100%. However, this fact is not relevant

⁹⁸ See regressions I, II, VII and VIII (Table 12).

⁹⁹ See regressions II, IV, VI, IX and X (Table 12).

¹⁰⁰ See regressions II, IV, VI, IX and X (Table 12).

in the majority of the regressions where the regression coefficients are not statistically significant and therefore cannot be taken into account for the analysis.

The analysis of the regression coefficient is subsequently undertaken, nevertheless, it does not reveal very striking findings regarding the two independent variables due to the fact that most of them are not statistically significant. Again, as it has already been mentioned, the noticeable changes are related to the control variable secondary school enrolment and more precisely the one lagged 5 years.

- Social expenditure:

There are no statistically significant values¹⁰¹ that can be taken into account for the variable social expenditure.

- Social security contributors:

In the case of social security contributors, the only two statistically significant regression coefficients result from the regressions when secondary school enrolment (lagged 5 years) is used as a control variable. However, the value of the regression coefficients is close to 0,00.

As regards the control variable, while the values of the semi-partial correlations range from an insignificant 0% to 2%, there is an outstanding changing of behaviour when the variable is lagged 5 years, showing 18% and 17% for the same parameter. Notwithstanding those results, the regression coefficients for regressions IX and X, the only statistically significant ones, present numbers close to 0,00.

6.3.1 GERMANY: PERCENTILE RATIOS AS A DEPENDENT VARIABLE

Given the difficulties to extract any relevant conclusion for Germany taking the Gini coefficient as the explained variable, I decided to go use other variables to better understand the income distribution of Germany. It is known that the Gini coefficient misses the variations in the extremes of the income distribution. For this reason I take the percentile ratios, which can provide information that the Gini index is not able to provide, namely: P90/P10, P90/P50 and P50/P10. The set of regressions are the same eleven that have formerly been chosen with the Gini coefficient, but the results differ notably.

¹⁰¹ P-value<0,05

Regarding the results of the three different sets of regressions, two of them present relevant values to be explained: the one with the ratio P90/P10 and the one with the ratio P90/P50 as the dependent variable. Both show p-values lower than 0,05 for the variable social security contributors, not for social expenditure. While the former show higher values for the regression coefficients for the four statistically significant regressions, the later ratio presents lower values for nine of the eleven regressions. The set of regressions with the ratio P50/P10 does not present any statistically significant values for the two independent variables, thus, it does not provide relevant information to be considered for the conclusions.

- P90/P10

The semipartial correlations of this set of regressions (Table 6) are relatively high compared to the original regression with the Gini (Table 6), especially for the only statistically significant variable, social security contributors, which range from 17% and 47%. Thus, this regressor explains to a great extent the value of the ratio P90/P10. The semipartial correlations are particularly high when the control variable, secondary school enrolment is not used and when the control variable used is lagged 5 years.

Also, the more statistically significant variables and the regression coefficients show higher values than the former regressions (Table 6). However, the only variable with some p-values lower than 0,05 is the social security contributors, which reaches values of 0,0 to 0,07 with a positive sign, given that the only the statically significant regression coefficients are from regressions I, III, IX and X. Which means that the fact that social security contributors have increased during the period of study contributes to an increase in the P90/P10 ratio.

- P90/P50

The second relevant set of regressions with the ratio P90/P50 (Table 7) as the dependent variable show semipartial correlations of the consistently statistically significant variable: social security contributors, which fluctuates from 15% to 40%. The highest values are when the control variable, secondary school enrolment, is not used and when the control variable used is lagged 5 years, similar to the former set of regressions with the explained variable: ratio P90/P10 (Table 7).

However, the regression coefficients present far lower values than the former regression (Table 7), while the consistency of statistical significance is higher than the former one for social security contributors with p-values under 0,05 in nine of the eleven regression (I, II, III, IV,V, VI, IX, X, XI) (Table 7).

- P50/P10: No relevant statistical information, p-values for all regressors show higher than 5%.

It is surprising that social expenditure, for the first time in all the sets of regressions with Germany as a case study, is statistically significant in regression IX, when social security contributors is lagged 5 years. In this case, the semipartial correlation is 8% and the regression coefficient shows a value of 0,02 with a negative sign.

In general, considering all the results from this percentile ratios some conclusions have been obtained: (a) Social security has been relevant in increasing income inequality levels during the period from 1990 to 2016. The increase in the number of people contributing to the social security system has led to divergences in income distribution, particularly in gross salaries. (b) This increase in income inequality levels is especially high between the extremes P90 and P10, but it is best proven (and has the most statistically significant regressions of all the scenarios tested) between the higher percentiles of the income distribution, that is between the P90 and P50.

7. CONCLUSION

The regressions, in general, reveal interesting results. There is no clear winner between the two independent variables. Both show relevant results though they depend on the country taken and the variable variations tested. To sum up, increasing social security contributors is more important than social expenditure in reducing income inequality when both countries are taken together as one case, and also when Brazil is taken alone as the only case study. However, none of the independent variables are statistically significant in reducing inequality for Germany when tested against the Gini coefficient. But the variable social security contributors notably affects income inequality when percentile ratios are considered as the explained variables. But it is a positive relation; the higher the number of social security contributors, the higher the income inequality levels. Analysing each explanatory variable separately, this is the summary:

(a) Social expenditure seems to be more relevant in reducing inequality when both countries are taken together as well as when Brazil is taken alone. However, in the case of Germany it may not be considered as a significant variable (only one statistically significant value when the ratio P90/P50 is used as a dependent variable) in reducing income inequality rates measured by the Gini coefficient. However, in almost all relevant cases (p-value <0.05) the sign is negative, which shows that by increasing the social expenditure (regardless of the country) income inequality is reduced.

In the case of the lag variable (1 year) social expenditure, the results do not show relevant differences between that and the way the social expenditure for the same year affect income inequality levels.

(b) The variable social security contributors explain income inequality rates to a similar extent as social expenditure in the case of Brazil, and also when both countries are taken together. The variable social security contributors does not account for the explanation of the dependent variable for Germany when I take the Gini coefficient as the explained variable (given the lack of statistical significance: $p\text{-value} < 0,05$). However, it shows a positive relation for percentile ratios P90/P10 and P90/P50, while noting that the dependent variables measure gross salaries instead of disposable income. Therefore, interpretations of this result are more related to the evolution of the German labour market than social policies, although gross salaries account for a notable proportion of the disposable income in a country with low unemployment rates and most of the active population are working under formality conditions. Therefore, one can conclude that salaries have been more unequal as the number of social security contributors has increased in Germany from 1990 to 2016, showing the dualization of the labour market between the high-skilled and low-paid jobs.

Regarding Brazil and Germany, the former shows a steady decrease in income inequality during the past two and a half decades and social security contributors plays a notable role in this together with social expenditure, though it is not clear which one of the variables plays a stronger role. On the other hand the latter, Germany, has been experiencing an increase in income inequality since the early 1990s by 0,04 – 0.05 measured by the Gini coefficient and social security contributors appears to be related to this increase.

In the following chapter the more theoretical explanations of the results of this quantitative analysis are explained, and also framed within the current debates around the impact of welfare state policies in income inequality.

CHAPTER 6. COMPARATIVE ANALYSIS BETWEEN GERMAN AND BRAZILIAN: KEY ELEMENTS OF THEIR WELFARE

1. INTRODUCTION

In the previous chapter I presented the results of the quantitative analysis. In the present chapter the aim is the comprehension (in a more qualitative manner) of the causal effect between the explanatory variables and the explained one: social expenditure, social security contributors, and income inequality, respectively.

To recall the main argument of this thesis, Brazil and Germany represent two distinct ways of confronting economic inequality, especially since the early 1990s when both countries faced important political and economic shocks whose impact remains even today: In Germany, reunification has been challenged by the existing economic inequality between regions. In Brazil, hyperinflation and the chronic illness of income inequality since the end of WWII was only addressed by the first elected presidency of Fernando Collor in 1964. In this chapter I attempt to explain the lessons learned from one or another way of dealing with these critical shocks during the last two and a half decades in terms of welfare state policies.

The findings of the study undertaken in Chapter 5 are framed within the debates on welfare models: the concept of the welfare state combines the two sides of redistribution: social expenditure direction (entitlements) and the funding of public social policies (taxpayers). Thus, welfare state systems combine the institutions that embody of the social contract, by which a citizen submits his will to that of a parliamentary representative; the idea of *Volonté Générale* expressed by Rousseau, represent the function of governments to maximise the welfare of society as a whole, not as a mere sum-zero welfare function (Barker, 1947). I analyse, in the following pages, the influence of the two-different configurations of social contracts (the Brazilian and German ones) in terms of income inequality through their redistribution capacity.

Firstly, I analyse both sides of income redistribution, namely the direction of social expenditure (*how to spend the social budget*) and the financing of this social budget (*who contributes to the welfare state*), either via social security contributions or via taxes. Secondly, the redistributive aspects of welfare state policies are summarised from a sociological perspective following the so-called welfare classification of Esping-Andersen, explained in his book *The Three Worlds of Welfare*. This classification considers the institutional *mix that defines* the function of social expenditure through

the main welfare providers: the family, the market and the state. Thereafter, the Brazilian and German evolution of welfare models are analysed according to the Esping-Andersen welfare state classification. Social expenditure allocations are divided and analysed in longitudinal study from 1990 to mid-00s so as to understand the modifications in the social expenditure function in both countries. Throughout this analysis, the evolution of welfare policies, which play a major role in framing the social contract in each country, is contrasted with the findings of the quantitative study.

Secondly, one of the main determinants, given the cases taken for the study (Brazil as a developing country and Germany as a developed one) is, arguably, the difference in the degree of development of both countries. Current discussions about the effect of welfare state policies within a country, associated with the economic development (one of the main arguments of this thesis) are examined in the axis: Less Developed versus OECD countries. This section aims to shed some light on the different outcomes of a welfare model in each of the socioeconomic contexts, which respond to the research question:

To what extent may the lessons from a developed country such as Germany, which is a paradigm of the corporatist welfare state, be applied to Brazil to reduce its high income inequality levels?

Lastly, even though for education, the variable secondary school enrolment is taken in this thesis for the sole purpose of controlling the independent variables of the empirical study undertaken in Chapter 5, namely social spending and social security contributors, it is revisited here within the debate of pre-distribution as opposed to redistribution policies. The pre-distribution social investment debates have a high currency at present as “all authors critically engage with the social investment state approach that sees in education and training investment the lynchpin of a pre-distribution agenda protecting individuals from the new social risks of a competitive, knowledge-driven economy” (Di Stasio and Solga, 2017: 1).

2. DIRECTION OF SOCIAL EXPENDITURE: WHERE SHOULD GOVERNMENTS SPEND THE SOCIAL BUDGET TO REDUCE INCOME INEQUALITY?

It is relevant to remember that social expenditure represents a broad term which embody a variety of items of the total budget of a country. According to the OECD definition¹⁰² these are the budget

¹⁰² The definition of social expenditure chosen for this thesis: mention in Chapter 3, point 4.

allocations which it comprises: social assistance, social security, health, labour, education, housing, and sanitation.

Overall, there is a consensus about the negative relation between a social expenditure budget and income inequality (Niehues, 2010) (Anderson, D'Orey, Duvendack, & Esposito, 2017). Even though social expenditure is closely related with income inequality according to most of the authors, there is a debate regarding which direction the social spending must go in order to reduce income inequality. Recently, Niehues (2010), from the University of Cologne as well as Esping-Andersen (1990) point out the structure of benefits to define the success (or not) of social expenditure in reducing income inequality. All in all, different structures of social expenditure may lead to different distributional outcomes, depending on the goals of the benefits.

Thus, the degree of causality among the two concepts might be affected by two different elements, namely the size and the direction of this spending. This causality, which is measured in the empirical analysis in Chapter 5 is critical in this study given one the research questions it aims to answer:

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

I answer this question using the results of the regressions, which show that an increase of 1% in social expenditure may promote an up to 0,02 decrease in the inequality rate, if both countries Brazil and Germany are taken as one case study (measured by the Gini Index)¹⁰³. However, if one takes Brazil and Germany separately, the results differ from this picture: (a) In the case of Brazil an additional 1% in social expenditure may reduce income inequality rates by no more than 0,01 measured by the Gini index. (b) However, in the case of Germany no conclusions could be obtained regarding the causality between social expenditure and income inequality since none of the regressions were statically significant ($p < 0,05$). With these results, the following interpretation of them focus on the social expenditure functions of each country for the same period as the regression study (1990 – 2015).

The complexity of the concept of social expenditure gives rise to rich debates regarding the influence of social expenditure on income inequality levels. These debates revolve around these two different topics such as: (a) the size of social spending, in terms of percentage of the GDP; (b) the direction of the expenditure. The way a certain government spends this social budget among the variety of social

¹⁰³ See table 11.

expenditure items may determine its degree of success in income inequality terms. For the former, the size of social expenditure, there is a consensus about its negative effect (reduction) on income inequality, always for the same social expenditure function (Niehues, 2010) (Anderson et al., 2017). However it is true that an increase in social expenditure, especially in low income strata, may lead to a second order positive effect on pre-government income inequality. In other words, even though benefits to the poorest may have a negative effect (decreasing income inequality) on postgovernment¹⁰⁴ income inequality, the incentive to work is reduced and leads to a second order pregovernment¹⁰⁵ positive effect, increasing income inequality. However, the negative effect of the social expenditure on post-government income inequality outweighs this positive effect (Niehues, 2010), therefore the net effect of social policies focused on the poorest may lead (in the short term) to income inequality reduction. Nevertheless, for the same size of social budget allocations, the outcomes may vary widely according to which social allocation national governments spend this money, namely Social Assistance, Social Security, Health, Labour, Education, Housing and Sanitation.

3. SOCIAL SECURITY AND SOCIAL ASSISTANCE: *WHO FINANCES THE WELFARE STATE?*

Above, I have considered the expenditure side of the social budget. Here, I take into consideration the other side, namely the financing of the social budget. In redistribution terms, not only is the social expenditure budget important (how much and how is spent) but who pays for it is also important. There are different formulas to finance this social budget, from social security systems to taxes or through both. This combination of contributors and receivers of social policies determine the degree of redistribution of a welfare system.

The results of the regressions shown in the previous chapter show different outcomes when different cases are analysed. For Germany it has been shown that there is no significant effect in the Gini index for the variable social contributors¹⁰⁶. Nevertheless, if the dependent variable is changed by percentile ratios, the variable social security contributors becomes significant for the ratios P90/P10 and P90/P50, but with a positive sign, that is, the increase of social security contributors is

¹⁰⁴ After taxes.

¹⁰⁵ Before taxes.

¹⁰⁶ See the table 13.

related to and increase in income inequality in gross salary terms.¹⁰⁷ In the case of Brazil there are some regressions in which an increase of 1% in social security contributors suppose a diminution in 0,01 of the Gini index.¹⁰⁸ When both countries are taken together as one case of study, an increase of social security contributors seems to reduce income inequality.¹⁰⁹ In general, the role of the variable social security contributors is not clear in this analysis. Subsequently, these causal effects are contrasted with the entitlement structure of both welfare models (German and Brazilian) in order to interpret the results and shed some light on the behaviour of this variable.

3.1. ORIGINS AND RECENT TRENDS OF SOCIAL SECURITY SCHEMES

Much has been discussed about social security systems and social policies regarding entitlements, contributions, benefits, and management (private or public). The origin of these debates come from Bismarck and Beveridge. The former, introduced the first Social Security scheme with the intention of easing more socialist alternatives into Germany. The latter published the Beveridge Plan for the UK during WWII in 1942, which he named after himself, and which resulted in the establishment of the first unified social security system in the UK. The different elements (mainly funding and entitlements of the social security system) for social insurance reveals notable differences between the Bismarckian and Beveridgian systems. While the Bismarckian system is based primarily on social insurance contributions, the financing of the Beveridgian systems is through taxes. In general, a pure Bismarck system leads to barely no redistribution among various strata given the identification of a recipient and contributor. But the Beveridge system does promote redistribution from the richest to the poorest (Cremer, & Pestieau, 2003). Given the spirit of this Social Security policy undertaken by Bismarck, countering the social unrest of the working classes due to poor working conditions, one of the main characteristics of the Bismarckian model is the entitlement of workers (only this social group could enjoy security services such as healthcare or pensions). Compared to the universalism which characterised the Beveridge Plan in UK, in this case the central figure is not represented by the workers but the citizens. To sum up, the beneficiaries of the Social Security system in a Bismarckian system are the same as the contributors and it is funded through wages (payroll). However, this relation between employee and contributor changes for Beveridgian

¹⁰⁷ See the table 14 and table 15.

¹⁰⁸ See the table 12.

¹⁰⁹ See the table 11.

systems where the beneficiaries are not identified by the figure of worker but a taxpayer (citizen) and the beneficiaries represent the entire population (Kolmar, 2007).

In recent times there has been a trend in Europe (and generally speaking, OECD countries) for the two financing systems to converge. This convergence indicates that there are grey zones between the black and white systems (Bismarkian and Beveridgian systems); there is neither a complete Bismarckian nor pure Beverdgian country, there are variations of the two models. For example, just within Europe the diversity regarding one or another social security system is rather remarkable. In a country such as the UK the portion from government taxes accounts for more than 50% of the total Social Security funding in 2005 (more Beverdgian), whereas in the same year Germany's social security tax funding represents no more than 36%. However, there are even more Bismarckian countries in that sense. The Netherlands finance the social security system through around 20% of taxes, far less than Germany. On the other extreme, Denmark, the most Beveridgian one, has covered around 63% of social security spending with government taxes (CESifo Dice Report, 2008).

Social Security schemes rely only on the wages of the employees of a country, paid by both the employee and employer. Therefore, not only do social security schemes influence income inequality, but the converse is also true; the more workers (less unemployment rates) and higher wages of a country (pre-government equality of income), the more money there is to use for the Social Security system, which predictably will lead to better post-government equality (Vallas, West, & Odum, 2015). Nevertheless, a high proportion of the income earned by the richest come from capital gains (Piketty, 2014), and they thereby avoid contributing to the social security system. This reciprocal correlation, according to Vallas et al. (2015), is especially relevant when talking about very different countries in these two socioeconomic indicators: rates of unemployment and mean wage, which are the cases of Brazil and Germany.

It is important to recall the differences in social security contributors between Germany and Brazil¹¹⁰, given that they do not embody the same collectives: (a) In the case of Brazil, this variable embodies the following groups: workers, domestic servants, the independently employed¹¹¹, self-employed persons, voluntary contributors, and special contributors.¹¹² (b) However, in Germany it

¹¹⁰ See the Chapter 3, point 4.- Operationalisation of the concepts.

¹¹¹ Person who works partially for one or more companies through an intermediary such as trade unions. Retrieved from the National Institute of Social Security: <http://www.previdencia.gov.br/acesso-a-informacao/institucional/inss/>

¹¹² Article 11 of the law 8.213/91.

covers all employees which are liable to pay sickness, pension, and nursing insurance and/or the collectives specified in the employment promotion act.: apprentices, student trainees, part-time retirement workers and persons who have been called to serve compulsory service. The German system does not include civil servants, self-employed persons, assisting family members, professional and temporary soldiers, and persons doing military or community service, nor does it include those who are subject to marginal employment (Bundesagentur für Arbeit, 2013). taking this into account, there may be a double effect that may be deducted from the fact that increasing the number of social security contributors may reduce income inequality: (a) On the one hand, it is obvious that the more people employed and therefore contributing to a social security system, the more people there are under the umbrella of that social security scheme. This would be the Bismarkian lesson, more implicit than the following one. (b) On the other hand, if the percentage of the population contributing to the system is higher, the redistribution budget would increase as well, thus, greater funds will be redistributed by the government amongst the citizens. The combination of both the increase in (formal) workers and the redistribution of higher gains from contributions through payroll may help to reduce income inequality in a corporatist welfare model (such as Germany), which rely to a greater extent on social security schemes. However, in a country with a high level of labour informality and unemployment rates, social security contributors would represent a low portion of the total population and therefore, leave behind a lot of citizens. This scenario could be close to the Brazilian socioeconomic context during the last decades.

Having said this, the discussions about the influence of social expenditure on income inequality rates revolve around how the social budget must be financed and who is entitled to benefit from social expenditure: Bismarckian schemes benefit more the middle income (not poor) strata, including the working classes, while Beveridgian systems benefit the low and high income strata. Regarding Beveridgian schemes, the richest ones seek to minimise their contribution and the poorest win compared to the Bismarckian one, where the middle strata suffer the most, paying more taxes and receiving less services than the others. (Conde Ruiz, & Profeta, 2007). To sum up, the debate about the redistribution character of different social security systems revolves around the relation between the contributors and the individuals entitled to benefit from the services provided by the specific system.

4. SOCIAL EXPENDITURE AS A POLITICAL MATTER

The variety of outcomes, in income inequality terms, for the whole spectre of society (poor, middle income and upper-classes) lead to a political debate about the winners and losers of the redistribution policies via social expenditure. This debates about social expenditure, brings to the table the controversy about redistribution and the interests of different influential groups of electors in the election of one and another political party. Recalling the theoretical arguments of the thesis, the entitlement structure of the social policies defines what it means to be a citizen of a country, which may vary from one country to another.

For example, the Meta-regression analysis undertaken by Anderson et al., (2017) shows some conclusions concerning the direction of the social spending of the government. Although, the authors mention the differences among the lower, middle and upper strata, the middle and upper classes represent the major recipients of the redistributive impact of social expenditure in most of the countries analysed (Anderson et al., 2017). The reason why these middle-upper strata become the main *winners* of this social policies may be explained by different allocations within the whole social budget. The two more influential elements of the social budget are, especially, unemployment benefits and public old-age pensions according to (Niehues, 2010). However, the ones entitled to these contributory benefits are mostly the same ones that finance them. Therefore, the income inequality rates are presumably not reduced through allocating money to these social programmes. However, politically, income inequality reduction policies are not popular for a large number of the electors.

Considering these findings of the meta-regression analysis from Anderson et al. (2017), a developed country such as Germany with a higher proportion of middle-upper strata population than Brazil would be more sensitive to changes in social expenditure regarding certain social policies such as old age pensions or unemployment.

4.1. PARADIGMATIC EXAMPLE: INTER-INTRA GENERATIONAL REDISTRIBUTION (A POLITICAL MATTER)

Pension benefits represent one of the main costs of all social security systems while many of the contributors are out of the retirement age. This inter-intra generational dilemma in social security schemes is an example of the political limits of social expenditure when facing income inequality. It brings up some insights about the relation between democracy (winners and losers) and income

inequality distributions. Authors such as Tabellini (2000), Sala-i-Martí (1996) and Conde Ruiz (2007) have debated about the intra-inter generational redistribution effects of pensions in income inequality.

Taking the pension benefits as an example, the fact that the number of contributors (contributors to the social security systems) outweigh the number of recipients (old-age pensioners) in most of the developed countries is curious, especially taking into account that old-age pensions supposed a high portion of social expenditure (Tabellini, 2000). If the number of recipients is smaller than contributors, why are pensions systems supported by a majority while it only benefits a minority? The answer may be explained through both political and redistributive reasons. Equilibrium between intra-generational and inter-generational redistribution policies is discussed:

- (a) Young low-income workers support the social security system because of the income distribution of the total household within the families through the parent's pensions (main beneficiaries of social security). The gains from the pensions are greater than the costs of the young workers from their payroll. Another reason in favour of this equilibrium between inter and intra-generational redistribution is bidirectional altruism as a driver of redistribution: on the one hand, the young workers contribute to the pensions of the older generations, while, on the other hand, the parents have provided for them before (Tabellini, 2000).
- (b) Politically, the pensioner's generation constitute a homogeneous coalition which do not support other forms of redistribution (intra-generation). Attempts to change this *status quo*, for example through a tax on wealth instead of income, would break this homogeneity among pensioners, but this has not been implemented since the construction of the social security system as we know it today (Tabellini, 2000)

Old age pensions represent an important public expenditure for Brazil and Germany. Both pension systems follow a Pay-As-You-Go (PAYGO) scheme by which the younger today generation pays for the old age pensions of today. This system has been put under a lot of pressure in both countries during the last years due to the increase of the ageing population in the case of Germany and the declining labour force participation at lower and older ages in Brazil. The numbers show that the governments spend remarkably more on old age pensions nowadays than years ago: Germany has increased their budget on public old age pensions by almost 4% of the total social expenditure from 1991 to 2013 (OECD, 2016a). Meanwhile, the same indicator for Brazil rose from 4.6% of the GDP in 1995 to 8.2% in 2016 (OECD, 2017). The main difference between Germany and Brazil regarding the

tensions of the old age pension scheme is the fact that, overall, the formal labour force has been growing during the past decade in Brazil and the contributions are higher through regulations such as a minimum salary (Queiroz, Figoli, & Gonçalves, 2010). But still the Brazilian economy in terms of GDP has grown to a greater extent than the social security contributors¹¹³ from 1990 to mid-10s, and in the meantime the number of old age pensioners has grown, which shows there are margins for more contributions within the social security system in Brazil. For Germany, the gap between the social security contributors and social security expenditure was increased from 1990 to 2006¹¹⁴ making the systems less and less sustainable, even though the situation has been reversed from 2006 to 2013. To conclude, ageing populations remain a common problem present in Germany, as in most of the developed countries, and simulations for Brazil show that urgent reforms are needed to make the old age pension system sustainable (Queiroz et. al, 2010).

5. BRAZILIAN AND GERMAN WELFARE MODELS

Having already described the three welfare models of Esping-Andersen in chapter 2, it is the current aim to compare the characteristics and evolution of Brazilian and German Welfare Models from 1990 until the present through the lens of this so-called classification. In this section I will try to explain the

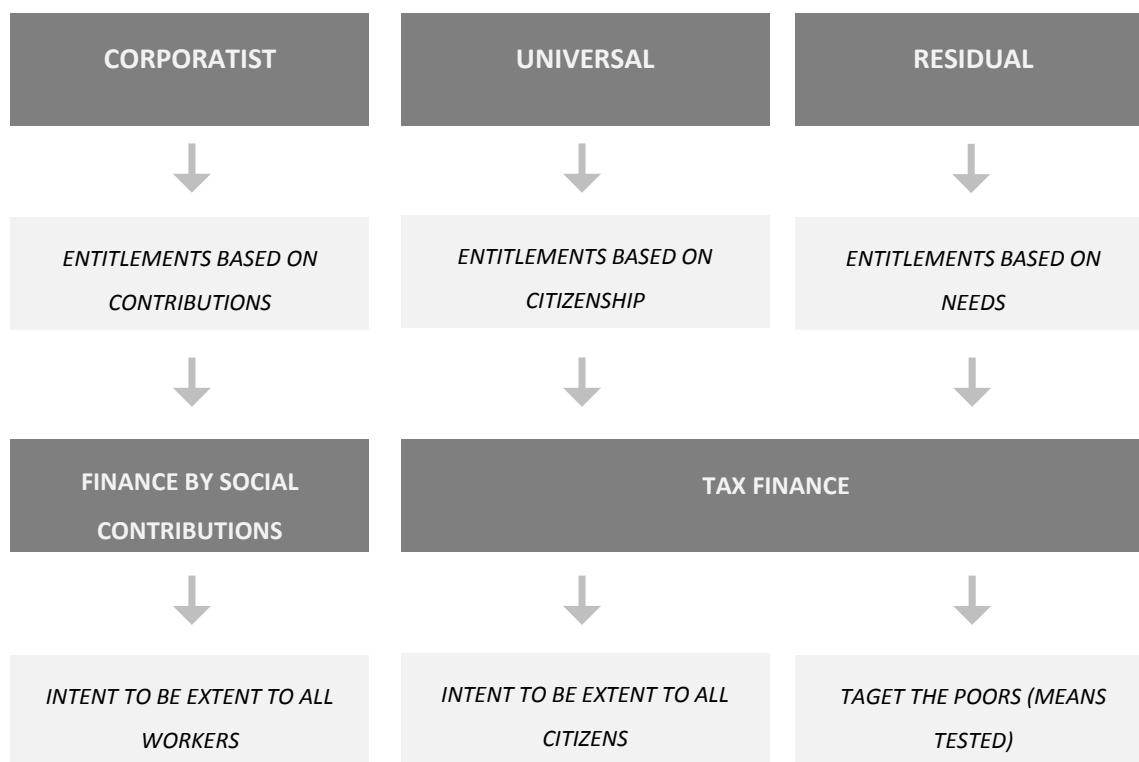
outcome from the quantitative analysis and framing them in an institutional perspective following Rousseau's definition of the social contract. To do so, some concepts from Chapter 2 are recalled here and summed up. The sociological concept of the welfare state combines the two sides of redistribution: the social expenditure direction (entitlements) and the funding of public social policies (taxpayers). Thus, the welfare state systems combine the institutions that embody the Rousseau's definition of the social contract, by which a citizen submits his will to a parliamentary representative: the idea of *Volonté Générale* expressed by Rousseau, represents the function of governments to maximise the welfare of society as a whole, not a mere sum-zero welfare function (Barker, 1947). This Rousseau's definition of the social contract serves as a simple way to classify different welfare states according to the Esping-Andersen classification, considering only the redistribution dimension which is relevant for this thesis.

¹¹³ See figure 21.

¹¹⁴ See figure 19.

