
DOCTORAL THESIS

# MASS UNEMPLOYMENT IN SPAIN (1959-2014): PRODUCTIVE AND COMMERCIAL PROBLEMS OF A PERIPHERAL ECONOMY IN GLOBAL CAPITALISM

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# SUMMARY

The present thesis studies the main economic problem in Spain: mass unemployment. Nowadays (2015) 24% of active population are unemployed and more than 20% are expected to remain so until the next decade.

It is not a short-term problem. Rather, it constitutes an unresolved structural feature of the Spanish socio-economic system. Since the end of the 1970s the unemployment rate has been far higher and pro-cyclical than in any other advanced capitalist economy, with an average of 17% and spikes above 20% in three periods; it only felt below 10% in the zenith of the last construction bubble.

Thus, it is rightly perceived as the major problem for the intolerable afflictions it causes to the unemployed and society at large, given that it worsens depressive dynamics, impairs the economic potential and thwarts projects for social progress. The (Constitutional and Human) Right to work has been systematically violated, as economic integration with European Union's Member States and the policies consistently applied since the reestablishment of the parliamentary democracy proved unable to fight it: wage moderation, the 52 labour reforms since the Statute of Workers' Rights of 1980, privatisation, deregulation, liberalisation of current and capital accounts, promotion of foreign investment, etc.

In the thesis we contend that the *causa causans* of mass unemployment in Spain lies in its deficient productive system and its peripheral integration into European and global capitalism. This is most apparent in the collapse of the Francoist economic regime and the crisis of the democratic Transition, which led to a 21% unemployment rate with a mere 38% employment rate. This legacy endures because some of its original causes persist, even if they manifest in a subtle manner: through the balance of payments.

The process is as follows: when the economy grows and generates employment, current account deficits accumulate until difficulties in accessing external liquidity induce or compound a more or less traumatic deflation of domestic demand to bring external deficits down to the level for which they can obtain foreign finance. So it happened in the developments leading to the Stabilisation Plan (1959) and through the crisis of the democratic Transition (1977-1985), the accelerated integration into the

European Union (1986-1993) and the millennial boom leading to the current crisis. Such is the thrust of the first article.

Besides, foreign developments impact on domestic employment even when foreign finance does not falter, as we demonstrate in the second article: we examine to what extent did changes in foreign activity levels, trade patterns and international income and production interdependencies affect Spanish employment between 1995 and 2007 and in the first phase of the economic crisis, between 2008 and 2011.

To clarify the channels through which these variables impact domestic employment and to estimate their effect, we extend the global multiregional input—output framework by endogenising demand for both domestic and imported intermediates, private business investment and household's non-durable consumption (or equivalently, we generalise the supermultiplier formula). The model accounts, in particular, for the 'External Effects', which include the effects of economic integration and those channelled through integration, along with 'Domestic Effects'. The estimation procedure is based on a hierarchical, structural decomposition analysis and statistics from the World Input—Output Database and National Accounts.

Between 1995 and 2007, the number of hours worked in Spain increased by 44%, that is, by 10,243 millions. Out of this rise, 630 millions corresponded to changes in foreign activity levels, trade patterns and income and production interdependencies. While variations in trade patterns and interlinkages were detrimental to domestic employment (-4,383 million hours), the gains from overall foreign economic growth outweighed these 'Integration Effects' (5,012 million hours). Thus, domestic demand growth generated the vast of majority of additional hours worked, 10,750 millions. But it should be noted that the combined effect of changes in domestic technical conditions and propensities to consume only reduced the hours worked by 1,136 millions. Such a low figure suggests, in a nutshell, that an employment growth based on construction, tourism, public and domestic services does not favour significant increases in aggregate labour productivity.

Highly uneven patterns emerge from our study of the Domestic and Foreign Effects on the employment levels of main economic powers. While some countries profited extensively from the foreign sector (especially China and Germany), in other countries an unfavourable pattern of integration outweighed the benefits from global growth (namely in the US and Italy). On the other hand, domestic employment was led by

Foreign Effects or Domestic Effects to very different extents: Germany exclusively relied on Foreign Effects to generate employment and China built equally upon both effects. In contrast, France, the UK and especially Spain essentially relied on domestic demands, and the US and Italy depended entirely on domestic demands.

In the Spanish case, which we analyse again in detail in the third article, both domestic and foreign developments generated the worsening trade deficits between 1995 and 2007 that brought one of the highest current account deficits in the world in relative terms and even in absolute terms (after the US), thereby piling up external debt at an explosive rate. As a consequence, and given the 'austeritarian' stance of the Eurozone's, Spain operates again under the balance of payments constraint, which hinders the viability of policies for a return to growth as a sustainable remedy for mass unemployment.

To study the origin of such deficits we built a global multiregional input—output model, from which we compute (aggregated and disaggregated, real and nominal) import coefficients of final domestic demand and exports for the years 1995 to 2011. Results are always put in relation to the French, Italian and German. The imbalance clearly reflects excessive import growth, driven by an unfavourable transformation of the domestic and global productive structure (which is at the root of the high and rising import propensities of both domestic demand and exports) and, above all, the comparatively rapid growth of the Spanish domestic demand. The remarkable performance of exports, which also expressed widespread gains in foreign competitiveness, could not counter the growing foreign imbalance.

Along these lines, we demonstrate that the trade deficits were almost exclusively the consequence of the faster growth of domestic demand in relation to the domestic demand of trading partners. The effects of the changes in competitiveness on the trade balance were negligible, and, indeed, more beneficial to Spain than to Germany, France and Italy. However, the inefficiency of the Spanish manufacturing sector lingered, as it was not capable of selling enough of its products abroad to pay the nation's import requirements at socially acceptable levels of employment. Therefore, Spain has not lost competitiveness; but rather it has not gained enough.

The closing of the trade imbalance after 2009 was chiefly the result of restricting the domestic demand's growth such that it remained below the growth of domestic demand

abroad. In other words, the adjustment mainly operated through impoverishment and unemployment, in line with Harrodian trade theory.

Additionally, in the third article we design a framework for Keynesian balance of payments constrained growth models to explicitly account for international productive and income generation interlinkages. We provide a sketch for such a model, which builds on Social Accounting Matrices and follows the logic of supermultiplier models, and derive the external constraint implied by the model. Then we discuss the relation of the model with those of the literature and its implications for the Spanish situation.

## RESUMEN

La tesis estudia el principal problema económico de España: el paro de masas. En la actualidad (2015) un 24% de la población activa está desempleada y se espera que más del 20% permanezca en esta situación hasta la próxima década.

No es un problema coyuntural, sino que constituye una característica estructural irresuelta del sistema socio-económico español. Desde finales de los años 1970 la tasa de desempleo ha sido bastante más elevada y pro-cíclica que en cualquier otra economía capitalista avanzada, con una media del 17a% y en diversos tramos superior al 20%; solo alcanzó niveles inferiores al 10% en la culminación de la última burbuja inmobiliaria.

Así pues, con razón se percibe como el mayor de los problemas por las aflicciones intolerables que ocasiona a los desempleados y a la sociedad en su conjunto, dado que recrudece las dinámicas depresivas, merma el potencial económico e impide o coarta los proyectos de mejora social. El Derecho (Constitucional y Humano) al trabajo ha sido sistemáticamente postergado, a pesar de la integración y convergencia económica de España con los países de la Unión Europea y las políticas consistentemente aplicadas desde el restablecimiento de la democracia parlamentaria para combatirlo: contención salarial, 52 reformas laborales desde el Estatuto de los Trabajadores de 1980, privatización, desregulación, liberalización de la cuenta corriente y de capital, promoción de la inversión exterior, etc.

En la tesis argumentamos que la *causa causans* del paro de masas en España reside en su deficiente estructura productiva y la integración periférica en el capitalismo europeo y global. Un legado que perdura porque también lo hacen algunas de sus

causas principales, aunque se manifiesten de forma más sutil a través de la balanza de pagos. El proceso es el siguiente: cuando la economía crece y genera empleo, los déficits por cuenta corriente se acumulan hasta que las dificultades para acceder a la liquidez externa inducen o agravan una deflación de la demanda doméstica más o menos traumática para reducir los déficits externos hasta el nivel para el cual pueden obtener financiación. Así se comprueba en la trayectoria que condujo al Plan de Estabilización (1959), durante la crisis de la Transición democrática (1977—1985), con la acelerada integración a la Unión Europea (1986—1993) y la expansión que desemboca en la crisis actual.

Pero el sector exterior también afecta considerablemente el empleo doméstico cuando la financiación exterior no escasea, tal como podemos comprobar en el segundo artículo: examinamos hasta qué punto los cambios en los niveles de actividad exteriores, la estructura comercial y las interdependencias productivas y del ingreso inciden en la ocupación española desde 1995 hasta 2007 y durante la primera etapa de la crisis económica consiguiente, entre 2008 y 2011.

Para clarificar los canales por los cuales operan dichas variables y estimar sus efectos, extendemos el marco input-output multiregional global con la endogeneización de la demanda de inversión empresarial privada y el consumo no duradero de los hogares (o de manera equivalente, generalizamos la fórmula del supermultiplicador). El modelo tiene especialmente en cuenta los efectos externos, que incluyen los de integración económica y los que se transmiten a través de ella, junto con los internos. Pera su estimación empleamos un análisis de descomposición estructural recursiva jerárquica y estadísticas de la *World Input—Output Database* y la Contabilidad Nacional.

Entre 1995 y 2007 el número de horas trabajadas en España aumentó un 44%, esto es, en 10.243 millones. De tal incremento, 630 millones correspondieron a cambios en los niveles de actividad extranjeros, patrones comerciales e interdependencias productivas y de generación de ingresos internacionales: mientras las variaciones en la estructura comercial y las interdependencias redujeron la ocupación doméstica (-4.383 millones de horas), las ganancias del crecimiento económico global contrarrestaron los efectos de la integración (5.012 millones de horas). Así pues, el crecimiento de la demanda doméstica generó la gran mayoría de horas trabajadas adicionales (10.750 millones). Pero conviene advertir que el efecto combinado de los cambios en las

condiciones técnicas domésticas y las propensiones al consumo tan solo redujeron las horas trabajadas en 1.136 millones, que es una cifra muy baja; en breve, sugiere que el crecimiento del empleo basado en la construcción, turismo y servicios públicos y domésticos no favorece aumentos significativos en la productividad laboral agregada.

Emergen patrones muy desiguales en el estudio de los 'Efectos Domésticos' y 'Exteriores' en los niveles de empleo de las grandes potencias mundiales. Mientras algunos países se beneficiaron ampliamente del sector exterior (sobre todo China y Alemania), en otros países un patrón de integración desfavorable contrarrestó los beneficios del crecimiento global (concretamente en Estados Unidos e Italia). Por otra parte, la ocupación doméstica era liderada por los Efectos Externos o Domésticos en muy diferente grado: Alemania se basó exclusivamente en los Efectos Externos para generar empleo y China por igual en ambos. En cambio Francia, el Reino Unido y especialmente España se basaron sobre todo en demandas domésticas, y exclusivamente domésticas en Estados Unidos e Italia.

En el caso español, que analizamos de nuevo detalladamente en el tercer artículo, tanto los factores internos como externos generaron déficits comerciales crecientes entre 1995 y 2007, llegándose a alcanzar uno de los déficits corrientes más elevados del mundo en términos relativos e incluso en términos absolutos (después de los Estados Unidos), acumulando así deuda externa a una tasa explosiva. En consecuencia, y dadas las políticas de austeridad de la Eurozona, España opera una vez más bajo la restricción externa, que dificulta la viabilidad de las políticas necesarias para un retorno al crecimiento como un remedio sostenible contra el desempleo masivo.

Para estudiar el origen de tales déficits elaboramos un modelo input—output multiregional, a partir del cual se derivan coeficientes de importación (agregados y desagregados, reales y nominales) de la demanda final doméstica y de las exportaciones desde 1995 hasta 2011. Los resultados se comparan siempre con los de Francia, Italia y Alemania. El desequilibrio refleja un crecimiento de las importaciones claramente excesivo, impulsado por una transformación desfavorable de la estructura productiva doméstica y global (lo cual explica los altos y crecientes coeficientes de importación de la demanda doméstica y las exportaciones) y, sobre todo, el relativo mayor crecimiento de la demanda doméstica española. La destacada evolución de las exportaciones, que también expresaba ganancias generalizados en competitividad externa, no pudo contrarrestar el creciente desequilibrio externo.

En el mismo sentido, se demuestra que los déficits comerciales eran casi exclusivamente la consecuencia de un crecimiento más intenso de la demanda doméstica en relación a la demanda doméstica de los socios comerciales. Los efectos de cambios en la competitividad en las balanzas comerciales fueron muy menores, y, en realidad, algo más beneficiosos para España que para Alemania, Francia e Italia. No obstante, perduró la ineficiencia del sector manufacturero español, que no fue capaz de exportar suficientemente para compensar las necesidades importadoras del país a niveles aceptables de empleo. Así pues, España no ha perdido competitividad; más bien no ha ganado la suficiente.

El ajuste en la balanza comercial desde 2009 fue principalmente el resultado de restringir el crecimiento de la demanda doméstica por debajo del de los socios comerciales. En otras palabras, el ajuste operó sobre todo a través del empobrecimiento y el desempleo, en línea con la teoría del comercio de Harrod.

Adicionalmente, en el tercer artículo diseñamos un marco para los modelos de crecimiento restringido por la balanza de pagos, con objeto de incorporar explícitamente las interrelaciones productivas y de generación de ingreso internacionales. Aportamos un primer modelo, que se construye a partir de Matrices de Contabilidad Social y sigue la lógica de los modelos supermultiplicador, y derivamos la restricción externa que implica el modelo. Seguidamente discutimos la relación del modelo con los empleados en la literatura económica y derivamos sus implicaciones para el caso español.

## RESUM

La tesi estudia el principal problema econòmic d'Espanya: l'atur de masses. Actualment (2015) un 24% de la població activa està desocupada i s'espera que més del 20% segueixi en aquesta situació fins la pròxima dècada.

No és un problema conjuntural, sinó que constitueix una característica estructural irresolta del sistema soci-econòmic espanyol. Des de finals dels anys 1970 la taxa d'atur ha sigut bastant més elevada i pro-cíclica que en qualsevol altre economia capitalista avançada, amb una mitjana del 17% y en diversos trams superior al 20%; només va assolir nivells inferiors al 10% en la culminació de l'última bombolla immobiliària.

Així, doncs, amb raó es percep com el major dels problemes per les afliccions intolerables que ocasiona als desocupats i a la societat en el seu conjunt, atès que

empitjora les dinàmiques depressives, minva el potencial econòmic i impedeix o coarta els projectes de millora social. El Dret (Constitucional i Humà) al treball ha estat sistemàticament postergat, tot i la integració d'Espanya amb els països de la Unió Europea i les polítiques consistentment aplicades des del restabliment de la democràcia parlamentària per combatre'l: contenció salarial, 52 reformes laborals des de l'Estatut dels Treballadors de 1980, privatització, desregulació, liberalització de la balança corrent i de capital, promoció de la inversió exterior, etc.

A la tesi argumentem que la *causa causans* de l'atur de masses a Espanya resideix en la seva deficient estructura productiva i la integració perifèrica en el capitalisme europeu i global. Un llegat que perdura perquè també ho fan algunes de les causes principals, encara que es manifestin de manera més subtil a través de la balança de pagaments. El procés és el següent: quan la economia creix i genera ocupació, els dèficits per compte corrent s'acumulen fins que les dificultats per accedir a la liquiditat externa indueixen o agreugen una deflació de la demanda domèstica més o menys traumàtica per reduir els dèficits externs fins al nivell pel qual poden obtenir finançament. Així es comprova en la trajectòria que va conduir al Pla d'Estabilització (1959), durant la crisi de la Transició democràtica (1977—1985), amb l'accelerada integració a la Unió Europea (1986—1993) i l'expansió que desemboca en la crisi actual.

Però el sector exterior també afecta considerablement l'ocupació domèstica quan el finançament extern no escasseja, tal com podem comprovar en el segon article: examinem fins a quin punt els canvis en els nivells d'activitat exteriors, l'estructura comercial i les interdependències productives i de generació d'ingrés incideixen en l'ocupació espanyola des de 1995 fins 2007 i durant la primera etapa de la crisi econòmica consegüent, entre 2008 i 2011.

Per clarificar els canals pels quals operen les mencionades variables i estimar els seus efectes, estenem el marc input-output multiregional global amb la endogeneització de la demanda d'inversió empresarial privada i el consum no durador de les llars (o de manera equivalent, generalitzem la fórmula del supermultiplicador). El model té especialment en compte els efectes externs, que inclouen els de la integració econòmica i els que es transmeten a través d'ella, juntament amb els interns. La seva estimació utilitzem una anàlisis de descomposició estructural recursiva jeràrquica i estadístiques de la *World Input—Output Database* i la Comptabilitat Nacional.

Entre 1995 i 2007 el número d'hores treballades a España va augmentar un 44%, és a dir, en 10.243 milions. De tal increment, 630 milions corresponien a canvis en els nivells d'activitat estrangers, patrons comercials i interdependències productives i de generació d'ingrés internacionals: mentre les variacions en l'estructura comercial i les interdependències van reduir l'ocupació domèstica (-4.383 milions d'hores), els guanys del creixement econòmic global van contrarestar els efectes de la integració (5.012 milions d'hores). Així, doncs, el creixement de la demanda domèstica va generar la gran majoria d'hores treballades addicionals (10.750 milions). Però convé advertir que l'efecte combinat els canvis en les condicions tècniques domèstiques i les propensions al consum tan sols van reduir les hores treballades en 1.136 milions, que és una xifra molt baixa; ras i curt, suggereix que el creixement de l'ocupació basat en la construcció, turisme i serveis públics i domèstics no afavoreix augments significatius en la productivitat laboral agregada.

Sorgeixen patrons molt desiguals en l'estudi dels 'Efectes Domèstics' i 'Exteriors' en els nivells d'ocupació de les grans potències mundials. Mentre alguns països es van beneficiar àmpliament del sector exterior (sobretot Xina i Alemanya), en altres països el seu patró d'integració desfavorable va contrarestar els beneficis del creixement global (concretament a Estats i Itàlia). Per altra banda, l'ocupació domèstica era liderada pels Efectes Externs o Domèstics en molt diferent grau: Alemanya es basar exclusivament en els Efectes externs per generar ocupació i Xina per igual en ambdós. En canvi França, el Regne Unit i especialment Espanya es van basar sobre tot en demandes domèstiques, i exclusivament domèstiques a Estats Units i Itàlia.