This section does not aim to strictly identify these countries with any one model, but to understand the evolution of the welfare state model of both countries to see how the German and Brazilian welfare systems have responded to the internal and external factors which have threatened their welfare states. As Esping-Andersen, the author of *The Three Worlds of Welfare*, points out, not every country falls precisely into one category of the welfare classification, but a country may have some characteristics from different ones. Furthermore, the same country can evolve from one model to another, above all in response to certain internal and external socioeconomic shocks such as a financial crisis or an exogenous factor. The main goal of this analysis through the Esping-Andersen work is to understand how the changes in welfare state policies have affected income inequality rates during the last two and a half decades. I summed up in Figure 13 the structure of analysis which is used to compare the evolution of the Brazilian and German welfare models following the key elements of the social contract according to definition, who benefits and who finances the different kinds of welfare models:

Figure 13. Welfare States models according to entitlements, finance and extension

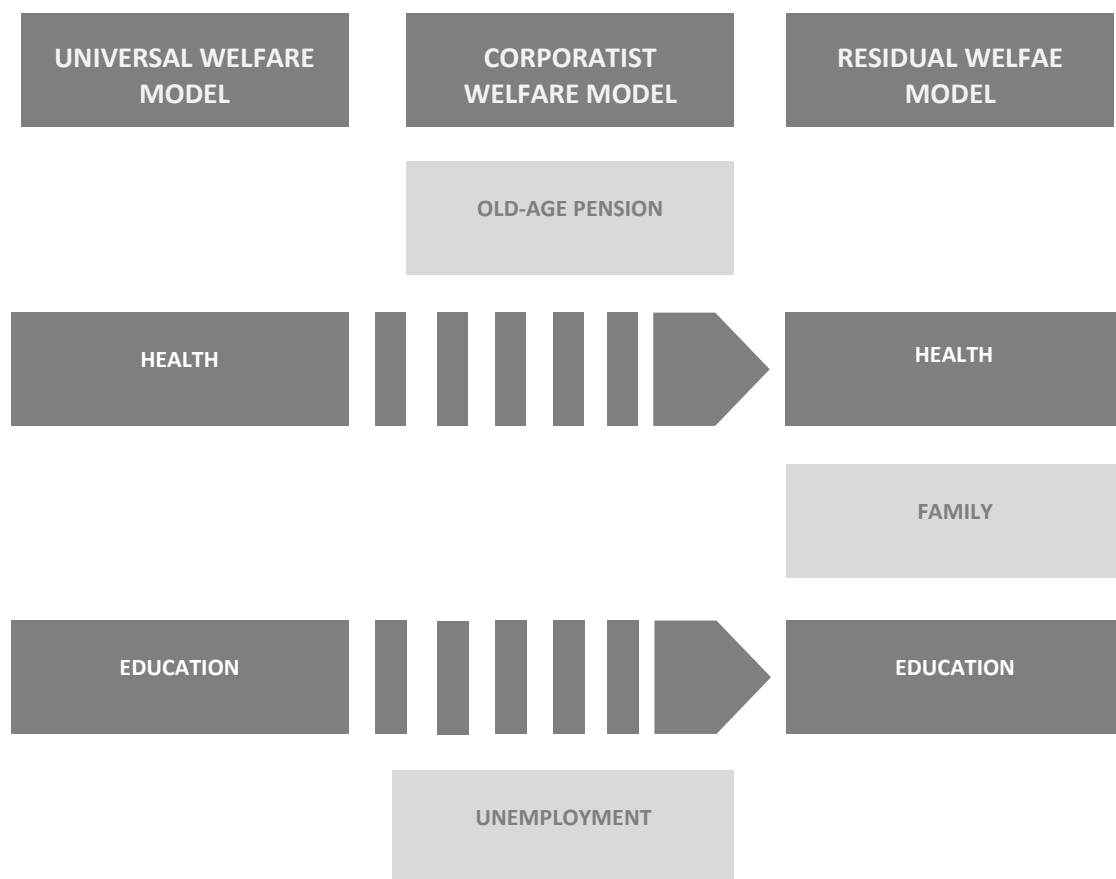


Source: Own elaboration adapted from (Esping- Andersen, 1990)

5.1. BRAZILIAN WELFARE MODEL

The constitution of 1988 sought to change the former social contract that was based on contributory systems in which mostly benefited workers in the formal labour market through the social security system. However, people in rural areas working under conditions of informality, unemployed, and domestic workers did not benefit from any social policy. Therefore, the new constitution contained terms such as citizenship as a body of rights and obligations. These rights explicitly include housing, work, education, and healthcare among others. Furthermore, it embraces solidarity as the principle to achieve this main goal of assuring the rights to a citizen of Brazil. However, the reality, at the beginning of the new democratic era in Brazilian history, did not truly reflect the spirit of the new constitution regarding social rights. The inherited social institutions were founded on a contribution system in which the contributor was also the receptor of the social system. This fact together with

Figure 14. Summary of the evolution of the Brazilian welfare model (1990-2015)



Source: Own elaboration

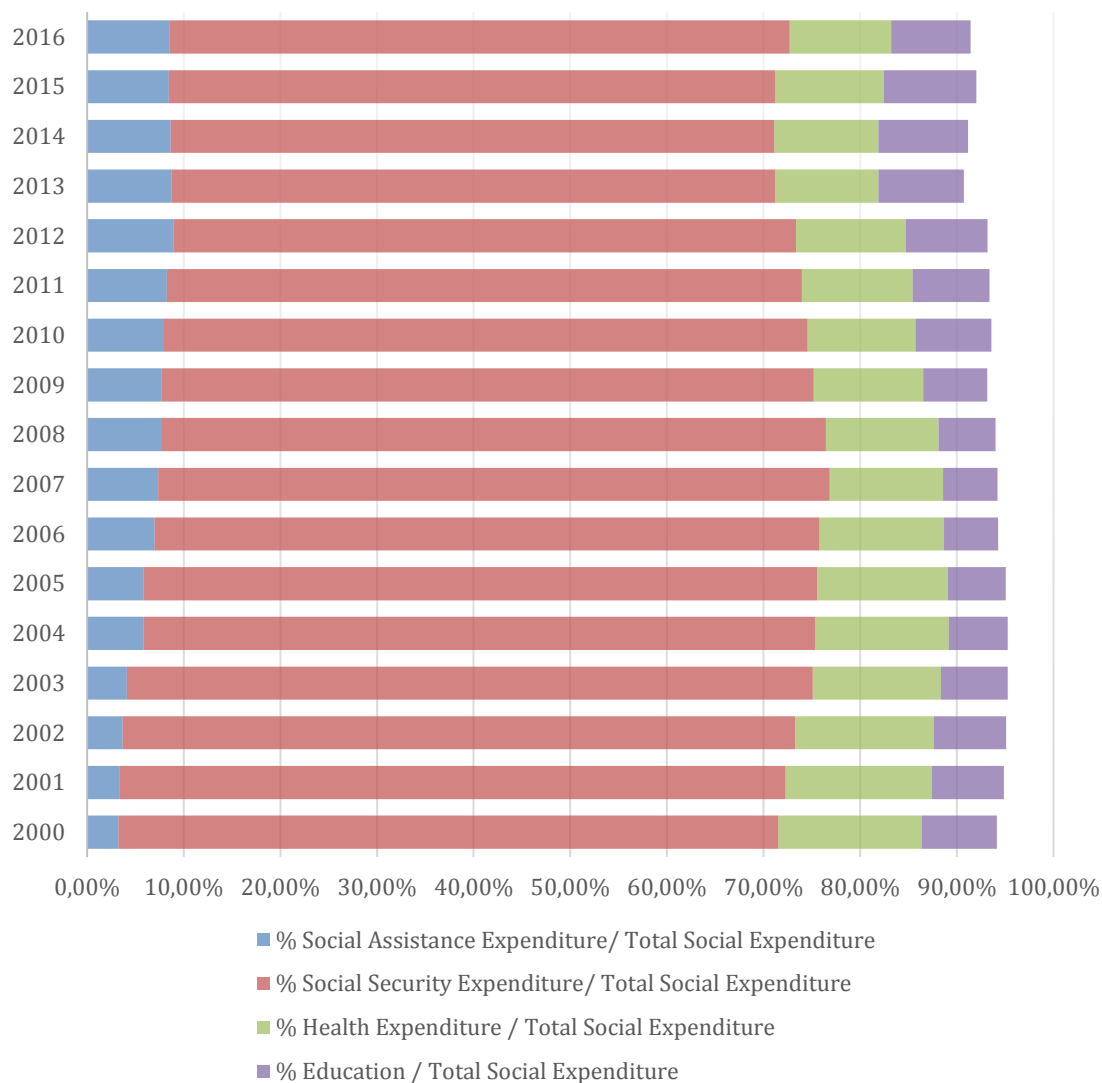
the economic crisis during the 1980s and early 1990s did not help in the attainment of the welfare goals of the new constitution. These weak foundations supposed a limit to be faced by administration at the beginning of its mandate. Considering these circumstances, the main focus of the welfare systems during the 1990's and 2000's was poverty alleviation, a summary of the evolution from 1990 until 2016 is presented in Figure 14.

Ultimately, to what extent was the main goal of universalism (the right to be a Brazilian citizen) achieved? This ambitious goal of the constitution of 1988 has led to more of a “dual system,” in which, for example: “Still today, in Brazil, approximately 1.000.000 pension beneficiaries from the state take up a similar amount of money as 14.000.000 pension beneficiaries from the private sector” (Figueira, 2005: 25). This is a new-developmentalism welfare system, and it has been thusly defined given its *out of the box* approach compared to traditional welfare state classifications.¹¹⁵ The state has addressed two main sectors of society: (a) On the one hand, the poorest strata have benefited from an extensive programme of cash-transfer social policies such as the *Benefício de Prestação Coninuada* (BPC) or the *Bolsa Familia*. (b) On the other hand, the workers in the formal labour market participated in social insurance, which was financed by the same workers in turn. Taking as a reference the classification of welfare states for developed countries, such as Esping Andersen's, the latter policy would be more characteristic of the corporatist welfare states while the former would be closer to the residual one. Figueira (2002) stressed the relevance of the direction of social expenditure and criticized the singular focus on quantity, which is consistent with Niehues (2010) and Anderson et al. (2017). The way this money is distributed appears to be more relevant to reducing not only income inequality but increasing the well-being of citizens. However, it is interesting how public services such as healthcare and education are not explicitly at the core of the Brazilian welfare system. In the case of healthcare, people with private insurance still go to the public sector for high-level treatments, but preventive healthcare is far better and more agile in the private sector, with long waiting lists in the public sector for low-level treatments. Likewise, in public tertiary education it is difficult to be admitted and so most of the students are educated in private secondary schools (Fleury, 2017). In Figure 15 the main budget allocations related to social expenditure are shown between 2000 and 2016. It can be seen how important the social security (contributory) benefits are as compared to healthcare and education, considering that these kinds of benefits only cover people under the formal social contract. It is paradoxical this approach in which public services are scarcely provided by the public system, while it is known that when

¹¹⁵ Being, arguably, the most popular one from *The Three Worlds of Welfare* by Esping Andersen.

services such as healthcare and education are partially provided for by the private sector, the lower and low-middle strata are out of the welfare system. It is also true that commodification of public services creates more jobs and therefore allows more people into the formal social contract, with greater rights than a mere citizen (Esping-Andersen, 1999).

Figure 15. Evolution of the main social expenditure budget allocations in Brazil

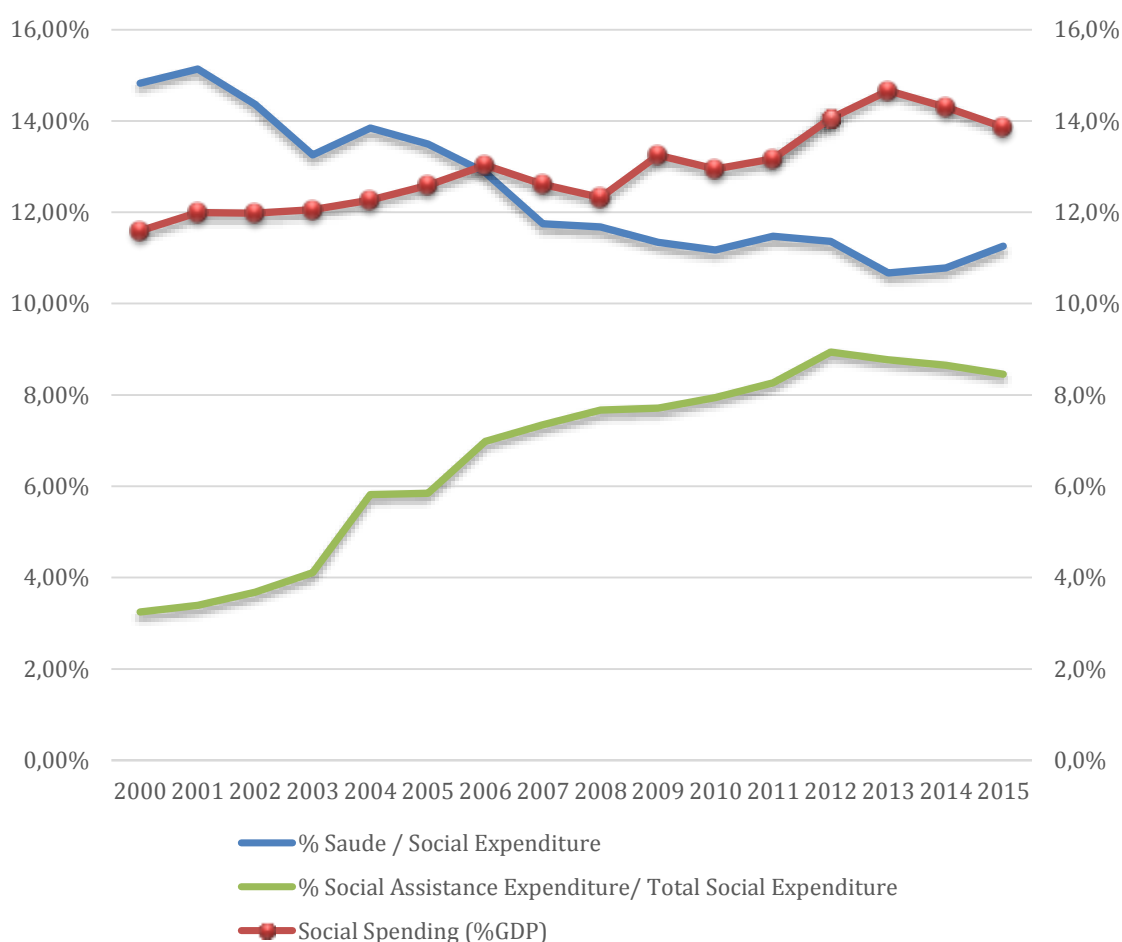


Source: Own elaboration adapted from (SIAFI, 2016)

In words of Fleury, some citizens are: “entitled to benefits without rights and others have rights without benefit” (Fleury, 2017: 8), which means that some citizens are entitled to cash benefits in the form of conditional cash transfers, but they are not covered by public services such as

healthcare, while the opposite is true for others. The conditionality of cash transfers, which are based on bringing children to the hospital or school, have supposed an innovation in social policies in Brazil and globally. However, this conditionality has not been able to guarantee an *exit door* for the poorest strata. In fact, it is known that these focused social policies (even though conditional) tend to perpetuate poverty and it assumes the mistakes of the socioeconomic system of a country. Furthermore, healthcare expenditure has steadily decreased by around 4% from 2000 to 2015, while social assistance expenditure has increased in the same proportion of the total social assistance budget (figure 16). To recall Amartya Sen's (1992) approach to functionings and capabilities, equality of opportunity can be achieved by a set of basic public services.

Figure 16. Evolution of health expenditure (% total social expenditure), social assistance (% total social expenditure) vs. social expenditure (%GDP) in Brazil



Source: Own elaboration adapted from (SIAFI, 2016)

Thus, the social contract to be achieved by the new constitution of 1988 which meant to be based on the universalism of citizenship and the principle of solidarity has been partially accomplished.

Welfare structures have been constructed during the last three decades through which extreme poverty has been tackled and 25.4 million Brazilians have overcome the poverty threshold of \$1.90 per day between 1990 and 2015 (World Bank, 2018a). However, high-skill workers and business leaders still do not support non-contributory benefits. There is still a kind of clientelism and the low and high strata of society are content with the dual system focused on poverty and social insurance in the formal sector but it is far from an integrative welfare state in which the middle class is the core of society.

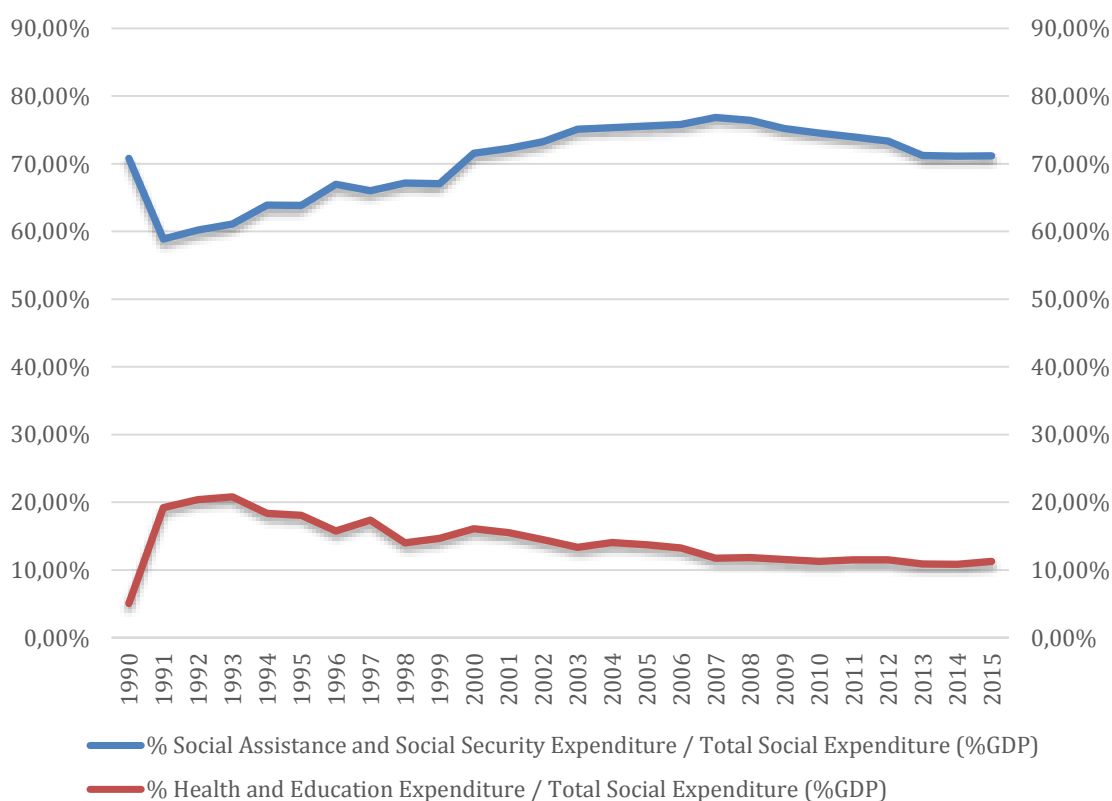
To conclude, the negative effect of social expenditure on income inequality rates, shown in the regression analysis, may be explained by this opposed trend: the increase in social assistance spending to a greater extent than other social budget allocations such as health, education or old-age pensions. In Section 7, this argument represents a critical point in explaining income inequality reduction in a developing country, as opposed to a developed one.

5.1.1. CALLS FOR THE RENEGOTIATION OF THE SOCIAL CONTRACT IN BRAZIL

The current constraints, which are mainly economic but also those that are caused by political instability in the country, in some respects signify the exhaustion of the new developmentalism welfare state model. Sonia Fleury and Lenaura de Vasconcellos, Brazilian scholars, have agreed on the renegotiation of the current social contract in Brazil in order to keep the current coverage at least, before it is dismantled (Lobato, 2016) (Fleury, 2017). More pressure on reducing current benefits, even those focused on the poor, have led to recent demonstrations in major cities (Duffy, 2013). The high expenses of the World Cup and the Olympics, when the financial situation of the country did not allow for more pressure, has re-entrenched other budget allocations such as social expenditure. The renegotiation of a new social contract based on the universal and citizenship approach, constitutionally guaranteed, is now on the negotiation table. Brazil is not the only country, either developed or otherwise, facing similar constraints to keeping their welfare standards. Christopher Allen defined it in the term “Siren Song of Deregulation” (Allen, 1997) and the current wave of liberalism in Germany also threatens to break the so called Bismarckian socioeconomic model. Against this global and current trend of liberalisation, recommendations from specialists on both developed and new developmentalism welfare states, Esping-Andersen (Esping-Andersen, 1999) and Fleury respectively, advocate for a more universal welfare state system. To quote Fleury:

“The inclusion of social rights as part of the status of citizenship represented the most paradoxical solution for the distributive conflict in a class economy, since it had generated a public sphere not primarily subordinated to the process of accumulation [...] Nonetheless, it contributed to the creation of a more cohesive society, based on social principles of solidarity, in which social inclusion was widespread” (Fleury, 2011: 5).

Figure 17. Social Assistance and Social Security Expenditure vs. Health and Education Expenditure in Brazil



Source: Own elaboration adapted from (SIAFI, 2016)

The new Brazilian government elected in October 2018 will have to face this unrest and the challenge of renegotiating a new social contract in difficult circumstances as tensions in the population are rising. Figure 17 shows the increasing dualism in the welfare policies undertaken during the past decade. The next Brazilian administration must deal with the exhaustion of this model which has been relatively successful in terms of income inequality reduction and steadily reducing the Gini coefficient from 0,61 in 1990 to 0,52 in 2014 (IPEA, 2016a).

5.1.2. UNIVERSALISM ELEMENTS IN BRAZILIAN WELFARE MODEL VS. LIBERAL ECONOMIC ELEMENTS

A new economic paradigm called liberal neo-developmentalism has been outlined to interpret the singular characteristics of Brazilian socioeconomic configuration. According to them (Cornel, 2013) Brazil has stood for a strong governmental role in welfare state provision, despite the Washington Consensus measures undertaken to keep macroeconomic stability. Redistribution policies, such as cash transfers have played a tremendous role in poverty reduction in Brazil which was the result of an incredible finance effort made by the state. Nevertheless, and according to the welfare states classification, these kinds of cash transfer social policies are defined as targeted social protection, which are more characteristic of liberal welfare states. Interestingly enough, the same governments have established the universal social policy of having a minimum wage, which is more characteristic of Nordic countries (Cornel, 2013). This fact exemplifies the hybrid welfare state model of Brazil. It has characteristics of different welfare models and is difficult to frame clearly within just one, at least not the ones defined by Esping-Andersen in *The three worlds of Welfare*, which was constructed based on the developed countries of the time.

This strong governmental role in Brazilian welfare state policies presents some similarities to Esping-Andersen's proposals during the late 1990s¹¹⁶ for developed countries, which proposed a model in which the state guarantees full employment and family aid (Esping-Andersen, 1999). This solution is proposed to address the main challenges that welfare state systems (in developed countries) have faced in the last decades such as globalisation, ageing populations, and new forms of family¹¹⁷. In fact, this is very close to the universal welfare model followed by Scandinavian countries.

5.2. GERMAN WELFARE MODEL

Germany has been pointed out as the archetypal Corporatist welfare model in the so called Esping-Andersen's classification system presented in *The Three Worlds of Welfare* (Esping-Andersen, 1990). The foundations of one of the oldest welfare systems were established by Bismarck (seen as the father of the German social insurance schemes). During the late 19th century, in view of the

¹¹⁶ Presentation in the conference: *Globalización, Mercados de Trabajo y Políticas de Bienestar Social*, organised by IPEA in Brasilia (19th to 22nd of January 1999).

¹¹⁷ Single parent families present a higher risk of poverty according to Esping-Andersen (Esping-Andersen, 1999).

pressure from socialist movements, Bismarck decided to create a system focused on old age pensions and the security of workers against sickness. The Bismarckian inheritance is still present today in the social welfare policies of the country, and even other countries have emulated elements of it, a summary of the evolution from 1990 until 2016 is presented in Figure 18. The strong link of work and social security has been an anchor during the construction of current socioeconomic German institutions. The German welfare state model, also called conservative by the Esping-Andersen classification(1990), has been based on the breadwinner model in which there is one provider for each family, and this fact comes with critical implications: leaving women out of the formal social contract and reliant upon a male individual, thus does not provide sufficient protection against sickness, widowhood, and old age expenses. This is important not only for the worker’s well-being but also for their families, children, and women. Furthermore, in this scenario the guarantee of a job position becomes an enormous responsibility for public institutions.

Figure 18. Summary of the evolution of the German welfare model (1990-2015)



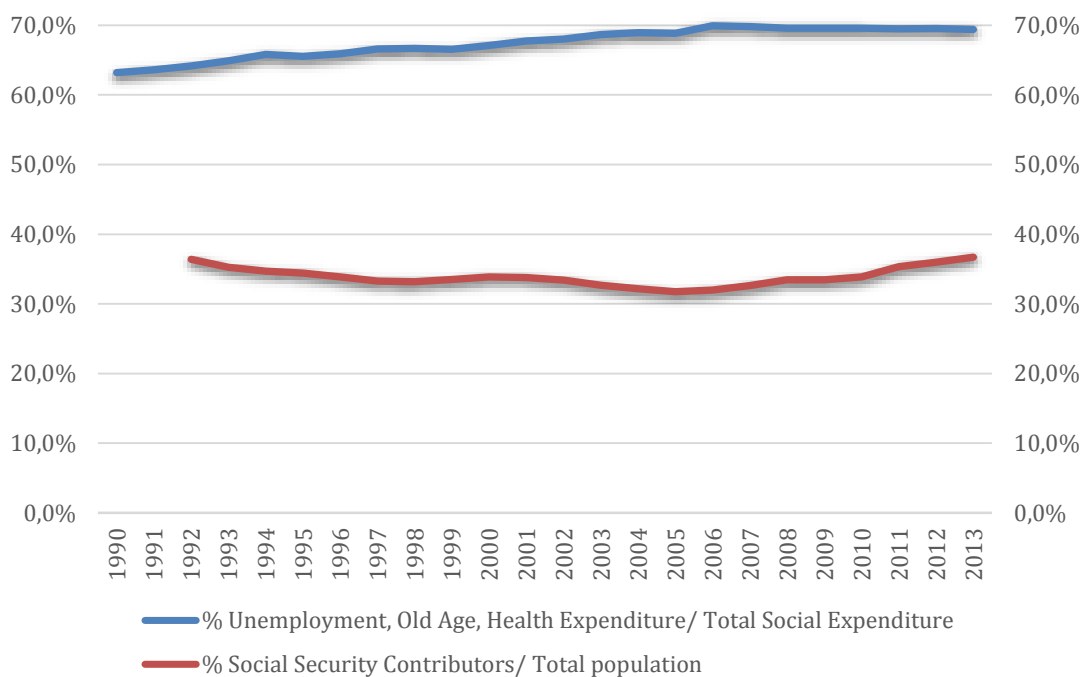
Source: Own elaboration

Within the scope of this thesis, the evolution of the German welfare state from 1990 until today is analysed. This time period is marked by internal and external shocks that challenge the pillars of the model mentioned above, namely: (a) firstly, reunification necessitates a huge effort to keep the same social security model in the east where contributions are much lower due to low productivity rates; (b) also, the increasing cost of old age pensions result in a lack of competitiveness in the context of globalisation and the inclusion of low-pay countries; (c) thirdly, the health costs have increased because of the ageing population and the pay-per-use system; (d) lastly, the strong legal basis of entitlements enforced by the constitutional court in 1980 (Leisering, 2000) (Allen, 2010).

The 1990s crisis resulted in substantial changes in the welfare state model, however, the cornerstone is still a social security system in which a job guarantees entitlement to be covered against temporary unemployment, old age, and sickness. Globalisation and re-unification forces have favoured the emergence of a low-paid labour market parallel to the high-skill one. This new dual labour market system had consequences on the welfare state configuration, especially in relation to the incorporation of women to the labour market and to old age expenses: On the one hand, in the early 1990s there was explicit encouragement of the male breadwinner model, hindering the incorporation of women to the job-market (through the lack of nursery services and a tax structure that favoured families). Nevertheless, during the mid 1990s the global competition that put pressure on salaries, the decrease in high-skill jobs, and the increase in unemployment rates, favoured the rapid integration of women into the labour market during the late 1990s and 2000s to maintain household incomes. This pressure on the labour market came with more universal family benefits such as child-aid and extra pension entitlements for mothers (Seeleib-Kaiser, 2016). On the other hand, the ageing population together with the creation of a low-paid labour market threaten the maintenance of the old age pension as it was in the early 90s. Measures such as mandatory private contributions as well as increasing the retirement age for women were undertaken by the Schröder administration's 1999/2000 reforms to maintain the quality of life of workers after retirement (Leisering, 2000). In Figure 19, the evolution of social security budget allocation and social security contributors show the consequences of globalisation and the lack of competition in Germany on the labour market. The decrease in social security contributors from 1992 to 2005, with the exemption of 1998-2001, together with the steady increase in social security during the same period, has challenged the welfare system based on contributive social policies.

While it is true that Germany has not been able to improve the Gini Index¹¹⁸ during the last two and a half decades, it is relevant to recall the economic shocks the country has faced: reunification, globalisation, public deficits, and an ageing population. Even considering this, the results of the regression analysis in Chapter 5 do not show a causal relationship between the explanatory and the explained variables, and the effort of the federal and regional governments to prevent the dismantling of the Bismarckian welfare model is remarkable. Also, Figure 19 shows that the number of contributors has steadily grown since 2005 while the social security expenditure has not- it has even decreased a bit. This means that the number of people covered under the social security system has returned to the levels of the early 1990s, however, the amount per contributor is lower. The creation

Figure 19. Social security budget allocation (unemployment, old age, health expenditure) vs. social security contributors in Germany



Own elaboration adapted from (Bundesagentur für Arbeit, 2013) (OECD, 2016a).

of a dual labour market with low-paid and high-skill jobs has supposed a diminution in contributions to social security systems. Furthermore, these tensions have led, for example, to an increase in the retirement age, lower old-age pensions, and voluntary private systems. At the same time, the

¹¹⁸ See figure 10.

budget for the people outside of the social security system, beneficiaries of social assistance programmes, has not improved in gross terms. However, it is compensated (from 2005) for by the increase in citizens covered under the social security system. To sum up, Germany has struggled to maintain the welfare model constructed from the end of WWII to re-unification, and the challenge was not to improve income inequality rates but keep a high level of well-being of German citizens in difficult circumstances during the past two and a half decades.

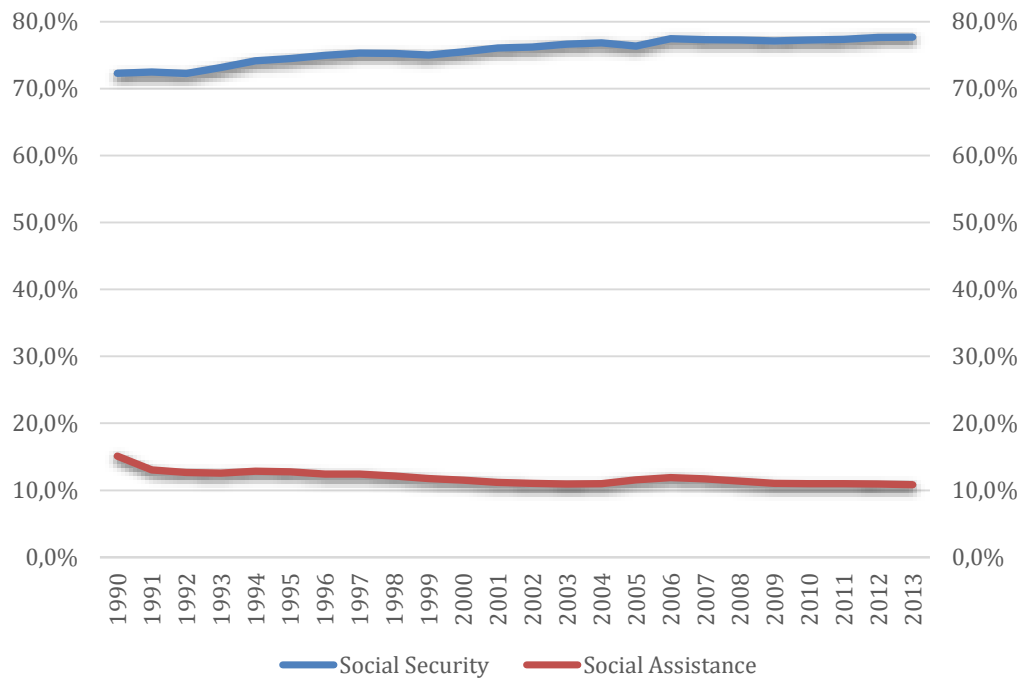
5.2.1. DOES STILL GERMANY REPRESENT A CORPORATIST MODEL?

In Figure 20 the expenditure in social assistance policies¹¹⁹ is compared to social security expenditures from 1990 to 2013. The upward trend of social security expenditure contrasts with the decrease by around 4% of the GDP in social assistance expenditure during the same period. This figure supports the thesis in favour of a corporatist welfare model in which the figure of worker (as a contributor) under the social security scheme gains prominence against the universal model of citizenship or the liberal one based on means-tested benefits and poverty.

Although, the social benefits were linked to the formal labour market and it has been referred to as the paradigm of the corporatist welfare model by Esping-Andersen (Esping-Andersen, 1990), the German welfare state shows *quasi-universal* characteristics according to others (Leisering, 2000) (Seeleib-Kaiser, 2016). If one takes a deeper look into some of the welfare policies undertaken in the last decades, even though the broad picture shows this contrasting trend with social assistance, some welfare policies such as child benefits have increased during the early 2000s. Furthermore, welfare services such as healthcare, financed by the social security contributors in a progressive way (the higher the income, the more one contributes), cover almost the entire population. Primary, secondary, and tertiary education, in turn, is provided equally to everyone at almost no cost within with the dual system, which is one of the cornerstones of German training (Seeleib-Kaiser, 2016). Lastly, residual policies, such as a minimum income, together with some basic services (housing and health) is guaranteed in case of long-term unemployment to target the poor. It is not the core of the German welfare system however and supported only 0,7% of the total social expenditure in 2013 (OECD, 2016a).

¹¹⁹ The specific accounts chosen as they are named in (OECD, 2016a) are: Survivors, Housing and Social Assistance.

Figure 20. Social security vs social assistance expenditure in Germany



Own elaboration adapted from (OECD, 2016a).

5.2.2. NEW SOCIAL CONTRACT IN GERMANY OR JUST AN EVOLUTION OF THE BISMARCKIAN MODEL?

The solid institutional configuration based on the Bismarckian welfare model, which is based on *quasi*-independent agencies which act as intermediates between the government and citizens, have provided stability to the welfare model of the country and remains a fundamental pillar of the welfare state scheme. However, the social contract has experienced tensions during the last decades. The social security system whose two main goals were: (a) securing a minimum income as well as (b) safeguarding the (economic) status acquired during working life (Leisering, 2000); has been undermined. During the early 2000s the value of old age pensions deteriorated through the introduction of voluntary private systems and the increase in working age. However, not all the welfare policies have moved towards a liberal model: (a) Governments, during the last decades, have extended family policies related to care insurance such as child benefits, maternity leave, and public nurseries. (b) Regarding education, the so-called dual system has proved an effective way to provide employment to young professionals, reducing unemployment rates, a pillar of a corporatist welfare model as Germany. (c) Healthcare remains universal, even though there has been an increase in the demand for private healthcare insurances (Leisering, 2000).

As a counterpoint, there have also been voices in favour of the changes in the welfare policies modified towards a liberal welfare model such as old age pensions or unemployment. The fact that Germany (together with the northern European countries, defined as generous welfare states) have done fairly well during and after the financial crisis compared to America and the southern European countries may be attributed to the welfare state reform during the 2000s. Hallerberg points out that the welfare state reforms, called Hartz's reforms¹²⁰, undertaken during the Schröder's mandate were implemented as a reaction to the increase of the public deficit in 2003 to almost 3% of the GDP, which was marked as the limit by the EU. The Schröder administration undertook notable reforms (the major ones from reunification until nowadays) in the welfare state policies such as the reduction of unemployment benefits (from a flat rate to a percentage of the last salary; the creation the "1 euro jobs"¹²¹ (Hallerberg, 2013: 265), cuts in pensions and a steady increment of working age, and lastly the *kurzarbeit*, the program whose goal was to keep jobs during economic downturns by subsidising part of the salaries with public money (Hallerberg, 2013).

6. WELFARE STATES IN DEVELOPED VS. DEVELOPING COUNTRIES

Even though this is not a normative analysis one may deduce a lesson to be considered from social politics. First of all, it has to be taken into account that a country such as Germany, with a starting point of income inequality of 0,26 (Gini index) in 1990,¹²² may not have the same "urgency" to reduce income inequality rates as a country like Brazil that scored 0,61 the same year. Therefore, the focus of both governments on income inequality may differ. With this study about the evolution of welfare models and income inequality rates in a developed and developing country I try to shed some light on the behaviour of welfare models in terms of redistribution in different socioeconomic contexts. Scholars, such as Sala-i-Martin, have already mentioned the degree of development of a country as determinant in implementing a social policy or a different one. For example, in the case of social security programmes, they are fully introduced when a certain point of economic development is reached in a country (Sala-i-Martin, 1996). Considering the statistics of the present study, they are consistent with Sala-i-Martin conclusions. If one has a look at Figure 21, one may

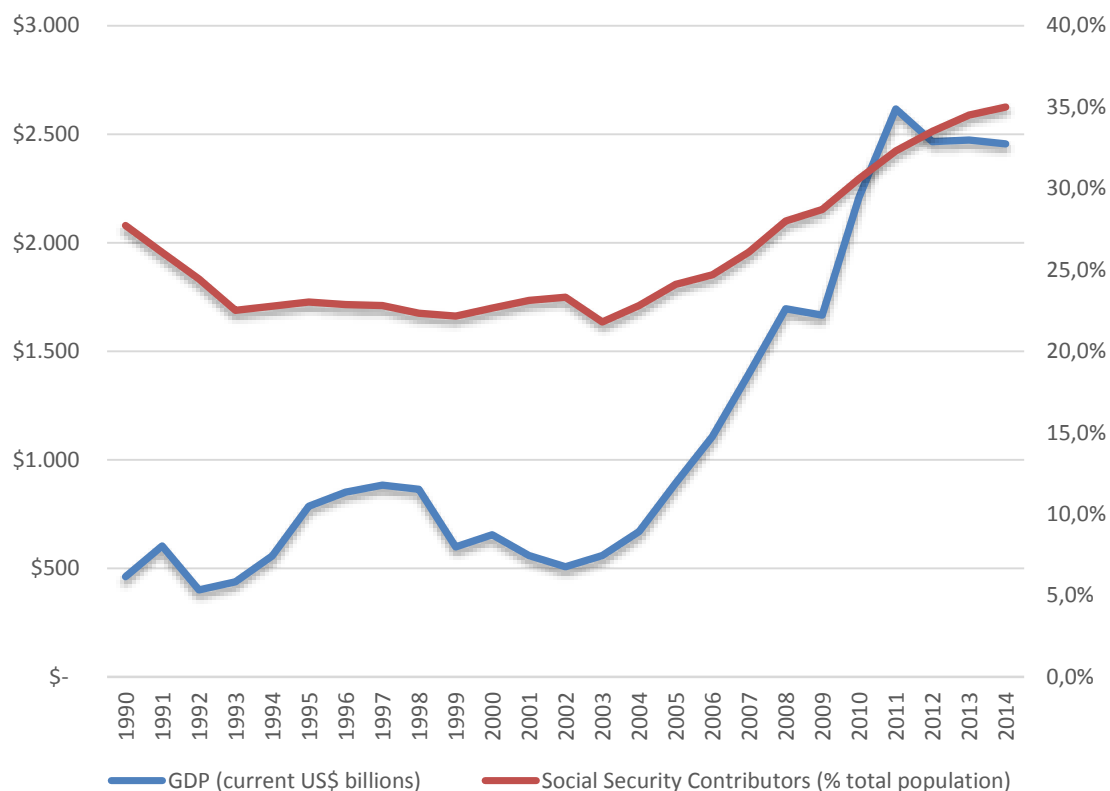
¹²⁰ Named after Peter Hartz the chairman of the commission.

¹²¹ The state may require people on benefits for 1€ per hour.

¹²² See figure 10.

realise that the number of social security contributors steadily increased together with the GDP of Brazil, especially from the early 2000s to the mid-2010s.

Figure 21. Social Security Contributors vs. GDP in Brazil



Own elaboration adapted from (IPEA, 2016a) (MTPS, 2014) (World Bank, 2018b)

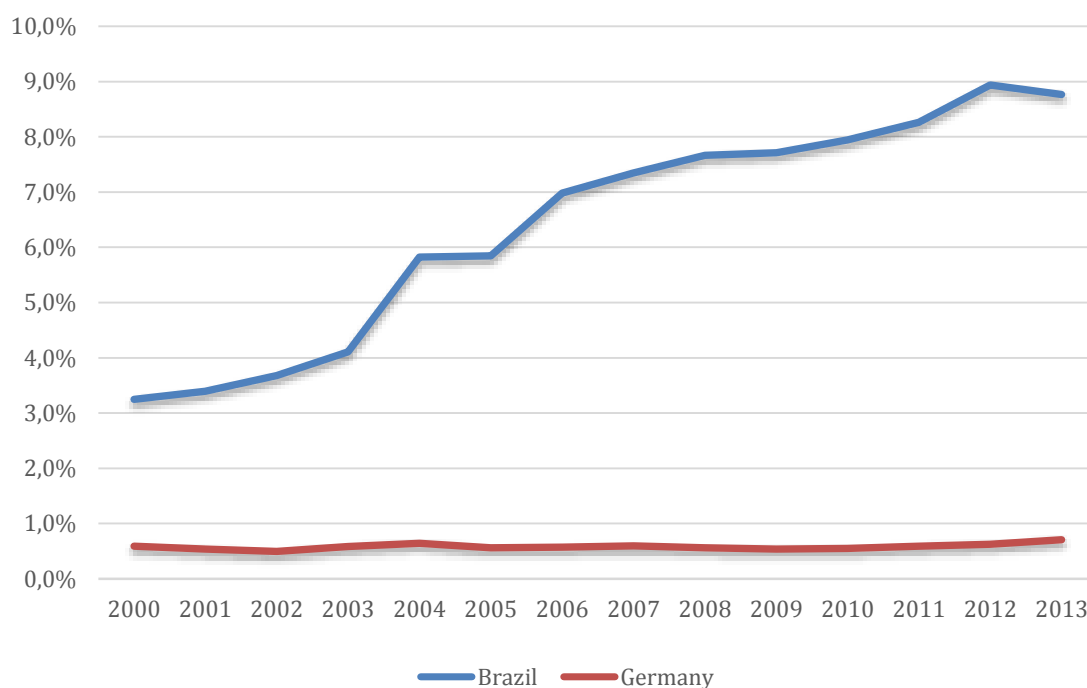
The level of economic and institutional development of a country is also mentioned as an element that might alter the performance of social spending. In other words, if one developed country spends the same amount of money on the same budget allocations, they would perform differently than another less developed country (Foster, 2012).

This comparison shows that, in fact, a function of social expenditure that includes a high proportion of social assistance policies (cash transfers), in a developing country such as Brazil have a negative causal effect on income inequality. Here, this causal effect is demonstrated, in some regressions in which increasing the social expenditure by 1% or increasing the number of social security

contributors of a country may decrease the income inequality to the extent of 0,01 points of the Gini coefficient¹²³.

The institutional framework of the welfare state may be taken as one of the variables that define the degree of development of a country. Korpi and Palmer (1998) have studied this relation between welfare institutions and income inequality. The findings of their study show a causal effect between the two concepts: welfare institutions and income inequality. Specifically, it shows an interesting relation between the direction of a redistribution budget and income inequality, what they call *the paradox of redistribution*; The more focused on the poor through public transfers a policy is, the less likely it is to reduce poverty and inequality (Korpi & Palme, 1998). However, in their study they do not include any developing countries, only OECD countries.

Figure 22. Social assistance in Germany and Brazil from 2000 to 2013 (% of the total social expenditure)



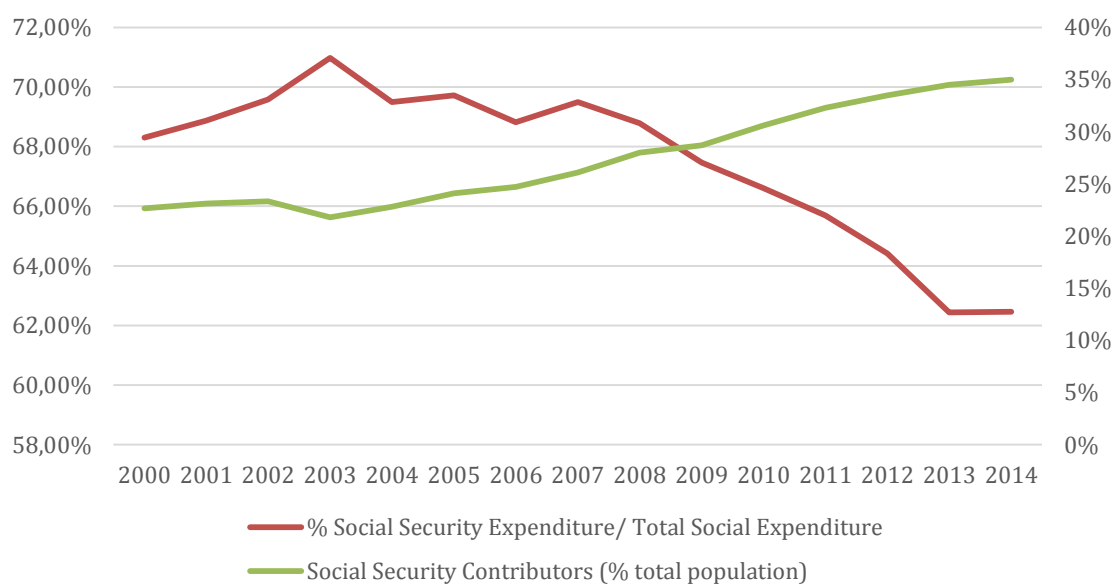
Own elaboration adapted from (SIAFI, 2016) (OECD, 2016a).

The focus on developed countries from Korpi & Palme (1998) may be the reason why in the case of Brazil this relation is not true, since Brazil, a country that has focused on the poor, has been able to tackle income inequality during the last two decades thanks (in part) to a basic goods approach

¹²³ See table 12.

welfare policy. Both variables, social expenditure and social security contributors, have been able to affect income inequality levels in Brazil, however, the former shows greater regression coefficients¹²⁴. Also, when social expenditure is deconstructed into social assistance and social security policies for Brazil, the growth of the former has outweighed the latter during the analysed period¹²⁵, in financial terms. Particularly, this analysis mentions the conditional cash transfers and its stronger effect on developed countries than developing ones. This finding also supports the results of this thesis, that the social assistance expenditure (related to cash transfer policies to the poorest) in Brazil and Germany during the last decade and a half follow a dramatically different trend. In Figure 22, the evolution of social assistance spending in Germany and Brazil is put in contrast. For the former, social assistance soars from almost 3% of the total social expenditure in 2000 to nearly 9% in 2013; whereas for the latter social assistance spent hovers around 0,5% and 0,7% of the total social expenditure. Also, if Brazil is compared with other emerging countries such as India and China, high economic growth rates have been followed by a sharp increase in income inequality during the past decades (UN, 2013: 36).

Figure 23. Social security expenditure vs. social security contributors Brazil



Own elaboration adapted from (SIAFI, 2016) (IPEA, 2016a) (MTPS, 2014)

¹²⁴ See table 12.

¹²⁵ See figure 24.

The increase in social security contributors at the same time that social security expenditure decreases could be the reason why in the quantitative analysis the increase in social security contributors is predicted to reduce income inequality. The regressive character of the social security system in Brazil may have partially been reversed and currently covers a higher spectrum of the income distribution, including lower classes. This is a deduction from the data in Figure 23 but has not been completely demonstrated by the present study. However the same comparison between the number of social security contributors and the social security expenditure for Germany follows a different trend. The number of social security contributors is similar in 1991 than 2013. However, the proportion of the social expenditure expended on them is nearly 8% higher, which indicates that the people under formality conditions (most of the population in Germany) should be better covered. However, the percentile ratios analysis shows that the differences in gross salaries distribution between the 90th and 10th percentiles have steadily grown from 1994 to 2016¹²⁶. Therefore, the deterioration of the labour market in Germany may explain the increase in income inequality from 1990 to 2016. Even considering this, the formality of the German social contract has not been threatened, and the distribution of income within the formal contract is arguably more unequal.

Brazil, as a developing country, could face the gap between the richest and the poor by focusing on extreme poverty, reducing the 25,4 million people under the poverty line¹²⁷, from 32,3 to 6,9 million (World Bank, 2018a). The conditional cash transfer programmes such as Bolsa Familia has proven to be effective in reducing income inequality during this period. However, Germany, as a developed country, has faced different challenges, above all, related to demographics: ageing population and low fertility rates have created an increase in social security expenditure (including healthcare costs), while the number of social security contributors was reducing dramatically¹²⁸ until the incorporation of women into the labour market during the late 1990s and early 2000s; but also, the high cost of social security systems for companies (the core of the welfare system in Germany) has constrained their comparative advantage during the globalisation process.

Looking at Figure 24, it is clearly recognisable that there is an opposite trend in Brazilian social assistance and social security expenditure (as a % of the total social expenditure). The same

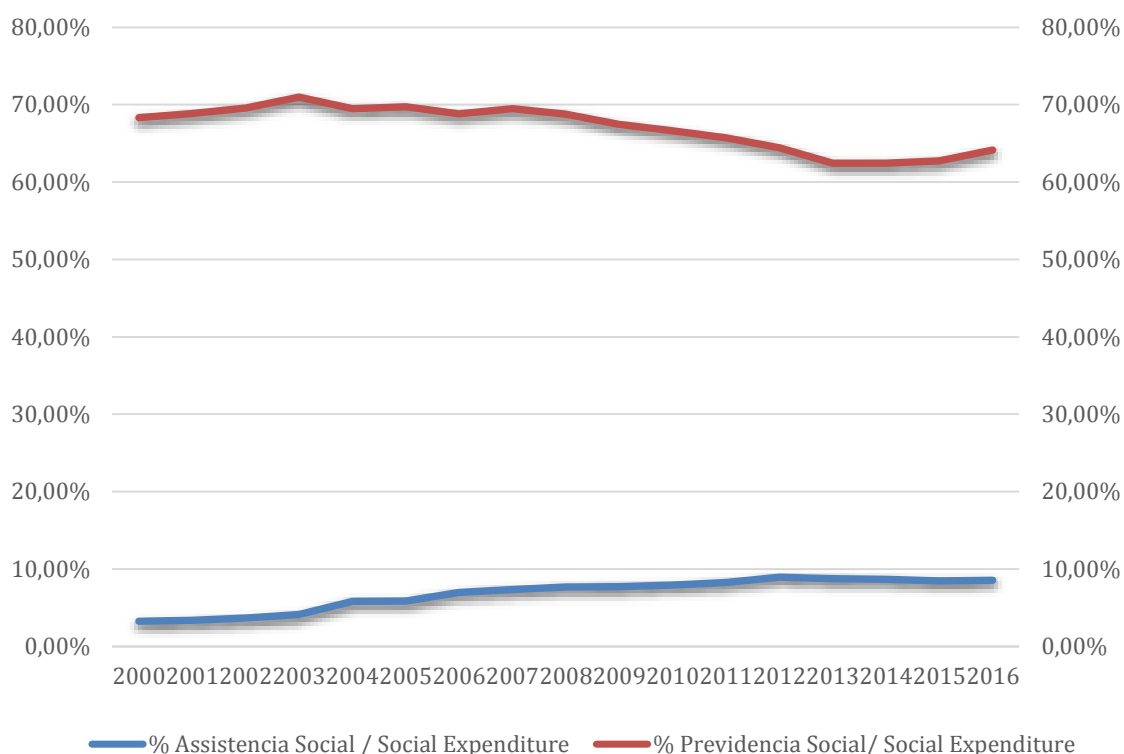
¹²⁶ See figure 25.

¹²⁷ According to the Poverty headcount ratio at \$1.90 a day (2011 PPP).

¹²⁸ See figure 19.

elements are contrasted above for Germany,¹²⁹ and the chart shows an exact inverse trend for both elements. In Brazil social assistance expenditure steadily increased and social security expenditure shows a decrease between 2000 and 2013, with a change in both trends between 2013 and 2016. Germany follows the opposite trend; social assistance expenditure slowly declines while social security expenditure soars between 1990 and 2013.

Figure 24. Brazil Social Assistance vs. Social Security Expenditure



Own elaboration adapted from (SIAFI, 2016)

Both charts exemplify how both countries, one being a developed country and the other a developing country, has changed the configuration of the welfare state systems, and the impact of these changes in income inequality terms. However, the different outcomes, in income inequality terms, of social expenditure functions regarding the stage of development of a country may be interpreted in different ways.

¹²⁹ See Figure 20.

7. PRE-DISTRIBUTION DEBATE

The previous debates need to be complemented by the more recent debates on pre-distribution, income inequality, and social justice. Lastly, Joseph Hacker, has proposed to act on causes instead of on the consequences of income inequality, which he identifies with pre-distributive policies instead of post-distributive policies (Hacker, 2011). This debate on pre and post-distribution is relevant to this thesis, not merely because of the pragmatic implications of the variables studied on income inequality, but due to the political implications of pre-distribution policies on welfare states and on income inequality levels. It is relevant, for instance, to remember that income inequality is considered a major social issue, but also a macroeconomic problem because it can constrain economic growth, and reputable institutions, even conservative ones such as OECD or IMF (OECD, 2011) (IMF, OECD), hold these concerns to be important. Therefore, policy makers, the ones in charge of taking decisions and implementing them to improve conditions of income inequality, have to face this dilemma between pre and post-distribution. These kinds of structural reforms aim to tackle income distribution within economic structures instead of acting after the markets distribute the income.

It is important not to confuse this pre and post-distribution perspective with redistribution — both pre and post-distribution policies may be redistributive. The difference lies in the preventive character of pre-distribution and the palliative perspective taken by post-distributive policies. Therefore, post-distribution represents the opposite term of pre-distribution instead of redistribution.

Even though Jacob Hacker has recently raised this debate, other reputable authors such as Tony Atkinson, who advocates for policy changes and for workers to have stronger negotiating power, also includes pre-distribution mandates as part of a list of recommendations. In his last book: *Inequality. What can be Done?* He mentions fifteen proposals to reduce the extent of inequality, many of them in line with the pre-distributive agenda: (a) a balance of power among stakeholders; (b) technological changes that would be accompanied by a strategy that increases employability; (c) the creation of a public investment authority in the form of a sovereign fund, so as to increase state net worth; (d) a set an explicit aims to increase employment and support it by extending public employment at a minimum wage (Atkinson, 2015: 237). Also, James Heckman, winner of the Nobel Prize in Economics in 2000, advocates for pre-distribution as way to tackle economic inefficiency, that is, not only is pre-distribution defended for social justice reasons but also to better the economic performance of a country (Heckman, 2012).

It is true that this classification has its drawbacks, given that it may become confusing when dealing with interactions between post and pre-distributive policies that may affect each other. In the words of Hacker: “it does not seem easy to determine a strict border between pre-distribution and post-distribution when economic interactions, taxes and transfers act simultaneously (high taxes on high incomes generate incentives to negotiate higher wages).”¹³⁰

To sum up, the two redistribution models proposed here follow a preventive and palliative focus, defined as pre-distribution and post-distribution respectively. It is not by chance that since the global financial crisis in 2008 this debate about the ways of facing inequality has been raised. This is when populations witness a change in productive economies under flexible specialization with greater job insecurity, wage contraction, and loss of union power. Also, since the 2000s, when the capital has provided higher rates of economic returns than economic growth of a country, capital gains have become far more concentrated than incomes from work (Piketty, 2014). These findings, obtained from Piketty’s work *Capital in the Twenty-First Century*, show also that governments may only comprehensively face economic inequality from within market institutions. That is, following Piketty’s reasoning, governments and public institutions cannot only address wages as a pre-distribution policy, through education for example, if they want to face income inequality. Rather, they have to regulate the core of the market institution through measures such as taxes from capital gains or legacies, environmental taxation, or corporate governance if they really want to address income inequality.

- Precarisation in Pre-distribution

The division of work in the labour market represents a key element for social stratification that is in line with the thesis of the Weberian tradition.¹³¹ At present, division of labour is not only characterised by the division between the proletariat and managers, but different divisions have also emerged. I present this argument due to its relevance in considering the results of the German regressions with the percentile ratios as the dependent variable, whose data measures gross salaries instead of disposable income (Gini index). In this set of regressions, I have tested the pre-distributive character of the independent variables through the percentile ratios whose data measures gross salaries. This can be compared to the Gini coefficient, which measures the post-distributive character through disposable income or consumption. The conclusions are interesting, taking into

¹³⁰ Quote taken from the session: Pre-distribution Policies to Fight Against Inequality, organised by Fundació Catalunya Europa.

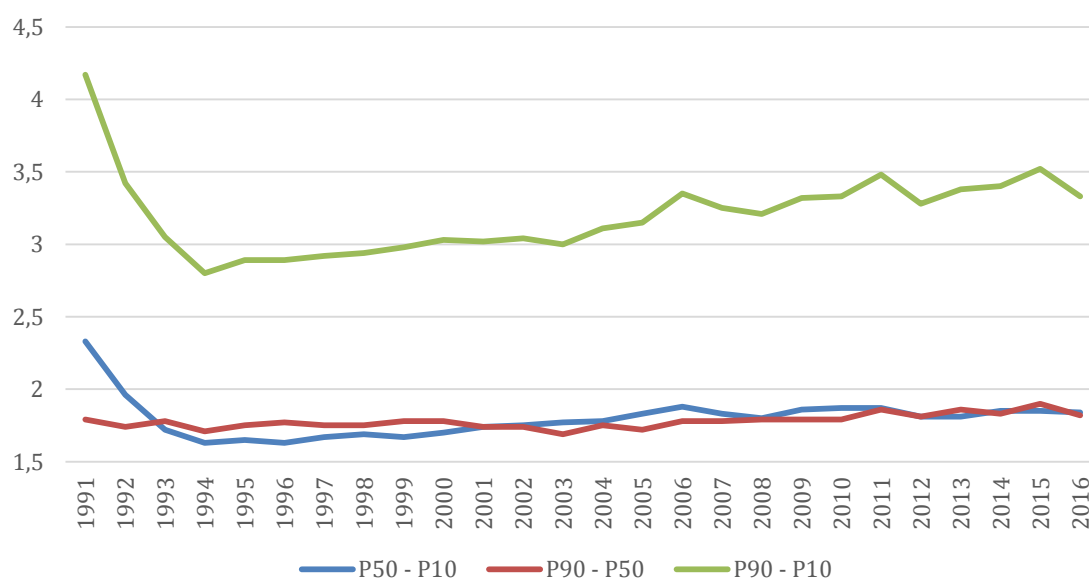
¹³¹ See 3.1.2 in chapter 2.

account the new divisions of labour in developed countries, such as Germany. The results are in line with the thesis of the author Guy Standing (2011) who brings up the new idea of *precariat* as the emergence of a new labour division created by new global market characteristics and the pursuit of economic growth at any price. Quoting the author:

“The precariat has *class* characteristics. It consists of people who have minimal trust relationships with capital or the state, making it quite unlike the salariat. And it has none of the social contract relationships of the proletariat, whereby labour securities were provided in exchange for subordination and contingent loyalty, the unwritten deal underpinning welfare states. Without a bargain of trust or security in exchange for subordination, the precariat is distinctive in class terms. It also has a peculiar *status* position, in not mapping neatly onto high-status professional or middle-status craft occupations. One way of putting it is that the precariat has ‘truncated status’. And, as we shall see, its structure of ‘social income’ does not map neatly onto old notions of class or occupation” (Standing, 2011: 8)

Following the argumentation of Standing and illustrating the precarisation of the job market in Germany, in Figure 25 I show the evolution of income inequality in gross salaries (pre-tax income)

Figure 25. Evolution of the percentile ratios in gross salaries in Germany



Own elaboration adapted from OECD (2018b).

for the three ratios: P90/P10, P90/P50 and P50/P10. There is a clear growth trend in income inequality for the ratio between the extremes of the distribution since 1994: P90/P10. The income distribution of both the upper and lower strata also follow the same pattern (even though it is less pronounced) and show an increase during the same period. Thus, this definition of the proletariat according to Standing (2011) may fit into the new underemployment relations in Germany, whose impact on income inequality is notable according to the positive relation (the increase in income inequality) between social security contributors and income inequality, measured by the percentile ratios.