En el cas espanyol, que analitzem de nou detalladament en el tercer article, tant els factors interns com externs van generar dèficits comercials creixents entre 1995 i 2007, arribant-se a assolir un dels dèficits corrents més elevats del món en termes relatiu i fins i tot en termes absoluts (després dels d'Estats Units), acumulant així deute extern a una taxa explosiva. En conseqüència, i ateses les polítiques d'austeritat de l'Eurozona, Espanya opera un cop més sota la restricció externa, que dificulta la viabilitat de les polítiques necessàries per un retorn al creixement com un remei sostenible contra l'atur massiu.

Per estudiar l'origen d'aquests dèficits elaborem un model input—output multiregional, a partir del qual es deriven coeficients d'importació (agregats i desagregats, reals i nominals) de la demanda final domèstica i de les exportacions des

de 1995 fins 2011. Els resultats es comparen sempre amb els de França, Itàlia i Alemanya. El desequilibri reflexa un creixement de les importacions clarament excessiu, impulsat per una transformació desfavorable de l'estructura productiva domèstica i global (el qual explica els alts i creixents coeficients d'importació de la demanda domèstica i les exportacions) i, sobre tot, el relatiu major creixement de la demanda domèstica espanyola. La destacada evolució de les exportacions, que també expressava guanys generalitzats en la competitivitat externa, no va poder contrarestar el creixent desequilibri extern.

En el mateix sentit, es demostra que els dèficits comercials eren gairebé exclusivament la conseqüència d'un creixement més intens de la demanda domèstica en relació a la demanda domèstica dels socis comercials. Els efectes de canvis en la competitivitat sobre les balances comercials van ser molt menors, i, en realitat, més beneficiosos per Espanya que per Alemanya, França i Itàlia. No obstant, va perdurar la ineficiència del sector manufacturer espanyol, que no va ser capaç d'exportar prou per compensar les necessitats importadores del país a nivells acceptables d'ocupació. Així, doncs, España no ha perdut competitivitat; més aviat no n'ha guanyat suficient.

L'ajust en la balança comercial des del 2009 va ser principalment el resultat de restringir el creixement de la demanda domèstica per sota del dels socis comercials. En altres paraules, l'ajust va operar sobretot a través de l'empobriment i l'atur, en línia amb la teoria del comerç de Harrod.

Addicionalment, en el tercer article dissenyem un marc pels models de creixement restringit per la balança de pagaments, amb l'objectiu d'incorporar explícitament les interrelacions productives i de generació d'ingrés internacionals. Aportem un primer model, que es construeix a partir de Matriu de Comptabilitat Social i segueix la lògica dels models supermultiplicador, i derivem la restricció externa que implica el model. Seguidament discutim la relació del model amb els utilitzats a la literatura econòmica i derivem les seves implicacions pel cas espanyol.

# GENERAL INTRODUCTION

> What might have to be done to overcome the sterility of today's economics? The first condition is that we go back to the great tradition of the classics, Kalecki and Keynes whose work was rooted in the economic policy problems of their time, and derived its relevance from them. They asked what should be done and how. Economic policy is the main inspiration of economic theory. (Steindl, 1984, pp. 13-4)

The present thesis is rooted in the main economic problem of our time in Spain: mass unemployment. Nowadays (2015) 24% of active population are unemployed and more than 20% are expected to remain so until the next decade (ILO, 2015). Indeed, mass unemployment is an unresolved structural feature of the Spanish socio-economic system. Since the end of the 1970s[1] the unemployment rate has been far higher and pro-cyclical than in any other advanced capitalist economy, with an average of 17% and spikes above 20% in three periods; it only felt below 10% in the zenith of the last construction bubble.

Mass unemployment is rightly perceived as the major problem[2] for the intolerable afflictions it causes to the unemployed and society at large, as it worsens depressive dynamics, impairs the economic potential and thwarts projects for social progress.[3] The Constitutional and Human Right to work has thus been systematically violated as economic integration with European Union's Member States and the policies consistently applied since the reestablishment of the parliamentary democracy proved unable to fight it: wage moderation, the 52 labour reforms since the Statute of Workers' Rights of 1980, privatisation, deregulation, liberalisation of current and capital accounts, promotion of foreign investment, etc.

In this thesis we contend that the *causa causans* of mass unemployment in Spain lies

[1] During *Franquism* statistical unemployment was insignificant, but it hid the exclusion of women from paid employment, economic emigration, redundant workers and rudimentary production techniques.

[2] So it is reflected in the Barometer of the Spanish Centre for Sociological Research since May 2007. Even before, the first problem alternated between unemployment and "terrorism, ETA".

[3] See Sen (1997) and Kalecki (1943) and Amico, Fiorito and Hang (2011) for a review of evidence supporting the "unit root hypothesis" (i.e., current effective demand strongly influences the path of the economy).

in its deficient productive system and its peripheral integration into European and global capitalism. This is most apparent in the collapse of the Francoist economic regime and the crisis of the democratic Transition (1977-1985), which led to a 21% unemployment rate with a mere 38% employment rate. This legacy endures because its original causes persist, even if they manifest in a subtle manner: through the balance of payments.

When the economy grows and generates employment, current account deficits accumulate until difficulties in accessing external liquidity induce or compound a more or less traumatic deflation of domestic demand to bring external deficits down to the level for which they can obtain foreign finance. So it happened in the developments leading to the Stabilisation Plan (1959) and through the crisis of the democratic Transition (1977-1985), the accelerated integration into the European Union (1986-1993) and the millennial boom leading to the current crisis.[4] Such is the thrust of the first article.

Besides, foreign developments impact on domestic employment even when foreign finance does not falter, as in the Spanish employment 'miracle' of 1995-2007. In the second article, we examine to what extent did changes in foreign activity levels, trade patterns and income and production interdependencies affect Spanish employment between 1995 and 2007 and in the first phase of the economic crisis, between 2008 and 2011.

However, the very same economic boom generated worsening trade deficits that brought one of the highest current account deficits in the world in relative terms, and the second in absolute terms after the US in 2007, thereby piling up external debt at an explosive rate. In the third article, we argue that, as a consequence and given the Eurozone's policies, Spain operates again under the balance of payments constraint. This constraint hinders the viability of policies for a return to growth as a sustainable remedy for mass unemployment. Lifting the constraint requires, firstly, a better understanding of its origin. We focus on the determinants of the deepening trade deficits; hence on the indirect route by which changes in domestic and foreign activity levels, trade patterns and income and production interdependencies may affect domestic employment, that is, by altering the credit-worthiness of Spanish agents and thereby their capacity to expand demand.

[4] Along these lines, statistical tests of Thirlwall's Law suggest that Spain has been repeatedly under the balance of payments constraint (Alonso, 1999; Alonso and Garcimartín, 1998; Garcimartín, Rivas and Martínez, 2010; Leon-Ledesma, 1999).

The thesis in not only united in scope –the analysis of structural causes of mass unemployment in contemporary Spain—, but also in theoretical arguments. These are essentially grounded in the long tradition of Classical Political Economy, more precisely, on the Cambridge revival of Political Economy (see Martins, 2014) or, equivalently, what Pasinetti (2007) terms the Cambridge School of Keynesian Economics and McCombie (2011) Cantabrigian Economics. This theoretical framework, along with the goals of this research, justifies the strategy and the set of instruments employed, as we proceed to explain next.

The Keynesian Principle of Effective Demand (Keynes, 1936) underpins the whole investigation. It states that the equilibrium level of output at any given moment, and thus the level of employment for a given technology, depends on the expected effective demand at normal prices –both in the short and long run (Garegnani and Palumbo, 1998). We are aware that the conventional approach to employment does not rest on this principle, but on an inverse relationship between real wages and labour demand, along with the assumption that the economy has a tendency to operate at a position in which markets clear at full employment, as long as shocks and barriers do not disturb wage and price flexibility.[5] Congruently, the task of the social scientist is to identify the 'restrictions, frictions and imperfections' that disturb the price-mechanism. We do not follow such research agenda both for theoretical and empirical reasons.

Theoretically, the full-employment tendency of competitive capitalist systems has not been demonstrated. The Cambridge Capital Controversies (CCC) exposed the lack of foundation in a multisectorial economy of the traditional substitution mechanisms responsible for it.[6] Modern General Equilibrium Theory cannot prove it either. The Sonnenschein–Mantel–Debreu theorem revealed the non-uniqueness and instability of equilibria, which entails that the direction of the change of an aggregate resulting from a change in its price cannot be established a priori (Rizvi, 1994; 2006). Indeed, the theory "cannot even *attempt* to prove that the direction of disequilibrium adjustments is toward an equilibrium, because […] it simply does not know what happens if disequilibrium adjustments involve the implementation of disequilibrium production decisions and disequilibrium exchanges (Petri, 2004, p. 3).

[5] See Stirati (forthcoming) for an overview of employment theory in the history of economic thought.

[6] For summaries of the CCC, see Cohen and Harcourt (2003; 2005) and Harcourt (1972); for the particular issues it raised to the Marginalist theory of employment, see Aspromourgos (2001) and Roncaglia (1988). Before, it was already known that Marginalist theory reasoned in circularity: the profit rate is needed to compute the capital stock that is supposed to determine the profit rate (Dobb, 1954).

Even if we were to accept the methodological view that "empirical verification takes methodological precedence over logical consistency" (Carter, 2011, pp. 341-342), we would step on no surer ground. First, it is well known –albeit ignored—that tests based on the aggregate production function are "not even wrong" as they tend to replicate spurious results based on simple accounting relationships (Felipe and McCombie, 2013). Second, labour market 'rigidities' are unable to account for the diversity of unemployment experiences (Baker et al., 2005; Howell, 2011; Schettkat, 2003), least of all the Spanish one (e.g., Muñoz de Bustillo, 2005; Banyuls and Recio, 2012). Third, flexible labour markets may ensure higher profits, but not more investment and thereby employment because, "contrary to the OECD's suggested mechanism, the level of profitability is not universally associated with net investment"[7] (Lewis, 2008, p. 65). In short, as the legal scholar Alain Supiot remarked:

> After 30 years (…) employments have been casualised, divided, granted subsidies, without any major effect on the employment level. The evolution of employment has followed the curve of activity of companies and not that of labour law reforms. (Supiot, 2005, p. 1089)

Consequently, instead of substantiating a "catalogue of imperfections and shocks", as Eatwell and Milgate put it (2011, p. 26)[8], we focus on of why aggregate demand never reaches a level corresponding to full-employment output.[9] In the first article, we analyse the long half-century of Spanish economic history starting from the Stabilisation Plan of 1959, which, as already advanced, points to relevance and severity of the balance of payments constraint. In turn, the constraint –as much as the crisis of the democratic Transition—directs our attention to the analysis of the productive structure and its position in global capitalism.

Their causal connection has been perhaps most studied and emphasised by Cantabrigian Economics and the Structuralist tradition starting with Prebisch (e.g., 1950; 1959). In balance of payments constrained growth models, the relative characteristics of productive systems underlie income elasticities of demand for imports and exports, which jointly with relative growth rates largely determine the evolution of

[7] In accordance with the CCC, we may add.

[8] Notable examples for the Spanish case include: Dolado and Felgueroso (2010); Andrés et *al*. (2010); Bentolila et *al*. (2012); research published by the Bank of Spain such as Costain, Jimeno and Thomas (2010) and Jimeno and Thomas (2011), and that of the OECD, for example OECD (2010).

[9] It must be noted that nothing guarantees sufficient increases in effective demand as to offset the detrimental effects on employment of labour productivity increases. Thus, technological unemployment, as in Marx and Ricardo, can be a long-term result and it cannot be ruled out a priori (Cesaratto, Serrano and Stirati, 2003).

the trade balance and thereby the external financial position (Thirlwall and McCombie, 1994; 2004). In export-led theories along Kaldorian (1970) lines and in those of the Cambridge Economic Policy Group (e.g., Cripps, 1978; Cripps and Godley, 1978; Godley and Cripps, 1983, Ch. 14), the competitive position in global capitalism is of no less importance both for fostering and allowing the expansion of domestic demand, production, employment.

Thus, it is *not* maintained "that trade deficits are self-correcting and that the benefits of trade do not depend on a country having an absolute advantage over its rivals" (Krugman, 1993, p. 26).[10] Rather, the balance of payments is not self-adjusting via price mechanisms;[11] if deficits have to be corrected, income carries most of the burden of the adjustment in line with Harrodian trade theory (Harrod, 1933). Further, abandoning the full-employment-tendency assumption entails that international trade may have a lasting effect on employment because absolute advantages prevail (e.g., Brewer, 1985; Felipe and Vernengo, 2002—3; Prash, 1996; Schumacher, 2012; Shaikh, 1995, 2007; Steedman, 1979a, 1979b; Thirlwall, 2013, ch. 6), as economic history confirms (Chang, 2002; 2008). The notion of national competitiveness in an internationally integrated economy is, therefore, meaningful (Parrinello, 2010), implying that trade conflicts may arise –to protect domestic employment, among other possible reasons (Cesaratto, 2013).

Through these lenses, in the first article we interpret the Spanish economic history since the end of autarky, using evidence from national accounts, labour force surveys and balance of payments and trade statistics. This theoretical background also frames the second article, where we aim to estimate the extent to which changes in domestic and foreign activity levels, trade patterns and income and production interdependencies affected domestic employment in Spain and other countries between 1995 and 2011.

To do so, we require global multiregional input-output tables –which we understand to be the best statistical source of the characteristics of an economy's productive structure and its (non-financial) interrelations with foreign economies. Consequently, we employ Input—Output Analysis, which we find suitable for our theoretical approach. Leontief's Input—Output Analysis has close ties with the Classical Surplus

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[10] This conclusion is upheld even if New Trade Theories often undermine them (Deraniyagala and Fine, 2001). Recent developments in Marginalist Trade theory also find an ambiguous effect of openness on employment (e.g., Baldwin and Robert-Nicoud, 2014; Davidson and Matusz, 2009; Helpman et al, 2010; Grossman, 2013).

[11] Lavoie (2014, pp. 541—573) provides a summary of theoretical arguments and historical evidence.

Approach (see Kurz, Dietzenbacher and Lager, 1998, pp. xix—xxxviii; Kurz and Lager, 2000) and is used to ground multi-sectorial Keynesian models (e.g., Goodwin, 1949; Pasinetti, 1981). We have thus benefited from the very recent publications of such tables (see *Economic Systems Research,* 2015).

These tables feed our global Leontief model, which captures all inter- and intra-industry flows that take place domestically and internationally to meet a certain domestic or foreign final demand, which lead the system. We extend it by endogenising household's induced consumption and private business investment –or equivalently, we translate the supermultiplier formula (Bortis, 2011; Dejuán, 2005; Serrano, 1995) into a global multiregional input-output setting. Then, through a strand of what the Input-Output literature terms Structural Decomposition Analysis (see Miller and Blair, 2009, ch. 13), we define and compute 'Domestic Effects' and 'Foreign Sector Effects'. The second include 'Integration Effects' (those caused by changes in trade structures of both final and intermediate goods) and those channelled via previous economic integration: 'Foreign Autonomous Demand Effects' and 'Foreign Socio-Technical Effects' (which encompasses the impact of changes in foreigners consumption propensities and technological coefficients). Unfortunately, at the estimation stage we have to aggregate the industry dimension due to data issues.

In the third article, we study in detail the causes of the Spanish trade deficit that ultimately resulted in a fragile Net International Investment Position. We proceed sequentially: first we examine the evolution of imports, next that of exports and finally we merge both analysis. To do so, we take advantage of the fact that the global Leontief model is best suited to follow "the superior approach, both in principle and practice, of relating imports to expenditure [and not to income as in conventional income analysis]" advocated by Kennedy and Thirlwall (1979, p. 173). Further, since it is a global model, exports that are the counterpart of induced imports are also endogenous and related to expenditure.

By recourse to the concept of vertical integration (or sub-system, in Sraffa's terminology (1960, p. 89)), we carry out a dynamic Keynesian multi-sectorial analysis that encompasses, simultaneously, the structure and the circularity of the production process (Pasinetti, 1981; 1986). In other words, we can trace the complete supply counterpart (including direct and indirect import requirements) of each domestic and

foreign effective demand for commodities, and study its evolution.[12] Thereby we compute aggregated and disaggregated, real and nominal, import coefficients of final domestic demand and exports for the years 1995 to 2011. We always put Spanish results in relation to the French, Italian and German. Then, we examine to what extent did the increase in Spanish imports value until 2007 respond to the high and rising import propensities or to the fast economic growth.

Regarding exports, we document their remarkable evolution –at least in relation to France, Italy and Germany— by examining market shares in world *value-added* exports and in aggregated and disaggregated (by commodity) final foreign demands. To us, the latter perfectly measures changes in foreign competitiveness. We also examine the dependency on foreign demand to generate domestic value added and employment, and which products and regions are the most important in this respect.

Next, vertically-integrated and conventional trade balances are compared. The vertically-integrated approach reveals which final demands are ultimately responsible for trade balances, while the conventional one shows how these demands translated into trade flows of particular products. We conclude the empirical section by assessing the contribution of variations in international competitiveness (i.e., the share of domestic and foreign final demand captured by domestic producers) and relative domestic demands to changes in the trade balance.

This article also has a second goal motivated by the rapid transformation of the global supply structure and thereby of trade –global value chains shaped by transnational corporations accounted for some 80% of global trade in 2010 (UNCTAD 2013).[13] We aim to advance a framework for Keynesian Balance of Payments Constrained Growth models to explicitly account for productive and income generation

[12] The concept of vertical integration (and *hyper*-integration, see Garbellini and Wirkierman, 2014) allows us to break down the macroeconomy into as many vertically integrated sectors as there are final commodities in a manner consistent with the central idea of the Cambridge tradition that the whole is more than sum of the parts (Harcourt, 2003), that the economy consists of internally related phenomena as Lawson (1997) argues, since it precisely captures such interrelations.

[13] As a result, official trade statistics, given that they are measured in gross terms, become less and less suitable for analysing trade patterns, their determinants and effects, as acknowledged by most international economic organisations. For example, the OECD and the WTO have launched the "Trade in Value Added Initiative" (see http://www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm); the UNCTAD has started to monitor global value chains (e.g., 2013); the IMF aims to account for global value chains in their 'surveillance' work, for example in their estimation of the real effective exchange rate (IMF, 2013), etc.

interlinkages in a global multiregional setting.[14] We provide a sketch for such a model – which extends the one built in the second article—and discuss its relation with those of the literature and its implications for the Spanish situation.