7.1. ROLE OF EDUCATION AS A PRE-DISTRIBUTIVE POLICY

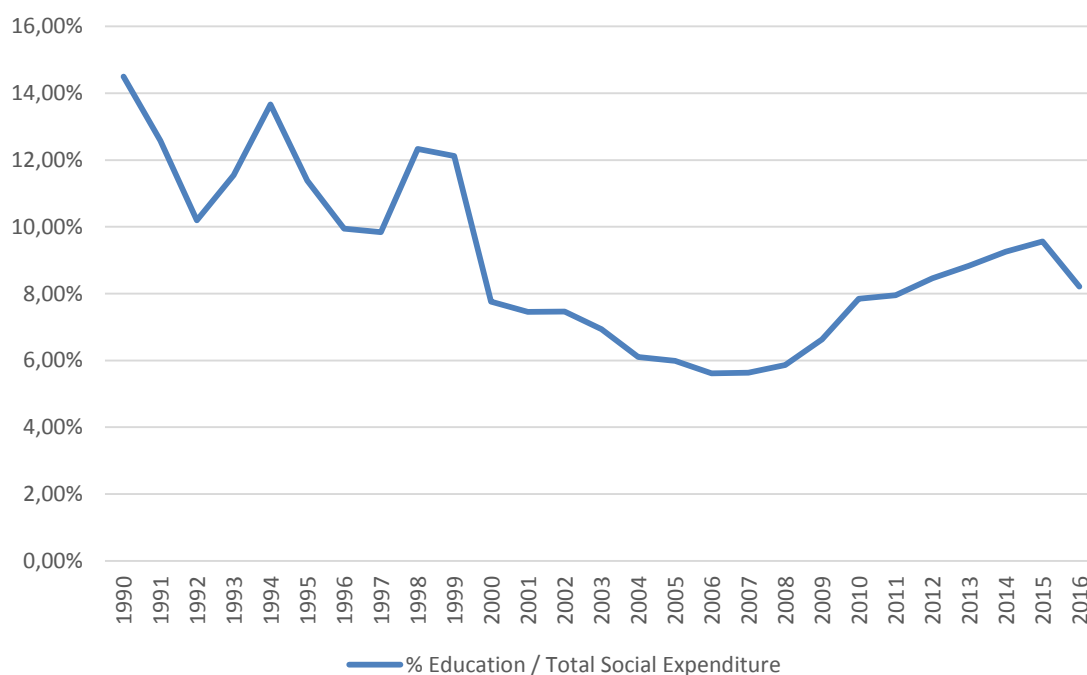
To recall the main reasons why education is taken as a control variable in this thesis, I introduce some studies such as Rudra's (Rudra, 2004), which shows that only education has an unanimously negative impact (by decreasing) on income inequality rates. In contradistinction, the findings do not show the same effect with social security, healthcare, and welfare spending. The same conclusion is reached by Foster (2012), who defends the argument that better education is a driver to making a country more competitive in a global market. Although for education only the variable secondary school enrolment is taken in this thesis for the purpose of controlling the independent variables of the empirical study, namely social spending and social security contributors, it is revisited here as a pre-distributive policy. As Di Stasio and Solga mention: "all authors critically engage with the social investment state approach that sees in education and training investment the lynchpin of a pre-distribution agenda protecting individuals from the new social risks of a competitive, knowledge-driven economy" (Di Stasio and Solga, 2017: 1).

Pre-distribution has been a priority in tackling income inequality in the Latin American region, and a structural view of income inequality for Latin American authors, above all in the form of structuralism, focused on the deeper reasons of this phenomenon instead of the consequences. According to these scholars, primary export countries (such as the Latin American ones) have proven not to be very successful in providing growth and welfare to its citizens because of unfair exchange terms between primary exports and imports from industrial countries (Prebisch, 1962). For this purpose, the ISI model (developed by the structuralists) was undertaken by several countries in Latin America from the 1950s to the 1970s. However, none of them were able to fully implement the ISI strategy by using the profits of the primary good exports to invest in an industrial sector, whose

added value would be higher than the primary one, thereby providing more economic growth and higher wages.

In the case of Brazil, governments still follow some practises inherited through the ISI strategy, such as protectionism policies¹³² on high value manufactured goods in automobile or aviation industries. Hence, education became a key area of focus so that they could produce high skill workers to develop an industrialisation strategy coordinated by the state. On the contrary, as can be seen in the evolution of education expenditure in Figure 26, it was not a priority in public spending terms for Brazilian governments. The focus of the federal governments has followed a more basic needs approach rather than pursuing structural change in favour of pre-distribution.

Figure 26. Brazil: % of Education Expenditure vs. Total Social Expenditure



Own elaboration adapted from (SIAFI, 2016)

This argument is in line with the liberal neo-developmentalism approach to defining the Brazilian economic model, which on the one hand follows a basic goods needs strategy to alleviate extreme poverty that leaves behind the middle-class and is opposite to corporatist welfare models. On the other hand, it protects and focuses on key national industries in order to be competitive in the global

¹³² The use of trade measures to protect infant industries is allowed under the WTO regulation.

market and thereby create an industrial sector able to sustain a high wage model, which, in turn, could redistribute the gains before the government redistribution policies, such as social expenditure or social security structure. The same argument for international competition in the context of globalisation may apply also to Germany, whose social security model (an anchor of German corporatist welfare state) relies on high skill and educated workers to be competitive in high added value markets, which requires an education programme that meets the requirements of those industries. In the case of Germany, the dual educational system has become an essential part of the industrial model, in addition to the universal education system with its almost free tertiary education. This new focus in Germany on what can be seen as pre-distribution may be seen through the low rates of social assistance programmes compared to the other social expenditure budget allocations.¹³³

Another argument in favour of education as a pre-distributive policy, in LDCs such as Brazil, is the institutional limitations of governmental clientelist practices to allocate resources to middle and upper-middle classes, which leaves education as one of the only escape routes towards a better income opportunity for the poorer strata. When talking about social mobility, education is one of the main drivers to improving the position of a son/daughter in respect to his/her parents, according to different institutions and scholars (IMF, 2017) (Di Stasio, & Solga, 2017). Nevertheless, the degree of development of a country (in institutional terms) would determine the extent to which the human capital of a country is capitalised on by the state and rewarded by the private sector. In other words, the same skilled worker may enjoy a higher or lower wage depending on the country he/she works in. But, not only might income be affected by pre-distribution policies, welfare levels may as well. The countries that have a strong welfare state are the ones that invest in pre-distribution policies as well, argues Jacob Hacker.¹³⁴ In a corporatist country such as Germany, where the welfare system relies mainly on worker contributions, it is reasonable to expect that pre-distribution policies are strongly related to income inequality since almost all of the population's income comes from the formal labour market. This is in comparison to Brazil where the informal sector and unemployed people comprise a substantial share of the total population. Hence, pre-distribution policies such as education may prevent the necessity of post-distribution policies (and so public expenditure) to

¹³³ See figure 20.

¹³⁴ Quote taken from the session: Predistribution Policies to Fight Against Inequality, organised by Fundació Catalunya Europa.

tackle inequalities resulting from within the economic system, which does not distribute the wealth of a country in a fair manner.

7.2. CONCLUDING REMARKS AND CRITICS ABOUT PRE-DISTRIBUTION

In conclusion, though pre-distribution policies such as education may lead to better income distributions, the institutional framework and industrialisation levels of a country need to be developed so as to reward high education levels. The higher the degree of development of a country the more effective education policies become in reducing income inequality. While, it is true that pre-distribution perspectives may not solve all the inequality problems of a country, it raises questions regarding the possibility of interactions between pre and post-distribution policies to face inequality. In fact, pre-distribution policies may be useful in order to distribute the wealth of a country before the government does it through redistribution policies, though no country has been able to get rid of income inequality only using these measures, and certainly not a developing country. Through the comparative study undertaken in this Chapter, it can be seen that social assistance policies (characteristic of a post-distribution model) may be useful to some extent to reduce income inequality in the early stages of development and even for those left behind in a developed country. In liberal countries such as the USA (the main subject of study of Hacker), the focus on pre-distribution may be the site of a much-needed struggle against inequality, more so than countries such as Germany where the capitalist practices are muffled by a strong institutional framework. This fact that does not undermine the idea of a mixed redistributive agenda between pre and post-distribution and should be contextualised for every single country.

Another critical point for a pre-distribution agenda comes from the central role attributed to the government in shaping an economic framework that is dominated by post-distribution policies. According to the critics, it neglects bottom-up relations that can influence the political agenda in the same direction as these prevention policies of income inequality. To quote Hacker, “the state cannot do everything” (Hacker, 2013), and social movements may trigger political initiatives that can then be discussed at national and international levels.

8. CONCLUSIONS

In comparing the debates about welfare states with the results from the analysis undertaken and regarding their impact on income inequality, some conclusions may be obtained, even though they

are not decisive. In the case of Brazil, the results show a negative effect between the independent variables (social expenditure and social security contributors) and the explained one (income inequality), although to a lesser degree than both countries together. In a country such as Brazil, where there are still high rates of poverty (even though they have improved it the last two decades), the last governments have not relied decisively on a pure welfare system according the typical OECD welfare classifications such as Esping-Andersen's. Rather, they have created a welfare structure that exists between the three models: corporatist, residual, and universal. This hybrid approach is being undertaken, for example, by increasing the number social security contributors, setting a universal minimum salary, and focusing on the poorest strata, respectively. This liberal neo-developmentalism model followed by Brazilian governments since the 1990s have shown positive results in terms of income inequality reduction, although it has been giving some signals of exhaustion since 2012, and the decrease in social assistance expenditure¹³⁵ together with the steady rise of social security contributors¹³⁶ are indicative of a change of paradigm. Although the direction of these changes is not clear, some policies such as privatisation of healthcare and the education system indicates a liberal switch to a residual welfare model, while other policies such as minimum salary suggest a swift towards universalism.

In the case of Germany, the low statistical significance obtained in the analysis does not allow for relevant conclusions regarding the relation between social security contributors and social expenditure in income inequality. However, by having a look at the longitudinal data-series (Appendix 8) one may extract some conclusions: the number of social security contributors has dropped from almost 37% of the population in the early 1990s to less than 32% in 2005 and then has rocketed to 38% in 2016, while in the meantime the Gini coefficient has soared steadily by almost 0,04 between the early 2000s and 2016¹³⁷. Therefore, though the findings from the regression are not clear, one may conclude that the redistribution character of the social security system, at least in the past years, is not evident. This result is consistent with the "Siren song of deregulation" (Allen, 2003: 20) — the idea that Christopher Allen describes as the departure from an institutionalised market economy that characterise the *Deutschland Model* to the Anglo-American model, which is more residual and less institutionalised. This new phenomenon may be seen, for example, through the decrease in bargaining power of workers, and the share of German

¹³⁵ See Figure 18.

¹³⁶ See Figure 17.

¹³⁷ See figure 1.

workers in trade unions dropping by almost half in the last 20 years, now representing less than 20 percent of the German workforce (Allen, 2010). However, the point of departure in Germany in the beginning of the 1990s is radically different than in Brazil, since Germany is one of the most egalitarian countries in Europe and worldwide and Brazil is almost the opposite regionally and worldwide with Gini Index values of 60,1 in 1993 and 29,2 in 1994 respectively (World Bank, 2018c). Therefore, after the socioeconomic shock of reunification and globalisation, keeping the income inequality at the same level represented quite a challenge for the country. I launch a question regarding the formality of the social contract: has more people working under conditions of formality had a negative effect on income inequality? According to the results of this thesis the answer is: not always. In the case of Brazil, it can be determined that a greater number of social security contributors leads to income inequality. Interestingly though, for Germany it rather clearly has positively affected income inequality. That is, the higher number of people under formality conditions has resulted in higher income inequality levels. This conclusion may be deducted from the quantitative analysis for Germany and the percentile ratios of gross salaries as the explained variable.

CHAPTER 7.- CONCLUSIONS OF THE THESIS

1. INTRODUCTION

In this chapter I sum up the conclusions of this thesis, contributions, limitations, and considerations for further studies. The main goal of this chapter is to stress the main relevant points of this work. I understand a doctoral dissertation as an ongoing work, which aims to provide, through empirical findings, a contribution to the state of the art. Following this reasoning, in this chapter I aim to show not only the gap that this study fills, but also the limitations that remain unsolved and the possible future studies that may follow this thesis, partly based on these limitations.

I will try to provide a convincing answer to the research questions following the results of the analyses undertaken. These conclusions revolve around these elements: (a) the effect of the independent variables on income inequality, (b) the formality of the social contract, (c) the extent to which the development of a country influences the effect of social policies on income inequality and (d) the relevance of social assistance versus social security policies. First, I introduce an overview of the results from the empirical study. Second, I introduce some theoretical conclusions to respond to the research questions and test the hypothesis posed at the beginning of the thesis, putting into dialogue the results of this analysis with other studies that either are in line with this work or refute it. Third, I mention the most striking contribution of this thesis, in other words, which gap in the academia this dissertation aims to fill. I advance that the main contribution concerns: (a) the new trend in welfare states in emerging countries and the new approach of focusing on the dimension of formality in the social contract; (b) the division of the social budget into different allocations in Germany and Brazil from 1990 to 2016 (according to Esping-Andersen's classification). Lastly, a methodological point concerning the comparison between Brazil and Germany will be made following an apple and oranges comparison model, which is not common in welfare studies.

2. RESEARCH QUESTIONS AND HYPOTHESES

Let us start by remembering the research questions as well as the hypotheses that I have tested during the present thesis:

Which variable, social security contributors or social expenditure, is shown to have more of an impact on the reduction of income inequality in the analysis of two distinct countries, Germany and Brazil?

H1: Generally, an increase in the social budget¹³⁸ is important in reducing income inequality. However, the direction of the social expenditure determines the effect of this measure. The social policies based on the formal social contract, which are focused on the middle-working class working under conditions of formality, are predictably more effective in income inequality reduction than the residual ones. However, non-contributory social policies with low levels of social security contributors may improve inequality in high poverty contexts with a significant number of citizens living under conditions of informality.

To what extent may the lessons from a developed country such as Germany, which is a paradigm of the corporatist welfare state, be applied to Brazil to reduce its high income inequality levels?

H2: Taking Esping-Andersen's welfare classifications (1990), the corporatist welfare model is effective in reducing income inequality as long as the formal labour market remains strong in the country. The combination of both elements has been proven very effective in Germany, as it has enjoyed one of the lowest income inequality levels following this Bismarckian approach after WWII until the late 1980s when the German reunification happened. In contrast, the hybrid welfare model of Brazil that pays more attention to the poor has been characteristic of most capitalist societies, which arguably represent the most unequal among the developed countries. At the same time, it maintains a public social security system whose beneficiaries does not represent the whole working class of the country due to the high levels of informality

H3: The socioeconomic structures, in terms of development, play an important role when the same welfare model is followed by different countries. In a context of high level of informality, such as in Brazil, residual policies may reduce income inequality levels until a certain level of formality is reached, then a corporatist welfare model might be more effective in reducing income inequality levels.

3. ANSWERS TO THE RESEARCH QUESTIONS

In order to conclude with answers to the research questions a general observation concerning social inequality, the social contract, and welfare policies in the two countries studied will be made. In the case of Brazil, the historical socioeconomic dynamics of high levels of duality and inequality between

¹³⁸ According to the OECD (2018) definition of social expenditure.

social groups have held for the past few decades. However, an era of left-wing parties having executive power have precipitated a turning point in terms of the reconstruction of the social contract. Both formal and informal social contracts have been affected, as can be seen in the impact of both social security and social assistance policies on income inequality. The numbers are clear — there are more people working under formal conditions¹³⁹ and the budget for assistance has increased through conditional cash transfers in the same period. Even considering this, other elements of the social policies, such as those concerning education and healthcare, have followed a liberal approach, which makes the welfare state system a hybrid between the universal and the corporatist one, following the Esping-Andersen (1990) classification. In the case of Germany, the historical Bismarckian roots still hold for Germany despite the challenges the country has faced since 1990. However, income inequality has slightly increased during this period. The high-skill and high-wages model is not the norm anymore, and the system has accommodated a new labour market for those underqualified within the high added value industries, combined with a set of non-contributory benefits, the Hartz IV. While it is true that there is no informal-formal division like the one in Brazil, a new division within the formal social contract has arisen during the past decades. The results of this thesis show with the empirical and descriptive analyses that this trend is moving towards a more liberal socioeconomic model, above all, in terms of welfare state policies.

In order to answer the research questions with more specificity and to test the hypotheses of the thesis, I continue with the summary of the results. Social expenditure seems to be effective in reducing income inequality when both welfare models are taken as one case study. The hypothesis that increasing the social expenditure budget has a negative relation with income inequality is accepted according to this study. This result is in line with the evidence regarding the causal effect reported by different authors (Anderson et al., 2017). The variable social security contributors does not show a clear pattern according to the quantitative analysis. However, when percentile ratios of gross salary distribution are taken as a dependent variable, it shows a positive relation between the variables. In other words, increasing the social security contributors leads to higher income inequality levels. This behaviour of the variables makes sense for Germany during the analysed period for the reason highlighted in the following central point of the conclusions: the formality of the social contract. This conclusion is complementary to the main outcomes of the contextual and the empirical study:

¹³⁹ See figure 20.

- Both variables, social expenditure and social security contributors may influence income inequality levels.
- In general, social expenditure has a negative effect on income inequality levels taking two different cases of study, Germany and Brazil.
- In Brazil, social assistance policies (non-contributory) in the form of cash-transfers have worked as a bridge from poverty to formality in Brazil.
- However, the social policies in Brazil have not guaranteed continuity (within the formal social contract) from low & middle classes to higher strata yet.
- In Germany, the variable social security contributions positively influence income inequality (in gross income terms, pre-tax distribution). Thus, an increase in social security contributors might be a predictor of more income inequality within the formal labour market.
- The degree of development was a key determinant in the success of social policies in reducing income inequality. Social assistance policies may positively affect income inequality until a certain point of development is reached by a country.
- The inclusion of citizens in the formal social contract of a developing country, such as Brazil, could be an indicator of an improvement in income inequality levels. However, this depends on the strength of the labour market the social security configuration.

3.1. EMERGING CONSIDERATIONS: LDCS VS. OECD COUNTRIES, CLOSING THE GAP?

The stimulating selection of Brazil and Germany as the cases of study for this thesis presented a challenge given the important differences between them, above all the degree of development of each country. However, during the period of time chosen for the study (from 1990 to 2016) the degree of development of Germany has not changed as much as it has in Brazil; If one measures the degree of development through the GDP, Germany's roughly doubled from approximately 1,8 to 3,5 trillion (2018 US\$) between 1990 and 2016 whereas the Brazilian GDP shows a fourfold increase from 0,5 to 1,8 trillion dollars (2018 US\$) in the same period (World Bank, 2018b). However, one of the goals of this comparative study was to test the different effects of welfare policies on income inequality for different stages of development through an empirical study. The differences in the effects in the two models of welfare may help in selecting different approaches according to

particular socioeconomic contexts. I have been arguing that social assistance and social security policies may help to decrease income inequality depending on the context of a country, especially in terms of wealth distribution and the degree of institutionalisation, among other factors. Therefore, there is not a general recipe for income inequality reduction, but rather a mix of policies that may address different interest groups. The direction of these policies depends upon the politician.

One of the main challenges for Brazil in the early 1990s with the new era of democracy was none other than structural socioeconomic inequality. However, macroeconomic indicators such as inflation and external deficits did not allow for high amounts of spending on social issues. There was a hybrid model and on the social side it focused on the poor. In the economic arena, maintaining high levels of interest rates to control the inflation rates was proven to be effective in income inequality reduction during this period. Germany, as a contrasting case, was enjoying one of its lowest levels of inequality in 1990 before the Berlin Wall fell. However, during the 1990s the country struggled to maintain its *status quo* due to internal and external factors, such as reunification and globalisation. The policies Germany has followed to maintain their levels of well-being of its population seem to differ from the Bismarckian pillars upon which the German socioeconomic model was founded, based on codetermination and solidarity principles.

To sum up, opposite trends for Germany and Brazilian social contracts and their impacts on income distribution may suggest a confluence between developing and developed countries. Brazil has been able to reduce income inequality by both focusing on the poor and decreasing the budget for social security, which has not traditionally been very progressive in redistribution terms. At the same time, Germany has steadily increased social security expenditure (in part due to the ageing population) but decreased social assistance, worsening the living conditions of the people outside of the formal social contract (residual part of the population). This has, above all, increased the precarity of the labour market and allocated more influence to the pre-distribution of income.

4. LIMITATIONS & CONSIDERATIONS FOR FURTHER RESEARCH DIRECTIONS

Throughout the thesis I have been mentioning various limitations of this work. The limitations may be grouped in different categories regarding their nature: conceptual, operational and methodological. In terms of the first category, some limitations are related to the difficulty of conceptualising the idea of the social contract. In this thesis I have taken two variables to measure

the degree of formality of the social contract, but there are many more dimensions that could be considered as defining the social contract, such as democracy, freedom, or political representation. I am aware of the complexity of the social contract concept, which is the reason why I delimit the extent of the thesis to the formality aspect of social contract. Also, once I had chosen the variables there were some difficulties in operationalising them. In the case of social expenditure, I have taken the definition from the OECD and adapted it for Brazil due to the lack of availability in the same database of the OECD.stat, which provides the data from Germany. In the case of social security contributors, it was harder to make the data comparable given the different social security systems which do not include the same working groups. The main limitation was that Germany does not include public servants within the public social security system, whereas in Brazil they are included. While it is true that this thesis only focused on public policies and not private ones, it makes sense that citizens outside of the public social security systems are not included, even though they may represent a notable proportion of the total population.

Methodological limitations have also presented challenges throughout this thesis. The main one is related to the low number of cases taken for the study. Only two cases were selected, namely Brazil and Germany, which could represent a limitation for the quantitative analysis. However, I have chosen a specific formula from Stata, the `xtpcse`, that could compensate for this and it is specifically for “linear cross-sectional time-series models when the disturbances are not assumed to be independent and identically distributed.”¹⁴⁰ Moreover, the low number of variables has also been a limitation for the thesis, not in the conceptual sense whose argumentation I believe is correct,¹⁴¹ but from the statistical point of view. I have tried to overcome this limitation by adding a control variable, education, in order to provide more robustness to the regression analysis. Also, I have created more variables from the original ones, *lag* and *lead*, to finally obtain eleven different regressions that test different variations of the original hypothesis.

Concerning income inequality, the phenomenon that I have been attempting to explain through the concept of the social contract, the Gini index brings some advantages but also some limitations to this thesis. The universal use of this index to measure income inequality, not only by economists but also by social scientists in general, provides a high degree of comparability with other studies and

¹⁴⁰ Retrieved from: <https://www.stata.com/manuals13/xtxtpcse.pdf>

¹⁴¹ As has already been mentioned in the conceptual limitations, I only focus on the formality aspect of the social contract, that is why the two chosen variables are enough.

easy availability of the secondary data in the main databases. However, the over-sensitivity of Gini for middle classes neglects the variations in the share of incomes at the extremes.

Concerning the above-mentioned limitations, there are various lines of research that could be furthered and that could enrich the conclusions of this thesis. Starting with the first methodological limitation of this study, namely the low number of cases, a quantitative analysis could be undertaken for a higher number of cases. This can be done for different purposes: on the one hand, the comparison study may include more countries from both Latin America and Europe. This aligns with the growing interest in comparison studies and collaborations between these regions, reflected by the creation of the EU – LAC Foundation as a result of the VI Summit of Heads of State and Government. Also, with more countries incorporated in the analysis the researcher could use other statistical treatments such as a multilevel treatment, which requires a higher number of clusters than the multilinear regression analysis used in the present thesis.

Moreover, there is space to do research with a regional focus on Latin American and Caribbean countries following the same methodologies and this could contribute to the new current of studies on welfare states in emerging countries.

Regarding the variables, further studies may include different variables that more accurately measure the formality of social contracts, regardless of the number of cases. For example, instead of using secondary variables such as social security contributors, the researcher could use surveys to better understand the formal situation of workers, that is, the people contributing to private security systems or mutual insurances or other anomalies missed by this thesis. Also, a disaggregation of the total social expenditure by contributory and non-contributory benefits may be included in future quantitative analysis.

Another line of study that could be a fruitful departure from this thesis may be related to pre-tax and post-tax distribution. As we have seen, authors such as Jacob Hacker (2011) has brought the debate about pre-distribution to political agendas. While it is true that education has been chosen as a control variable and represents a pre-distributive variable as opposed to a social expenditure, a thorough analysis with the money invested in policies and their effect on both types of distributions could enrich pre and post distribution debates. Furthermore, a study that includes developed and developing countries could produce knowledge on the behaviour of social policies for both kinds of income distribution.

Lastly, the reader has to consider the fact that the present thesis did not consider the changes which occurred in the last three years in the socioeconomic contexts of both countries, Brazil and Germany, mainly due to the lack of data availability. This is of special importance if one considers recent elections in Brazil, which influences both political aspects, as well as social issues such as income inequality and poverty. One could even go as far as stating that certain aspects, and especially income inequality do not play any role under the current president Bolsonaro. If one considers Germany, it may be stated that the political scenery has not changed as radical as the Brazilian one, yet certain aspects need to be considered. Some voices for instance consider the arrival of another economic depression, which would affect any attempt to broaden the welfare state in Germany. When at the time these words are being written, the most important elements of the social agenda may state to be the basic pension (Grundrente). Thus, it might be very interesting to update this thesis, following the same methodology I have undertaken (with the pertinent changes), in order to understand which direction the social contracts of Brazil and Germany will follow so as to reduce (or not) income inequality.

BIBLIOGRAPHY

Acemoglu, D.; Robinson, J. (2010). "The Role of Institutions in Growth and Development". *Review of Economics and Institutions*. 1 (2). Article 1. Retrieved from <http://www.rei.unipg.it/rei/article/view/14>

Acemoglu, D.; Johnson, S. & Robinson, J.A. (2001a). "The Colonial Origins of Comparative Development: An Empirical Investigation" *American Economic Review*. Volume: 91. issue: 5. Pages: 1369-1401. Retrieved from <http://www.aeaweb.org/articles.php?doi=10.1257/aer.91.5.1369>

Acemoglu, D.; Johnson, S. & Robinson, J. A. (2001b). "Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution". *National bureau of economic research*. No. w8460. Retrieved from <http://qje.oxfordjournals.org/content/117/4/1231.short>

Acemoglu, D.; Aghion, P.; and Violante, G.L. (2001c). "Deunionization. Technical Change and Inequality." *Carnegie-Rochester Conference Series on Public Policy* 55: 229–264.

Aganof Cordero, A. (2006). "Mercado y Bienestar Colectivo en la Fatal Arrogancia de Federico Hayek". *Revista Venezolana de Economía y Ciencias Sociales*. Vol. 13. nº 1 (ene.-abr.). Pp. 63-84.

Akerlof, G.A.; Yellen, J.L. (eds.) (1986). *Efficiency Wage Models of the Labor Market*. New York. Cambridge University Press.

Alvaredo, F.; et al. (2018) *World Inequality Report 2018*. The Belknap Press of Harvard University Press. 2018.

Andrea Brandolini (1992). "Nonlinear Dynamics, Entitlement Rules, and the Cyclical Behaviour of the Personal Income Distribution". London. London School of Economics. Centre for Economic Performance Discussion Paper 84.

Andreotti, A.; Benassi, D. & Kazepov, Y. (Eds.). (2018). *Western capitalism in transition: Global processes, local challenges*. Manchester. Manchester University Press.

Allen, Christopher S. (1997). "Institutions Challenged: German Re-unification, Policy Errors and the 'Siren Song' of Deregulation" in Lowell Turner. Ed. *Negotiating the New Germany: Can Social Partnership Survive?*. Ithaca: Cornell University Press. Pp. 137-156.

Allen, Christopher S. (2004). "Ideas, Institutions and the Exhustion of Modell Deustschland" *German Law Journal*. Vol. 5. No. 9. Pp. 1133-54.

Allen, Christopher S. (2010). "Ideas, Institutions and Organized Capitalism: The German Model of Political Economy 20 Years after Re-unification". *Berghahn Journals. German Politics & Society*. Vol. 28. No 2. Pp. 130-150.

Alston, L. J.; Melo, M. A.; Mueller, B.; Pereira, C. (2006). "Political Institutions, Policymaking Processes and Policy Outcomes in Brazil". Washington DC. Working Document No. R-509. Research Department. Inter-American Development Bank. Retrieved from http://www.iadb.org/res/pub_desc.cfm?pub_id=R-509.

Armingeon, K.; Beyeler, M.; Binnema, H. (2001). "The Changing Politics of the Welfare State - a Comparative Analysis of Social Security Expenditures in 22 OECD Countries. 1960-1998". Unpublished manuscript. University of Berne. Institute of Political Science.

Anderson, E., Jalles D'Orey, M. A., Duvendack, M. & Esposito, L. (2017). "Does Government Spending Affect Income Inequality? A Meta-regression Analysis". *Journal of Economic Surveys*. Vol. 31. Pp. 961–987.

Atienza Azcona, J. (2002). *La Deuda Externa en el Mundo Desarrollado: Teoría, Realidad y Alternativas*. Madrid. Editorial Akal.

Atkinson, A. B.; Bourguignon, F.; (eds.) (2000). *Handbook of Income Distribution (Vol.1)*. Amsterdam. Elsevier.

Atkinson, A. B.; Piketty, T.; Saez, E. (2011). "Top Incomes in the Long Run of History". *Journal of Economic Literature*. Vol. 49. No. 1. Pp. 3-71.

Atkinson, A. B. (2015). *Inequality: What Can Be Done?*. Cambridge. Harvard University Press.

Atkinson, A. B., & Brandolini, A. (2015). "Unveiling the Ethics Behind Inequality Measurement: Dalton's Contribution to Economics". *Economic Journal*. 125(583). 209–234.

Auty, R. M. (2001). *Resources Abundance and Economic Development*. Oxford. Oxford University Press.

Bentham, J. (1907): *An Introduction to the Principles of Morals and Legislation*. Oxford. Clarendon Press.

Barber, B. (1995). "All Economies are "Embedded": The Career of a concept and Beyond". *Social Research*. Vol. 62. No.2. Pp. 387-413.

Barker, E. (1947). *Social Contract: Essays by Locke, Hume and Rousseau*. Oxford. Oxford University Press.

Baron, J. N. (1994). "Reflections on Recent Generations of Mobility Research". Pp. 384-393 in *Social Stratification: Class, Race, and Gender in Sociological Perspective*. (Grusky D. B. (ed.)). Boulder. Westview Press.

Barrientos, A. (2004). "Latin American: Towards a Liberal-informal Welfare Regime". In *Insecurity and Welfare Regimes in Asia, Africa and Latin America: Social Policy in Development Contexts* (Gough I., & Wood, G. (eds.)). Cambridge: Cambridge University Press. Pp. 121-168.

Baumann, R. (2001). "Brasil en los Años Noventa: una Economía en Transición" Santiago de Chile. ECLAC. United Nations. *Revista CEPAL*. Vol. 73. Pp. 149-172.

Berg, A.; Ostry, J.D (2011). "Inequality and Unsustainable Growth: Two Sides of the Same Coin? IMF Staff Discussion Note 11/08. Washington DC: IMF. Retrieved from: <https://www.imf.org/external/pubs/ft/sdn/2011/sdn1108.pdf>

Beyme, K. (1994). " Verfehlte Vereinigung - Verpaßte Reformen?: zur Problematik der Evaluation der Vereinigungspolitik in Deutschland seit 1989". *Journal für Sozialforschung*. Vol. 34. No.3. Pp. 249-269.

Bielchowski, R. (2009). "Sesenta años de la CEPAL: Estructuralismo y Neoestructuralismo". Santiago de Chile. ECLAC. United Nations. *Revista CEPAL*. Vol. 97. Pp. 173-194.