Our intention is to employ it in the near future to empirically study possible routes to close the Spanish trade imbalance at the lowest cost for employment. In other words, to make further use of this "general methodological approach designed to reduce the steady widening gap between factual observation and deductive theoretical reasoning that threatens to compromise the integrity of economic analysis as an empirical science." (Leontief, 1989, p. 3)

Finally, in the last chapter we summarise our main arguments and findings, derive conclusions and sketch future research.

[14] Neoclassical economics is rapidly incorporating the implications of the 'slicing-up' of production chains (e.g., Robert, 2014). Keynesians ought to follow suit.

# OBJECTIVES

While the objectives of the thesis have already been mentioned in the General Introduction, let us repeat them succinctly: the thesis aims at providing a comprehensive analysis of the structural causes of mass unemployment in contemporary Spain.

To do so, in the first article we seek to demonstrate that the main cause of current unemployment is not new at all, but constitutes an unresolved structural feature of the Spanish socio-economic system since at least the Stabilisation Plan of 1959. That is, we argue that the *causa causans* of mass unemployment in Spain lies in its deficient productive system and its peripheral integration into European and global capitalism. While these problems are apparent in a drastic manner in certain periods, we aim to demonstrate that they are always latent in the Spanish economy, even if they manifest in a subtle manner: through the balance of payments.

In addition to their major role in explaining the external financial constraint on the expansion of domestic demand, international trade relations also impact domestic employment through 'real' channels. Thus, in the second article we aim to determine to what extent did changes in foreign activity levels, trade patterns and income and production interdependencies affect Spanish employment between 1995 and 2007 and in the first phase of the economic crisis, between 2008 and 2011.

Finally, in the third article, we intent to substantiate that Spain operates again under the balance of payments constraint despite the Euro, and then determine the causes behind the trade deficits of 1995 to 2007 that drove the foreign financial position to an unsustainable path.

All of these research goals imply theoretical and methodological objectives. In particular, we aim to provide a sound theoretical foundation of multiplier-cum-accelerator mechanisms operating at a global level and frame the analytical scheme in terms of computable inter-country accounting relationships (to then process available datasets for an empirical assessment of our research questions). In addition, we seek to formulate on Classical-Keynesian foundations a novel balance of payments constrained model of the world economy that accounts for productive and income generation

interlinkages among countries, which allows obtaining an expression of the domestic income level consistent with balanced trade.

## METHODOLOGY

Leaving aside the methodology used in the first article (which due to its nature are based on national accounts, labour force surveys, balance of payments and trade statistics), the bulk of our research is grounded on extensions of traditional Input—Output Analysis.

In particular, in the second article we extend the global multiregional input-output model by endogenising household induced consumption and private business investment along Classical-Keynesians lines. Then, through a strand of what the Input-Output literature terms Structural Decomposition Analysis (see Miller and Blair, 2009, ch. 13) we define and compute 'Domestic Effects' and 'Foreign Sector Effects'.

In the third article, we use the global multiregional input-output model and the concept of vertical integration (or sub-system, in Sraffa's terminology (1960, p. 89)) to trace the complete supply counterpart of each domestic and foreign effective demand for commodities, and study its evolution. We make extensive use of this method, which nowadays is referred as "slicing up global value chains" (Timmer et al., 2014), alongside Structural Decomposition Analyses to examine the evolution of the Spanish trade balance.

The rationale and details of these methods are explained in detail in the articles. However, it is worth explaining here the nature of the global multiregional input-output tables that we use extensively: the World Input—Output Tables (WIOTs) elaborated by the World Input—Output Database Project (WIOD) and funded by the European Commission as part of the 7th Framework Programme (see Dietzenbacher et al., 2013; Timmer et al. 2015, and the web page www.wiod.org). We prefer this database to other global multiregional input-output databases for several reasons (see *Economic Systems Research*, 25, 1—156).

First, the WIOTs comprise Spain and the other 26 countries of the European Union, 13 other major economies (including the US, Japan and the so-called BRICS) and the

'Rest of the World' at a 35-industry level of disaggregation. Thus those economies with which Spain is more integrated are explicitly covered, which enhances the accuracy of our estimates. Equally, we can readily replicate our computations and contrast the results with those of other major Eurozone economies (typically Germany, France and Italy) and other economic powers (such as the US, the UK, Japan and China). Second, the WIOD provides a time-series of WIOTs expressed in current prices for each year between 1995 and 2011 and in previous year's prices up to 2009. All this allows us to assess dynamics of both values and volumes.

Third, the WIOTs contain a meticulous allocation of trade flows among end-use categories that outperforms the standard 'import proportionality assumption', and detailed information on trade in services, which again is important for the accuracy of our estimates. Fourth, the tables are compiled from official and publicly available statistics and are fully consistent with National Accounts, from which we source complementary data. Fifth, their socio-economic accounts (SEA) include information on hours worked, which have advantages over other measures of employment.[15]

Needless to say, we have made use of the pioneering studies in the Input-Output field (which can be found in Kurz, Dietzenbacher and Lager, 1998) and of basic textbooks (e.g. Miller and Blair, 2009). Nonetheless, our analysis has been conducted in accordance with the theoretical approach and objectives specific to our study.

[15] They are directly commensurable along time and among countries, which is not the case even for a full-time equivalent measure. Moreover, they offer a purely technical measure of labour employed, unlike the number of workers or employment and unemployment rates. These depend, in addition, on institutional innovation and social conventions (e.g. retirement age, schooling system, work-day and part-time conventions, etc.).

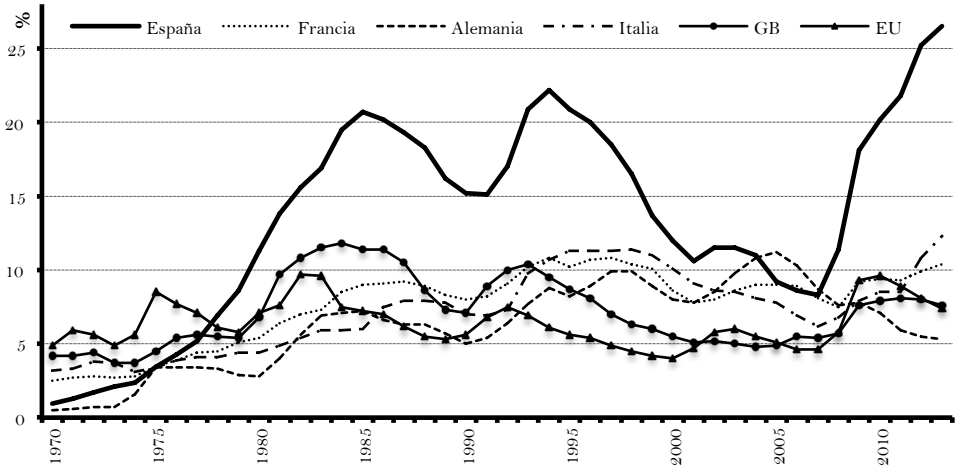
# RESULTS AND DISCUSSION

# EL PARO DE MASAS EN ESPAÑA (1959-2014): LA ESTRUCTURA PRODUCTIVA EN LA INTEGRACIÓN AL CAPITALISMO GLOBAL[16]

## 1. INTRODUCCIÓN

El paro de masas es estructural en el sistema socio-económico español. En la actualidad alcanza casi el 25% y se prevé superior al 20% hasta el año 2019[17], pero su historial resulta igualmente desastroso: desde finales de los años 1970 la tasa de desempleo ha sido bastante más elevada y pro-cíclica que en cualquier otra economía capitalista avanzada, con una media del 16% y en diversos tramos superior al 20%; solo alcanzó niveles inferiores al 10% en la culminación de la última burbuja inmobiliaria (gráfico 1). Así pues, con razón se percibe como el mayor de los problemas[18] por las aflicciones intolerables que ocasiona a los desempleados y a la sociedad en su conjunto, dado que recrudece las dinámicas depresivas, merma el potencial económico e impide o coarta los proyectos de mejora social.[19]

GRÁFICO 1. Tasas de paro en España y principales potencias occidentales, 1970-2013




Fuente: Conference board, International Comparisons of Annual Labor Force Statistics, 1970-2013, excepto los valores españoles de 1970 a 1976 (de la Fuente, 2012).

[16] El articulo ha sido enviado a la *Revista de Historia Industrial* [8/06/2015].
[17] OIT (2015).
[18] Así lo refleja el Barómetro del CIS de manera ininterrumpida des de mayo de 2007. Antes la primera preocupación solía alternar entre el paro y "el terrorismo, ETA" .
[19] Al respecto, véase Amico, Fiorito y Hang (2011), Sen (1997) y Kalecki (1943).

Un desempleo masivo que se prolonga desde los años cincuenta,[20] a pesar de la integración y convergencia económica de España con los países de la Unión Europea (1959-2014), y es apenas sensible a las políticas consistentemente aplicadas desde el restablecimiento de la democracia parlamentaria para combatirlo: contención salarial y reformas laborales neoliberales, privatización, desregulación, liberalización de los intercambios exteriores, promoción de la inversión exterior, ventajas fiscales a la inversión, etc.[21]

En este artículo argumentamos que en España el paro de masas actual es en gran medida heredado del franquismo y los primeros años de restablecimiento de la democracia parlamentaria, no solo por suponer un nivel de partida elevadísimo (21%) sino también porque persisten algunas de sus causas principales. En particular, la incapacidad de superar la condición periférica de la economía española, por cuanto la debilidad del sistema productivo español en relación al de los países de la Unión Europea comporta que con el crecimiento económico se acumule deuda exterior hasta que las dificultades para seguir accediendo a liquidez externa acaban bloqueando la expansión, siempre mucho antes de alcanzar la ocupación plena. El agotamiento del patrón de crecimiento reciente, aunque en la eurozona no podía ser detonado por una típica crisis de balanza de pagos, se debe tanto al sobreendeudamiento privado como al externo que espoleó la burbuja de la construcción: la alternativa al estancamiento que implica la insuficiente competitividad española. La debilidad del sistema productivo deriva de un atraso histórico que, si bien se reduce gradualmente desde el 'desarrollismo', agudiza sus consecuencias con la inserción a un área tan competitiva como la Unión Europea (a finales de la profunda crisis económica de los últimos setenta y primeros ochenta en que fracasa la 'reindustrialización' española) y el consiguiente desarme de la política industrial, fiscal y monetaria.[22]

Una vez presentadas la motivación y la tesis, en la próxima sección examinamos los

[20] Durante el franquismo el paro estadístico era insignificante, pero encubría la exclusión de las mujeres del trabajo mercantil, la emigración económica, trabajadores redundantes y técnicas productivas rudimentarias.

[21] Según el paradigma neoclásico dichas políticas promueven inequívocamente la plena ocupación, en la medida que eliminan las 'restricciones, fricciones e imperfecciones' que obstruyen o entorpecen los *supuestos* mecanismos por los que la competencia sitúa los precios a niveles que 'vacían' los mercados. Pero es incongruente con la experiencia histórica (Howell (2005)), y más aún con la española (Banyuls y Recio (2012), Etxezarreta (1991), Recio (2010)). El paradigma keynesiano razona, por el contrario, que el desempleo es un resultado normal en el sistema capitalista (Lavoie 2014), y funcional para su reproducción (Kalecki (1943)).

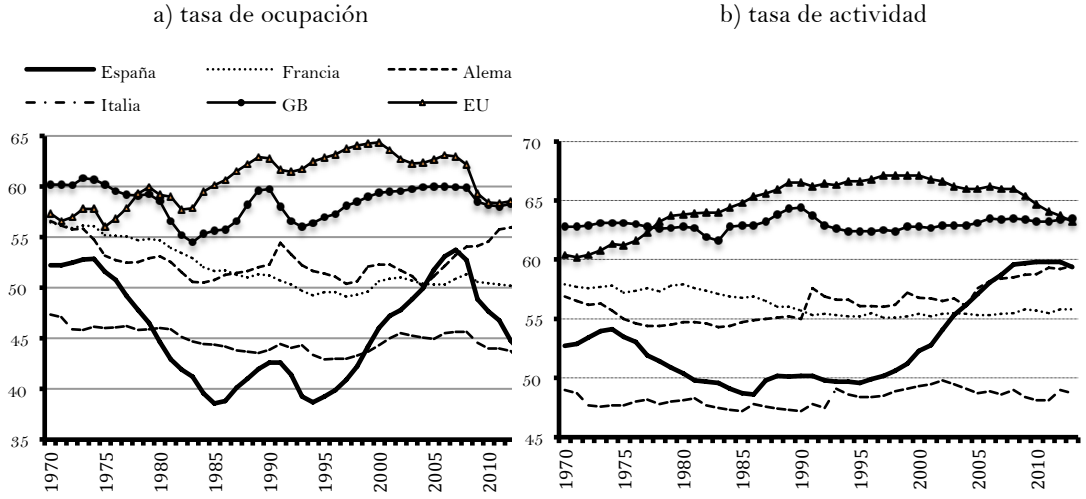
[22] Para una síntesis de conjunto actualizada, véase Carreras y Tafunell (2010).

determinantes directos de la tasa de paro desde los años setenta: tasas bajas y volátiles de ocupación y actividad por el insuficiente nivel de producción y la 'flexibilidad' excepcional a sus variaciones. Tasas ajustadas a un ciclo económico –como argumentamos en la sección tercera- críticamente condicionado por la trayectoria de la balanza de pagos y, en consecuencia, por la articulación de la estructura productiva en el contexto europeo. Así se comprueba en las coyunturas del Plan de Estabilización, la crisis de la Transición democrática, la integración acelerada en la Unión Europea, el *boom* reciente y la crisis actual.

## 2. LAS CAUSAS DEL PARO DE MASAS: UN PRIMER NIVEL DE ANÁLISIS (1970-2013)

El problema que se plantea en la introducción tiene un primer nivel de respuesta muy claro: desde mediados de los años 1970 la tasa de paro española ha sido más elevada y volátil con respecto a la de los países avanzados porque, sencillamente, la tasa de ocupación ha sido más baja y volátil. No es en absoluto una obviedad, dado que por definición la tasa de paro depende de la proporción entre la tasa de ocupación y la tasa de actividad. En Italia, por ejemplo, se han registrado tasas de paro en niveles europeos por su bajísima tasa de actividad, a pesar de tener una tasa de ocupación generalmente inferior a la española (gráfico 2). Y en España, como se refleja en los gráficos, con toda probabilidad la tasa de paro habría sido aún más elevada en las recesiones si la tasa de actividad no fuera endógena y tendiese a adaptarse a la tasa de ocupación.

GRÁFICO 2. Tasa de ocupación y actividad en España y países occidentales, 1970-2013 (%)




Fuente: Véase el gráfico 1.

La excepcional variabilidad de la ocupación española se explica por su perfecta 'flexibilidad' respecto a las necesidades de producción, como se comprueba en el análisis econométrico para el período de 1970 a 2013: un cambio del PIB en un punto porcentual suele comportar un cambio en la ocupación de entre 1 y 1,29 por ciento (según la especificación econométrica).[23] Esta hipersensibilidad no se observa ni tan siquiera en países con la regulación laboral más laxa, como Estados Unidos (columna (a) de la tabla 1).

TABLA 1. Respuesta del empleo al ciclo económico

| | (a) Elasticidad del empelo al PIB | Constante | (b) Tasa de paro-empleo | Constante | (c) Coeficiente de Okun (tasa de paro-PIB) | Constante |
|---|---|---|---|---|---|---|
| **España** | 1,0031*** | −0,0186*** | −0,5619*** | 0,0099*** | −0,5642*** | 0,0204*** |
| **Francia** | 0,2478*** | −0,0009 | −0,6320*** | 0,0048*** | −0,1568*** | 0,0053*** |
| **Italia** | 0,1726*** | 0,0004 | −0,5078*** | 0,0039*** | −0,0890*** | 0,0037*** |
| **GB** | 0,3689*** | −0,0033 | −0,6135*** | 0,0037*** | −0,2323*** | 0,0059*** |
| **EU** | 0,6619*** | −0,0045** | −0,5829*** | 0,0088*** | −0,3884*** | 0,0114*** |

Fuentes: Las series de PIB (en moneda doméstica y precios constantes) provienen de la OECD; la tasa de paro y el empleo, de las fuentes del gráfico 1.
Notas: El símbolo *** denota el nivel de significación estadístico más elevado que se usa convencionalmente en econometría (99%). Si no es un atributo de los coeficientes, se consideran 'estadísticamente no significativos'. Aquí prescindimos de Alemania por la ruptura estadística que supuso la unificación.

En cambio, las variaciones del empleo no se transmiten totalmente a la tasa de paro: por cada 1 por ciento de incremento (disminución) del empleo, la tasa de paro disminuye (aumenta) en promedio entre 0,54 y 0,56 puntos porcentuales (columna (b) de la tabla 1). Esta relación es de las más débiles de la muestra porque viene mediada por el número de activos que, como vimos en los gráfico 2, en España responde con suma rapidez a las condiciones del mercado laboral. En otras palabras, el 'ejercito de reserva' se nutre no solo de parados oficiales sino también de buena parte de los 'inactivos' que entran y salen de la 'actividad' y de la economía sumergida según la coyuntura laboral, e incluso de emigrantes en los últimos tiempos.

De ambas relaciones se desprende que en España, atendiendo a los estándares internacionales (columna (c) de la tabla 1)[24], el vínculo entre la producción y la tasa de paro (el coeficiente de Okun) es excepcionalmente estrecho. En realidad la tasa de paro

[23] Hemos aplicado a una serie temporal más larga (1970-2013) las metodologías que utilizan Ball, Leigh y Longani (2013) en el FMI. En la tabla 1 presentamos solamente los resultados de la especificación de la Ley de Okun "en cambios", aunque hemos estimado también dos especificaciones "en niveles" que nos sirven para describir los rangos de cada coeficiente en el texto principal. (El autor proporcionará a quien puedan interesar los resultados completos de este ejercicio y el correspondiente a la nota 69).
[24] Véase también Perman, Stephan y Tavéra (2015).

es más sensible a una caída que al incremento de la misma magnitud en el PIB, lo cual implica una asimetría ausente en casi todos los países de la OCDE.[25]

## 3. ESTRUCTURA PRODUCTIVA, INTEGRACIÓN ECONÓMICA Y RESTRICCIÓN EXTERNA (1959-2014)

El análisis pormenorizado reclama una revisión histórica en consonancia con las principales coyunturas político-económicas: el Plan de Estabilización (1959-1974), la crisis de la Transición democrática (1974-1985), la integración acelerada en la Unión Europea (1985-1994), y el *boom* reciente y la crisis actual (1994-2014).

### 3.1. Crecimiento ya no limitado por la balanza de pagos (1959-1974)

Después de la incorporación a la ONU (1950) y el pacto con los Estados Unidos (1953) el régimen del general Franco relaja el estrangulamiento autárquico, que suponía un acceso muy escaso a las importaciones de alimentos, energía, materias primas y medios de producción. Impulsado a su vez por el boom expansivo de la Europa Occidental, el notable crecimiento de los años cincuenta topa drásticamente con la restricción externa desde 1957, de forma que en julio de 1959 el Instituto Español de Moneda Extranjera ya "no podía ceder divisas ni para las importaciones más indispensables".[26] De ahí la apertura comercial y financiera que culmina con el Plan de Estabilización y su desarrollo.[27]

Desde 1960 hasta 1973 España consigue un crecimiento económico muy superior al del conjunto de Europa (a un promedio del 7,2% y el 4%, respectivamente), con exportaciones que aumentan a tasas sin precedentes y más aún la importaciones, que pasan gradualmente del "régimen intervenido" al "liberalizado" (con altos niveles arancelarios). Las cifras son concluyentes: entre 1959 y 1970 las exportaciones se multiplican por 7,6 y las importaciones por 8,5, aun cuando arrancan de un nivel 1,4 veces superior[28], con lo cual el déficit comercial empeora y la tasa de cobertura cae a mínimos históricos (en torno al 54%)[29].

[25] Cazes, Verick y Al Hussamis (2013).
[26] Sardà (1970), p. 470.
[27] Por ejemplo: Catalan (1995); Fontana y Nadal (1980), pp. 146-152; Fuentes Quintana (1984).
[28] Fontana y Nadal (1980), pp. 154-155.
[29] Carreras y Tafunell (2010), p. 340.

Todo lo cual se explica perfectamente por la estructura productiva, su competitividad y el patrón y ritmo de crecimiento económico en relación al de los socios comerciales[30] Dado el mayor crecimiento de España, mantener el equilibrio comercial exigía una propensión a exportar suficientemente mayor a la de importar, pero difícilmente podía ser el caso de la economía española por al menos tres razones de peso:

1) El avance espectacular de la industria no altera la especialización en bienes de alta intensidad energética y manufacturas tradicionales (es decir, en bienes de alto contenido importado y de relativa baja elasticidad renta), a pesar de la expansión de los sectores más dinámicos (química, metalurgia, maquinaria, material de transporte, etc.). Así pues, según concluye J. Catalan, España no supera "su condición periférica dentro del concierto europeo".[31]
2) La oferta española es poco diversificada y, por tanto, la ampliación de la demanda y los cambios en las pautas de consumo se traducen en aumentos proporcionalmente mayores de las importaciones.[32]
3) Dada la elevadísima dependencia externa en los medios de producción, tecnología y energía, la propensión media a importar crece necesariamente a medida que se avanza en la capitalización y modernización de la economía.

Sin embargo, los déficits comerciales, estructurales y propios de una economía en fase de *catch-up* no causan entonces problemas en los pagos exteriores porque los compensan otras partidas de la balanza corriente: las remesas de los emigrantes y las divisas del turismo, que en cifras medias aportan respectivamente una y tres cuartas partes del déficit comercial entre 1961 y 1973.[33] Los déficits corrientes ocasionales se compensan además con los flujos de capitales exteriores, atraídos por las facilidades que de nuevo se conceden a las inversiones extranjeras y las garantías de repatriación de beneficios, que se preveían sustanciales. Así es como se acumulan las preciadas divisas, que resultan siempre suficientes excepto en los años 1965-66 y 1969, por lo cual las autoridades adoptan entonces políticas restrictivas, esto es, de *stop and go* (con dos stop, uno el 1967 y otro en 1970).[34]

[30] Estos son los principales determinantes de la balanza comercial, según la teoría del crecimiento restringido por la balanza de pagos (McCombie y Thirlwall (2004)).
[31] Catalan (1991), p. 101-114.
[32] Segura (1983), p. 307.
[33] Biescas (1980).
[34] Martínez Serrano *et al*. (1982), pp. 30-34.

En conjunto son años de una industrialización muy intensa.[35] El desarrollo de la industria de bienes de capital dinamiza el mercado interior[36] y contribuye a un ahorro de divisas considerable por sustitución de importaciones, mediante la producción de bienes de equipo y de material de transporte (además de bienes de consumo final manufacturados), aunque el progreso de las industrias de bienes intermedios no consigue reducir convenientemente su elevadísima dependencia exterior[37]. El salto en la productividad, la competitividad y la diversificación productiva impulsa las exportaciones hasta el punto que ganan cuota de mercado en los mercados de la OECD)[38]. En síntesis de Fontana y Nadal: [39]

> Como era de esperar, los aumentos de la producción y de la productividad de la industria, conseguidos a partir del alza de la capacidad importadora, han terminado incidiendo sobre el volumen y la estructura misma de las exportaciones. Además de ir en aumento, la venta de mercancías españolas al exterior se ha diversificado, con menoscabo de los productos agrícolas y mineros tradicionales y en beneficio de las manufacturas y los bienes de capital. El cambio ha obrado en forma acelerada y profunda.

Entretanto los sectores no-comerciales pueden proseguir su expansión: el auge inmobiliario de la primera ola de 'urbanismo salvaje' incrementa en un 40% el parque de viviendas; [40] los servicios se expanden por la urbanización, el turismo y la industrialización, pasando así a liderar la distribución sectorial del PIB y de la población activa.[41] Las fortunas más rápidas se hacen, entonces también, en la construcción y los negocios financieros, además del turismo.[42]

Sin embargo las bases de este patrón de crecimiento eran frágiles: el notable progreso productivo no fue suficiente para superar la condición periférica de la economía española, el salto tecnológico esencialmente 'importado' no tuvo la continuidad necesaria y, sobre todo, se perdió la oportunidad de favorecer una industria más diversificada, avanzada y tecnológicamente más autónoma. Se había pues conseguido elevar la restricción externa, pero no lo suficiente para garantizar un

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[35] La industrialización, como ya indicó Prebish (1959), resulta crucial para elevar la productividad y el nivel de la restricción externa, con lo cual puede evitarse el estancamiento como mecanismo de ajuste de las cuentas externas.
[36] Aumentos de demandas autónomas tienen un efecto multiplicador sobre el consumo y acelerador de la inversión, que se retroalimentan y constituyen -siguiendo a Hicks- el supermultiplicador (Bortis (1997), Dejuán (2005), Serrano (1995)). En resumidas cuentas: cuanto más alta es la proporción de bienes de capital producidos internamente, más intenso será el efecto acelerador y, por tanto, el supermultiplicador.
[37] Martínez Serrano *et. al* (1982), p. 200.
[38] Véase Martínez Serrano *et. al* (1982), p. 194, cuadro 7.2, y Tena (2005), pp. 614-625, cuadro 8.7.
[39] Fontana y Nadal (1980), p. 156. Vean también las estadísticas de Tena (2005), pp. 661-613, cuadro 8.6.
[40] Naredo (2011), p. 29.
[41] García Delgado (1987).
[42] Catalán (1991), pp. 101-114.

crecimiento económico resistente al deterioro del fácil acceso a la liquidez externa, los favorables términos de intercambio, la estabilidad financiera y cambiaria, la expansión de la demanda externa y las válvula de escape migratorio que brindaban la edad de oro del capitalismo occidental.

### 3.2. La reestructuración del sistema productivo español y el estallido del paro de masas (1974-1985)

En esta década decisiva se evidencia el agotamiento del modelo productivo, con el consiguiente paro de masas y el fracaso para reestructurarlo en un sistema capaz de generar ocupación sin inducir la recurrencia de déficits corrientes.

#### *3.2.1. La masificación del paro en España (1974-1985)*

La destrucción de ocupación neta (en 1,8 millones de ocupados) justifica absolutamente el enorme ascenso de la *tasa* de paro en más de 15 puntos porcentuales (pp), hasta el 22%, en agudo contraste con respecto a los países avanzados. La llegada de la generación del *baby boom* de postguerra a la edad de trabajar y el progresivo retorno de los emigrantes internacionales no tienen peso explicativo: aumenta en casi 4 millones de personas el acceso potencial al trabajo (un crecimiento del 15,7%, únicamente superado en los EU), pero solo unos 300 mil entran en la población activa. El crecimiento demográfico se convierte en población inactiva por el desánimo y la baja tasa de actividad femenina.

TABLA 2. Variación de indicadores laborales de España y diversos países occidentales entre 1974 y 1985*

| | España | | Francia | | Alemania | | Italia | | GB | | EU | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tasa de paro (pp)** | 15,6 | (656,9) | 6,2 | (221,4) | 5,6 | (350,0) | 2,9 | (93,5) | 7,7 | (208,1) | 1,6 | (28,6) |
| **Parados ('000)** | 2.142 | (673,4) | 1.534 | (243,5) | 1.590 | (378,6) | 690 | (111,3) | 2.203 | (232,4) | 3.156 | (61,2) |
| **Ocupados ('000)** | -1.851 | (-14,1) | 229 | (1,1) | -229 | (-0,9) | 1.208 | (6,3) | -427 | (-1,7) | 20.356 | (23,4) |
| **Activos ('000)** | 292 | (2,2) | 1.763 | (7,9) | 1.361 | (5,1) | 1.898 | (9,5) | 1.776 | (6,9) | 23.512 | (25,6) |
| **Población en edad de trabajar ('000)** | 3.883 | (15,7) | 3.743 | (9,7) | 3.348 | (7,0) | 4.429 | (10,6) | 2.951 | (7,2) | 28.086 | (18,7) |

Fuente: Véase gráfico 1.
* La variaciones se expresan en miles, excepto la tasa de paro en puntos porcentuales. Las cifras entre paréntesis son tasas de variación en porcentaje.

#### 3.2.2. El colapso del modelo económico del último franquismo (1974-1985)

La razón principal del enorme aumento del paro fue la incapacidad de absorber los excedentes laborales de la agricultura, que, tal como destacan J. Fontana y J. Nadal, representan "el rasgo sobresaliente de la sociedad española contemporánea"[43]. Justifica el grueso del comportamiento diferencial de la ocupación con respecto a la Europa de los 15.[44]

La industria, en una de sus crisis más profundas, destruye alrededor de un millón de puestos de trabajo, y el cambio de coyuntura provoca el estallido de la burbuja de la construcción de los primeros setenta.[45] Aumenta la ocupación en los servicios, pero solamente en unas 250 mil personas, principalmente en la Administración Pública por el desarrollo de un Estado del Bienestar que entre 1977 y 1985 crea 450 mil nuevos puestos de trabajo.[46]

La crisis económica afecta al conjunto de la estructura productiva, y en especial a los sectores protagonistas de los 'años de oro' (metalurgia, construcción naval, derivados del petróleo, materiales de la construcción, electrodomésticos, materiales de transporte, industria alimentaria, textil, cuero y calzado, madera y papel, etc.). Todos reducen y algunos colapsan su actividad por la combinación fatal del declive de la demanda,[47] el incremento de los costes de producción y financieros y la competencia de los nuevos países industrializados, precisamente en sectores que España se había especializado y en los que "ya presentaba serios problemas de competitividad mucho antes de desencadenarse la crisis".[48]

Su impacto sobre los balances bancarios junto con la necesidad de amortizar la desmesurada expansión propiciada por la liberalización financiera causan graves problemas de insolvencia, que devienen los más graves a escala mundial tanto por el monto de los depósitos afectados como por el coste del saneamiento.[49]

La crisis del sistema productivo del último franquismo fue detonada y acelerada por el contexto internacional depresivo, siendo España, en palabras de L. A. Rojo, "una

[43] Fontana y Nadal (1980), p. 152.
[44] Marimón y Zilibotti (1998).
[45] Naredo (2004).
[46] González-Calvet (1991b), p. 209.
[47] Dejuán, López y Gómez (1995), por ejemplo, documentan que las ramas preponderantes en España sufrieron un mayor descalabro de la demanda.
[48] Sudrià (2013), p. 197.
[49] Martínez de Pablos (1991). Fue una de las crisis "Big 5" posteriores a la Segunda Guerra Mundial en los países avanzados, según Reinhart y Rogoff (2008).

economía europea periférica en sentido estricto"[50], aunque las rémoras de sus políticas empeoran ciertamente la situación. Un Estado raquítico y el statu quo dificultan el control macroeconómico e imponen un reparto muy desigual de los costes de la crisis; los escasos recursos destinados a la educación, formación profesional e investigación, las fuertes redes clientelares y la política industrial, que más que afrontar la ineficiente especialización industrial contribuye a su ampliación, dificultan cualquier cambio de modelo productivo.[51] A todo ello se añade la inflación desbocada y los apuros en los pagos exteriores que derivan de las propias causas de la crisis económica: a mediados de 1977 las reservas de divisas cubrían simplemente los intereses de la deuda para el resto del año[52] y se especulaba contra la peseta.

Los Pactos de la Moncloa son, pues, la respuesta política a esta coyuntura crítica porque, como pregonaba la OECD, "[it] gave priority to redressing the balance of payments and bringing inflation under control",[53] y a la vez suponen la primera tentativa de inserir el sistema económico del capitalismo español en una estructura socio-política en reconversión hacia una democracia parlamentaria, adscrita al bloque occidental.

Si bien la dureza en los 'programas de estabilización' (incrementos arancelarios y reducción de la demanda interna mediante límites salariales, aumentos impositivos, una devaluación del 20%, limitaciones al crédito, alza descomunal del tipo de interés, etc.) procura un superávit por cuenta corriente ya en 1978, del Programa de Saneamiento y Reforma se cumple solo la parte del saneamiento y ajuste; quedan pendientes los acuerdos más amplios de reforma económica, social y política.[54]

El superávit que se consigue es pasajero: lo engulle el segundo shock del petróleo con un déficit energético que asciende al 6,5% del PIB en 1981.[55] La respuesta en forma de ajuste macroeconómico es más bien continuista, en la medida que mantiene una política monetaria contractiva y de contención salarial mientras permite depreciar la peseta. Pero, como señala J. González-Calvet, "no hay propiamente una política fiscal

[50] Rojo (1987 [2004]), p. 437. En este mismo sentido, Fuentes Quintana (1988, p. 24) afirmaba que "[e]s el fin de ese auge mundial el que va a hacer, en definitiva, imposible el futuro de la hipotecada estructura productiva con la que España llegaba a la crisis de 1974-1975".
[51] Catalan (1991), González-Calvet (1991a).
[52] González-Calvet (1991a), p.140.
[53] OECD (1978), p. 41. La lucha contra el paro, siguiendo la lógica monetarista imperante en aquellos años, se fiaba esencialmente a lograr las prioridades ya mencionadas, el aumento de los excedentes brutos de explotación, la reducción del déficit público, la contención salarial y reformas neoliberales en la regulación laboral y mercantil (Fuentes Quintana, 2005).
[54] Etxezarreta (1991) p. 43 y las referencias que contiene.
[55] Banco de España (2008), p. 62, gráfico 2.

anticrisis sino sólo una expansión de la intervención del sector público en el reparto del ingreso, con un marcado sesgo hacia el engrose de las rentas de la propiedad".[56]

Las medidas de ajuste productivo que se adoptan a continuación han sido justamente calificadas de "pasivas y de carácter puramente defensivo": entre el 1979 y 1982 tanto los decretos como la primera ley de reconversión se limitan, de facto, a socializar pérdidas de las empresas con mayor capacidad de presión.[57] A finales de 1982 los problemas económicos que motivaron los Pactos seguían vigentes y, a pesar del lema de campaña electoral del PSOE ("por el cambio"), su política económica acelera de inmediato el ritmo de los ajustes ya iniciados.[58] Al fin, en 1984 se logra el equilibrio por cuenta corriente, pero no por efectos sustitutivos de la devaluación sino por la contracción de la demanda agregada interna (a la que la devaluación contribuye) y la expansión generalizada de las economías avanzadas.[59]

Los déficits corrientes eran una de las manifestaciones de la debilidad industrial, que con la 'reconversión' se traduce en el desmantelamiento o por lo menos la reducción de la capacidad productiva de muchas de las industrias que protagonizaron el "desarrollismo", con el objetivo primordial de asegurar su rentabilidad en la UE. Como proclamaba el presidente Felipe González por aquel entonces, "sanear significa hacerlos [nuestros sectores industriales fundamentales] capaces de competir con Europa, donde nos vamos a integrar". [60]

La desinversión industrial a gran escala desde 1974 hasta 1984[61] y una tasa de cobertura tecnológica siempre inferior al 25% de 1977 a 1985 [62] reflejan la descomposición y falta de renovación del tejido productivo, así como de una mínima autonomía tecnológica. Por consiguiente, la composición industrial del output y de las exportaciones no cambia significativamente entre 1975 y 1985, en contraste con los países europeos avanzados.[63]

Una auténtica reestructuración y modernización del sistema productivo requería una intervención pública prolongada, con instrumentos proteccionistas y de gestión pública

[56] González-Calvet (1991b), p. 158.
[57] Segura (1983).
[58] Rojo (1987 [2004]), p. 444.
[59] Sudrià (2013), p. 212. Por evidencias parecidas Kaldor (1978, p. xv) acabó suscribiendo y desarrollando la teoría del comercio de Harrod, que "asserts that trade is kept in balance by variations of production and incomes rather than by price variations".
[60] *El País* (12 de marzo de 1984), pp. 13-14.
[61] La FBCF cae a un ritmo anual del 2,4%, según Carreras y Tafunell (2010), p. 368.
[62] Sánchez (1991), p. 513.
[63] Gómez Uranga (1991), pp. 480-483.

que se sabían incompatibles para la aceptación en la Comunidad Económica Europea.[64] Y en cambio se consolidó una exagerada dualidad empresarial: a) las grandes empresas, entre ellas las más avanzadas, internacionales, generalmente filiales, articuladas con el sistema financiero, dinámicas y dominantes en la producción pero no en el empleo; y b) muchas pequeñas empresas y bastantes de medianas, generalmente subordinadas a la actividad de las grandes o dedicadas a actividades tradicionales para el mercado local, a menudo menos eficientes y más vulnerables, que ocupan a la mayoría de los asalariados y autónomos.[65]

### 3.3. La asimilación del paro de masas (1986-1994)

La integración europea acelerada de estos años tiene tres grandes consecuencias de interés para nuestro estudio: contribuye decisivamente al notable crecimiento económico de finales de 1985 a 1991, a la generación de un déficit corriente enorme y a una entrada masiva de capitales. Una vez se interrumpe la entrada de capitales, el 'ajuste' sitúa la ocupación al mismo nivel de 1979 y la tasa de paro a un nivel superior al de pre-crisis (hasta el 22%).