Block, F. (2003). "Karl Polanyi and the Writing of the Great Transformation". *Theory and Society*. Vol. 23. No. 3. 275-306.

Bourdieu, P. (1984). *Distinction: A Social Critique of the Judgment of Taste*. Cambridge. Harvard University Press.

Bourdieu, P. (1986). "The Forms of Capital" Pp. 241–58 in *Handbook of Theory and Research for the Sociology of Education* (Richardson. J. G (ed.)). New York. Greenwood Press.

Bourdieu, P. (1990). *The Logic of Practice*. Translated by Richard Nice. Stanford. Stanford University Press.

Bourdieu, P. (2001). *Masculine Domination*. Stanford. Stanford University Press.

Bradley, D.; Huber, H.; Moller, S.; Nielsen, F.; Stephens, J. (2003). "Distribution and Redistribution in Post-industrial Democracies". Cambridge. Cambridge University press. *World Politics* Vol. 55. No. 2

(January). Pp. 193–228. Retrieved from: <https://www-jstor-org.sire.ub.edu/stable/pdf/25054218.pdf>

Bundesagentur für Arbeit (BA) (2013). "Sozialversicherungspflichtig Beschäftigte Arbeitsmarkt". Statistisches Bundesamt: www.destatis.de

Caïs, J. (1997). Metodología del Análisis Comparativo. Madrid. Colección Cuadernos Metodológicos. CIS.

Card, D.; Lemieux, T.; and Riddell W.C. (2004). "Unions and Wage Inequality". Journal of Labor Research. Vol. 25. Pp. 519–562.

Cardoso Machado, Nuno M. (2011). "Karl Polanyi and the New Economic Sociology: Notes of the Concept of (Dis) embeddedness". Revista Crítica de Ciências Sociais. No. 3.

Casey, C. (1995). Work, Self, and Society. London. Routledge.

Ceriani, L.; Verme, P. (2012). "The origins of the Gini index: extracts from Variabilità e Mutabilità (1912) by Corrado Gini". The Journal of Economic Inequality. Springer. Society for the Study of Economic Inequality. Vol. 10 (3). Pp. 421-443.

CESifo DICE REPORT (2008). "Bismarck Versus Beveridge: A Comparative of Social Insurance Systems in Europe". Journal for Institutional Comparatives. Vol. 6. No. 4. Pp. 69-71.

Clements, B. J. (1997). "Income Distribution and Social Expenditure in Brazil". Washington DC. IMF Working Paper No. 97/120. Pp. 1-33.

Coleman, J. S. (1990). Foundations of Social Theory. Cambridge. Harvard University Press.

Conde Ruiz, J. I.; Profeta, P. (2007). "The Redistributive Design of Social Security Systems". The Economic Journal. Vol. 117 (April). Pp. 686–712.

Corcoran, Mary, and Terry Adams (1997). "Race, Sex, and the Intergenerational Transmission of Poverty." Pp. 46. 1-5. 17. In Consequences of Growing Up Poor (eds. Duncan. G. J. and Brooks-Gunn. J.). New York: Russell Sage Foundation.

Cornel, B. (2013). "Brazil's Liberal Neo-developmentalism: New Paradigm or Edited Orthodoxy?". Review of International Political Economy. Vol. 20. No. 2. Pp. 298-331.

Cortés Rodas, F. (2010). "El Contrato Social liberal: John Locke". Co-herencia. Vol.7. No. 13. Pp. 99-132. Retrieved from: http://www.scielo.org.co/scielo.php?pid=S1794-58872010000200005&script=sci_arttext&lng=es.

Credit Suisse (2018): Global Wealth Databook 208. Zürich. Research Institute Credit Suisse.

Cremer, H. and P. Pestieau, (2003). "Social Insurance Competition between Bismarck and Beveridge". Journal of Urban Economics. Vol. 54. Pp. 181–96.

Crotty, James (2008). "Structural Causes of the Global Financial Crisis: A critical Assessment of the New Financial Architecture". Working Paper. University of Massachusetts. Department of Economics. No. 2008-14. Retrieved from: <http://www.econstor.eu/bitstream/10419/64158/1/594053420.pdf>

Dahrendorf, R. (1959). Class and Class Conflict in Industrial Society. Stanford. Stanford University Press.

Dahrendorf, R. (2008). The Modern Social Conflict. New Jersey. Transaction Publishers.

Dalton, H. (1920): "Source the Measurement of the Inequality of Incomes". Economic Journal. Vol. 30. No. 119. Pp. 348-361.

Davis, K. (1953). "Reply". American Sociological Review. Vol.18. Pp. 394-97.

Dauderstädt, M. / Keltek C. (2011). "Globale Ungleichheit: 50:1 für die Reichen". Bonn. WISO direkt. Analysen zur Wirtschafts- und Sozialpolitik. Retrieved from <http://library.fes.de/pdf-files/wiso/08017.pdf>

De Ferranti, D.; E. Perry, G.; H.G. Ferreira, F; and Michael Walton (2004). "Inequality in Latin America: Breaking with History?". Washington DC. The World Bank Latin American and Caribbean studies. Retrieved from: http://www.cepal.org/ilpes/noticias/paginas/7/29107/inequality_latina_america_complete.pdf

Di Filippo, A. (2009). "Estructuralismo Latinoamericano y Teoría Económica" Santiago de Chile. ECLAC. United Nations. Revista CEPAL. Vol. 98. Pp. 181-202.

Di Stasio, V., & Solga, H. (2017). "Education as social policy: An introduction". Journal of European Social Policy.

Drucker, P. (1993). Post-Capitalist Society. New York: Harper.

Duffy, G. (2013). Brazil Unrest: "'Million' Join Protests in 100 Cities". BBC. Retrieved from <https://www.bbc.com/news/world-latin-america-22992410>

ECLAC (2002). Social Panorama of Latin America 2001-2002. Santiago de Chile. United Nations Publications.

ECLAC (2012). Structural change for equality An Integrated Approach to Development. Santiago de Chile. United Nations Publications: Thirty-fourth Session of ECLAC.

ECLAC, ILO, UNDP (2008). "Emprego, Desenvolvimento Humano e Trabalho Decente: A Experiência Brasileira Recente". General coordinator: Baumann, R.

ECLAC (2014). "Nuevas Instituciones para la Innovación: Prácticas y Experiencias en América Latina". Santiago de Chile. ECLAC. United Nations. Working Document No. 601.

Eichhorst, W.; Marx, P. (2009). "Reforming German Labour Market Institutions: a Dual Path to Flexibility". IZA discussion papers. No. 4100. Retrieved from: <http://repec.iza.org/dp4100.pdf>.

Erikson, R.; Goldthorpe, J. H. (1992). The Constant Flux: A Study of Class Mobility in Industrial Societies. Oxford: Clarendon Press.

Esping-Andersen, G. (1990). The Three Worlds of Welfare Capitalism. Princeton. Princeton University Press.

Esping-Andersen, G. (1999). Reestructuración de la Protección Social y Nuevas Estrategias de Reforma en los Países Adelantados. R. Franco (Ed.). In *Sociología Del Desarrollo Políticas Sociales y Democracia* (pp. 189 – 203). México D.F.: Siglo Veintiuno.

Eurostat (2017). "Gini Coefficient of Equivalised Disposable Income". EU-SILC survey. Code: ilc_di12. Retrieved from: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_di12

Fajnzylber, F. (1990). "Industrialization in Latin America: From the "black box" to the "empty box": a comparative of contemporary industrialization patterns". Santiago. Chile: United Nations. Economic Commission for Latin America and the Caribbean.

Feige, E. L. (1990). "Defining and Estimating Underground and Informal Economies: The New Institutional Economics Approach." *World Development* Vol. 18. No. 7. Pp. 989-1002.

Ferrera, M.; Hemerijck, A. & Rhodes, M. (2001). "The Future of the European "Social Model" in the Global Economy". *Journal of Comparative Policy Analysis*. Vol. 3. No.2. Pp. 163–190.

Filgueira, C.; Filgueira, F. (2002). Notas sobre Política Social em América. INDES. BID. Washington DC. Mimeo.

Filgueira, F. (1998). El Nuevo Modelo de Prestaciones Sociales en América Latina: Eficiencia, Residualismo y Ciudadanía Estratificada. In B. Roberts (ed.). Ciudadanía y política social. San José. Flacso/ssrc. Pp. 71-116.

Filgueira, F. (2005). Welfare and Democracy in Latin America: The Development, Crises and Aftermath of Universal, Dual and Exclusionary Social States. Geneva: United Nations Research Institute for Social Development.

Fisher, W. (1997). The Economic Development of Germany Since 1870 (Vol. 1). Cheltenham. Edward Elgar Publishing.

Fleury, S. (2011). "The Hidden Welfare State in Brazil". Paper presented at the IPSA Seminar Whatever happened to North-South. Panel Development and Welfare Regime. São Paulo. University of Saõ Paulo.

Fleury, S. (2017). "The Welfare State in Latin America: Reform, Innovation and Fatigue". Cadernos de Saúde Pública. Vol. 33. No. 2.

Foster, J. (2012). "Income Inequality, Welfare Spending, and Globalization". All Graduate Plan B and other Reports. Utah State University. Paper 162. Retrieved from <https://digitalcommons.usu.edu/gradreports/162>

Furtado, C. (1966). "Desarrollo y Estancamiento en América Latina". Desarrollo Económico. Vol. VI Nº 22-23.

Gerry, Chris, (1978). "Petty Production and Capitalist Production in Dakar: The Crisis of the Self-Employed". World Development. Vol. 6. Pp. 1187-1198.

Gerschenkron, A. (1962). Economic Backwardness in Historical Perspective: A Book of Essays, Cambridge. MA: Belknap Press of Harvard University Press.

Giddens, A. (1973). The Class Structure of the Advanced Societies. London. Hutchinson.

Goldthorpe, J H. (1980). Social Mobility and Class Structure in Modern Britain. Oxford. Clarendon Press.

- Goldthorpe, J H. (2000). *On Sociology: Numbers, Narratives and the Integration of Research and Theory*. Oxford. Oxford University Press.
- Gough, I.; Bradshaw, J.; Ditch, J., Eardley, T. & Whiteford, P. (1997). "Social Assistance in OECD Countries". *Journal of European Social Policy*. Vol. 7. No. 1. Pp. 17–43.
- Gough, I.; Geof, W. (ed.) (2004). *Insecurity and Welfare Regimes in Asia, Africa and Latin America*. Cambridge. Cambridge University Press.
- Granovetter, M. (1985). "Economic Action and Social Structure: The Problem of Embeddedness". *The American Journal of Sociology*. Vol. 91. No.3. Pp. 481-510.
- Green S.; Paterson, W. E. (eds.) (2005). *Governance in Contemporary Germany*. Cambridge: Cambridge University Press. Pp. 138-164.
- Grusky, D.B. (2001). "Social Stratification: Class". Pp. 3-51 in *The Past, Present and Future of Social Inequality* (Dimaggio, P.J. & Warner, W.L. (eds.))
- Hart, K. (1973). "Informal Income Opportunities and Urban Employment in Ghana". *Journal of Modern African Studies* Vol. 11. Pp. 61-89.
- Hart, K. (1990). *The Idea of the Economy: Six Modern Dissenters*. In *Beyond the Marketplace, Rethinking Economy and Society* (eds. Friedland, R. and Robertson A. F.) New York: Aldine de Gruyter. Pp. 137-60.
- Habermas, J. (2011). *The crisis of the European Union: A response*. Cambridge. Polity Press.
- Hacker, J. (2011). "The Institutional Foundations of Middle-class Democracy". London. Policy Network Publication: *Priorities for a new political economy: Memos to the left* (presented to the Progressive Governance Conference in Oslo). Pp. 33-37.
- Hacker, J. (2013). "How to Reinvigorate the Centre-left? Predistribution". *The Guardian*. Retrieved from: <https://www.theguardian.com/commentisfree/2013/jun/12/reinvigorate-centre-left-predistribution>
- Hagenbuch, W. (1971). *Social Economics*. Nisbet. Welwyn.
- Hall, P. a, & Soskice, D. (2001). *Varieties of Capitalism*. International Relations. Oxford. Oxford University Press.

- Heckman, J. (2012). "Promoting Social Mobility". Boston Review. Retrieved from: <http://bostonreview.net/forum/promoting-social-mobility-james-heckman>
- Hirschman, A. O. (1958). *The Strategy of Economic Development*. New Haven. Yale University Press.
- Hirschman, A. O. (1970). *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations and States*. Cambridge. Harvard University Press.
- Huber, E.; Mustillo, T.; Stephens, J. D. (2008). "Politics and Social Spending in Latin America". Chicago. The University of Chicago Press on behalf of the Southern Political Science Association. *The Journal of Politics*. Vol. 70. No. 2. Pp. 420-436. Retrieved from: <http://www.jstor.org/stable/10.1017/s0022381608080407>
- Hume, D. (2003). *Political Essays*. Cambridge. Cambridge University Press.
- IPEA (2016a). "Renda, Desigualdade, Coeficiente de Gini" (DISOC_RDCG). Retrieved from: <http://www.ipeadata.gov.br/>
- IPEA (2016b). "Contribuintes da Previdência Social (%)". DISOC_CONTR. Retrieved from: <http://www.ipeadata.gov.br/>
- IMF (2017). "IMF Fiscal Monitor: Tackling Inequality". *World Economic and Financial Surveys*.
- IFS (2016). "National Accounts Selected Indicators, Brazil, National Accounts, Expenditures, Nominal, Gross Domestic Product, Official Rates". Washington DC. International Monetary Fund. Retrieved from: <http://data.imf.org/>
- Iversen, T.; Cusack, T. R. (1998). "The Causes of Welfare State Expansion: Deindustrialization or Globalization?". Berlin. Social Science Research Centre Berlin. WZB Discussion Paper FSI98 304.
- Keynes, M. (1971). *The Economic Consequences of the Peace*. London. New York. Penguin (1920, reprint)
- Kolmar, M. (2007). "Beveridge versus Bismarck Public-pension Systems in Integrated Markets". *Regional Science and Urban Economics*. Vol. 37. Pp. 68-649.
- Korpi, W.; Palme, J. (1998). "The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries". *American Sociological Review*. Vol. 63. No.5-661.

- Krippner, G. et al. (2004). "Polanyi Symposium: A conversation on Embeddedness". *Socio-Economic Review*. Vol.2. No.1. Pp. 109-135
- Kumhof, M.; Ranciere, R. (2010). "Inequality, Leverage and Crises". *IMF Working Paper*. Vol. 10. No.268. Washington DC.
- Kuznets, S. (1955). "Economic Growth and Income Inequality, *The American Economic Review*". Vol. 45. Pp. 1-28.
- Lareau, A.; Elliot B. W. (2003). "Cultural Capital in Educational Research: A Critical Assessment". *Theory and Society*. Vol.32. No. 5–6. Pp. 567–606.
- Lobato, L. V. C. (2016). "Social Policies and Social Welfare Models: Fragilities of the Brazilian Case. *Saúde em Debate*". Vol. 40. Pp. 87-97.
- Locke, J. (1988). *Two Treatises of Government*. Cambridge. Cambridge University Press.
- Luna, J. P.; Zechmeister, E. J. (2005). „Political Representation in Latin America: A Study of Elite-Mass Congruence in Nine Countries". *Comparative Political Studies*. Vol. 38. No. 4. Pp. 388-416.
- Macbetah, G. (1957). *Can Social Policies be Rationally tested?*. Hobhouse Memorial Trust Lecture. Oxford. Oxford University press.
- Maocourant, J.; Plociniczak, S. (2013). "The Institution, the Economy and the Market: Karl Polanyi's Institutional Thought for Economists". *Review of Political Economy*. Vol. 25. No. 3. Pp. 512-531.
- Marshall, T. H. (1981). *The Right to Welfare and Other Essays*. New York. Free Press.
- Martínez Franzoni, J. (2007). *Regímenes de Bienestar en América Latina*. Madrid. Fundación Carolina
- Marshall, T., & Bottomore, T. (1992). *Citizenship and Social Class*. London. Pluto Press.
- Mesa Lago, C. (2005). *Las Reformas de Salud en América Latina y el Caribe: Su Impacto en los Principios de Seguridad Social*. Santiago de Chile. CEPAL.
- Milanovic, B. (2011). *The Haves and The Have-Nots*. New York. Basic Books.
- Milanovic, B. (2016). *Global Inequality: A New Approach for the Age of Globalization*. Cambridge. Harvard University Press (Belknap Press).
- Miller, D. (2007). *National Responsibility and Global Justice*. Oxford. Oxford University Press. Quotes from Pp. 266–267.

- Mishra, R. 1999. *Globalization and the Welfare State*. Cheltenham: Edward Elgar
- Moore, W. E. (1963). "But Some are More Equal than Others." *American Sociological Review*. Vol.28. Pp. 13-28.
- Morel, N. (2006). "From Subsidiarity to "Free Choice": Child- and Elderly-care Policy Reforms in France, Belgium, Germany and the Netherlands". *Social Policy and Administration*. Vol. 41. No. 6. Pp.618-637.
- MTPS (Ministério Do Trabalho E Previdência Social) (2014). "Anuário Estatístico da Previdência Social". Brasília. Vol.7. Pp. 1-196.
- Myrdal, G. (1953). *The Political Element in the Development of Economic Theory*. Abingdon. Routledge.
- Neri, M. & J. M. Camargo (1999). "Structural Reforms, Macroeconomic Fluctuations and Income Distribution in Brazil". Rio de Janeiro. CEPAL. Serie Reformas económicas. Vol. 39.
- Niehues, J. (2010). "Social Spending Generosity and Income Inequality: A Dynamic Panel Approach". Cologne. University of Cologne and IZA. Discussion Paper No. 5178.
- Nuzzo, R. (2014). Scientific Method: Statistical Errors. *Nature*. Vol. 506. No. 7487. Pp. 150–152.
- Ocampo, J. A. (2011). "Seis Décadas de Debates Económicos Latinoamericanos". Written for the debate in New York: 50 años de políticas económicas y sociales en América Latina. Retrieved from: http://policydialogue.org/files/events/SEGIB-PNUD_Ocampo-final.pdf
- Ocampo, J. A. (2008). "Hirschman, Industrialisation and Development Theory". Bogotá. University of Los Andes. *Desarrollo y Sociedad*. Vol. 62. Pp. 41-65.
- OECD (2011). *Divided We Stand: Why Inequality Keeps Rising*. Paris. OECD Publishing.
- OECD (2016a). "Social Expenditure Database (SOCX)". Retrieved from: <http://stats.oecd.org/>
- OECD (2016b). "Gini (Disposable Income, Post Taxes and Transfers)". Retrieved from: <http://stats.oecd.org/>
- OECD (2017). *OECD Policy Memo: Pension Reform in Brazil*. OECD Publishing. Retrieved from: <http://www.oecd.org/pensions/reforming-brazil-pension-system-april-2017-oecd-policy-memo.pdf>

OECD (2018a). "Social Spending". Retrieved from OECD Data: <https://data.oecd.org/socialexp/social-spending.htm>

OECD (2018b). "Earnings: Gross earnings: decile ratios (Edition 2017)". OECD Employment and Labour Market Statistics.

Oxfam (2014). "Working for the Few, Political Capture and Economic Inequality". Oxford. Oxfam Briefing Paper 178; <http://www.oxfam.org/sites/www.oxfam.org/files/bp-working-for-few-political-capture-economic-inequality-200114-en.pdf>

Palier, B. (2010). A Long Goodbye to Bismarck?: The Politics of Welfare Reform in Continental Europe. Amsterdam. Amsterdam University Press.

Parsons, T. (1970). Equality and Inequality in Modern Society, or Social Stratification Revisited. Pp. 13-72 in Social Stratification: Research and Theory for the 1970s (Edward, O. L. (ed.)) Indianapolis Bobbs-Merrill.

Pereyra, D. M. (2008). Una Visión de la Situación Económica Reciente de América Latina. Buenos Aires. Published by: the Institute for International Cooperation of National University of la Matanza. Retrieved from: http://ici.unlam.edu.ar/downloads/vision_situacion_economica_%20reciente_AL.pdf

Perez-Sainz, J. P. (1992). Informalidad Urbana en América Latina: Enfoques, Problemáticas e Interrogantes. Caracas. Editorial Nueva Sociedad.

Piancastelli, M.; Pereira, F. (1996). "Gasto Público Federal: Análise da Despesa Não-Financeira". Brasília. IPEA. Texto Para Discussão Nº 431.

Pierson, C. (1998). "Contemporary Challenges to Welfare State Development". Political Studies. Vol. 46. No. 4. Pp. 777–794.

Pierson, C. and Castles, F. G. (eds.) (2000). The Welfare State: A Reader. Cambridge: Polity Press.

Piketty, T. (2014). Capital in the Twenty-first century. Cambridge. Massachusetts. The Belknap Press of Harvard University Press.

Pinto, A. (1970). "Naturaleza e Implicaciones de la "Heterogeneidad Estructural" de la América latina". El Trimestre Económico. Vol. 37. No. 145(1). Pp. 83-100.

Polanyi, K. (2001). The Great Transformation: The Political and Economic Origins of our Time. Boston. Beacon Press.

- Portes, A. (1983) "The Informal Sector: Definition, Controversy, and Relation to National Development". Research Foundation of State University of New York Fernand Braudel Center. Vol. 7. No. 1. Pp. 151-174.
- Portes, A.; Castells, M.; Benton, L. (1989). The Policy Implications of Informality. In the Informal Economy: Studies in Advanced and Less Developed Countries. (eds. Portes A.; Castells, M. & Benton L. A., Baltimore). The Johns Hopkins University Press.
- Portes, A. & Haller, W. (2004): "La Economía Informal". Serie Políticas Sociales. Santiago de Chile. División de Desarrollo Social. CEPAL. United Nations
- Prebish, R. (1962). "El Desarrollo Económico de la América Latina y algunos de sus Principales Problemas". Boletín económico de América Latina. Vol. 7. No. 1 Santiago de Chile. CEPAL. United Nations. Reedited version of the article published in 1950.
- Queiroz, B. L., Figoli, M. G. B. & Gonçalves, M. (2010). "The Social Protection System for the Elderly in Brazil". In Workshop Country Study on Aging in Brasília. Brazil. Retrieved from <http://paa2011.princeton.edu/papers/110746>
- Ragin. C. C. (1987). The Comparative Method: Moving Beyond Qualitative and Quantitative Strategies. Berkeley. University of California Press.
- Rama, J. (1987). Desarrollo y Educación en América Latina y el Caribe. CEPAL, UNESCO & UNDP. Editorial Kapeluz.
- Ramos, J. A. (2002). "Las Políticas del Mercado de Trabajo y su Evaluación en Brasil". Santiago de Chile. CEPAL. United Nations. Serie Macroeconomía del Desarrollo. Vol. 16.
- Rawls, J. (2006). A Theory of Justice: Revised Edition (Vol. 5). Cambridge. Belknap.
- Raworth, K. (2018): Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. London. Cornerstone.
- Ricardo, D. (1817). On the Principles of Political Economy and Taxation. Indianapolis. Library of Economics and Liberty. Retrieved from: <http://www.econlib.org/library/Ricardo/ricP.html>.
- Rostow, W. W. (1962). The Stages of Economic Growth. London. Cambridge University Press.
- Norman, R. (1987). Free and Equal: A Philosophical Examination of Political Values. Oxford University Press.

- Naidu, S.; Rodrik, D. & Zucman, G. (2019). "Economics for Inclusive Prosperity: An Introduction, Economists for Inclusive Prosperity". Policy Brief 1. Retrieved from: <https://econfip.org/wp-content/uploads/2019/02/1.Economics-for-Inclusive-Prosperity-An-Introduction.pdf>
- Rudra, N. (2004). "Openness, Welfare Spending, and Inequality in the Developing World". Published by: Wiley on behalf of The International Studies Association. *International Studies Quarterly*. Vol. 48. No. 3. Pp. 683-709. Retrieved from: <http://www.jstor.org/stable/3693528>.
- Sala-i-Martin, X. (1996). "A Positive Theory of Social Security, *Journal of Economic Growth*". Boston. Kluwer Academic Publishers. Vol. 1. No. 2. Pp. 277-304.
- Scapparone, P. (2017). "Manual of Political Economy, A Critical and Variorum". Edited by Vilfredo Pareto. *The European Journal of the History of Economic Thought*. Vol. 24. No. 2. Pp. 399–402.
- SEDLAC and The World Bank (2016). "Education, Net enrolment rates: secondary school". Retrieved from: <http://sedlac.econo.unlp.edu.ar/eng/statistics-detalle.php?idE=37>
- SEDLAC and The World Bank (2018). "Poverty. USD-2.5-a-day Poverty Line (2005 PPP)". Retrieved from: <http://sedlac.econo.unlp.edu.ar/eng/statistics-detalle.php?idE=37>
- Seeleib-Kaiser, M.; Van Dyk, S.; Roggenkamp, M. (2008). *Party Politics and Social Welfare: Comparing Christian and Social Democracy in Austria, Germany and the Netherlands*. Cheltenham. Edward Elgar Publishing.
- Sen, A. (1970). *Collective Choice and Social Welfare*. San Francisco. California. Holden-Day.
- Sen, A. (1981). *Poverty and Famines: An Essay on Entitlement and Deprivation*. London. Oxford University Press.
- Sen, A. (1992). *Inequality Re-examined*. New York. Clarendon Press.
- Senra, K. V. (2010). "Políticas e Instituições para Desenvolvimento Econômico Territorial: O Caso do Brasil". Santiago de Chile. CEPAL. United Nations. *Serie Desarrollo Territorial*. Vol. 8.
- Serra, J.; Tavares, M. C. (1998). "Más Allá del Estancamiento: Una Discusión Sobre el Estilo de Desarrollo Reciente en Brasil". Santiago de Chile. CEPAL. United Nations. *Cincuenta Años de Pensamiento en la CEPAL*. Vol. 2. Pp. 101-118.
- Sethuraman, S. V. (1981). *The Urban Informal Sector in Developing Countries*. Geneva. International Labour Office.

- SIAFI (2016). "Despesas da União por Função - 1980 a 2016". Retrieved from: <https://www.tesouro.fazenda.gov.br/series-historicas>
- Silvia, S. J. (1997). "German Re-unification and Emerging Divisions within German Employers' Associations." *Comparative Politics*. Vol. 29. No. 2 (January). Pp. 194-199.
- Sørensen, A. B. (2000). "Toward a Sounder Basis for Class Analysis". *American Journal of Sociology*. Vol.105. No. 6. Pp. 523–558.
- Standing, G. (2011): *The Precariat*. New York. Bloomsbury Publishing.
- Steinmo, S.; Thelen, K. and Longstreth, F. (1992). *Structuring Politics: Historical Institutionalism in Comparative Perspective*. New York. Cambridge University Press.
- Stiglitz, J. (2002). *Globalisation and its Discontents*. London. Penguin Books.
- Stiglitz, J. (2012). *The Price of Inequality: How Today's Divided Society Endangers Our Future*. New York. W.W. Norton & Company.
- Stiglitz, J. (2013). "Inequality is a choice". *New York Times*. 13rd October 2013. Retrieved from: http://opinionator.blogs.nytimes.com/2013/10/13/inequality-is-a-choice/?_r=0
- Stockhammer, E. (2013). "Why have Wage Shares Fallen? A Panel Analysis of the Determinants of Functional Income Distribution". Geneva. *Conditions of Work and Employment*. Series No. 35. International Labour Organisation. Retrieved from: http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/publication/wcms_202352.pdf
- Streeck, W. (1995). "German Capitalism: Does it Exist? Can it Survive?". *New Political Economy*. Vol. 2. No. 2. retrieved from: http://www.mpifg.de/pu/mpifg_dp/dp95-5.pdf
- Streeck, W.; Yamamura, K. (2003). *The End of Diversity?: Land Beyond Time: Prospects for German and Japanese Capitalism*. Ithaca. Cornell University Press.
- Streeck, W.; Hassel, A. (2004). *The Crumbling Pillars of Social Partnership*. In pp. 101-124 *Beyond the Stable State* Kitschelt, H. & Streeck, W. (eds.). London. Frank Cass.
- Streeck, Wolfgang (2003). "Industrial Relations: From State Weakness as Strength to State Weakness as Weakness". MPIfG Working Paper 03/2. Max Planck Institute for the Study of Societies.
- Streeck, W.; Thelen, K. (2005). *Beyond Continuity: Institutional Change in Advanced Political Economies*. Oxford. Oxford University Press.

Streeck, W. (2008). "Economic Sociology and Political Economy: a programmatic perspective". Max-Planck Institute für Gesellschaftsforschung. MPIfG Working Paper 08/4. 7

Streeck, W. (2010): Re-Forming Capitalism: Institutional Change in the German Political Economy. New York. Oxford University Press.

Streeck, W. (2016). How Will Capitalism End?: Essays on a Failing System. New York. Verso

Sunkel, O. (1991). "Del Desarrollo hacia Adentro al Desarrollo desde Dentro". Revista Mexicana de Sociología. Universidad Nacional Autónoma de México. Vol. 53. No. 1. Pp. 3-42.

Swanson, G. (1971). Frameworks for Comparative Research: Structural Anthropology and Theory of Action. In Comparative Methods in Sociology: Essays on Trends and Applications (ed. Vallier, I.). Berkeley. University of California Press.

Titmuss, R. M. (1974). Social Policy: An Introduction. New York. Pantheon Books: A Division of Random House.

Ubasart-González, G. & Minteguiaga, A. (2017). "Esping-Andersen en América Latina: El Estudio de los Regímenes de Bienestar. Política y gobierno". Vol. 24. No. 1. Pp. 213-236.

UNDESA (2008). "The Millennium Development Goals Report". New York. United Nations Publication. Retrieved from: [http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20\(July%201\).pdf](http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%201).pdf)

UNDESA (2013). "Inequality Matters Report of the World Social Situation 2013". New York. United Nations Publication. Retrieved from: <http://www.un.org/esa/socdev/documents/reports/InequalityMatters.pdf>

UNDESA (2015). "Inequality Measurement". Development Issues No. 2. New York. United Nations Publication. Retrieved from: http://www.un.org/en/development/desa/policy/wess/wess_dev_issues/dsp_policy_02.pdf

Unger, B., Hall, P. A., Reisenbichler, A., Morgan, K. J., Streeck, W., Scharpf, F. W., ... Sauramo, P. (2015). The German Model: Seen by its Neighbours, SE publishing.

Vallas, R.; Weller, C. E.; West, R. & Odum, J. (2015). "The Effect of Rising Inequality on Social Security". Centre for American Progress. Vol. February. Retrieved from:

<https://www.americanprogress.org/issues/economy/reports/2015/02/10/106373/the-effect-of-rising-inequality-on-social-security/>

Weber, M. (1968). *Economy and Society*. Berkeley. University of California Press.

Weininger, E. B. (2002). "Class and Caution in Bourdieu". Pp. 49–114 in *Current Perspectives in Social Theory*. Vol. 21. Edited by Jennifer Lehmann. Amsterdam. JAI Press.

World Bank (2016). "World Development Indicators, Gross Enrolment Ratio, Secondary, both Sexes (%), SE.SEC.ENRR". Retrieved from: <http://data.worldbank.org/indicator/SE.SEC.ENRR?locations=DE>

World Bank (2018a). "Poverty & Equity Databank, Poverty Headcount Ratio at \$1.90 a Day (2011 PPP) (% of population), SI.POV.DDAY". Retrieved from: <http://povertydata.worldbank.org/poverty/country/BRA>

World Bank (2018b). "World Development Indicators, GDP (current US\$), NY.GDP.MKTP.CD". Retrieved from: <http://databank.worldbank.org/data/reports.aspx?source=2&series=NY.GDP.MKTP.CD&country=DEU#>

World Bank (2018c). "World Development Indicators, GINI index (World Bank estimate), SI.POV.GINI". Retrieved from: <http://databank.worldbank.org/data/reports.aspx?source=2&series=NY.GDP.MKTP.CD&country=DEU#>

World Bank (2019). "Growing in the Shadow Challenges of Informality". In *Global Economic Prospects*. Vol. January. Pp. 129-195. Washington DC: World Bank.

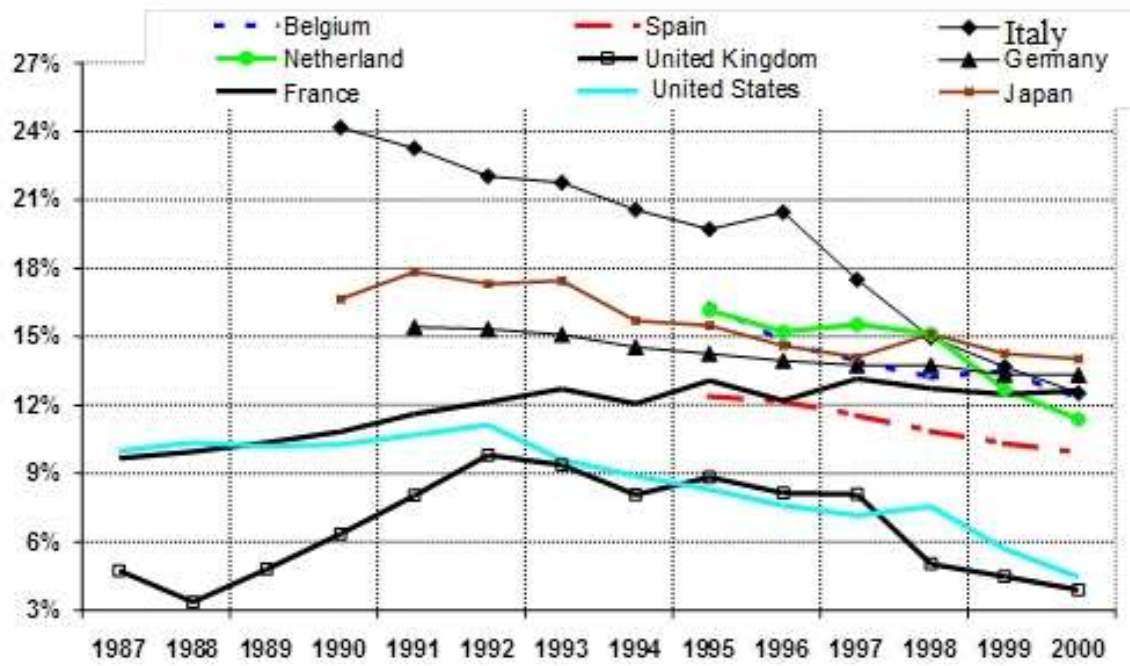
Wright, E. O. (1985). *Classes*. London. Verso.

Wright, E. O. (2005). *Approaches to Class Analysis*. Cambridge: Cambridge University Press.

Yamamura, K. & Streeck, W. (2003). *The End of Diversity? Prospects for German and Japanese Capitalism*. Ithaca. Cornell University Press.

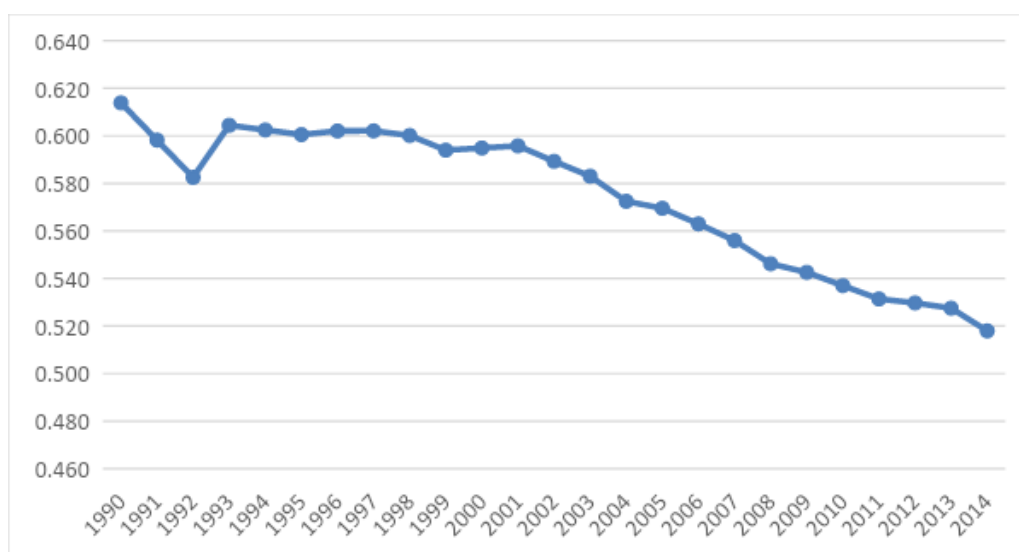
APPENDIX

1. Household saving rate: Gross (including FCC), in % of adjusted disposable income



Source: OECD (2002): The Various Measures of the Saving Rate and their Interpretation

2. Income inequality 1990 - 2014 (BRAZIL) Gini coefficient



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
------	------	------	------	------	------	------	------	------	------	------	------

0,61	0,60*	0,58	0,60	0,60*	0,60	0,60	0,60	0,60	0,59	0,59*	0,60
------	-------	------	------	-------	------	------	------	------	------	-------	------

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
------	------	------	------	------	------	------	------	------	------	------	------

0,59	0,58	0,57	0,57	0,56	0,56	0,55	0,54	0,54*	0,53	0,53	0,53
------	------	------	------	------	------	------	------	-------	------	------	------

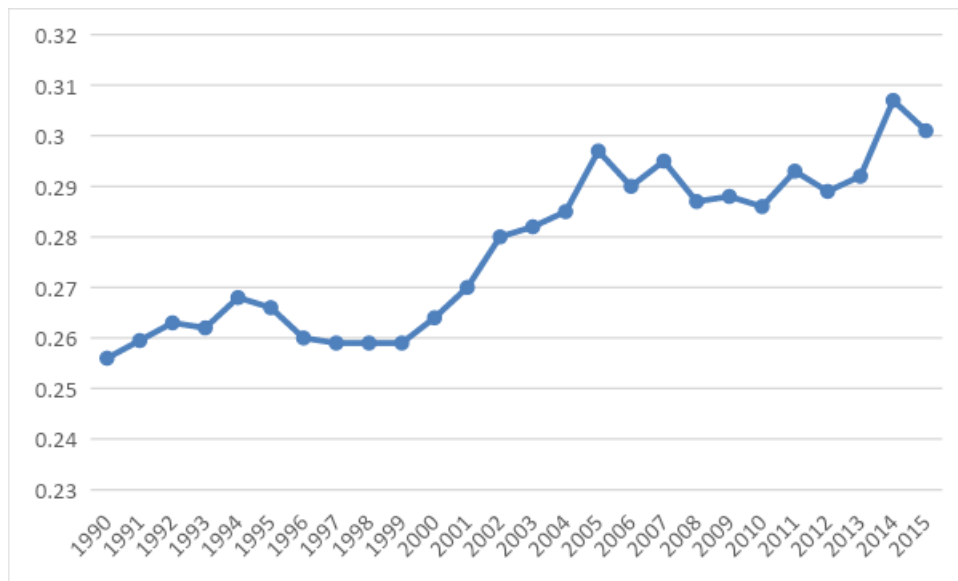
2014	2015	2016
------	------	------

0,52

*Parameter estimated by mean imputation

Source: (IPEA, 2016a)

3. Income inequality 1990 – 2015 (GERMANY) Gini coefficient



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
0,26	0,26*	0,26	0,26	0,27	0,27	0,26	0,26	0,26	0,26	0,26	0,27

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
0,28	0,28	0,29	0,30	0,29	0,30	0,29	0,29	0,29	0,29	0,29**	0,29**

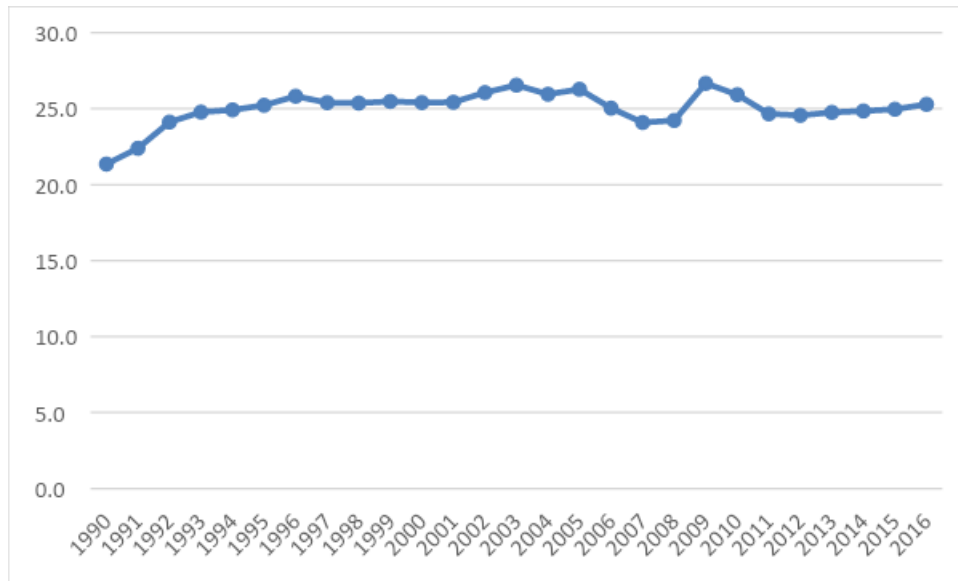
2014	2015	2016
0,31**	0,30**	

*Parameter estimated by mean imputation

**New income definition OECD

Source: From 1990 to 2013: (OECD, 2016b) From 2014 to 2015: (Eurostat, 2017)

4. Social expenditure 1990 - 2016 (GERMANY) in percentage of GDP



2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
26,1	26,6	26,0	26,3	25,0	24,1	24,2	26,7	25,9	24,7	24,6	24,8

2014	2015	2016
24,9	25,0	25,3

Source: Social expenditure database (OECD, 2016a).

5. Total public expenditure in Brazil by function (2015)



DESPESA DA UNIÃO POR FUNÇÃO

ORÇAMENTOS FISCAL E DA SEGURIDADE SOCIAL

JANEIRO A DEZEMBRO DE 2015

R\$

FUNÇÃO	DESPESA LIQUIDADADA	INSCRITAS EM RP NÃO PROCESSADOS
	Valor Nominal	Valor Nominal
Legislativa	5.914.445.039,23	337.799.360,60
Judiciária	25.500.561.021,94	1.837.304.900,62
Essencial à Justiça	4.944.738.638,56	497.000.496,90
Administração	18.264.588.405,24	1.056.104.872,98
Defesa Nacional	32.888.538.143,99	5.271.346.071,02
Segurança Pública	6.865.839.396,32	1.134.980.108,79
Relações Exteriores	2.958.007.169,19	54.585.367,01
Assistência Social	69.176.728.067,03	2.510.089.028,72
Previdência Social	513.582.768.598,34	596.454.664,65

Saúde	92.154.111.989,26	7.446.839.176,58
Trabalho	65.089.574.582,72	1.975.353.191,67
Educação	78.288.377.029,24	10.771.018.698,09
Cultura	783.592.370,10	965.054.347,53
Direitos da Cidadania	635.295.114,26	564.598.529,07
Urbanismo	1.083.901.568,70	3.186.515.990,65
Habitação	2.391.943,72	66.216.485,77
Saneamento	259.588.717,48	833.198.740,80
Gestão Ambiental	2.813.691.102,50	1.721.300.075,35
Ciência e Tecnologia	5.807.384.531,11	1.958.001.828,61
Agricultura	17.132.890.604,06	3.059.808.404,56
Organização Agrária	1.558.020.857,25	1.359.752.597,23
Indústria	1.790.798.543,65	215.796.921,20
Comércio e Serviços	1.102.064.557,31	3.062.147.858,53
Comunicações	1.074.339.704,96	161.090.519,72
Energia	1.467.103.038,49	280.453.444,35
Transporte	9.521.702.809,63	5.260.937.151,84
Desporto e Lazer	651.420.843,63	1.375.709.540,93
Encargos Especiais ²	685.207.793.790,4 1	17.165.051.515,36
SUBTOTAL	1.646.520.258.178 ,31	74.724.509.889,14

Encargos Especiais - Refinanciamento	571.628.348.415,37	-
Refinanciamento da Dívida Mobiliária	463.280.404.726,45	-
Correção Monetária e Cambial da Dívida Mobiliária	105.827.951.604,56	-
Refinanciamento da Dívida Contratual	2.519.992.084,36	-
Correção Monetária e Cambial da Dívida Contratada	-	-
TOTAL	2.218.148.606.593,68	74.724.509.889,14

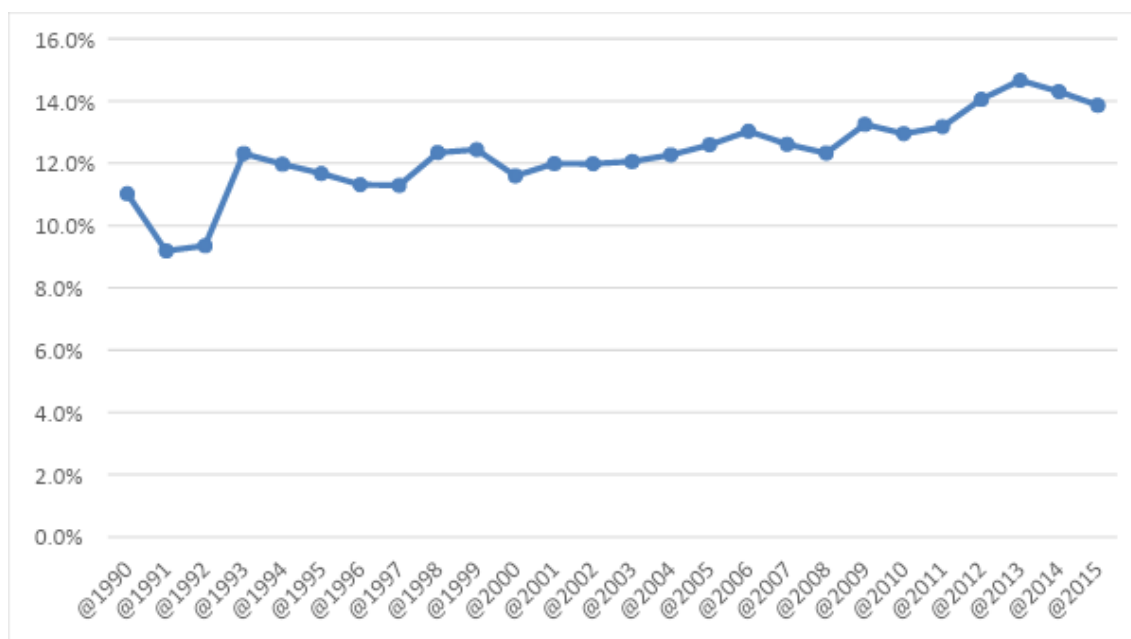
Source: SIAFI - STN/CONT/GEINC

Notes: Excluding intra-budgetary operations, which may be obtained from the Summary Budget Execution Report for the same period.

¹ Value updated based on IGP-DI de 2015/2016 de 1

² Except the amounts referring to the refinancing of the public debt.

6. Social expenditure 1990 - 2016 (BRAZIL) in percentage of GDP



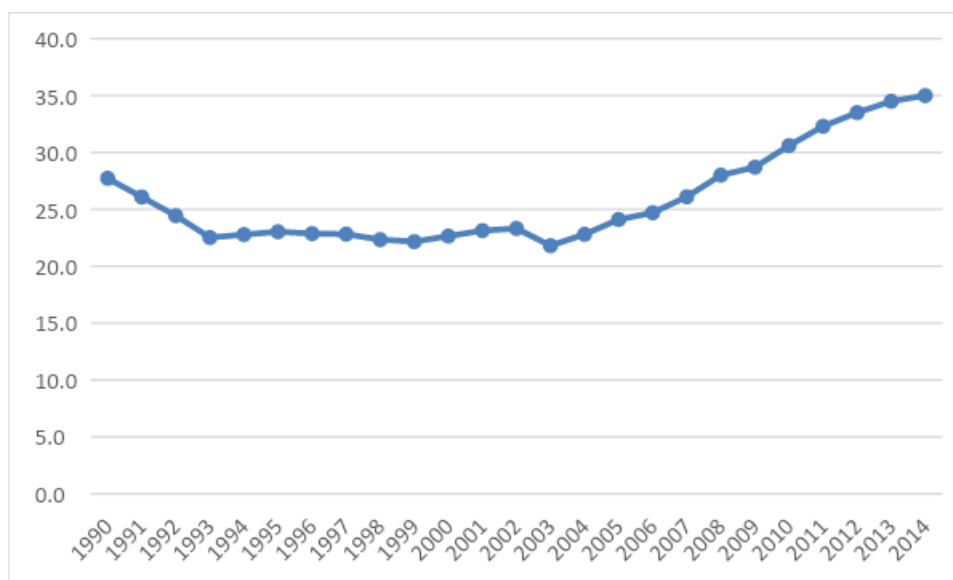
1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
11,0	9,2	9,4	12,3	12,0	11,7	11,3	11,3	12,3	12,4	11,6	12,0

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
12,0	12,1	12,3	12,6	13,0	12,6	12,3	13,3	12,9	13,2	14,1	14,7

2014	2015
14,3	13,9

Source: Own elaboration based on (SIAFI, 2016) for social expenditure; (IFS, 2016) for GDP.

7. Social security contributors (1990 – 2014) for Brazil (% of the total population)



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
27,7	26,1*	24,4	22,5	22,8*	23,0	22,9	22,8	22,3	22,2	22,6*	23,1
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
23,3	21,8	22,8	24,1	24,7	26,1	28	28,7	30,6	32,3	33,5	34,5

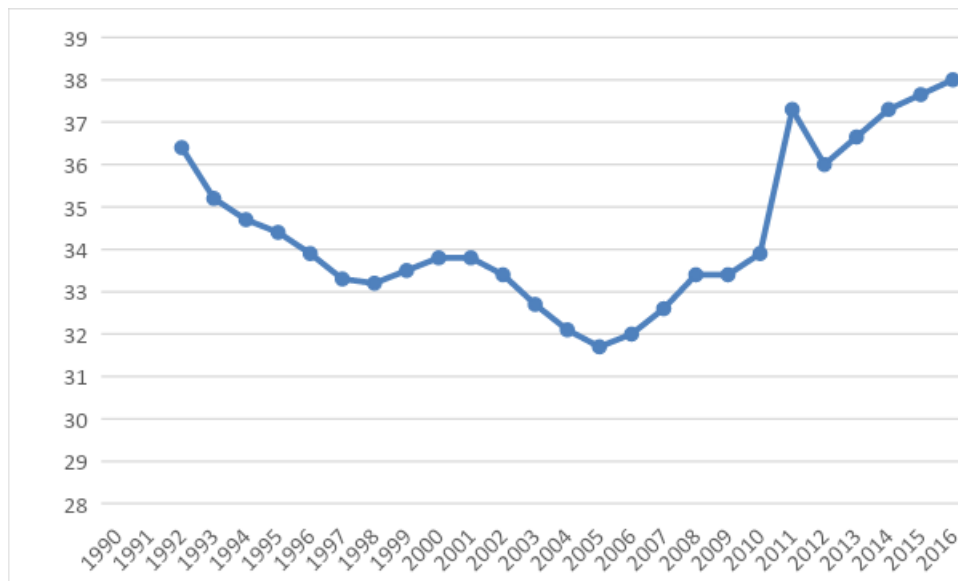
2014

35

*Parameter estimated by mean imputation

Source: from 1990 to 2002: (IPEA, 2016a), from 2002 to 2014: (MTPS, 2014)

8. Social security contributors (1992 – 2016) for Germany (% of the total population)



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
		36,4	35,2	34,7	34,4	33,9	33,3	33,2	33,5	33,8	33,8

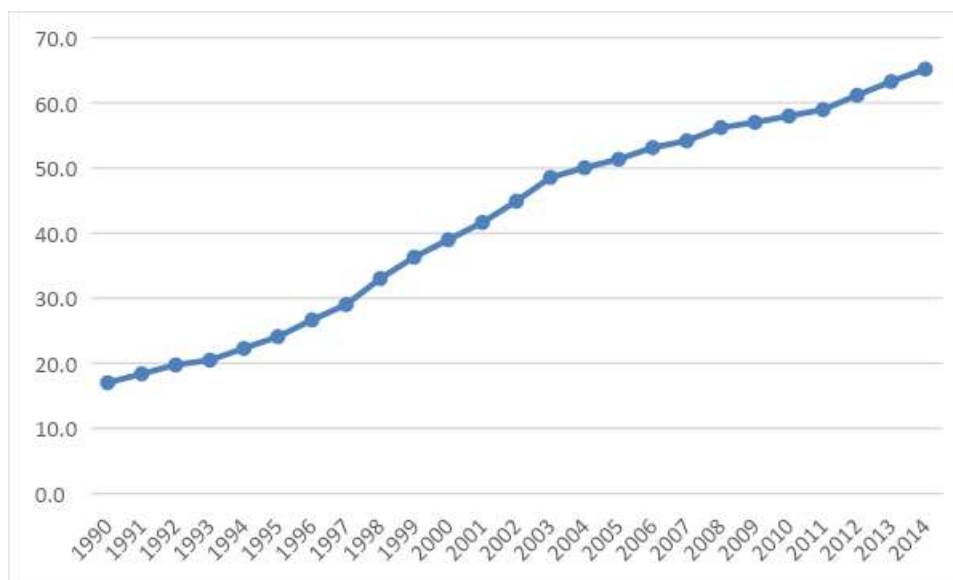
2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
33,4	32,7	32,1	31,7	32	32,6	33,4	33,4	33,9	35,4	36	36,7*

2014	2015	2016
37,3	37,7*	38

*Parameter estimated by mean imputation

Source: (Bundesagentur für Arbeit, 2013)

9. Net enrolment rates secondary school (1990 – 2014): Share of youths in secondary school age attending secondary school (BRAZIL)



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
17,0	18,4*	19,8	20,5	22,3*	24,1	26,7	29,0	33,0	36,3	39,0*	41,6

2002	2003	2004**	2005	2006	2007	2008	2009	2010	2011	2012	2013
44,9	48,5	50,0	51,3	53,1	54,2	56,2	57,0	58,0*	59,0	61,2	63,3

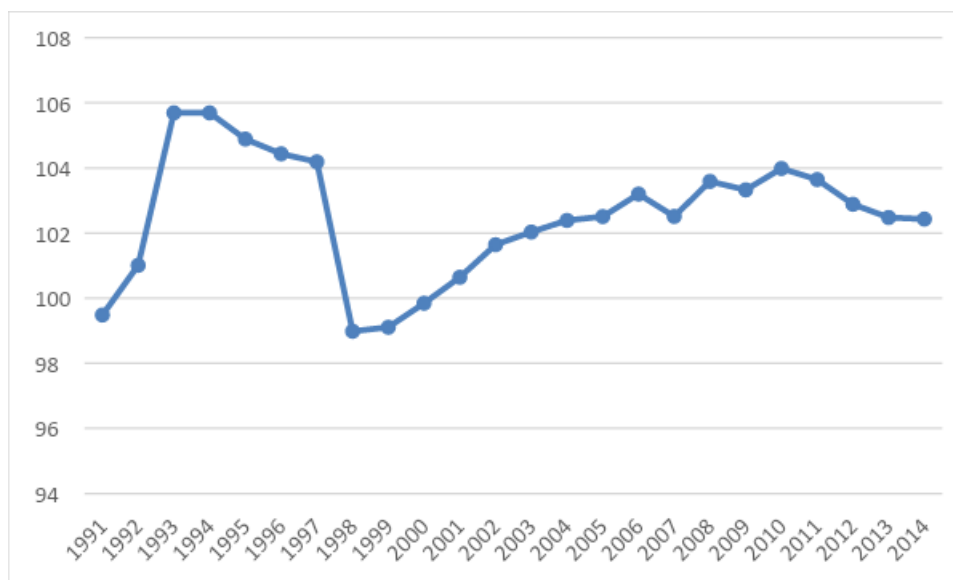
2014

65,2

*Parameter estimated by mean imputation. **From 2004 rural north is included

Source: (SEDLAC and The World Bank, 2016)

10. Gross enrolment ratio (1991 – 2014): expressed as a percentage of the population of official secondary education age (GERMANY)



1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
	99,5	101,0	105,7	105,7	104,9	104,4	104,2	99,0	99,1	99,8	100,6

2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
101,6	102,0	102,4	102,5	103,2	102,5	103,6	103,3	104,0	103,6	102,9	102,5

2014

102,4

* The number can exceed 100% due to the inclusion of over-aged and under-aged students because of early or late school entrance and grade repetition.