#### *3.3.1. La creación de ocupación en la integración europea (1986-1991)*

La reducción de la tasa de paro de 1985 a 1991 (del 20,7% al 15,1%) fue más intensa que en el resto de economías que nos sirven de referencia (Tabla 3), y de nuevo este comportamiento diferenciado se explica principalmente por la evolución de la ocupación: aumenta en unos 2 millones de personas, equivalente a un crecimiento del 19%, incluso más rápido que en la edad de oro y en cualquier otro país de la OCDE. Las nuevas oportunidades activan también a los desanimados y se inicia la entrada masiva de las mujeres al mercado laboral,[66] de manera que el efecto neto es una reducción del número de parados de solo 541 mil personas.

[64] Así lo atestigua la historia económica, según Chang (2002). En el mismo sentido, España ha superado tradicionalmente las grandes depresiones con medidas proteccionistas (Catalan, 2012).
[65] Etxezarreta (1991).
[66] La tasa de actividad femenina supera finalmente el 28% en que se había mantenido más o menos estable durante la década anterior a 1986 y asciende casi al 35% en 1991.

TABLA 3. Variación de indicadores laborales de España y otros países avanzados (1985-1991)*

| | España | | Francia | | Alemania** | | Italia | | GB | | EU | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tasa de paro (pp)** | -5,6 | (-27,0) | -0,8 | (-8,5) | -2,2 | (-30,3) | 0,9 | (14,7) | -2,6 | (-22,4) | -0,4 | (-5,1) |
| **Parados ('000)** | -541 | (-19,0) | -143 | (-6,6) | -550 | (27,4) | 270 | (20,6) | -621 | (-19,7) | 316 | (3,8) |
| **Ocupados ('000)** | 2061 | (18,9) | 649 | (3,0) | 1934 | (7,4) | 872 | (4,2) | 1584 | (6,5) | 10568 | (9,9) |
| **Activos ('000)** | 1520 | (11,0) | 506 | (2,1) | 1384 | (4,9) | 1142 | (5,2) | 963 | (3,5) | 10884 | (9,4) |
| **Población en edad de trabajar ('000)** | 2163 | (7,6) | 2092 | (4,9) | 2186 | (4,3) | 1870 | (4,0) | 928 | (2,1) | 12719 | (7,1) |

Fuente: Véase el gráfico 1.
* Las variaciones se expresan en miles, excepto los puntos porcentuales para la tasa de paro. Las cifras entre paréntesis reflejan el porcentaje de variación.
** Las cifras de Alemania se refieren al periodo 1985-1990 para evitar la ruptura de series que supone la unificación.

La elevada creación de empleo en estos años deriva del fuerte crecimiento experimentado (el PIB real aumenta un 30%), con modestas ganancias en la productividad del trabajo (del orden del 10%, teniendo en cuenta que el empleo aumentó en un 19%). Responde a su vez a un cierto giro expansionista de la política económica, a las firmes expectativas de crecimiento y estabilidad derivadas de la integración en la UE y de una favorable coyuntura internacional. Pero, además, se genera también una burbuja bursátil e inmobiliaria más intensa que en el resto de países industrializados, que explica la expansión simultánea del consumo y endeudamiento privado a tasas muy superiores a las de los agregados de renta.[67] El conjunto arrastra la formación bruta de capital fijo, que tras una década en negativo crece a una tasa anual media del 13%.

Pero el crecimiento que origina tantos puestos de trabajo, especialmente en los servicios y la construcción (hasta el punto de concentrar el 71 y el 19% de la creación neta de ocupación), se desacelera desde principios de los noventa y decrece el 1% en 1993, con la destrucción consiguiente de ocupación. La razón, una vez más, radica en los desequilibrios por cuenta corriente que alimentan los déficits comerciales.

La posición competitiva se deteriora severamente por el proceso rapidísimo y radical de liberalización exterior. Desde enero de 1986 y en un plazo de siete años España debe ponerse al día en el acervo comunitario y establecer una unión aduanera con la CEE, además de incorporar el Acta Única de 1986 e integrarse en el mercado común. Esto es, debe proceder al desarme arancelario y extra-arancelario, que en promedio triplicaba al

[67] Naredo (1996).

de la CEE[68], y adoptar sus políticas de la competencia en nombre de la libre circulación y no discriminación de capitales y trabajadores foráneos. Se produce asimismo una "europeización de las decisiones de política industrial"[69]: los sectores que sufrieron una 'reconversión' más profunda (como la siderurgia y la naval) serán supervisados por la Comisión Europea, y la política industrial queda subordinada a su política de la competencia. Los mercados agrícolas de la CEE, por el contrario, permanecen bastante protegidos de los productos españoles, que son relativamente baratos. En suma, se institucionaliza la plena competencia con economías mucho más productivas, cuando España no supera en cifras medias el 65% de la productividad de la CEE [70] , que para la industria se estima en alrededor del 75% para 1985 y decrece hasta un 71% en el año 1991.[71]

Y en este caso se comprueba una vez más que la apertura al comercio internacional desplaza la producción al país que posee ventaja absoluta en un determinado proceso productivo. No hay motivo alguno por el cual los recursos añadidos al stock de los infrautilizados se movilicen a usos alternativos.[72] Así lo evidencia la notable y repentina sustitución de producción doméstica española por extranjera: entre 1985 y 1989 las importaciones de bienes de consumo crecen 4,5 veces más que el consumo nacional, y las de bienes de equipo el doble que la formación bruta de capital fijo, por lo cual contribuyen al aumento de la relación importaciones-PIB del 15,6% al 25%.[73] En este mismo sentido, entre 1985 y 1991 el porcentaje de las importaciones industriales sobre el consumo aparente de estos productos pasa del 15 al 26%, y casi la totalidad del incremento se explica por la mayor penetración de productos comunitarios.[74] Por ello empeora notablemente el saldo comercial de los sectores industriales (exceptuando el energético, por los bajos precios del petróleo) y se incrementa la dependencia externa de bienes industriales.[75]

A fin de cuentas, pues, las importaciones procedentes de la CEE crecen mucho más que las respectivas exportaciones españolas, contrariamente a la dinámica generada con el Acuerdo Preferencial de 1970 que tanto ayudó a establecer un pequeño superávit

[68] Carreras y Tafunell (2010).
[69] Oporto del Olmo (1997).
[70] Montes (1991), pp. 318-321.
[71] Martín (1995), p. 201, gráfico 11.
[72] Felipe y Vernengo (2002-3), Shaikh (2007), Parrinello (2010).
[73] Montes (1991), pp. 256-265.
[74] Myro (1999), p. 248.
[75] Martín (1995)

comercial con la CEE en los primeros ochenta. Desde 1986 los intercambios con la CEE contribuyen en un 73% al incremento del déficit comercial, que se eleva en 2,2 billones de pesetas.[76]

Es evidente, por tanto, que las condiciones de la integración tienen en su conjunto un efecto directo de signo negativo sobre la ocupación industrial, que solo aumenta en 285 millones y aporta el 10% de las ganancias totales de ocupación neta; como también son negativas por las muchas empresas que desaparecen, particularmente entre las pymes, que eran las más vulnerables.[77] Por el contrario, el tipo de cambio real de la peseta no puede ser el culpable de una tal evolución del comercio no energético, porque el déficit principal se establece con la CEE, a pesar de que el tipo de cambio real con esta zona se mantiene o deprecia.

En definitiva, la nueva posición competitiva y las mayores tasas de crecimiento aumentan las importaciones a una tasa media del 17,4% —que casi triplica la del comercio mundial—, mientras que las exportaciones se incrementan tan solo al 5,5% (en un porcentaje inferior a las mundiales por primera vez des de 1960). La balanza comercial pasa de un déficit históricamente bajo (2,5% del PIB) en 1985 al nivel más elevado de los países de la OCDE (el 6,3%) en 1991.

### 3.3.2. Corrección por depresión de los desequilibrios exteriores (1991-1994)

En 1989 el mismísimo Paul Samuelson afirma que el modelo español es "digno de imitar". Fundamenta el juicio en el "vigor" de la economía española, la percepción del Mercado Común como "un reto saludable" y en la opinión que la monarquía y el gobierno de Felipe González "han liberado la fuerzas de la productividad española que yacieron latentes durante la larga dictadura".[78] Será un diagnóstico ampliamente compartido: el proyecto de integración europea habilita la consolidación de una democracia moderna que es fuente de prosperidad económica.

A pesar del shock competitivo de la integración, el capitalismo español consigue simultáneamente revalorizaciones patrimoniales (exageradas, según Naredo)[79] y la convergencia al alza de la tasa de beneficio. La expansión coincide además con la apreciación de la peseta con respecto al dólar y un aumento de las reservas de divisas

[76] Montes (1991), pp. 256-265.
[77] Garella (1989).
[78] Samuelson (1989).
[79] Naredo (1996).

(con una cierta desinflación, reducción de la deuda y déficits públicos). Pero la realidad acaba demostrando que el modelo es insostenible.

El déficit comercial creciente da lugar a un déficit por cuenta corriente a partir del 1988, cuando la deteriorada balanza de servicios y remesas de emigrantes ya no cumplen su rol compensatorio.[80] Aunque en 1991 registra el déficit corriente más elevado de la OCDE, las reservas exteriores se acumulan a un ritmo sin precedentes hasta el 12% del PIB, dado que la liberalización de la balanza financiera y la adhesión a la CEE y al SME permiten y atraen entradas netas de capital (procedentes sobre todo de la propia Comunidad europea y la OCDE) que superan ampliamente las necesidades de liquidez externa.[81] Se concentran en la ampliación de filiales extranjeras y la adquisición o ampliación de empresas existentes hasta el punto de generar "una fiebre vendedora que [sitúa] a España como cuarto país vendedor de empresas en el mundo", en beneficio del capital industrial, que la aprovecha para dar "un gran paso hacia las actividades no productivas y especulativas".[82] Paralelamente, casi se duplican las inversiones inmobiliarias extranjeras entre 1985 y 1989, propiciando una gran revalorización de activos inmobiliarios y financieros.

Pero las perspectivas de rentabilidades extraordinarias se agotan progresivamente: a partir del 1989 las inversiones inmobiliarias extranjeras disminuyen, seguidas de las inversiones en cartera y en 1991 de las directas, cuando las empresas multinacionales ya han logrado –por adquisición o creación de filiales— altísimas participaciones en muchos sectores. Gómez Uranga documenta, por ejemplo, que a finales de los ochenta más de la mitad de las grandes empresas en 20 de los 27 ramos y sub-ramos industriales tienen participaciones extranjeras en su capital social, con las más elevadas y en forma de participaciones mayoritarias en las industrias punteras: química (80%), farmacia (66%), construcción mecánica (55%), informática (100%), material eléctrico (60%), electrodomésticos (70%) y vehículos (85%).[83] Entonces la inversión extranjera se desplaza progresivamente hacia la concesión de préstamos y colocaciones financieras por la atracción de los altos tipos de interés (que paradójicamente se reputaban

[80] En este párrafo y siguientes seguimos el análisis de Naredo (1996, Cap. 2 y 5) y las principales estadísticas en que se basa.
[81] Esta es la primera de la "desafortunada cadena de situaciones" que típicamente siguen los procesos de liberalización financiera con tipos de interés fijos, según Reinhart (2011).
[82] Etxezarreta (1991) p. 54.
[83] Gómez Uranga (1991), pp. 489-492.

adecuados para frenar la inflación y el 'recalentamiento' económico), junto con la estabilidad o apreciación de la peseta en relación al dólar.

Hasta que dos objetivos para lograr la integración monetaria europea (la convergencia a la baja de la tasa de interés y la estabilidad de la peseta) son considerados incompatibles en los mercados financieros y, además, la gestión de las primeras crisis del SME de finales del 1992 evidencia que sus estados miembros no están dispuestos a coordinar sus políticas para defender las paridades. Entonces el contagio especulativo es rapidísimo: las ventas de pesetas se disparan y fuerzan una doble devaluación, con una tercera en mayo del año siguiente, acumulando así una caída de la cotización cercana al 20%. Finalmente la aplicación de enormes reservas en defensa de la cotización de la peseta acaba por revelarse estéril: España sufre una crisis de balanza de pagos de manual.[84]

El auge concluye como en las etapas anteriores, pero esta vez agravada por las burbujas inmobiliaria y bursátil y la magnitud superior de los desequilibrios exteriores, que exigen la devaluación de la peseta y la adopción de otras políticas contractivas (en un contexto internacional depresivo) para reducir suficientemente las importaciones y facilitar la salida de excedentes hacia mercados externos. El resultado en términos de ocupación es la destrucción neta entre 1991:3 y 1994:1 de casi la mitad de los puestos de trabajo que se habían generado durante los seis años de expansión precedentes, hasta situar la tasa de paro por encima del nivel de 1985, en el 22,2%. La distribución sectorial de la pérdida de ocupación resulta igualmente significativa: un 41% en la industria, el 29% en la construcción y un 20% en los servicios.

[84] Compárese con la descripción de Cechetti *et al*. (2012, p. 5):

> [In a] typical, textbook balance of payments crisis (…) [w]hen a country starts to experience a capital flow reversal arising from some combination of a loss of investor confidence and an attack on its currency, the outflows are limited by the size of the country's foreign exchange reserves. Once its reserves are exhausted, the country is forced to adjust.

### 3.4. Un nuevo ciclo de crecimiento insostenible (1994-2007)

De 1994 a 2007 la tasa de paro en España desciende del 22 al 8%, una reducción extraordinaria y más acusada que en cualquier otro país avanzado, que de nuevo se explica por un crecimiento de la ocupación comparativamente muy superior (unos 8 millones de personas). El ritmo es tan elevado que atrae en torno a los cinco millones de emigrantes y aproxima la tasa de actividad a la europea, pero la estructura ocupacional española con respecto a las de Francia, Alemania, Italia y Gran Bretaña revela las mismas particularidades de siempre, que el patrón de crecimiento tampoco altera de manera significativa.

TABLA 4. Variación de indicadores laborales de España y diversos países avanzados (1994-2007)*

| | España | | Francia | | Alemania | | Italia | | GB | | EU | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tasa de paro (pp)** | -13,8 | (-62,5) | -2,7 | (-24,9) | -0,1 | (-1,0) | -4,6 | (-42,7) | -4,2 | (-43,7) | -1,5 | (-24,2) |
| **Parados ('000)** | -1621 | (-46,9) | -467 | (-17,4) | 171 | (5,0) | -987 | (-39,6) | -1022 | (-38,2) | -918 | (-11,5) |
| **Ocupados ('000)** | 8079 | (66,6) | 2967 | (13,3) | 2177 | (6,1) | 2251 | (10,9) | 3762 | (14,8) | 22987 | (18,7) |
| **Activos ('000)** | 6458 | (41,4) | 2500 | (10,0) | 2348 | (6,0) | 1264 | (5,4) | 2740 | (9,8) | 22069 | (16,8) |
| **Población en edad de trabajar ('000)** | 6214 | (19,8) | 4392 | (9,7) | 2001 | (2,9) | 2557 | (5,3) | 3638 | (8,1) | 35053 | (17,8) |

Fuente: Véase el gráfico 1.
* Las variaciones se expresan en miles, excepto los puntos porcentuales para la tasa de paro. Las cifras entre paréntesis reflejan el porcentaje de variación.

#### 3.4.1. La estructura de la ocupación refleja el atraso relativo

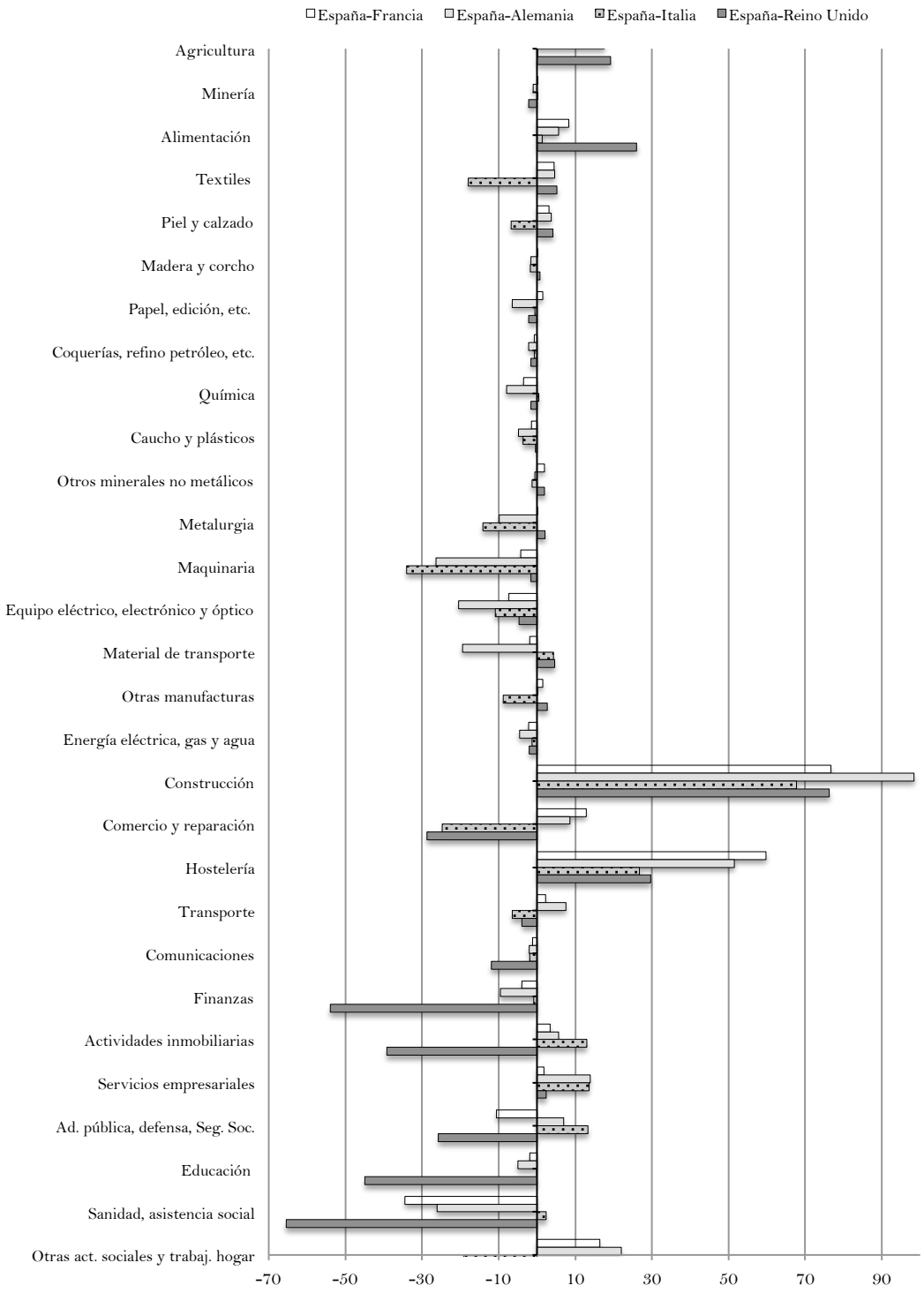
En el gráfico 3 observamos la disparidad productiva de España en relación con otros países avanzados, según el cómputo por sectores verticalmente integrados de las horas de trabajo que en última instancia atienden a la demanda de los 29 productos finales en que dividimos el producto neto del 1995[85]: la mayor especialización en la agricultura y el menor peso global de la industria, que además descansa claramente en mayor medida sobre las productos tradicionales (alimentación, textiles, piel y calzado) y bastante menos en productos avanzados como maquinaria, material electrónico y óptico.

Tiene también un peso relativamente menor en España el trabajo dedicado a los servicios que provee el Estado del Bienestar, como la educación y la sanidad. Por el contrario, es evidente la sobre-especialización española –anterior a la burbuja- en

[85] Portella-Carbó (2014). La comparación en términos de horas de trabajo verticalmente integrado por persona en edad laboral resulta especialmente adecuada porque es insensible a diferencias en la estructura intersectorial y la medición del trabajo no está influenciada por rasgos institucionales (duración de la jornada laboral, etc.)

construcción y actividades inmobiliarias (excepto en la comparación con GB), y del turismo medido por 'hostelería'.

GRÁFICO 3. Diferencia en las horas de trabajo verticalmente integrado por persona en edad laboral en España con respecto a otros países avanzados, 1995

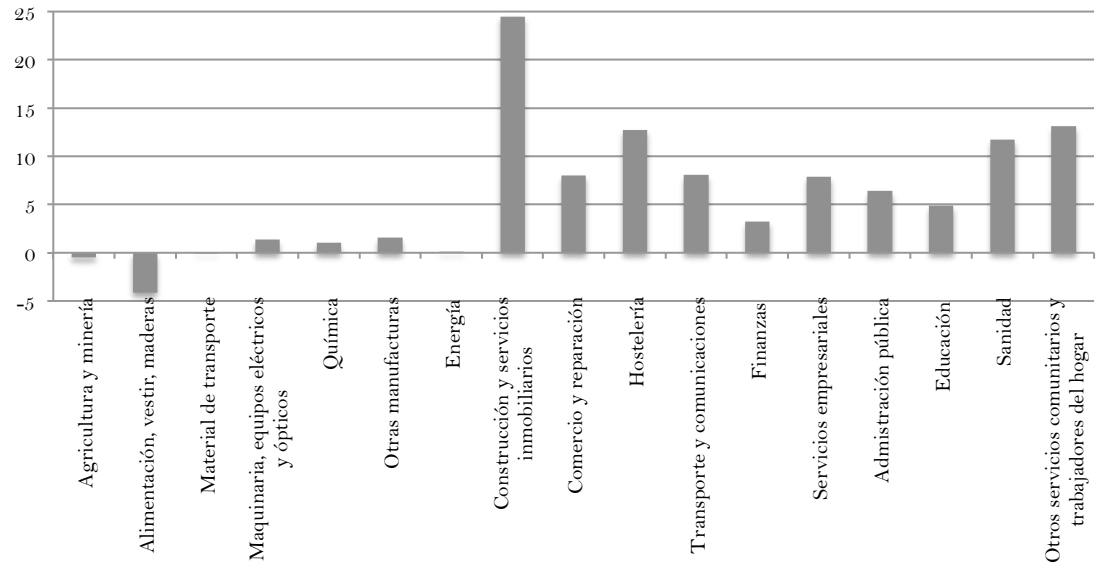



Fuente: Elaboración propia a partir de Portella-Carbó (2014).

### 3.4.2. La evolución de la ocupación y el sector exterior (1995-2007)

El cómputo por sectores verticalmente *híper*-integrados, que permite redistribuir las *ganancias* totales de horas trabajadas entre el 1995 y el 2007 según la demanda por productos finales a la cual responden en última instancia, muestra que la fenomenal burbuja inmobiliaria, de obras públicas y financiera sostiene casi el 28% de las horas acrecentadas (gráfico 4). Junto con el ascenso del turismo de masas explican el 40,5% de las ganancias, y el crecimiento de la Administración pública con el desarrollo de la educación y sanidad aportan otro 23%. Todos facilitaron la expansión de las demás demandas de servicios comunitarios y trabajos domésticos remunerados (13%), el comercio (8%) y los servicios empresariales (8%). Pero los incrementos de demanda de bienes industriales no se traducen en más ocupación neta, aunque las modestas ganancias en horas trabajadas gracias a la expansión en productos avanzados (como los químicos, maquinaria y equipos eléctricos y ópticos) compensan las pérdidas debidas a los productos tradicionales.

GRÁFICO 4. Contribución al aumento de horas trabajadas en España, 1995-2007 (%)




Fuente: Elaboración propia a partir de Portella-Carbó (2014).

La espectacular creación de ocupación desde 1995 hasta 2007 no es, por tanto, consecuencia de la superación del atraso relativo que constatamos en el análisis de la estructura ocupacional de 1995, sino más bien coherente con la situación periférica de la economía española, las políticas para cumplir los requisitos de entrada a la Unión Económica Monetaria (UEM) y el funcionamiento de la propia Unión.

Porque el acceso a la UEM también se llevó a cabo con políticas económicas continuistas: privatizaciones,[86] contención del gasto social,[87] promoción de la construcción y negocios inmobiliarios,[88] moderación salarial y nuevas reformas neoliberales de las relaciones laborales,[89] etc. La política macroeconómica no se plantea objetivos de ocupación y de desarrollo industrial, que en todo caso quedaría reducida a la mínima expresión por la legislación comunitaria de la competencia. La política monetaria se limita a asegurar el correcto funcionamiento del sistema de pagos y persigue exclusivamente conseguir una inflación inferior aunque próxima al 2%. Y una vez descartada la gestión de la demanda y de la estructura productiva, recuperar la ocupación se fía esencialmente a una estrategia ordoliberal: eliminar las ineficiencias microeconómicas mediante una regulación que asegure una competencia 'saludable' para el buen funcionamiento de los mercados y en particular del laboral.

Pero en realidad la competencia internacional ha reforzado la compresión de la especialización tecno-productiva entre la que permiten los países avanzados (más competitivos en productos sofisticados y segmentos de alta complejidad productiva por su tecnología superior, organización empresarial, infraestructuras, control de las cadenas globales de producción, marketing, condiciones financieras, etc.) y los últimos países incorporados a la UE y los emergentes (competitivos en productos tradicionales por sus menores cargas salariales, impositivas, regulatorias, etc.), tal como hace especialmente evidente la composición de las importaciones y exportaciones. En este sentido, un exhaustivo análisis del comercio exterior español concluye que:

> *Europe is a market in which Spain is obliged to compete in the higher quality segments with some of the economies that achieve the highest productive sophistication in the world. This helps to explain its drift towards [products] of lower horizontal sophistication and towards those segments of lower quality among each product.*[90]

Y es que buena parte de la producción española no compite directamente con la de los países avanzados, sino que las exportaciones son relativamente más sencillas: el índice sintético de complejidad productiva sitúa la economía española en la 27ª posición, tras 17 países de la UE.[91] En cambio, la exportación de productos tradicionales tiene un mayor peso en España que en la mayoría de economías

[86] Bel y Costas (2001).
[87] Navarro (2006).
[88] Naredo (2011).
[89] Rodríguez Ortiz (2000).
[90] Alcalá (2013), p. 277.
[91] Felipe et al. (2012).

avanzadas, pero se concentran en las rúbricas más sofisticadas, en las cuales aventajan claramente a los países emergentes.[92]

Con todo, en el cambio de siglo la economía española gana una cierta competitividad, contrariamente al argumento tan popularizado que atribuye una supuesta pérdida de la misma a aumentos en los costes laborales unitarios por encima de los del "corazón" de Europa, que serían también responsables de los enormes déficits comerciales.[93] Así nos lo indica que:

a) En 2009, la relación de la productividad manufacturera española con respecto a la alemana (el referente europeo) es la misma que cuando se adoptó el euro (63%), y el salario por hora trabajada en estos sectores ha crecido aproximadamente igual en ambos países. Por tanto, Alemania mantiene pero no amplía su gran ventaja.[94]

b) Las cuotas españolas en los mercados internacionales evolucionan favorablemente. En exportaciones a la UE-27 las españolas se mantienen alrededor del 5,5% (en valores corrientes), y en la zona euro aumentan entre 1999 y 2010 unos 0,3 puntos porcentuales, mientras que Alemania gana 0,2 y Francia e Italia pierden respectivamente 1,3 y 0,6 puntos.[95] En términos de valor añadido bruto industrial del conjunto de la UE-27, la participación española aumenta entre el 1995 y 2009 del 6 al 8%, y en la eurozona del 8 al 11%.[96]

c) Si bien las exportaciones españolas se concentran especialmente en los automóviles (21%), la diversificación por productos logra niveles similares al de las economías más avanzadas[97], y han conseguido penetrar en mercados nuevos.[98]

Respecto a las importaciones, está bien documentada su elevadísima elasticidad renta en comparación con los países de la UE, que es claramente su principal factor explicativo.[99] La dependencia importadora sigue siendo estructural, en el sentido que la producción doméstica incorpora desmedidamente medios de producción, tecnología y

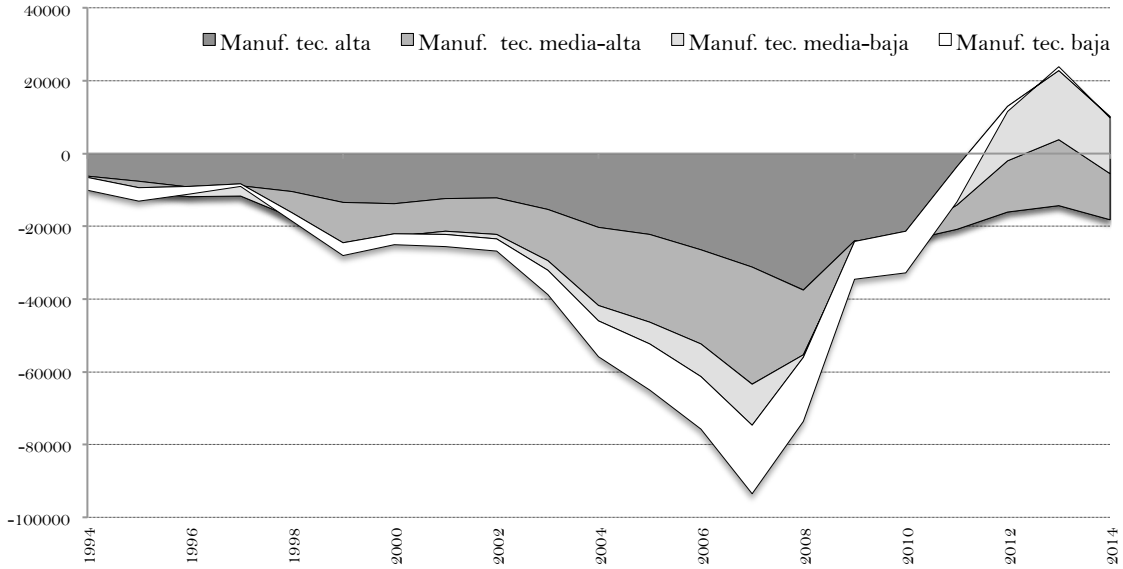
[92] Pérez García, (2012), Cap. 10.
[93] Se da una vez más la "paradoja de Kaldor": no existe una relación inversa entre el crecimiento de los costes laborales unitarios y el crecimiento del output o su cuota de mercado. En realidad, los costes laborales unitarios agregados no son un índice de competitividad (Felipe y Kumar (2014)).
[94] Weisbrot (2011).
[95] de la Dehesa (2012).
[96] Salas Fumás (2012), p. 13.
[97] Pérez García (2012), Cap. 10.
[98] Gordo y Tello (2012).
[99] Martínez-Mongay y Maza (2009).

energía importada, sobre todo la producción industrial y en particular la más avanzada.[100]

En suma, dada la posición competitiva y la estructura de producción, es el mayor crecimiento español el que genera la acumulación de unos déficits comerciales elevadísimos y crecientes, que pasan del 2,6% del PIB al 9,4% entre el 1995 y 2007. Son déficits que surgen básicamente en las partidas de bienes manufacturados de mayor contenido tecnológico (gráfico 5), que se caracterizan por tener una mayor elasticidad renta y contenido importado; sin olvidar el déficit energético, que es responsable de aproximadamente un tercio del déficit comercial durante los años 1995-2007. [101]

Así que "España importó como un país de renta alta, pero exportó como un país de renta bastante inferior"[102], porque la competencia internacional (y especialmente la europea) dificulta la translación a la producción doméstica de los incrementos de demanda de aquellas mercaderías que distinguen a los países avanzados y los emergentes. Por tales razones, España solo crea volúmenes sustanciales de ocupación en los bienes y servicios que han de producirse necesariamente en el territorio estatal (construcción, comercio, servicios públicos y domésticos, etc.).

GRÁFICO 5. Saldo comercial de las manufacturas según el nivel tecnológico, 1994-2014 (millones de dólares)




Fuente: STAN Bilateral Trade Database in goods, OCDE.

### 3.5. Endeudamiento y colapso del patrón de crecimiento (2007-2014)

[100] Cabrero Bravo y Tiana Álvarez (2012).
[101] Nieto Magaldi (2008).
[102] Alcalá (2013), p. 279.

El estallido de la crisis financiera global en 2007 desencadena la implosión de la burbuja española (inmobiliaria y financiera),[103] que contribuye directamente a casi la mitad de la destrucción total de ocupación del 2007:3 al 2014:1, y bastante más si tenemos en cuenta las interdependencias productivas.[104]

Una vez más el intenso crecimiento se interrumpe de forma abrupta y revierte por la dinámica de un endeudamiento gigantesco, pero ahora no colapsa por la restricción externa -entendida de manera ortodoxa como la imposibilidad de defender la tasa de cambio, que fuerza un ajuste contractivo-.[105] Dado que la deuda está denominada en euros, una divisa internacional, el BCE tiene capacidad suficiente para mantener la liquidez del sector financiero de cualquier Estado de la Eurozona: la financiación de los déficits corrientes queda asegurado en el sistema de pagos TARGET2, que funciona de manera equivalente -pero con menos restricciones- a la Unión de Compensación Internacional ideada por Keynes.[106]

Precisamente por disponer de una divisa internacional pudo prolongarse la última fase de expansión, a pesar del deterioro de la posición inversora internacional neta (alrededor del 30% del PIB en la adopción del euro, en el 78% justo antes de la crisis y hasta el 95% desde 2009). Pero la contrapartida, dado el saldo presupuestario más o menos balanceado del periodo, es un claro sobreendeudamiento privado que termina bloqueando la reproducción del patrón de crecimiento.[107] Entonces la socialización de la deuda privada y los efectos de la crisis sobre el presupuesto público alimentan la deuda pública, que podía devenir sobreendeudamiento cuando debía financiarse en los mercados privados por las razones que ya anticiparon Simonazzi y Vianello[108] en 1999:

> Monetary unification eliminates one of the two causes of interest rate spreads, that is, the exchange rate risk, but not the other, linked to trustworthiness of debtors... Financial speculation, unable to target exchange rates, concentrates on the sovereign bond market, determining a fall in bond prices, making servicing of debt unsustainable and exposing the country to a risk of insolvency.

Con todo, el BCE dispone de los instrumentos necesarios y suficientes para rescatar

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[103] Naredo (2011).
[104] García (2012), Recio (2010).
[105] Por ejemplo, según Krugman, "when the government is no longer able to defend a fixed parity because of the constraints in its actions, there is a "crisis" in the balance of payments" (Krugman 1979, p. 311).
[106] Cesaratto (2013) y Lavoie (2015).
[107] Véase el informe de la Comisión Europea (2015) para un resumen de la evolución de los flujos financieros y stocks de deuda de la economía española, y los trabajos de Dejuán (2013), Dejuán y Febrero (2011, 2013) y Naredo 2011 para un análisis de sus consecuencias sobre la actividad económica.
[108] Simonazzi y Vianello tal como se citan en Cesaratto (2013), p. 364.

los bancos y financiar a los Estados de la Eurozona. Aunque –según se lee en la carta dirigida al presidente del gobierno Rodríguez Zapatero en 2010— asocia discrecionalmente su intervención a una condicionalidad neoliberal, asumida por nuestros gobernantes, que se materializa por ejemplo en la 52ª reforma laboral desde el Estatuto de los Trabajadores y en las políticas contractivas. En otras palabras, se actúa como si se tratase de una crisis de balanza de pagos, en la que el ajuste recae íntegramente sobre el país deudor.[109] Ahora, además, sin la posibilidad de recurrir a la devaluación, como se hacía tradicionalmente.[110]

## 4. CONCLUSIONES

El paro de masas actual proviene del colapso del sistema económico del último franquismo, sucesivamente perpetuado porque las etapas de expansión se revelan insostenibles mucho antes de alcanzar la ocupación plena: desembocan siempre en una crisis profunda y en políticas contractivas que retornan la tasa de paro a niveles similares a los del inicio del ciclo, por encima del 20%.

La integración periférica de España en la economía mundial no ha permitido absorber el desempleo masivo. El interés geopolítico español con respecto a los mercados más dinámicos de la Europa Occidental se ha materializado en una liberalización prematura de los intercambios exteriores y una liberalización similarmente prematura de la política económica interna, en el sentido que han dificultado subir por la famosa escalera de F. List. De ahí que persistan las causas de las recurrentes crisis de balanza de pagos, que el diseño y las políticas de la eurozona no han permitido superar.

Estos límites a la expansión de la demanda agregada y de la ocupación son crónicos: la necesidad urgente de divisas incentiva ya la apertura económica liberal que marca el último franquismo. El rápido crecimiento y la modernización productiva de los años sesenta agravan el déficit comercial, pero una financiación fácil permite su continuidad. Contrariamente, el cambio radical de coyuntura económica a principios de los años setenta constituye una 'tormenta perfecta' para el sistema productivo y un debilitado poder franquista. El paro de masas es su expresión más evidente, que perdura por las

[109] En este sentido, Cesaratto (2015a, p. 9) afirma que "in the absence of a legal limit to T2 imbalances, a political limit has been set by core countries by imposing a reversal of the current account position of the peripheral countries (albeit not to themselves!) through a paraphernalia of fiscal regulations (European semester, Six pack, Two pack, Fiscal compact etc.)."
[110] Catalan (2002 y 2012).

políticas contractivas netamente monetaristas (para atajar esencialmente el conflicto distributivo y el deterioro de la posición exterior) y el fracaso de la reestructuración productiva.