Source: (World Bank, 2016)

11. Table of results of Brazil and Germany together. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =       49
Time variable:  years            Number of groups =        2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =       24
Sigma computed by casewise selection      avg =       24.5
                                           max =        25
Estimated covariances =           3      R-squared       =    0.9839
Estimated autocorrelations =         0      Wald chi2(2)    =   3642.30
Estimated coefficients =           3      Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	-.0203783	.0006727	-30.29	0.000	-.0216968	-.0190597
ivsocalsecuritycontributorspopu	-.0030985	.0008559	-3.62	0.000	-.0047761	-.0014209
_cons	.9021781	.0167635	53.82	0.000	.8693223	.9350339

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=49)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial	Semipartial	Partial	Semipartial	Significance Value
	Corr.	Corr.	Corr.^2	Corr.^2	
ivsociale-p	-0.9707	-0.5128	0.9422	0.2630	0.0000
ivsocials-u	-0.4358	-0.0615	0.1900	0.0038	0.0020

12. Table of results of Brazil and Germany together. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =    48
Time variable:  years            Number of groups =    2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =    23
Sigma computed by casewise selection      avg =    24
                                           max =    25
Estimated covariances =    3          R-squared       =  0.9849
Estimated autocorrelations =    0      Wald chi2(3)    =  4617.43
Estimated coefficients =    4          Prob > chi2     =  0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0184286	.0013174	-13.99	0.000	-.0210107	-.0158465	
ivsocalsecuritycontributorspopu	-.0025568	.0010397	-2.46	0.014	-.0045945	-.000519	
cvsecondaryschoolenrolmentpopula	-.0005026	.0003182	-1.58	0.114	-.0011262	.0001211	
_cons	.8851618	.0225849	39.19	0.000	.8408963	.9294274	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondary
(obs=48)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr. ²	Semipartial Corr. ²	Significance Value
ivsociale-p	-0.8700	-0.2171	0.7570	0.0471	0.0000
ivsocials-u	-0.3309	-0.0431	0.1095	0.0019	0.0247
cvsecunda-a	-0.1997	-0.0251	0.0399	0.0006	0.1832

13. Table of results of Brazil and Germany together. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: Gini

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    48
Time variable:  years                   Number of groups =    2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =    24
Sigma computed by casewise selection      avg =    24
                                           max =    24
Estimated covariances =    3            R-squared       =    0.9793
Estimated autocorrelations =    0        Wald chi2(2)    =    3578.76
Estimated coefficients =    3            Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	-.0197582	.0007873	-25.10	0.000	-.0213013	-.0182151
ivsocalsecuritycontributorspopu	-.0037261	.0010487	-3.55	0.000	-.0057815	-.0016706
_cons	.9064823	.0197952	45.79	0.000	.8676844	.9452802

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu
(obs=48)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Coef.	Semipartial Coef.	Partial Coef. ²	Semipartial Coef. ²	Significance Value
ivsociale-g	-0.9611	-0.5014	0.9238	0.2514	0.0000
ivsociale-u	-0.4631	-0.0753	0.2144	0.0057	0.0010

14. Table of results of Brazil and Germany together. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      47
Time variable:  years                  Number of groups =       2
Panels:         correlated (unbalanced) Obs per group:
Autocorrelation: no autocorrelation      min =       23
Sigma computed by casewise selection      avg =      23.5
                                           max =       24
Estimated covariances =      3          R-squared       =    0.9807
Estimated autocorrelations =      0      Wald chi2(3)    =   5049.97
Estimated coefficients =      4          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp_lag	-.0172615	.0014318	-12.06	0.000	-.0200677	-.0144552	
ivsocalsecuritycontributorspopu	-.0027439	.00139	-1.97	0.048	-.0054682	-.0000196	
cvsecondaryschoolenrolmentpopula	-.0006948	.0003894	-1.78	0.074	-.001458	.0000685	
_cons	.880492	.0288783	30.49	0.000	.8238916	.9370924	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=47)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.8261	-0.2036	0.6825	0.0414	0.0000
ivsocials~u	-0.3005	-0.0437	0.0903	0.0019	0.0449
cvsecunda~a	-0.2262	-0.0322	0.0512	0.0010	0.1351

15. Table of results of Brazil and Germany together. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =       47
Time variable:  years            Number of groups =        2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =        23
Sigma computed by casewise selection      avg =       23.5
                                           max =        24
Estimated covariances =           3      R-squared       =    0.9848
Estimated autocorrelations =        0      Wald chi2(2)   =   3455.26
Estimated coefficients =           3      Prob > chi2    =    0.0000

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0194208	.0006676	-29.09	0.000	-.0207293	-.0181123	
ivsocalsecuritycontributorspopu	-.0040157	.0008298	-4.84	0.000	-.005642	-.0023893	
_cons	.9095188	.0158924	57.23	0.000	.8783703	.9406672	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=47)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr. ²	Semipartial Corr. ²	Significance Value
ivsociale-p	-0.9666	-0.4652	0.9344	0.2164	0.0000
ivsocials-u	-0.5165	-0.0744	0.2668	0.0055	0.0002

16. Table of results of Brazil and Germany together. Independent variables: social expenditure and social security contributors control variable: secondary school enrolment dependent variable: Gini lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =       47
Time variable:  years            Number of groups =        2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =       23
Sigma computed by casewise selection     avg =       23.5
                                           max =        24
Estimated covariances =           3      R-squared       =    0.9859
Estimated autocorrelations =         0      Wald chi2(3)    =   4886.89
Estimated coefficients =           4      Prob > chi2     =    0.0000

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0169784	.0011352	-14.96	0.000	-.0192034	-.0147534	
ivsocalsecuritycontributorspopu	-.0030585	.0009113	-3.36	0.001	-.0048446	-.0012723	
cvsecondaryschoolenrolmentpopu	-.0006459	.0002592	-2.49	0.013	-.0011539	-.0001378	
_cons	.8816793	.0191521	46.04	0.000	.8441419	.9192168	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpopu
(obs=47)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr. ²	Semipartial Corr. ²	Significance Value
ivsociale~p	-0.8590	-0.1993	0.7279	0.0397	0.0000
ivsocials~u	-0.3870	-0.0499	0.1498	0.0025	0.0086
cvsecunda~a	-0.2669	-0.0329	0.0712	0.0011	0.0764

17. Table of results of Brazil and Germany together. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      48
Time variable:  years            Number of groups =       2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =      24
Sigma computed by casewise selection      avg =      24
                                           max =      24
Estimated covariances =      3          R-squared       =    0.9983
Estimated autocorrelations =      0      Wald chi2(3)    =  26746.50
Estimated coefficients =      4          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0016929	.0010836	1.56	0.118	-.000431 .0038168
ivsocalsecuritycontributorspopu	-.0003541	.0003232	-1.10	0.273	-.0009875 .0002792
dvincomeinequalitygini01_lag	1.043882	.0503948	20.71	0.000	.9451095 1.142654
_cons	-.0410601	.0458253	-0.90	0.370	-.1308759 .0487558

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu dvincomeir
(obs=48)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2146	0.0091	0.0460	0.0001	0.1521
ivsocials~u	-0.1525	-0.0064	0.0233	0.0000	0.3115
dvincomei~g	0.9457	0.1203	0.8943	0.0145	0.0000

18. Table of results of Brazil and Germany together. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      47
Time variable:  years            Number of groups =       2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =       23
Sigma computed by casewise selection     avg =      23.5
                                           max =       24
Estimated covariances =           3      R-squared       =    0.9985
Estimated autocorrelations =         0      Wald chi2(4)    =   30600.92
Estimated coefficients =           5      Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ivsocialexpendituregdp	.0031286	.0011185	2.80	0.005	.0009365	.0053207
ivsocalsecuritycontributorspopu	.0002907	.0003467	0.84	0.402	-.0003887	.0009702
cvsecondaryschoolenrolmentpopula	-.0003138	.0001164	-2.69	0.007	-.000542	-.0000855
dvincomeinequalitygini01_lag	1.060099	.0476703	22.24	0.000	.9666665	1.153531
_cons	-.0712447	.0438733	-1.62	0.104	-.1572348	.0147454

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondary
> ini01_lag
(obs=47)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	0.3689	0.0152	0.1361	0.0002	0.0137
ivsocials-u	0.1105	0.0043	0.0122	0.0000	0.4751
cvsecunda-a	-0.3460	-0.0142	0.1197	0.0002	0.0214
dvincomei-g	0.9511	0.1183	0.9046	0.0140	0.0000

19. Table of results of Brazil and Germany together. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =    40
Time variable:  years            Number of groups =    2
Panels:        correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =    20
Sigma computed by casewise selection      avg =    20
                                           max =    20
Estimated covariances =    3          R-squared       =    0.9939
Estimated autocorrelations =    0      Wald chi2(3)    =  11594.81
Estimated coefficients =    4          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	-.0127638	.0012535	-10.18	0.000	-.0152207	-.0103069
ivsocalsecuritycontributorspopu	.001767	.0009017	1.96	0.050	-2.94e-07	.0035343
cvsecondaryschoolenrolment_lag5	-.0020654	.0003187	-6.48	0.000	-.0026901	-.0014407
_cons	.7583668	.0243457	31.15	0.000	.7106501	.8060835

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
(obs=40)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.8021	-0.1053	0.6434	0.0111	0.0000
ivsocials~u	0.2915	0.0239	0.0850	0.0006	0.0758
cvsecunda~5	-0.6659	-0.0700	0.4434	0.0049	0.0000

20. Table of results of Brazil and Germany together. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =       40
Time variable:  years                   Number of groups =        2
Panels:         correlated (unbalanced)  Obs per group:
Autocorrelation: no autocorrelation      min =          20
Sigma computed by casewise selection     avg =          20
                                           max =          20
Estimated covariances =          3      R-squared       =    0.9938
Estimated autocorrelations =          0    Wald chi2(3)    =  11463.33
Estimated coefficients =          4      Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.012134	.0011419	-10.63	0.000	-.0143721 -.0098959
ivsocalsecuritycontributorspopu	.0016906	.0009043	1.87	0.062	-.0000818 .003463
cvsecondaryschoolenrolment_lag5	-.0021576	.0003017	-7.15	0.000	-.002749 -.0015662
_cons	.7545045	.0238473	31.64	0.000	.7077646 .8012443

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=40)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.8003	-0.1051	0.6405	0.0110	0.0000
ivsocials~u	0.2772	0.0227	0.0768	0.0005	0.0920
cvsecunda~5	-0.6901	-0.0751	0.4763	0.0056	0.0000

21. Table of results of Brazil and Germany together. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    40
Time variable:  years                   Number of groups =     2
Panels:         correlated {unbalanced}  Obs per group:
Autocorrelation: no autocorrelation      min =    20
Sigma computed by casewise selection      avg =    20
                                           max =    20
Estimated covariances =    3            R-squared       =    0.9989
Estimated autocorrelations =    0        Wald chi2(4)    =   35553.03
Estimated coefficients =    5            Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	-.0001621	.0012578	-0.13	0.897	-.0026273	.0023031
ivsocalsecuritycontributorspopu	.0004615	.0003074	1.50	0.133	-.0001409	.001064
cvsecundaryschoolenrolment_lag5	-.0004687	.0001484	-3.16	0.002	-.0007595	-.0001779
dvincomeinequalitygini01_lag	.8798205	.0730402	12.05	0.000	.7366644	1.022977
_cons	.0718854	.0598971	1.20	0.230	-.0455108	.1892816

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
> tygini01_lag
{obs=40}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.0242	-0.0008	0.0006	0.0000	0.8872
ivsocials~u	0.1801	0.0060	0.0324	0.0000	0.2860
cvsecunda~5	-0.3568	-0.0126	0.1273	0.0002	0.0302
dvincomei~g	0.9080	0.0715	0.8244	0.0051	0.0000

22. Table of results of Brazil. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: country Number of obs = 25
 Time variable: years Number of groups = 1
 Panels: correlated (balanced) Obs per group:
 Autocorrelation: no autocorrelation min = 25
 avg = 25
 max = 25
 Estimated covariances = 1 R-squared = 0.8071
 Estimated autocorrelations = 0 Wald chi2(2) = 104.58
 Estimated coefficients = 3 Prob > chi2 = 0.0000

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0082764	.002578	-3.21	0.001	-.0133293	-.0032235	
ivsocalsecuritycontributorspopu	-.004523	.0007755	-5.83	0.000	-.0060429	-.0030031	
_cons	.7927102	.0253715	31.24	0.000	.742983	.8424375	

.
 . **CORRELATIONS MATRIX
 . pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
 (obs=25)

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	-0.5403	-0.2820	0.2919	0.0795	0.0064
ivsocials-u	-0.7592	-0.5124	0.5764	0.2625	0.0000

23. Table of results of Brazil. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      25
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      25
                                                avg =      25
                                                max =      25

Estimated covariances   =      1      R-squared       =    0.9443
Estimated autocorrelations =      0      Wald chi2(3)    =    423.62
Estimated coefficients   =      4      Prob > chi2     =    0.0000
  
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0027065	.0019696	1.37	0.169	-.0011539 .006567
ivsocalsecuritycontributorspopu	-.0034599	.0004382	-7.90	0.000	-.0043188 -.002601
cvsecondaryschoolenrolmentpopula	-.0012633	.000161	-7.85	0.000	-.0015789 -.0009477
_cons	.6838151	.0194574	35.14	0.000	.6456793 .7219508

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondary
(obs=25)
  
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2650	0.0649	0.0702	0.0042	0.2217
ivsocials~u	-0.8448	-0.3727	0.7137	0.1389	0.0000
cvsecunda~a	-0.8433	-0.3704	0.7112	0.1372	0.0000

24. Table of results of Brazil. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: Gini

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    24
                                           avg =    24
                                           max =    24

Estimated covariances   =    1          R-squared       =    0.8642
Estimated autocorrelations =    0          Wald chi2(2)    =    152.79
Estimated coefficients   =    3          Prob > chi2     =    0.0000
  
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.0048915	.0024302	-2.01	0.044	-.0096546 - .0001283
ivsocalsecuritycontributorspopu	-.0053081	.0006904	-7.69	0.000	-.0066613 - .0039549
_cons	.769163	.0220797	34.84	0.000	.7258875 .8124385

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu
(obs=24)
  
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.3800	-0.1514	0.1444	0.0229	0.0737
ivsocials~u	-0.8433	-0.5782	0.7112	0.3344	0.0000

25. Table of results of Brazil and Germany together. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      24
Time variable:  years                   Number of groups =       1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =      24
                                           avg =      24
                                           max =      24
Estimated covariances =      1          R-squared       =    0.9658
Estimated autocorrelations =      0      Wald chi2(3)    =    677.55
Estimated coefficients =      4          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	.0036356	.001584	2.30	0.022	.0005311	.0067402
ivsocalsecuritycontributorspopu	-.0041473	.0003729	-11.12	0.000	-.0048781	-.0034164
cvsecondaryschoolenrolmentpopula	-.0010966	.0001299	-8.44	0.000	-.0013512	-.0008419
_cons	.6827463	.0150893	45.25	0.000	.6531719	.7123207

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=24)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	0.4243	0.0867	0.1800	0.0075	0.0491
ivsocials-u	-0.9152	-0.4199	0.8375	0.1763	0.0000
cvsecunda-a	-0.8649	-0.3187	0.7480	0.1015	0.0000

26. Table of results of Brazil. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    24
                                           avg =    24
                                           max =    24

Estimated covariances   =    1          R-squared       =    0.8093
Estimated autocorrelations =    0          Wald chi2(2)    =    101.85
Estimated coefficients  =    3          Prob > chi2     =    0.0000
    
```

	DVlead	Panel-corrected				
		Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
	ivsocialexpendituregdp	-.009445	.0025245	-3.74	0.000	-.014393 - .004497
	ivsocalsecuritycontributorspopu	-.0047408	.0007995	-5.93	0.000	-.0063078 - .0031738
	_cons	.8083885	.0263762	30.65	0.000	.756692 .860085

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=24)
    
```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.6069	-0.3335	0.3684	0.1112	0.0021
ivsocials~u	-0.7709	-0.5286	0.5943	0.2794	0.0000

27. Table of results of Brazil. Independent variables: social expenditure and social security contributors control variable: secondary school enrolment dependent variable: income inequality measured by Gini coefficient lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      24
Time variable:  years                  Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =          24
                                           avg =          24
                                           max =          24
Estimated covariances =                1      R-squared       =    0.9603
Estimated autocorrelations =          0      Wald chi2(3)   =    580.92
Estimated coefficients =                4      Prob > chi2    =     0.0000

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.0017137	.0016397	1.05	0.296	-.0015001	.0049275	
ivsocalsecuritycontributorspopu	-.0035947	.0003839	-9.36	0.000	-.004347	-.0028423	
cvsecondaryschoolenrolmentpopula	-.0012757	.0001335	-9.56	0.000	-.0015373	-.0010141	
_cons	.6958698	.0168317	41.34	0.000	.6628803	.7288594	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpo
(obs=24)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2086	0.0425	0.0435	0.0018	0.3514
ivsocials~u	-0.8861	-0.3807	0.7851	0.1450	0.0000
cvsecunda~a	-0.8899	-0.3886	0.7920	0.1510	0.0000

28. Table of results of Brazil. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    24
                                           avg =    24
                                           max =    24

Estimated covariances =    1           R-squared       =    0.9566
Estimated autocorrelations =    0       Wald chi2(3)    =    528.88
Estimated coefficients =    4           Prob > chi2     =    0.0000
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0035433	.0018498	1.92	0.055	-.0000822 .0071688
ivsocalsecuritycontributorspopu	-.0009477	.0007382	-1.28	0.199	-.0023944 .0004991
dvincomeinequalitygini01_lag	1.013111	.151199	6.70	0.000	.7167667 1.309456
_cons	-.0306132	.1207944	-0.25	0.800	-.2673658 .2061394

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu dvincomein
(obs=24)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.3642	0.0815	0.1326	0.0066	0.0957
ivsocials~u	-0.2535	-0.0546	0.0643	0.0030	0.2550
dvincomei~g	0.8073	0.2850	0.6517	0.0812	0.0000

29. Table of results of Brazil. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      24
Time variable:  years                  Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      24
                                                avg =      24
                                                max =      24

Estimated covariances =      1          R-squared       =    0.9826
Estimated autocorrelations =      0      Wald chi2(4)    =   1352.48
Estimated coefficients =      5          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.0052917	.0012082	4.38	0.000	.0029236	.0076598
ivsocalsecuritycontributorspopu	-.0018143	.0004898	-3.70	0.000	-.0027743	-.0008544
cvsecondaryschoolenrolmentpopula	-.0006982	.0001168	-5.98	0.000	-.0009271	-.0004694
dvincomeinequalitygini01_lag	.6197462	.1162348	5.33	0.000	.3919302	.8475621
_cons	.2271461	.0878586	2.59	0.010	.0549464	.3993458

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpopula
> ini01_lag
(obs=24)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.6665	0.1180	0.4442	0.0139	0.0010
ivsocials~u	-0.6032	-0.0999	0.3638	0.0100	0.0038
cvsecunda~a	-0.7735	-0.1612	0.5983	0.0260	0.0000
dvincomei~g	0.7364	0.1437	0.5422	0.0207	0.0001

30. Table of results of Brazil. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =      1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      20
                                                avg =      20
                                                max =      20

Estimated covariances   =      1      R-squared        =      0.9922
Estimated autocorrelations =      0      Wald chi2(3)     =      2555.60
Estimated coefficients   =      4      Prob > chi2      =      0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.00017	.0014021	0.12	0.903	-.0025779	.002918	
ivsocalsecuritycontributorspopu	-.001859	.0003192	-5.82	0.000	-.0024845	-.0012334	
cvsecondaryschoolenrolment_lag5	-.0015352	.0000959	-16.01	0.000	-.0017232	-.0013473	
_cons	.6713665	.0129891	51.69	0.000	.6459082	.6968247	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondary
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial CORR.	Semipartial CORR.	Partial CORR.^2	Semipartial CORR.^2	Significance Value
ivsociale~p	0.0271	0.0024	0.0007	0.0000	0.9150
ivsocials~u	-0.7932	-0.1148	0.6291	0.0132	0.0001
cvsecunda~5	-0.9631	-0.3154	0.9276	0.0995	0.0000

31. Table of results of Brazil. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation   min =      20
                                         avg =      20
                                         max =      20

Estimated covariances   =      1      R-squared       =    0.9930
Estimated autocorrelations =      0      Wald chi2(3)    =   2833.48
Estimated coefficients   =      4      Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.0019446	.0013188	-1.47	0.140	-.0045294 .0006403
ivsocalsecuritycontributorspopu	-.0016021	.0003075	-5.21	0.000	-.0022048 -.0009993
cvsecondaryschoolenrolment_lag5	-.0015008	.0000873	-17.20	0.000	-.0016718 -.0013298
_cons	.6897722	.0122817	56.16	0.000	.6657005 .7138438

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.3131	-0.0276	0.0980	0.0008	0.2058
ivsocials~u	-0.7587	-0.0975	0.5757	0.0095	0.0003
cvsecunda~5	-0.9678	-0.3220	0.9367	0.1037	0.0000

32. Table of results of Brazil. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      20
                                                avg =      20
                                                max =      20

Estimated covariances =      1      R-squared        =    0.9941
Estimated autocorrelations =      0      Wald chi2(4)     =   3355.40
Estimated coefficients =      5      Prob > chi2      =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	-.0021488	.0012173	-1.77	0.078	-.0045346	.000237
ivsocalsecuritycontributorspopu	-.000546	.0006204	-0.88	0.379	-.0017618	.0006699
cvsecundaryschoolenrolment_lag5	-.0010296	.0002591	-3.97	0.000	-.0015374	-.0005219
dvincomeinequalitygini01_lag	.3955248	.2067957	1.91	0.056	-.0097874	.8008369
_cons	.4209153	.1410217	2.98	0.003	.1445179	.6973126

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
> tygini01_lag
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.3672	-0.0304	0.1348	0.0009	0.1471
ivsocials~u	-0.1931	-0.0151	0.0373	0.0002	0.4578
cvsecunda~5	-0.6643	-0.0684	0.4413	0.0047	0.0036
dvincomei~g	0.3932	0.0329	0.1546	0.0011	0.1184

33. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country           Number of obs   =    24
Time variable:  years             Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    24
                                           avg =    24
                                           max =    24

Estimated covariances   =    1      R-squared       =    0.0371
Estimated autocorrelations =    0      Wald chi2(2)    =    0.92
Estimated coefficients   =    3      Prob > chi2     =    0.6301
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0010692	.0047856	0.22	0.823	-.0083103 .0104488
ivsocalsecuritycontributorspopu	.0019482	.0021085	0.92	0.356	-.0021844 .0060807
_cons	.1856137	.1685729	1.10	0.271	-.1447832 .5160106

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
[obs=24]
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial	Semipartial	Partial	Semipartial	Significance Value
	Corr.	Corr.	Corr.^2	Corr.^2	
ivsociale-p	0.0456	0.0448	0.0021	0.0020	0.8365
ivsocials-u	0.1853	0.1851	0.0343	0.0343	0.3972

34. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =    23
Time variable:  years            Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation   min =    23
                                         avg =    23
                                         max =    23

Estimated covariances =    1          R-squared        =    0.0187
Estimated autocorrelations =    0      Wald chi2(3)     =    0.44
Estimated coefficients =    4          Prob > chi2      =    0.9322

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0001809	.0047857	0.04	0.970	-.0091989 .0095608
ivsocalsecuritycontributorspopu	.0004773	.0023565	0.20	0.839	-.0041414 .005096
cvsecondaryschoolenrolmentpopula	.0009921	.0016691	0.59	0.552	-.0022792 .0042634
_cons	.1556454	.2451676	0.63	0.526	-.3248742 .6361651

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecunda
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.0079	0.0078	0.0001	0.0001	0.9729
ivsocials~u	0.0422	0.0418	0.0018	0.0018	0.8559
cvsecunda~a	0.1230	0.1228	0.0151	0.0151	0.5953

35. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: Gini

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country           Number of obs   =      24
Time variable:  years             Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation           min =      24
                                                avg =      24
                                                max =      24

Estimated covariances   =      1      R-squared       =      0.1319
Estimated autocorrelations =      0      Wald chi2(2)    =      3.65
Estimated coefficients  =      3      Prob > chi2     =      0.1616
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.006043	.0036938	1.64	0.102	-.0011967 .0132828
ivsocalsecuritycontributorspopu	.0035857	.0020845	1.72	0.085	-.0004999 .0076713
_cons	.004532	.1449078	0.03	0.975	-.2794821 .2885461

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu
(obs=24)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.3167	0.3111	0.1003	0.0968	0.1409
ivsocials~u	0.3313	0.3271	0.1098	0.1070	0.1225

36. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      23
Time variable:  years                   Number of groups =       1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation           min =      23
                                                avg =      23
                                                max =      23

Estimated covariances   =      1          R-squared        =    0.0904
Estimated autocorrelations =      0          Wald chi2(3)     =    2.29
Estimated coefficients   =      4          Prob > chi2      =    0.5151

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.0051186	.0037989	1.35	0.178	-.002327 .0125642
ivsocalsecuritycontributorspopu	.0023242	.0024114	0.96	0.335	-.002402 .0070504
cvsecondaryschoolenrolmentpopula	.0009213	.0016054	0.57	0.566	-.0022252 .0040679
_cons	-.024295	.2188295	-0.11	0.912	-.4531929 .4046029

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.2705	0.2679	0.0732	0.0718	0.2357
ivsocials~u	0.1970	0.1917	0.0388	0.0367	0.3920
cvsecunda~a	0.1188	0.1141	0.0141	0.0130	0.6080

37. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: income inequality measured by Gini coefficient lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      23
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      23
                                              avg =      23
                                              max =      23

Estimated covariances   =      1      R-squared       =      0.0086
Estimated autocorrelations =      0      Wald chi2(2)    =      0.20
Estimated coefficients  =      3      Prob > chi2     =      0.9045
    
```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.0015086	.0049095	0.31	0.759	-.0081138	.0111309	
ivsocalsecuritycontributorspopu	.0010545	.0024122	0.44	0.662	-.0036734	.0057823	
_cons	.205908	.180497	1.14	0.254	-.1478596	.5596757	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=23)
    
```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	0.0639	0.0638	0.0041	0.0041	0.7774
ivsocials-u	0.0908	0.0908	0.0082	0.0082	0.6879

38. Table of results of Germany. Independent variables: social expenditure and social security contributors control variable: secondary school enrolment dependent variable: income inequality measured by Gini coefficient lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      23
Time variable:  years                   Number of groups =      1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =      23
                                           avg =      23
                                           max =      23

Estimated covariances =      1          R-squared       =      0.0099
Estimated autocorrelations =      0      Wald chi2(3)    =      0.23
Estimated coefficients =      4          Prob > chi2     =      0.9725

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.0015537	.0049133	0.32	0.752	-.0080761	.0111836	
ivsocalsecuritycontributorspopu	.0010191	.0024193	0.42	0.674	-.0037227	.0057609	
cvsecondaryschoolenrolmentpopula	.0002956	.0017136	0.17	0.863	-.0030629	.0036541	
_cons	.1756216	.2517022	0.70	0.485	-.3177056	.6689489	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpo
{obs=23}

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	0.0658	0.0656	0.0043	0.0043	0.7769
ivsocials~u	0.0875	0.0874	0.0077	0.0076	0.7061
cvsecunda~a	0.0360	0.0358	0.0013	0.0013	0.8771

39. Table of results of Germany. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation           min =    24
                                                avg =    24
                                                max =    24
Estimated covariances =    1           R-squared       =    0.8588
Estimated autocorrelations =    0       Wald chi2(3)    =    146.01
Estimated coefficients =    4           Prob > chi2     =    0.0000
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0018296	.0018334	1.00	0.318	-.0017639 .0054231
ivsocalsecuritycontributorspopu	.0006146	.0008151	0.75	0.451	-.000983 .0022123
dvincomeinequalitygini01_lag	.9368373	.0792587	11.82	0.000	.7814931 1.092182
_cons	-.0480321	.0675026	-0.71	0.477	-.1803348 .0842706

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu dvincomeir
(obs=24)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.1996	0.0765	0.0398	0.0059	0.3732
ivsocials~u	0.1521	0.0578	0.0231	0.0033	0.4992
dvincomei~g	0.9238	0.9065	0.8534	0.8218	0.0000

40. Table of results of Germany. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      23
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation   min =      23
                                          avg =      23
                                          max =      23

Estimated covariances =      1      R-squared        =      0.8739
Estimated autocorrelations =      0      Wald chi2(4)     =      159.37
Estimated coefficients =      5      Prob > chi2      =      0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.00242	.001725	1.40	0.161	-.000961	.005801
ivsocalsecuritycontributorspopu	.001447	.0008484	1.71	0.088	-.0002157	.0031098
cvsecondaryschoolenrolmentpopula	-.0008706	.0006167	-1.41	0.158	-.0020793	.000338
dvincomeinequalitygini01_lag	1.022522	.0818783	12.49	0.000	.8620432	1.183
_cons	-.0252772	.0890784	-0.28	0.777	-.1998676	.1493133

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
> ini01_lag
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2808	0.1039	0.0788	0.0108	0.2305
ivsocials~u	0.3351	0.1263	0.1123	0.0160	0.1487
cvsecunda~a	-0.2824	-0.1045	0.0797	0.0109	0.2277
dvincomei~g	0.9335	0.9248	0.8715	0.8552	0.0000

41. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      20
                                                avg =      20
                                                max =      20

Estimated covariances   =      1      R-squared        =      0.3318
Estimated autocorrelations =      0      Wald chi2(3)     =      9.93
Estimated coefficients   =      4      Prob > chi2      =      0.0192

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	-.0034813	.0041334	-0.84	0.400	-.0115825 .00462
ivsocalsecuritycontributorspopu	.0044222	.0018856	2.35	0.019	.0007265 .0081179
cvsecondaryschoolenrolment_lag5	-.0034484	.0014659	-2.35	0.019	-.0063216 -.0005753
_cons	.5735208	.1971024	2.91	0.004	.1872072 .9598345

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.1851	-0.1540	0.0343	0.0237	0.4622
ivsocials~u	0.4644	0.4287	0.2157	0.1838	0.0522
cvsecunda~5	-0.4655	-0.4300	0.2167	0.1849	0.0515

42. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation   min =      20
                                         avg =      20
                                         max =      20

Estimated covariances =      1      R-squared =      0.3108
Estimated autocorrelations =      0      Wald chi2(3) =      9.02
Estimated coefficients =      4      Prob > chi2 =      0.0290

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.0012471	.0043989	-0.28	0.777	-.0098688 .0073746
ivsocalsecuritycontributorspopu	.0047558	.0019451	2.45	0.014	.0009435 .008568
cvsecondaryschoolenrolment_lag5	-.0033838	.0015036	-2.25	0.024	-.0063307 -.0004368
_cons	.4988461	.2139177	2.33	0.020	.0795751 .9181171

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.0633	-0.0526	0.0040	0.0028	0.8031
ivsocials~u	0.4797	0.4539	0.2301	0.2060	0.0439
cvsecunda~5	-0.4495	-0.4178	0.2021	0.1745	0.0613

43. Table of results of Germany. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: income inequality measured by Gini coefficient

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      20
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation   min =      20
                                          avg =      20
                                          max =      20

Estimated covariances =      1      R-squared        =    0.8335
Estimated autocorrelations =      0      Wald chi2(4)     =    100.09
Estimated coefficients =      5      Prob > chi2      =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	.001488	.0021898	0.68	0.497	-.0028039	.0057799
ivsocalsecuritycontributorspopu	.0004317	.001101	0.39	0.695	-.0017261	.0025896
cvsecundaryschoolenrolment_lag5	.0003279	.0008751	0.37	0.708	-.0013873	.0020431
dvincomeinequalitygini01_lag	.9360917	.1181578	7.92	0.000	.7045067	1.167677
_cons	-.0663924	.1270768	-0.52	0.601	-.3154583	.1826735

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
> tygini01_lag
(obs=20)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.1502	0.0620	0.0226	0.0038	0.5650
ivsocials~u	0.0873	0.0358	0.0076	0.0013	0.7389
cvsecunda~5	0.0835	0.0342	0.0070	0.0012	0.7500
dvincomei~g	0.8708	0.7229	0.7583	0.5226	0.0000

44. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: Ratio P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country           Number of obs   =    25
Time variable:  years             Number of groups =     1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation           min =    25
                                                avg  =    25
                                                max  =    25
Estimated covariances   =    1      R-squared        =    0.2544
Estimated autocorrelations =    0      Wald chi2(2)     =    8.53
Estimated coefficients   =    3      Prob > chi2      =    0.0140
    
```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.037486	.0561569	-0.67	0.504	-.1475515	.0725795	
ivsocalsecuritycontributorspopu	.0505095	.0224173	2.25	0.024	.0065725	.0944466	
_cons	2.376898	1.891795	1.26	0.209	-1.330952	6.084749	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	-0.1323	-0.1153	0.0175	0.0133	0.5376
ivsocials-u	0.4108	0.3891	0.1688	0.1514	0.0461

45. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =       23
Time variable:  years            Number of groups =        1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =       23
                                                avg =       23
                                                max =       23
Estimated covariances =          1      R-squared       =    0.1671
Estimated autocorrelations =        0      Wald chi2(3)    =    4.62
Estimated coefficients =          4      Prob > chi2     =    0.2022
    
```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	-.0490325	.0594747	-0.82	0.410	-.1656007	.0675357
ivsocialesecuritycontributorspopu	.0378828	.0292858	1.29	0.196	-.0195164	.095282
cvsecondaryschoolenrolmentpopula	-.0095991	.0207424	-0.46	0.644	-.0502536	.0310553
_cons	4.077178	3.04683	1.34	0.181	-1.8945	10.04886

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocialesecuritycontributorspopu cvsecundar
{obs=23}
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	-0.1694	-0.1569	0.0287	0.0246	0.4628
ivsocials-u	0.2604	0.2462	0.0678	0.0606	0.2542
cvsecunda-a	-0.0960	-0.0881	0.0092	0.0078	0.6788

46. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    25
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    25
                                           avg =    25
                                           max =    25
Estimated covariances =    1           R-squared       =    0.2459
Estimated autocorrelations =    0       Wald chi2(2)    =    8.15
Estimated coefficients =    3           Prob > chi2     =    0.0170
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.0183222	.0459885	0.40	0.690	-.0718136 .1084579
ivsocialesecuritycontributorspopu	.0619448	.0235307	2.63	0.008	.0158254 .1080643
_cons	.5752817	1.718158	0.33	0.738	-2.792246 3.942809

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocialesecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	0.0794	0.0692	0.0063	0.0048	0.7122
ivsociales-u	0.4659	0.4572	0.2170	0.2090	0.0218

47. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    23
                                           avg =    23
                                           max =    23
Estimated covariances =    1           R-squared       =    0.1448
Estimated autocorrelations =    0       Wald chi2(3)    =    3.89
Estimated coefficients =    4           Prob > chi2     =    0.2731
  