En la segunda mitad de los ochenta la integración europea contribuye decisivamente tanto al mayor crecimiento español como a una notable reducción del paro, pero debilita también la posición competitiva y proscribe las políticas industriales clásicas. De ahí unos déficits comerciales que alimentan los déficits corrientes más elevados del mundo, si bien el patrón de crecimiento se mantiene gracias a los flujos de capitales derivados del propio proceso de integración. El resultado final es una crisis de balanza de pagos de manual, agravada por la burbuja inmobiliaria y financiera, que retorna la tasa de paro a niveles superiores al 20%.

La reducción del desempleo durante la etapa de bonanza del 1994 al 2007 no es consecuencia de haber superado la situación económica periférica, sino de la promoción y rápida expansión de actividades que necesariamente deben tener lugar dentro del territorio estatal (construcción, turismo, servicios públicos y domésticos, etc.), mientras que el encaje tecno-productivo internacional y la política no-industrial limitan el desarrollo de las más avanzadas, así como también de las actividades deslocalizables a países con menores salarios, fiscalidad más baja y una regulación más laxa. Por tales motivos y el débil crecimiento de la eurozona se acumulan una vez más déficits comerciales crecientes, que deterioran severamente la posición inversora internacional neta y son la contrapartida de un desmesurado sobreendeudamiento privado -espoleado por la burbuja de la construcción- que ha impedido la reproducción del patrón de crecimiento. Las políticas económicas de contracción del gasto y de retroceso de la gestión pública (animadas por la condicionalidad neoliberal del BCE y la UE que, entre otros objetivos, persiguen garantizar el pago de la deuda externa española) han agravado, juntamente con el estancamiento de la eurozona, la depresión iniciada a finales de 2007 y, por supuesto, el paro.

No se puede desvincular, por tanto, el paro de masas de la estructura productiva y su posición internacional. En este sentido, el gran economista y europeísta Wynne Godley[111] se preguntaba ya qué pasaría si un país o región mostrase una "persistent failure to compete successfully in world markets". Respondía con solvencia intelectual (y clarividencia, dados los problemas actuales del Sur de Europa) que:

[111] Godely (1992).

> If a country or region has no power to devalue, and if it is not the beneficiary of a system of fiscal equalisation, then there is nothing to stop it suffering a process of cumulative and terminal decline leading, in the end, to emigration as the only alternative to poverty or starvation.

Constatado el problema, apuntamos dos grandes líneas políticas que parecen adecuadas para afrontar el paro de masas. En la medida que la creación de ocupación descanse en el crecimiento económico, debe mejorarse sustancialmente la posición competitiva para no seguir alimentando el sobreendeudamiento exterior. El salto no se logrará con rebajas salariales que, además, se han revelado contraproducentes.[112] Si no contemplamos una salida de la UEM, tampoco se conseguirá con una caída de la tasa de beneficio (por la libre movilidad del capital) o mediante devaluaciones. Ni es esperable un salto tecnológico autónomo, dada la dinámica económica e histórica que hemos reseñado en este artículo.

Por tanto, debería abrirse camino en los tratados europeos para articular decididamente en España una política industrial de corte clásico, además de redefinir el patrón de integración económica y política con la Unión Europea. De lo contrario, en la medida que la creación de ocupación *no* se apoye en el crecimiento económico porque el estancamiento europeo dificulta una expansión sin incurrir en más déficits corrientes, y en la medida también que el crecimiento no sea suficiente para absorber los avances en la productividad del trabajo que implica la mejora de la posición competitiva, acabar con la lacra del paro de masas exige el reparto más equitativo del trabajo, la renta y la riqueza.

[112] Uxó, Paúl y Febrero (2014), Paúl y Uxó (2014).

# EFFECTS OF INTERNATIONAL TRADE ON DOMESTIC EMPLOYMENT: AN APPLICATION OF A GLOBAL MULTIREGIONAL INPUT—OUTPUT SUPERMULTIPLIER MODEL (1995—2011)[113]

## 1. INTRODUCTION

International trade and the globalisation of supply chains promote employment, say most economists and policy-makers, but workers are often afraid of the consequences (ILO, 2011, pp. 1—2). The issue is as politically controversial as it is empirically inconclusive. Indeed, "quantitative work focusing on the employment effects of [international] trade is relatively scarce[,] incomplete [and] scattered", and it seldom examines the impact of trade on the total level of employment (ILO, 2011, pp. 3—4, 10).[114] Such an unsatisfactory state of knowledge hinders informed discussion and policy; therefore, the significance of the problem cannot be overstated.

Our contribution aims to estimate the consequences of developments in international trade on domestic employment. It draws on recent applications of input—output tables and analyses to trade theory and evidence (e.g. Alsamawi et al., 2014; Koopman et al., 2014; Timmer et. al, 2014; Trefler and Zhu, 2010) alongside Keynesian and Sraffian insights. On these foundations we build a global multiregional input—output supermultiplier model, that is, a novel generalisation of the supermultiplier formula (Bortis, 2011; Dejuán, 2005; Serrano, 1995). In other words, we merge Input—Output Analysis with Classical—Keynesian Theory to compute the actual changes in domestic employment attributable (according to the model) to actual developments in international trade.[115]

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[113] This article has been submitted to *Economic Systems Research* [13/03/2015] and, after being accepted subject to modifications, is currently under revision.

[114] See the report for an overview of common methods used to estimate the employment effects of trade.

[115] These foundations are, of course, complementary and historically intertwined. Leontief's input—output analysis has close ties with the classical surplus approach (Kurz et al., 1998, pp. xix—xxxviii; Kurz and Salvadori, 2000; see also the special issue in this journal on 'Input—Output Analysis and Classical Economic Theory' edited by Kurz and Larger (2000)) and thus with Sraffa's contributions (Kurz and Salvadori, 2006). Furthermore, input—output frameworks have been extensively used to ground multisectorial Keynesian models (e.g. Goodwin, 1949; Pasinetti, 1981).

The model identifies crucial channels through which international production and trade interrelations impact domestic employment. The comprehensiveness of the channels, the definition and interpretation of the 'effects' and their estimation are among the methodological and empirical contributions of the paper.

One group of effects accounts for the impact on domestic employment of economic integration (or disintegration), that is, changes in the geographical sourcing structure of the means of production and final goods used in each country. A second group of effects, which runs through the links established by integration, accounts for the impact of changes in demand and socio-technical parameters of foreign economies on domestic employment. The sum of both groups constitutes the net effect of trade linkages with foreign economies on domestic employment. Thus, this measure of what we term 'Foreign Sector Effects' is more comprehensive than the "internationalisation" measure developed in the pioneering work of Koller and Stehrer (2010). Finally, Foreign Sector Effects add to 'Domestic Sector Effects', thereby completing the decomposition of changes in domestic employment into its determinants.

In addition, our accounting framework encompasses well-established economic mechanisms. More precisely, we attribute to the autonomous components of demand the employment that they induce by stimulating household consumption, private business investment, and the production of intermediate goods. That is, autonomous demands lead the system via a combination of the Keynesian multiplier and the accelerator mechanisms, the so-called Hicksian supermultiplier (Hicks, 1950), and Leontief's multiplier. Through their influence on the multipliers, changes in trade structures and socio-technical parameters affect domestic employment.

In short, we carry out an ex-post accounting exercise on the domestic employment effects of international trade based on identities and well-established macroeconomic relationships among real variables. We do not model the reasons behind changes in autonomous demands, trade structures and socio-technical parameters, which are exogenously given in our model.[116] Instead, we concentrate on examining their effects on domestic employment.

The estimation technique consists of a recursive hierarchical structural decomposition analysis of the employment determinants as measured in the World

[116] These may include developments in, for example, prices, exchange rates, monetary policy, productivity levels, the labour market, trade policy.

Input—Output Database and National Accounts. The database covers 40 major economies, along with an aggregated 'Rest of the World' sector, from 1995 to 2011. Due to data issues, we eliminate the sectorial dimension of each economy at the estimation stage of the study. This is a limitation because it entails the neglect of emerging macroeconomic properties from the sectorial composition of production and trade, which have proved to be important in assessing aggregate production and employment outcomes (Bems, Johnson and Yi, 2010; Garbellini, Marelli and Wirkierman, 2014; Groot et al., 2011).

Armed with the above theoretical concepts, analytical tools and data we aim to answer the following questions. To what extent did international linkages deriving from international trade affect domestic employment? Did domestic employment benefit from economic integration? We examine the experiences of eight major economies (Spain, Germany, Italy, France, the UK, the US, Japan and China) between 1995 and 2011. These economies account for 58% of global GDP and 36% of global employment in 2011 (IMF, 2015 and ILO, 2014).

We expect winners and losers for both theoretical and historical reasons. Absolute advantages and the lack of automatic tendencies toward balanced trade prevail in the international arena (see Brewer, 1985; Chang, 2002; Felipe and Vernengo, 2002—3; Schumacher, 2012; Shaikh, 1995, 2007; Steedman, 1979a, 1979b; Thirlwall, 2013, Ch. 6).[117] Therefore, the notion of national competitiveness in an internationally integrated economy is meaningful (Parrinello, 2010) and implies that trade conflicts may arise to protect domestic employment, among other possible reasons (Cesaratto, 2013).

In contrast, the core model of Marginalism holds that international trade can only cause transitory unemployment (Krugman and Obstfeld, 2006). The assertion is derived from the proposition that "trade deficits are self-correcting and that the benefits of trade do not depend on a country having an absolute advantage over its rivals" (Krugman, 1993, p. 26), even if the New Trade Theories often undermine these conclusions (see

[117] This is why the model presented in the next section does not posit any general and automatic mechanisms that correct external imbalances. Nonetheless, we recognise that prolonged current account deficits and the corresponding accumulation of external debt can lead to a severe crisis. In other words, if deficits must be corrected, income carries most of the burden of adjustment, in line with Harrodian trade theory (Harrod, 1933).

Deraniyagala and Fine, 2001).[118] Nonetheless, recent mainstream empirical work seems to pay increasing attention to the causal links that are analysed in this paper. For example, Acemoglu et al. (2014) "explore how much of the U.S. employment sag of the 2000s can be attributed to rising import competition from China". To do so, they estimate the direct effect of such competition and seek to add, as to capture "the full general equilibrium impact", the effects of input-output linkages and aggregate demand "[t]hrough familiar Keynesian-type multipliers" (p. 1 – 3).[119]

Again, Keynesian rationale underpins our accounting framework: effective demand governs employment in both the short and long run.[120] Nothing guarantees that such a level of effective demand entails full-employment or that, given international competition, the domestic capacity to satisfy both domestic and foreign demand will adjust to bring the economy toward full employment. Thus, assessing the consequences of international trade on domestic employment demands a historically and geographically specific analysis.

## 2. A GLOBAL MULTIREGIONAL INPUT-OUTPUT SUPERMULTIPLIER MODEL

We start from an accounting identity for the expenditure side of a three-country-world ($n = 3$) that aggregates the $j$ industries in each country. In standard notation, the identity can be expressed in the following form:[121]

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} \equiv \begin{bmatrix} u_{11} & u_{12} & u_{13} \\ u_{21} & u_{22} & u_{23} \\ u_{31} & u_{32} & u_{33} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} + \begin{bmatrix} y_{11} & y_{12} & y_{13} \\ y_{21} & y_{22} & y_{23} \\ y_{31} & y_{32} & y_{33} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} \qquad (1)$$

In words, the gross output of country $r$ ($x_r$) is used as an intermediate input in the country ($u_{rr}$) and/or abroad ($u_{r-r}$) and/or as a final output in the country ($y_{rr}$) and/or

[118] Recent developments in Marginalist trade theory also find openness on employment to have an ambiguous effect (e.g. Baldwin and Robert-Nicoud, 2014; Davidson and Matusz, 2009; Helpman et al, 2010; Grossman, 2013).

[119] They also aim to account for a "reallocation effect" of employment from growing trade with China. However, in accordance with our theoretical approach, they find no robust evidence of its existence.

[120] See Stirati (forthcoming) for an overview of different theoretical approaches to employment in the history of economic thought and Cesaratto et al. (2003) for an exposition of the approach that we follow more closely.

[121] Matrices are indicated with bold-faced capital letters, vectors are columns by definition and are indicated with bold-faced lower-case letters, and scalars are denoted by italicised lower-case letters. A prime (') indicates transposition, and a hat (^) signifies diagonalisation. The first subscript denotes the country of origin, and the second denotes the destination; a minus sign in front of a subscript stands for 'all countries except'.

abroad ($y_{r-r}$). In a more compact notation, Identity 1 can be rewritten as $\mathbf{x} \equiv \mathbf{U\iota} + \mathbf{Y\iota}$, where $\boldsymbol{\iota}$ is the sum vector of the appropiate dimension.

The aggregation of countries and industries is used to ease the exposition. By splitting the corresponding rows and columns, the world economy can be divided into as many countries and regions as the researcher deems appropriate. Similarly, we can disaggregate the industries (by replacing the scalars *u* with the corresponding $j\times j$ interindustry matrix and replacing the scalars *x* and *y* with the corresponding $j\times 1$ vector). In the empirical investigation of our paper, we account for 40 actual countries and a 'Rest of the World' sector (i.e. $n = 41$). Because of data constraints, we omit the sectorial composition of their economies.

We then define the 'global sourcing matrix', which consists of the domestic and foreign intermediate input requirements per unit of output in each country:

$$\mathbf{A} \coloneqq \mathbf{U}\hat{\mathbf{x}}^{-1} \quad (2)$$

Thus, the element $a_{sr}$ of matrix $\mathbf{A}$ is defined as $a_{sr} \coloneqq u_{sr}/x_r,\ r,s = 1,2,3.$

Final output responds to final expenditure components, which can be classified as either autonomous or induced (e.g. as in deFreitas and Dweck, 2013):

$$y_{sr} = \underbrace{chnd_{sr} + ipe_{sr}}_{\text{induced}} + \underbrace{cg_{sr} + ig_{sr} + chd_{sr} + id_{sr}}_{\text{autonomous } (z)} \quad (3)$$

Induced expenditure is approximated to consist of household non-durable consumption expenditures ($chnd$) and private business investment (*ipe*). The first will evolve out of income as in the traditional Keynesian multiplier, and whereas private business investment follows the accelerator mechanism. Autonomous expenditure (*z*) includes government consumption (*cg*) and government investment (*ig*) alongside household durable consumption (*chd*) and private investment in dwellings (*id*). These expenditures are autonomous because government expenditure is mainly subject to policy, whereas durable consumption and private investment in dwellings are typically financed out of pre-existing wealth and new credit. Thus, the equations for induced expenditures are

$$chnd_{sr} = b_{sr} \cdot y_r \quad (4)$$

$$ipe_{sr} = g_r \cdot k_{sr} \cdot x_r \quad (5)$$

where $b$ is the average propensity to consume non-durables out of income, $k$ is the optimal capital to gross output ratio or capital intensity, and $g$ is the expected rate of of demand growth.

However, due to the data limitations specified in the next section, we simplify the model by adopting two short cuts. Instead of Equations 4 and 5, we use the following two equations:

$$chnd_{sr} = c_{sr} \cdot x_r \qquad (6)$$

$$ipe_{sr} = h_{sr} \cdot x_r \qquad (7)$$

Thus, $c_{sr} = b_{sr} \cdot (1 - a_r)$, where $a_r$ is the share of total intermediate consumption in relation to the total gross output in country $r$, and $h_{sr} = g_r \cdot k_{sr}$.[122]

Equations 2, 3, 6 and 7 give causal content to the Identity 1, all of which can be expressed in the following global multiregional input—output (GMRIO) framework:

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \left( \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} - \begin{bmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{bmatrix} - \begin{bmatrix} h_{11} & h_{12} & h_{13} \\ h_{21} & h_{22} & h_{23} \\ h_{31} & h_{32} & h_{33} \end{bmatrix} - \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \right)^{-1} \begin{bmatrix} z_{11} & z_{12} & z_{13} \\ z_{21} & z_{22} & z_{23} \\ z_{31} & z_{32} & z_{33} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} \quad (8)$$

In a more compact notation, Equation 8 can be rewritten as

$$\mathbf{x} = (\mathbf{I} - \mathbf{A} - \mathbf{H} - \mathbf{C})^{-1} \mathbf{Z} \boldsymbol{\iota} \quad (8)$$

where $\mathbf{I}$ is the identity matrix. Causality runs from autonomous expenditures to gross output; expenditures on both domestic and imported means of production (intermediates and private business investment) and households' non-durable consumption are endogenous.

The model accounts for the fact that exports always increase domestic output by at least the amount of domestic content in new exports. Most economists focus instead on the evolution of *net* exports (e.g. Krugman and Obstfeld, 2006, Part 3; Kalecki, 1971, Ch.2; Godley, 1999, p. 3). Teixeira and Serrano (2014, pp. 10—12) and Serrano (2008, pp. 13—15) argue that in doing so, such economists fail to maintain the distinction between supply, to which imports contribute, and demand, which includes exports. Even assuming that every penny from new exports is spent on imports, aggregate

[122] We thank a referee for noting that in the disaggregated model, each cell of the column of non-durable final consumption should be allocated in the cells of the same row according to the value added of each industry. Similarly, each cell of the column of private business investment should be allocated in the cells of the same row according to the capital intensity of each industry.

demand will increase by a minimum of the value of the domestic content in exports (and quite possibly even more, as a result of multiplier processes). Thus, in line with the input—output literature, we recognise the distinctive nature of exports and account for imports as a reduction in the domestic content of demand components.