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.0122775	.0496902	0.25	0.805	-.0851136 .1096686
ivsocialesecuritycontributorspopu	.0545716	.0315417	1.73	0.084	-.0072489 .1163921
cvsecondaryschoolenrolmentpopula	-.0088492	.0209991	-0.42	0.673	-.0500068 .0323083
_cons	1.882659	2.862355	0.66	0.511	-3.727453 7.492771

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocialesecuritycontributorspopu cvsecun
{obs=23}
  
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	0.0515	0.0476	0.0026	0.0023	0.8247
ivsocials-u	0.3394	0.3336	0.1152	0.1113	0.1323
cvsecunda-a	-0.0875	-0.0813	0.0077	0.0066	0.7060

48. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: P90/P10 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    24
                                           avg =    24
                                           max =    24
Estimated covariances =    1           R-squared       =    0.0584
Estimated autocorrelations =    0       Wald chi2(2)    =    1.49
Estimated coefficients =    3           Prob > chi2     =    0.4750
    
```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.0255836	.0641062	0.40	0.690	-.1000623	.1512295	
ivsocalsecuritycontributorspopu	.0339047	.0282447	1.20	0.230	-.0214539	.0892633	
_cons	1.346961	2.258156	0.60	0.551	-3.078944	5.772866	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=24)
    
```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.0812	0.0790	0.0066	0.0062	0.7127
ivsocials~u	0.2380	0.2378	0.0566	0.0565	0.2742

49. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment dependent variable: P90/P10 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    23
                                           avg =    23
                                           max =    23

Estimated covariances =    1           R-squared       =    0.0363
Estimated autocorrelations =    0       Wald chi2(3)    =    0.87
Estimated coefficients =    4           Prob > chi2     =    0.8335

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.0200063	.0662892	0.30	0.763	-.1099182	.1499308	
ivsocalsecuritycontributorspopu	.0289774	.0326414	0.89	0.375	-.0349985	.0929533	
cvsecondaryschoolenrolmentpopula	-.0073064	.0231191	-0.32	0.752	-.052619	.0380062	
_cons	2.402889	3.395933	0.71	0.479	-4.253017	9.058795	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpo
(obs=23)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.0628	0.0618	0.0039	0.0038	0.7868
ivsocials~u	0.1820	0.1817	0.0331	0.0330	0.4297
cvsecunda~a	-0.0658	-0.0647	0.0043	0.0042	0.7770

50. Table of results of Germany. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: country Number of obs = 25
 Time variable: years Number of groups = 1
 Panels: correlated (balanced) Obs per group:
 Autocorrelation: no autocorrelation min = 25
 avg = 25
 max = 25
 Estimated covariances = 1 R-squared = 0.5424
 Estimated autocorrelations = 0 Wald chi2(3) = 29.64
 Estimated coefficients = 4 Prob > chi2 = 0.0000

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.0320211	.0473546	0.68	0.499	-.0607923	.1248345
ivsocalsecuritycontributorspopu	.0140777	.0198184	0.71	0.477	-.0247656	.052921
dvincomeinequalitygini01_lag	.5166344	.1302411	3.97	0.000	.2613665	.7719022
_cons	.2187667	1.578744	0.14	0.890	-2.875515	3.313049

.
 . **CORRELATIONS MATRIX
 . pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu dvincomeine
 (obs=25)

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	0.1340	0.0915	0.0180	0.0084	0.5421
ivsocials-u	0.1407	0.0961	0.0198	0.0092	0.5221
dvincomei-g	0.6215	0.5366	0.3863	0.2880	0.0015

51. Table of results of Germany. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation    min =    23
                                          avg =    23
                                          max =    23

Estimated covariances =    1           R-squared       =    0.5222
Estimated autocorrelations =    0       Wald chi2(4)    =    25.13
Estimated coefficients =    5           Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	.0244225	.048428	0.50	0.614	-.0704946 .1193397
ivsocialesecuritycontributorspopu	.0001442	.0239882	0.01	0.995	-.0468719 .0471602
cvsecundaryschoolenrolmentpopula	-.0041841	.0157662	-0.27	0.791	-.0350853 .026717
dvincomeinequalitygini01_lag	.5304591	.1283273	4.13	0.000	.2789422 .7819759
_cons	1.26381	2.40613	0.53	0.599	-3.452118 5.979738

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocialesecuritycontributorspopu cvsecundar
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr. ²	Semipartial Corr. ²	Significance Value
ivsociale~p	0.1046	0.0727	0.0109	0.0053	0.6608
ivsocials~u	0.0013	0.0009	0.0000	0.0000	0.9958
cvsecunda~a	-0.0553	-0.0383	0.0031	0.0015	0.8170
dvincomei~g	0.6529	0.5958	0.4262	0.3550	0.0018

52. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    21
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    21
                                           avg =    21
                                           max =    21

Estimated covariances   =    1          R-squared        =    0.4092
Estimated autocorrelations =    0        Wald chi2(3)     =    14.54
Estimated coefficients  =    4          Prob > chi2      =    0.0022

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0652931	.0493655	-1.32	0.186	-.1620477	.0314614	
ivsocalsecuritycontributorspopu	.0595064	.0200379	2.97	0.003	.0202329	.0987799	
cvsecundaryschoolenrolment_lag5	-.0213117	.0177092	-1.20	0.229	-.0560211	.0133977	
_cons	4.995218	2.348056	2.13	0.033	.3931127	9.597324	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar:
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial	Semipartial	Partial	Semipartial	Significance Value
	Corr.	Corr.	Corr.^2	Corr.^2	
ivsociale~p	-0.2773	-0.2218	0.0769	0.0492	0.2504
ivsocials~u	0.5438	0.4981	0.2958	0.2481	0.0161
cvsecunda~5	-0.2540	-0.2019	0.0645	0.0407	0.2940

53. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =       21
Time variable:  years                   Number of groups =        1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =       21
                                           avg =       21
                                           max =       21

Estimated covariances =      1          R-squared       =    0.3606
Estimated autocorrelations =    0       Wald chi2(3)    =    11.85
Estimated coefficients =      4          Prob > chi2     =    0.0079

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp_lag	.0080389	.0543008	0.15	0.882	-.0983888	.1144666	
ivsocialesecuritycontributorspopu	.068677	.0214381	3.20	0.001	.026659	.110695	
cvsecondaryschoolenrolment_lag5	-.0177309	.0186063	-0.95	0.341	-.0541986	.0187368	
_cons	2.45316	2.630251	0.93	0.351	-2.702038	7.608358	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocialesecuritycontributorspopu cvsecu
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.0323	0.0258	0.0010	0.0007	0.8956
ivsocials~u	0.5729	0.5590	0.3283	0.3124	0.0103
cvsecunda~5	-0.2036	-0.1663	0.0415	0.0276	0.4031

54. Table of results of Germany. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    21
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =           21
                                           avg =           21
                                           max =           21
Estimated covariances =                1      R-squared       =    0.7768
Estimated autocorrelations =          0      Wald chi2(4)   =    73.07
Estimated coefficients =                5      Prob > chi2    =    0.0000

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.0352998	.0323807	1.09	0.276	-.0281652 .0987649
ivsociaalsecuritycontributorspopu	.0012462	.0166322	0.07	0.940	-.0313522 .0338447
cvsecundaryschoolenrolment_lag5	.003569	.0115094	0.31	0.756	-.018989 .0261271
dvincomeinequalitygini01_lag	.0761097	.1400308	6.26	0.000	.6016545 1.150565
_cons	-.891172	1.64356	-0.54	0.588	-4.11249 2.330146

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsociaalsecuritycontributorspopu cvsecu
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial	Semipartial	Partial	Semipartial	Significance
	Corr.	Corr.	Corr.^2	Corr.^2	
ivsociale~g	0.2314	0.1124	0.0536	0.0126	0.3555
ivsocials~u	0.0163	0.0077	0.0003	0.0001	0.9487
cvsecunda~5	0.0675	0.0320	0.0046	0.0010	0.7901
dvincomei~g	0.8067	0.6451	0.6508	0.4161	0.0001

55. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: Ratio P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country           Number of obs   =       25
Time variable:  years             Number of groups =        1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation           min =       25
                                                avg =       25
                                                max =       25
Estimated covariances =          1      R-squared       =    0.4417
Estimated autocorrelations =        0      Wald chi2(2)    =    19.78
Estimated coefficients =          3      Prob > chi2     =    0.0001
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	-.0076775	.0113501	-0.68	0.499	-.0299233 .0145682
ivsocalsecuritycontributorspopu	.0164926	.0045308	3.64	0.000	.0076123 .0253729
_cons	1.406164	.3823582	3.68	0.000	.6567553 2.155572

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.1341	-0.1011	0.0180	0.0102	0.5323
ivsocials~u	0.5886	0.5440	0.3464	0.2959	0.0025

56. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      23
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =      23
                                           avg =      23
                                           max =      23
Estimated covariances =          1      R-squared       =    0.3219
Estimated autocorrelations =        0      Wald chi2(3)    =    10.92
Estimated coefficients =          4      Prob > chi2     =    0.0122
    
```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0100519	.0113691	-0.88	0.377	-.0323349	.012231	
ivsocalsecuritycontributorspopu	.0127923	.0055982	2.29	0.022	.00182	.0237646	
cvsecondaryschoolenrolmentpopula	-.0002609	.0039651	-0.07	0.948	-.0080323	.0075105	
_cons	1.616975	.5824259	2.78	0.005	.4754416	2.758509	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
{obs=23}
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.1813	-0.1518	0.0329	0.0230	0.4316
ivsocials~u	0.4301	0.3924	0.1850	0.1539	0.0516
cvsecunda~a	-0.0137	-0.0113	0.0002	0.0001	0.9529

57. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    25
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    25
                                           avg =    25
                                           max =    25
Estimated covariances =    1           R-squared       =    0.4895
Estimated autocorrelations =    0       Wald chi2(2)    =    23.97
Estimated coefficients =    3           Prob > chi2     =    0.0000
    
```

	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
dvincomeinequalitygini01					
ivsocialexpendituregdp_lag	.0149045	.0088374	1.69	0.092	-.0024165 .0322254
ivsocalsecuritycontributorspopu	.0217576	.0045218	4.81	0.000	.0128951 .0306202
_cons	.6561273	.3301696	1.99	0.047	.0090067 1.303248

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	0.3196	0.2410	0.1022	0.0581	0.1279
ivsocials-u	0.6934	0.6876	0.4808	0.4728	0.0002

58. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    23
                                          avg =    23
                                          max =    23

Estimated covariances =    1           R-squared       =    0.3659
Estimated autocorrelations =    0       Wald chi2(3)    =    13.27
Estimated coefficients =    4           Prob > chi2     =    0.0041

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	.0141388	.0090644	1.56	0.119	-.0036271 .0319046
ivsocalsecuritycontributorspopu	.0205089	.0057538	3.56	0.000	.0092317 .031786
cvsecondaryschoolenrolmentpopula	-.0002602	.0038306	-0.07	0.946	-.0077681 .0072476
_cons	.7438884	.5221437	1.42	0.154	-.2794944 1.767271

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.3093	0.2590	0.0957	0.0671	0.1725
ivsocials~u	0.5965	0.5918	0.3558	0.3503	0.0043
cvsecunda~a	-0.0142	-0.0113	0.0002	0.0001	0.9514

59. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: P90/P50 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      24
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      24
                                              avg =      24
                                              max =      24

Estimated covariances   =      1      R-squared       =      0.2736
Estimated autocorrelations =      0      Wald chi2(2)    =      9.04
Estimated coefficients   =      3      Prob > chi2     =      0.0109
    
```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0040079	.0134164	-0.30	0.765	-.0303036	.0222878	
ivsocalsecuritycontributorspopu	.0145358	.0059112	2.46	0.014	.0029501	.0261215	
_cons	1.38439	.4725969	2.93	0.003	.4581175	2.310663	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=24)
    
```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.0609	-0.0520	0.0037	0.0027	0.7826
ivsocials~u	0.4486	0.4278	0.2012	0.1830	0.0318

60. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment dependent variable: P90/P50 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      23
Time variable:  years            Number of groups =      1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      23
                                                avg =      23
                                                max =      23

Estimated covariances =      1      R-squared       =      0.2577
Estimated autocorrelations =      0      Wald chi2(3)    =      7.99
Estimated coefficients =      4      Prob > chi2     =      0.0463

```

DVlead	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0033887	.0138869	-0.24	0.807	-.0306064	.023829	
ivsocalsecuritycontributorspopu	.0157875	.006838	2.31	0.021	.0023852	.0291897	
cvsecondaryschoolenrolmentpopula	-.0014027	.0048432	-0.29	0.772	-.0108951	.0080898	
_cons	1.470636	.7114102	2.07	0.039	.0762972	2.864974	

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondaryschoolenrolmentpopu
(obs=23)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.0508	-0.0438	0.0026	0.0019	0.8268
ivsocials~u	0.4338	0.4148	0.1882	0.1720	0.0495
cvsecunda~a	-0.0603	-0.0520	0.0036	0.0027	0.7952

61. Table of results of Germany. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

Group variable: country Number of obs = 25
 Time variable: years Number of groups = 1
 Panels: correlated (balanced) Obs per group:
 Autocorrelation: no autocorrelation min = 25
 avg = 25
 max = 25
 Estimated covariances = 1 R-squared = 0.4568
 Estimated autocorrelations = 0 Wald chi2(3) = 21.02
 Estimated coefficients = 4 Prob > chi2 = 0.0001

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0079788	.0112011	-0.71	0.476	-.0299325	.0139749	
ivsocialesecuritycontributorspopu	.0122304	.0067868	1.80	0.072	-.0010714	.0255323	
dvincomeinequalitygini01_lag	.2006796	.2404894	0.83	0.404	-.270671	.6720303	
_cons	1.203495	.4485794	2.68	0.007	.3242952	2.082694	

.
 . **CORRELATIONS MATRIX
 . pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocialesecuritycontributorspopu dvincomein
 (obs=25)

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial	Semipartial	Partial	Semipartial	Significance
	Corr.	Corr.	Corr.^2	Corr.^2	
ivsociale~p	-0.1410	-0.1050	0.0199	0.0110	0.5209
ivsociale~u	0.3391	0.2656	0.1150	0.0706	0.1135
dvincomei~g	0.1646	0.1230	0.0271	0.0151	0.4529

62. Table of results of Germany. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      23
Time variable:  years            Number of groups =      1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      23
                                                avg =      23
                                                max =      23

Estimated covariances   =      1      R-squared       =      0.3681
Estimated autocorrelations =      0      Wald chi2(4)    =      13.40
Estimated coefficients   =      5      Prob > chi2     =      0.0095

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	-.0092153	.0109936	-0.84	0.402	-.0307622	.0123317
ivsocalsecuritycontributorspopu	.0069236	.0070475	0.98	0.326	-.0068893	.0207365
cvsecondaryschoolenrolmentpopula	.0006537	.0038919	0.17	0.867	-.0069743	.0082817
dvincomeinequalitygini01_lag	.317899	.2450465	1.30	0.195	-.1623834	.7981814
_cons	1.139126	.6721353	1.69	0.090	-.1782351	2.456487

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
> ini01_lag
(obs=23)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.1722	-0.1389	0.0296	0.0193	0.4679
ivsocials~u	0.2007	0.1628	0.0403	0.0265	0.3962
cvsecunda~a	0.0350	0.0278	0.0012	0.0008	0.8835
dvincomei~g	0.2611	0.2150	0.0682	0.0462	0.2661

63. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    21
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    21
                                           avg =    21
                                           max =    21
Estimated covariances =    1           R-squared       =    0.7218
Estimated autocorrelations =    0       Wald chi2(3)    =    54.47
Estimated coefficients =    4           Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0212821	.0086801	-2.45	0.014	-.0382949	-.0042694	
ivsocalsecuritycontributorspopu	.0177421	.0035233	5.04	0.000	.0108365	.0246478	
cvsecondaryschoolenrolment_lag5	.000339	.0031139	0.11	0.913	-.0057641	.0064421	
_cons	1.68383	.4128687	4.08	0.000	.8746224	2.493038	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar:
{obs=21}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.4718	-0.2822	0.2226	0.0796	0.0414
ivsocials~u	0.7396	0.5796	0.5470	0.3360	0.0003
cvsecunda~5	0.0238	0.0125	0.0006	0.0002	0.9231

64. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      21
Time variable:  years                   Number of groups =       1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =      21
                                           avg  =      21
                                           max  =      21

Estimated covariances =      1          R-squared       =    0.6442
Estimated autocorrelations =      0      Wald chi2(3)    =    38.02
Estimated coefficients =      4          Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp_lag	-.0036603	.0103787	-0.35	0.724	-.0240022	.0166815	
ivsocalsecuritycontributorspopu	.0198024	.0040975	4.83	0.000	.0117714	.0278335	
cvsecondaryschoolenrolment_lag5	.0010959	.0035563	0.31	0.758	-.0058743	.0080661	
_cons	1.088466	.5027286	2.17	0.030	.1031361	2.073796	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	-0.0767	-0.0459	0.0059	0.0021	0.7549
ivsocials~u	0.7256	0.6290	0.5266	0.3957	0.0004
cvsecunda~5	0.0671	0.0401	0.0045	0.0016	0.7849

65. Table of results of Germany. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: P90/P50

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =       21
Time variable:  years                   Number of groups =        1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation           min =       21
                                                avg =       21
                                                max =       21

Estimated covariances   =       1       R-squared       =       0.6684
Estimated autocorrelations =       0       Wald chi2(4)    =       42.32
Estimated coefficients   =       5       Prob > chi2     =       0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp_lag	-.0082206	.0106767	-0.77	0.441	-.0291465	.0127054
ivsocalsecuritycontributorspopu	.0270199	.0070493	3.83	0.000	.0132035	.0408363
cvsecondaryschoolenrolment_lag5	.0008254	.0034404	0.24	0.810	-.0059175	.0075684
dvincomeinequalitygini01_lag	-.3447819	.2787248	-1.24	0.216	-.8910724	.2015086
_cons	1.599437	.637339	2.51	0.012	.3502756	2.848599

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvseca
> tygini01_lag
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-g	-0.1657	-0.0968	0.0275	0.0094	0.5111
ivsocials~u	0.6416	0.4817	0.4116	0.2320	0.0041
cvseca~5	0.0523	0.0301	0.0027	0.0009	0.8368
dvincomei-g	-0.2606	-0.1554	0.0679	0.0242	0.2963

66. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: Ratio P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      25
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      25
                                              avg =      25
                                              max =      25

Estimated covariances   =      1      R-squared       =      0.0804
Estimated autocorrelations =      0      Wald chi2(2)    =      2.19
Estimated coefficients  =      3      Prob > chi2     =      0.3355
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp	-.0132085	.0266332	-0.50	0.620	-.0654087 .0389917
ivsocalsecuritycontributorspopu	.0109311	.0106317	1.03	0.304	-.0099067 .0317689
_cons	1.736989	.8972119	1.94	0.053	-.0215136 3.495493

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.0987	-0.0951	0.0097	0.0090	0.6463
ivsocials~u	0.2014	0.1972	0.0406	0.0389	0.3453

67. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment, dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =    23
                                          avg =    23
                                          max =    23

Estimated covariances =    1           R-squared       =    0.0572
Estimated autocorrelations =    0       Wald chi2(3)    =    1.40
Estimated coefficients =    4           Prob > chi2     =    0.7065
    
```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	-.0185435	.0286951	-0.65	0.518	-.0747848	.0376977	
ivsocalsecuritycontributorspopu	.0065134	.0141297	0.46	0.645	-.0211803	.0342071	
cvsecondaryschoolenrolmentpopula	-.005361	.0100077	-0.54	0.592	-.0249758	.0142538	
_cons	2.570293	1.47002	1.75	0.080	-.3108933	5.451478	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
(obs=23)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	-0.1335	-0.1308	0.0178	0.0171	0.5639
ivsocials~u	0.0957	0.0933	0.0092	0.0087	0.6799
cvsecunda~a	-0.1110	-0.1085	0.0123	0.0118	0.6319

68. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, dependent Variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      25
Time variable:  years            Number of groups =      1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      25
                                                avg =      25
                                                max =      25

Estimated covariances =      1      R-squared       =      0.0735
Estimated autocorrelations =      0      Wald chi2(2)    =      1.98
Estimated coefficients =      3      Prob > chi2     =      0.3708
    
```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.0053426	.0217676	-0.25	0.806	-.0480064 .0373212
ivsocalsecuritycontributorspopu	.011868	.0111378	1.07	0.287	-.0099617 .0336976
_cons	1.505318	.0132526	1.85	0.064	-.0086281 3.099263

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu
(obs=25)
    
```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.0490	-0.0472	0.0024	0.0022	0.8200
ivsocials~u	0.2084	0.2051	0.0434	0.0421	0.3284

69. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment, dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =    23
Time variable:  years            Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =    23
                                                avg  =    23
                                                max  =    23

Estimated covariances   =    1      R-squared       =    0.0460
Estimated autocorrelations =    0      Wald chi2(3)    =    1.11
Estimated coefficients  =    4      Prob > chi2     =    0.7746

```

dvincomeinequalitygini01	Panel-corrected				
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
ivsocialexpendituregdp_lag	-.0090182	.0237987	-0.38	0.705	-.0556629 .0376264
ivsocalsecuritycontributorspopu	.0077758	.0151066	0.51	0.607	-.0218326 .0373842
cvsecondaryschoolenrolmentpopula	-.0048975	.0100574	-0.49	0.626	-.0246096 .0148145
_cons	2.237821	1.3709	1.63	0.103	-.449094 4.924736

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
{obs=23}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	-0.0788	-0.0772	0.0062	0.0060	0.7343
ivsocials~u	0.1067	0.1048	0.0114	0.0110	0.6452
cvsecunda~a	-0.1010	-0.0992	0.0102	0.0098	0.6631

70. Table of results of Germany. Independent variables: social expenditure and social security contributors, dependent variable: P50/P10 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    24
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    24
                                           avg =    24
                                           max =    24
Estimated covariances =    1            R-squared       =    0.0185
Estimated autocorrelations =    0       Wald chi2(2)    =    0.45
Estimated coefficients =    3            Prob > chi2     =    0.7975
    
```

DVlead	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.0175726	.0261949	0.67	0.502	-.0337685	.0689137
ivsocalsecuritycontributorspopu	.0033081	.0115413	0.29	0.774	-.0193123	.0259286
_cons	1.213442	.9227214	1.32	0.188	-.5950582	3.021943

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocalsecuritycontributorspopu
(obs=24)
    
```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.1357	0.1357	0.0184	0.0184	0.5371
ivsocials~u	0.0584	0.0580	0.0034	0.0034	0.7912

71. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment dependent variable: P50/P10 lead (1 year)

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      23
Time variable:  years                   Number of groups =       1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =      23
                                           avg =      23
                                           max =      23

Estimated covariances   =      1      R-squared        =    0.0255
Estimated autocorrelations =      0      Wald chi2(3)     =    0.60
Estimated coefficients   =      4      Prob > chi2      =    0.8958

```

DVlead	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.0128294	.0267001	0.48	0.631	-.0395018	.0651606
ivsocialesecuritycontributorspopu	-.0018848	.0131473	-0.14	0.886	-.0276531	.0238836
cvsecondaryschoolenrolmentpopula	-.0030641	.0093119	-0.33	0.742	-.0213152	.015187
_cons	1.821968	1.36782	1.33	0.183	-.8589093	4.502845

```

.
. **CORRELATIONS MATRIX
. pcorr DVlead ivsocialexpendituregdp ivsocialesecuritycontributorspopu cvsecondaryschoolenrolmentpo
(obs=23)

```

Partial and semipartial correlations of DVlead with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.0997	0.0989	0.0099	0.0098	0.6672
ivsocials~u	-0.0299	-0.0295	0.0009	0.0009	0.8977
cvsecunda~a	-0.0685	-0.0677	0.0047	0.0046	0.7681

72. Table of results of Germany. Independent variables: social expenditure, security contributors and Gini lagged (1 year); dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    25
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =           25
                                           avg =           25
                                           max =           25
Estimated covariances =                1      R-squared       =    0.6016
Estimated autocorrelations =          0      Wald chi2(3)   =    37.74
Estimated coefficients =                4      Prob > chi2    =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]
	Coef.	Std. Err.	z	P> z		
ivsocialexpendituregdp	.0278456	.0189436	1.47	0.142	-.0092832	.0649744
ivsocialesecuritycontributorspopu	.0018238	.007177	0.25	0.799	-.0122429	.0158904
dvincomeinequalitygini01_lag	.5342914	.0934303	5.72	0.000	.3511714	.7174114
_cons	.0510673	.660062	0.08	0.938	-1.242631	1.344765

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocialesecuritycontributorspopu dvincomein
(obs=25)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2820	0.1856	0.0796	0.0344	0.1923
ivsociale~u	0.0508	0.0321	0.0026	0.0010	0.8181
dvincomei~g	0.7528	0.7219	0.5667	0.5212	0.0000

73. Table of results of Germany. Independent variables: social expenditure, social security contributors and Gini lagged (1 year); control variable: secondary school enrolment dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    23
Time variable:  years                  Number of groups =    1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation    min =           23
                                           avg =           23
                                           max =           23

Estimated covariances =           1      R-squared        =    0.6128
Estimated autocorrelations =         0      Wald chi2(4)     =    36.39
Estimated coefficients =           5      Prob > chi2      =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp	.021573	.0196719	1.10	0.273	-.0169832	.0601291	
ivsocalsecuritycontributorspopu	-.0046781	.0092628	-0.51	0.614	-.0228329	.0134767	
cvsecondaryschoolenrolmentpopula	-.0038028	.0064196	-0.59	0.554	-.016385	.0087794	
dvincomeinequalitygini01_lag	.5390201	.0938369	5.74	0.000	.3551031	.7229371	
_cons	.8097548	.9907239	0.82	0.414	-1.132028	2.751538	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecundar
> ini01_lag
{obs=23}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~p	0.2229	0.1423	0.0497	0.0202	0.3448
ivsocials~u	-0.1047	-0.0655	0.0110	0.0043	0.6604
cvsecunda~a	-0.1226	-0.0769	0.0150	0.0059	0.6066
dvincomei~g	0.7676	0.7453	0.5893	0.5555	0.0001

74. Table of results of Germany. Independent variables: social expenditure and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country          Number of obs   =      21
Time variable:  years            Number of groups =       1
Panels:         correlated (balanced)  Obs per group:
Autocorrelation: no autocorrelation          min =      21
                                                avg  =      21
                                                max  =      21

Estimated covariances   =      1      R-squared        =      0.1630
Estimated autocorrelations =      0      Wald chi2(3)     =      4.09
Estimated coefficients   =      4      Prob > chi2      =      0.2520

```

dvincomeinequalitygini01	Panel-corrected					
	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ivsocialexpendituregdp	-.0150495	.0230256	-0.65	0.513	-.0601789	.0300798
ivsocalsecuritycontributorspopu	.0143717	.0093463	1.54	0.124	-.0039467	.0326901
cvsecondaryschoolenrolment_lag5	-.0116125	.0082601	-1.41	0.160	-.027802	.0045771
_cons	2.866856	1.095207	2.62	0.009	.72029	5.013422

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp ivsocalsecuritycontributorspopu cvsecondary
{obs=21}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale-p	-0.1412	-0.1305	0.0199	0.0170	0.5642
ivsocialeg-u	0.3181	0.3070	0.1012	0.0942	0.1844
cvsecunda-5	-0.2933	-0.2807	0.0860	0.0788	0.2230

75. Table of results of Germany. Independent variables: social expenditure lagged (1 year) and social security contributors, control variable: secondary school enrolment lagged (5 year), dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =    21
Time variable:  years                   Number of groups =    1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation      min =    21
                                           avg =    21
                                           max =    21
Estimated covariances =    1           R-squared       =    0.1500
Estimated autocorrelations =    0       Wald chi2(3)    =    3.71
Estimated coefficients =    4           Prob > chi2     =    0.2951

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp_lag	.0077275	.0245355	0.31	0.753	-.0403612	.0558162	
ivsocalsecuritycontributorspopu	.0173542	.0096867	1.79	0.073	-.0016313	.0363398	
cvsecundaryschoolenrolment_lag5	-.0104034	.0084071	-1.24	0.216	-.0268811	.0060743	
_cons	2.062796	1.188464	1.74	0.083	-.26655	4.392141	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
(obs=21)

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.0686	0.0634	0.0047	0.0040	0.7803
ivsocials~u	0.3641	0.3604	0.1326	0.1299	0.1254
cvsecunda~5	-0.2607	-0.2490	0.0680	0.0620	0.2810

76. Table of results of Germany. Independent variables: social expenditure lagged (1 year), social security contributors and Gini lagged (1 year), control variable: secondary school enrolment lagged (5 year), dependent variable: P50/P10

Linear regression, correlated panels corrected standard errors (PCSEs)

```

Group variable:  country                Number of obs   =      21
Time variable:  years                  Number of groups =       1
Panels:         correlated (balanced)   Obs per group:
Autocorrelation: no autocorrelation    min =           21
                                           avg =           21
                                           max =           21
Estimated covariances =                1      R-squared       =    0.8485
Estimated autocorrelations =          0      Wald chi2(4)    =   117.60
Estimated coefficients =                5      Prob > chi2     =    0.0000

```

dvincomeinequalitygini01	Panel-corrected					[95% Conf. Interval]	
	Coef.	Std. Err.	z	P> z			
ivsocialexpendituregdp_lag	.0117198	.0103668	1.13	0.258	-.0085987	.0320383	
ivsocalsecuritycontributorspopu	-.0007908	.0044863	-0.18	0.860	-.0095837	.0080021	
cvsecundaryschoolenrolment_lag5	.0003075	.0037127	0.08	0.934	-.0069692	.0075842	
dvincomeinequalitygini01_lag	.8880639	.0902569	9.84	0.000	.7111637	1.064964	
_cons	-.0940291	.5475584	-0.17	0.864	-1.167224	.9791656	

```

.
. **CORRELATIONS MATRIX
. pcorr dvincomeinequalitygini01 ivsocialexpendituregdp_lag ivsocalsecuritycontributorspopu cvsecu
> tygini01_lag
{obs=21}

```

Partial and semipartial correlations of dvincomeinequalitygini01 with

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
ivsociale~g	0.2395	0.0960	0.0574	0.0092	0.3384
ivsocials~u	-0.0384	-0.0150	0.0015	0.0002	0.8796
cvsecunda~5	0.0181	0.0070	0.0003	0.0000	0.9433
dvincomei~g	0.9065	0.8358	0.8217	0.6985	0.0000