Next, we separate the structure of trade flows or international gross market shares ($\mathbf{B}$, $\mathbf{\Gamma}$, $\mathbf{E}$ and $\mathbf{\Theta}$) from total coefficients ($\mathbf{A_T}$, $\mathbf{H_T}$, $\mathbf{C_T}$ and $\mathbf{Z_T}$) as follows:

$$\mathbf{A} = \underbrace{\begin{bmatrix} \beta_{11} & \beta_{12} & \beta_{13} \\ \beta_{21} & \beta_{22} & \beta_{23} \\ \beta_{31} & \beta_{32} & \beta_{33} \end{bmatrix}}_{\mathbf{B}} \underbrace{\begin{bmatrix} a_{T1} & 0 & 0 \\ 0 & a_{T2} & 0 \\ 0 & 0 & a_{T3} \end{bmatrix}}_{\mathbf{A_T}} \quad (9)$$

$$\mathbf{H} = \underbrace{\begin{bmatrix} \gamma_{11} & \gamma_{12} & \gamma_{13} \\ \gamma_{21} & \gamma_{22} & \gamma_{23} \\ \gamma_{31} & \gamma_{32} & \gamma_{33} \end{bmatrix}}_{\mathbf{\Gamma}} \underbrace{\begin{bmatrix} h_{T1} & 0 & 0 \\ 0 & h_{T2} & 0 \\ 0 & 0 & h_{T3} \end{bmatrix}}_{\mathbf{H_T}} \quad (10)$$

$$\mathbf{C} = \underbrace{\begin{bmatrix} \varepsilon_{11} & \varepsilon_{12} & \varepsilon_{13} \\ \varepsilon_{21} & \varepsilon_{22} & \varepsilon_{23} \\ \varepsilon_{31} & \varepsilon_{32} & \varepsilon_{33} \end{bmatrix}}_{\mathbf{E}} \underbrace{\begin{bmatrix} c_{T1} & 0 & 0 \\ 0 & c_{T2} & 0 \\ 0 & 0 & c_{T3} \end{bmatrix}}_{\mathbf{C_T}} \quad (11)$$

$$\mathbf{Z} = \underbrace{\begin{bmatrix} \theta_{11} & \theta_{12} & \theta_{13} \\ \theta_{21} & \theta_{22} & \theta_{23} \\ \theta_{31} & \theta_{32} & \theta_{33} \end{bmatrix}}_{\mathbf{\Theta}} \underbrace{\begin{bmatrix} z_{T1} & 0 & 0 \\ 0 & z_{T2} & 0 \\ 0 & 0 & z_{T3} \end{bmatrix}}_{\mathbf{Z_T}} \quad (12)$$

where $a_{Tr} = \sum_{s=1}^{3} a_{sr}$ ; $h_{Tr} = \sum_{s=1}^{3} h_{sr}$ ; $c_{Tr} = \sum_{s=1}^{3} c_{sr}$ ; $z_{Tr} = \sum_{s=1}^{3} z_{sr}$.

Considering Equations 8 to 12, we can write the gross output vector as a function of a multiregional gross output supermultiplier and multiregional autonomous demands:

$$\mathbf{x} = \underbrace{(\mathbf{I} - \mathbf{B}\,\mathbf{A_T} - \mathbf{\Gamma}\,\mathbf{H_T} - \mathbf{E}\,\mathbf{C_T})^{-1}\mathbf{\Theta}}_{\substack{\text{multiregional gross output} \\ \text{supermultiplier}}} \underbrace{\mathbf{Z_T}}_{\substack{\text{multiregional} \\ \text{autonomous} \\ \text{demands}}} \boldsymbol{\iota} \quad (13)$$

This expression is our extension of the supermultiplier formula in open economies (Serrano, 1995; Dejuán, 2005; Bortis, 2011) to a global multiregional input—output setting (using the simplified shortcuts in Equations 6 and 7).[123] Thus, it contributes to the "recovery of Hicks' notion of the supermultiplier and its integration with Harrod's foreign trade multiplier", a project of "great importance in the development of a theory

[123] The multiplier-accelerator mechanism has been fruitfully embedded in input—output tables and social accounting matrices, perhaps most notably by Óscar Dejuán (e.g. 2006).

in which 'economic growth is always *demand induced*'" (Vernengo and Rochon, 2001, p. 91, quoting Kaldor).[124]

The main novelty of our formulation – the GMRIO setting — brings to the fore the interrelations between the economic fortunes of countries that engage in international trade. An increase in domestic autonomous expenditures will likely spur an increase in both domestic and foreign gross output. Similarly, this new foreign output may require domestic inputs, which in turn may incorporate foreign inputs, and so on.[125] Thus, although exports are exogenous sources of demand from the viewpoint of each individual country, they are integral to the global system. Interdependence also arises from the induced consumption and investment expenditures triggered by new exports, which may give rise to further trade flows that then may induce further expenditures, and so on.

For example, new orders for the aeroplanes Airbus A380 initiate the production of components from Spain, which are then exported to France for further processing. The components produced in Spain require imported inputs, some of which are produced in France. If these new orders are sufficiently important, the plants in Spain must hire extra workers (who will consume a portion of their new incomes) and perhaps expand productive capacity. In turn, the higher consumption and investment induce additional expenditures for both domestic and foreign products. Likewise, the higher economic activity in France induces higher consumption and perhaps new private investment expenditures, some of which for Spanish-made products.

More complicated interrelations can arise to the point where they involve every country. Thus, GMRIO modelling (once we introduce labour coefficients) is probably the best tool for explaining job creation interdependencies between countries (Tukker and Dietzenbacher, 2013).

Our model also draws on Kaldor and his followers (see Vernengo and Rochon, 2001). This results in an affinity with McCombie's (1993) analysis, which also uses the supermultiplier and shows that the growth of one country depends on the growth of both domestic and foreign autonomous expenditures. However, we do not introduce the idea

[124] Kaldor noted that "the doctrine of the foreign trade multiplier" gains in generality if complemented with the Hicksian supermultiplier (Kaldor, 1970; Kaldor, 1983; see also McCombie, 1985, and Palumbo, 2011).

[125] As noted by a referee, these complex flows are at the core of trade in value added literature, which are traced by recourse to the Leontief inverse of a global input-output table (e.g. Johnson and Noguera, 2012; Foster-McGregor, 2013).

that the long-period growth rate of real output tends toward the value that ensures equilibrium in the balance of payments.[126] In the short and mid-run, and in special cases persistently, a country might be able to finance current account deficits, which correspond to other nations' surpluses (Thirlwall, 2013, pp. 75—77). This possibility seems common enough (Bordo, 2005), and it surely applied in the countries examined in this article at least before the Great Recession, to allow us to overlook external financial constraints as the main determinant of internal demand in our study, the insufficiency of which could be an unnoticed potential limit to growth.[127]

For example, we allow government expenditures or a construction bubble to play a leading role in the economic expansion of a country. As noted by deFreitas and Dweck (2013, p. 168) in their empirical analysis of the supermultiplier, "our theoretical framework is flexible enough to capture either a pattern of economic growth led by exports or a pattern of growth led by domestic expenditures".

Employment is however our focus. Thus we pre-multiply each side of Equation 13 by the diagonalised labour coefficients vector ($\hat{\mathbf{e}}$, whose $r$ element is $e_r \coloneqq l_r/x_r$, $l_r$ denoting the total hours worked in country $r$). In doing so, we obtain the number of hours worked in each country as a function of a multiregional employment supermultiplier (MESM) and multiregional autonomous demands:

$$\mathbf{l} = \underbrace{\hat{\mathbf{e}}\,(\mathbf{I} - \mathbf{B}\,\mathbf{A_T} - \mathbf{\Gamma}\,\mathbf{H_T} - \mathbf{E}\,\mathbf{C_T})^{-1}\mathbf{\Theta}}_{\substack{\text{multiregional employment}\\ \text{super-multiplier}}} \underbrace{\mathbf{Z_T}}_{\substack{\text{multiregional}\\ \text{autonomous}\\ \text{demands}}} \boldsymbol{\iota} \qquad (14)$$

Further, we distinguish the changes in trade structures and final autonomous expenditures that depend on domestic decisions from the changes that depend on foreign decisions. Similarly, we split the remaining matrices according to the domestic or foreign nature of their elements. Thus, we write

$$\mathbf{B} = \mathbf{B}^{(\mathrm{r})} + \mathbf{B}^{(-\mathrm{r})};\ \mathbf{\Gamma} = \mathbf{\Gamma}^{(\mathrm{r})} + \mathbf{\Gamma}^{(-\mathrm{r})};\ \mathbf{E} = \mathbf{E}^{(\mathrm{r})} + \mathbf{E}^{(-\mathrm{r})};\ \mathbf{\Theta} = \mathbf{\Theta}^{(\mathrm{r})} + \mathbf{\Theta}^{(-\mathrm{r})};$$

$$\mathbf{Z_T} = \mathbf{Z_T^{(r)}} + \mathbf{Z_T^{(-r)}};\ \mathbf{A_T} = \mathbf{A_T^{(r)}} + \mathbf{A_T^{(-r)}};\ \mathbf{H_T} = \mathbf{H_T^{(r)}} + \mathbf{H_T^{(-r)}};\ \mathbf{C_T} = \mathbf{C_T^{(r)}} + \mathbf{C_T^{(-r)}}$$

Taking the trade structure of the intermediates in country 2 as an example, matrices $\mathbf{B}$, $\mathbf{\Gamma}$, $\mathbf{E}$ and $\mathbf{\Theta}$ are deconstructed as follows:

[126] This idea unites the Balance-of-Payments-Constrained Growth literature with Centre-Periphery or North-South models (McCombie and Thirlwall, 1994, pp. 256—261; Thirlwall, 2013, pp. 108—111).
[127] See Palumbo (2011) and Vernengo and Rochon (2001, pp. 90—94).

$$\mathbf{B}^{(2)} = \begin{bmatrix} 0 & \beta_{12} & 0 \\ 0 & \beta_{22} & 0 \\ 0 & \beta_{32} & 0 \end{bmatrix} \text{ and } \mathbf{B}^{(-2)} = \begin{bmatrix} \beta_{11} & 0 & \beta_{13} \\ \beta_{21} & 0 & \beta_{23} \\ \beta_{31} & 0 & \beta_{33} \end{bmatrix}$$

Similarly, taking the matrix of autonomous demands from the viewpoint of country 2 as an example, matrices $\mathbf{Z_T}, \mathbf{A_T}, \mathbf{H_T}$ and $\mathbf{C_T}$ are deconstructed as follows:

$$\mathbf{Z_T^{(2)}} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & z_{T2} & 0 \\ 0 & 0 & 0 \end{bmatrix} \text{ and } \mathbf{Z_T^{(-2)}} = \begin{bmatrix} z_{T1} & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & z_{T3} \end{bmatrix}$$

This division of trade structures can be considered as follows: whereas producers and consumers choose their suppliers, they cannot choose their buyers – they can only strive to persuade them to purchase. In the above example, producers in country 2 have the last say on $\beta_{12}, \beta_{22}$ and $\beta_{32}$ but not on the remaining elements of matrix $\mathbf{B}$. Therefore, changes in the geographical sourcing structure of intermediates in country *r* ($\mathbf{B}^{(\mathrm{r})}$) are a priori independent from those in the other countries ($\mathbf{B}^{(-\mathrm{r})}$), which is critical to a meaningful structural decomposition analysis. Along these lines, such decisions reflect which supplier has been successful in gaining market share (regardless of the reason: lower costs, higher quality, better distribution channels, preferential trade agreements, etc.). In other words, changes in these coefficients are also ex-post indices of variations in competitiveness.

The above division of matrices reflecting the technical coefficients and average propensities to invest and consume non-durables is intended to capture their dual effect. For example, on the one hand a change in the total *domestic* intermediate coefficient ($\mathbf{A_T^{(r)}}$) affects *domestic* employment. For our country, it is a technological or structural effect. On the other hand, such a change also affects employment in the other countries that supply a share of the intermediate inputs used domestically. It is, from the viewpoint of these countries, a foreign sector effect.

Inserting these split matrices into our model (Equation 14) we arrive at our final equation. From the viewpoint of country *r* we have*:*

$$\mathbf{l} = \hat{\mathbf{e}}\Big(\mathbf{I} - \big(\mathbf{B}^{(\mathrm{r})} + \mathbf{B}^{(-\mathrm{r})}\big)(\mathbf{A_T^{(r)}} + \mathbf{A_T^{(-r)}}) - \big(\mathbf{\Gamma}^{(\mathrm{r})} + \mathbf{\Gamma}^{(-\mathrm{r})}\big)\,(\mathbf{H_T^{(r)}} + \mathbf{H_T^{(-r)}}) - \big(\mathbf{E}^{(\mathrm{r})} + \mathbf{E}^{(-\mathrm{r})}\big)(\mathbf{C_T^{(r)}} + \mathbf{C_T^{(-r)}})\Big)^{-1}(\mathbf{\Theta}^{(\mathrm{r})} + \mathbf{\Theta}^{(-\mathrm{r})})\,(\mathbf{Z_T^{(r)}} + \mathbf{Z_T^{(-r)}})\boldsymbol{\iota} \qquad (15)$$

This equation captures the functional dependence of domestic employment on domestic and foreign autonomous demands, domestic and foreign socio-technical coefficients, and domestic and foreign sourcing structures of means of production and final goods.

## 3. DATA

The World Input—Output Database (WIOD) is a source of industry × industry World Input—Output Tables (WIOT). We prefer this database to other main GMRIO databases for several reasons (see *Economic Systems Research*, 25, 1—156).

First, it contains a meticulous allocation of trade flows among end-use categories, which is important to the accuracy of our estimates. Second, it has a consistent annual time series, which is necessary for a *recursive* hierarchical structural decomposition analysis. Third, the WIOD is fully consistent with the National Accounts Statistics, from which we source complementary data. Fourth, their socio-economic accounts (SEAs) include information on hours worked.

Hours worked does possess advantages over other measures of employment: it is directly commensurable along time and among countries, which is not the case with a full-time equivalent measure. Moreover, in contrast to the number of workers, it offers a purely technical measure of employed labour (because the later also depends on institutional innovation and social conventions such as the retirement age, work-day and part-time standards).

The WIOTs cover forty countries (all 27 European Union countries and 13 other major economies) and the 'Rest of the World' (RoW) for the period from 1995 to 2011, and they disaggregate each economy into 35 industries (see Dietzenbacher et al., 2013; Timmer et al. 2015, and the web page www.wiod.org). Ideally, our investigation additionally demands 1) the number of hours worked in the RoW; 2) a lower level of disaggregation of industries to differentiate consumer durables from consumer non-durable goods; 3) the capital intensity of the different capital goods in each industry; and 4) the disaggregation of gross fixed capital formation among households, the public sector and private businesses.

Unfortunately, we can only obtain economy-wide aggregates for the above points. Hence, we have opted to aggregate the WIOTs to eliminate the sectorial dimension of each economy. By using aggregates from National Accounts, we separate household

expenditures on the consumption non-durable goods from those on the consumption of durable goods and distinguish private business GFCF from the remaining GFCF. In addition, the shortcut implicit in Equation 7 allows us to proceed without data on capital intensity. The number of hours worked in the RoW is obtained by combining information from the International Labour Organisation with that from the SEAs. The gross output deflators of the SEAs were used to deflate monetary magnitudes. Please see the Appendix for further details.

## 4. RECURSIVE HIERARCHICAL SDA AND DEFINITION OF 'EFFECTS'

To trace the changes in hours worked back to the changes in our model's determinants, we apply a structural decomposition analysis (SDA). More precisely, we apply the *hierarchical* SDA explained by Koller and Stehrer (2009, 2010) *recursively* because it ensures more accurate results than does the standard SDA.

First, the number of mathematically possible *exact* decomposition expressions equals the factorial of the number of determinants (Dietzenbacher and Los, 1998). However, not all decompositions are economically meaningful. The hierarchical SDA discards those that are incompatible with the structure of the model.

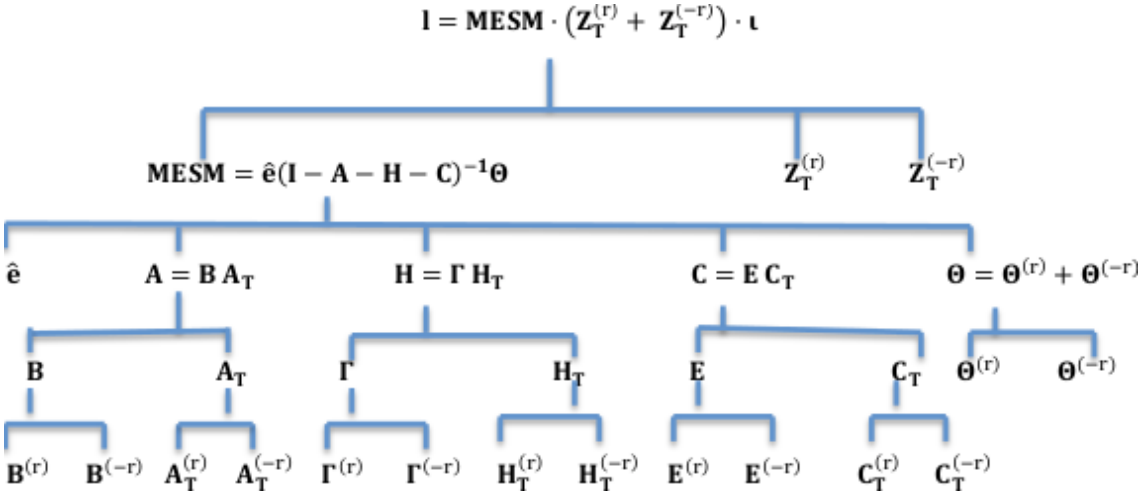
Second, exact decompositions exclude interaction between determinants: their effects are distributed among the determinants according to the sequence implied by the decomposition formula (Fernández-Vázquez et al., 2008). Taking the average of all possible decompositions, a standard procedure after Dietzenbacher and Los (1998), is to distribute the effects of interaction terms equally among the determinants. The better we specify the time path of determinants, however, the more realistic the redistribution will be (Fernández-Vázquez et al., 2008). For this reason, we compute the *annual* contribution of each determinant by taking the average of *all* exact decompositions allowed by the model's structure and then add the results, obtaining thereby 'accumulated contributions'.[128]

The following tree-like Figure 1 illustrates the hierarchical structure of our model. It shows that at the first level, changes in domestic employment are dependent on changes in the multiregional employment supermultiplier (**MESM**) and on both domestic and foreign autonomous demands ($\mathbf{Z}_{\mathbf{T}}^{(\mathrm{r})}$ and $\mathbf{Z}_{\mathbf{T}}^{(-\mathrm{r})}$). At the second level, we decompose the

[128] Computing the average of all possible decomposition forms avoids accumulating the (small) errors that arise from taking the average of polar forms (Dietzenbacher and Los, 1998)

contribution of the **MESM** into the contributions of its determinants. The process is repeated as indicated in the figure. Seibel's (2003) extension of de Haan's (2001) identification of the structure and weight of the coefficients for each determinant is crucial in lightening the heavy computational load of the analysis.[129]

FIGURE 1. Hierarchical decomposition




We group each determinant's contribution to changes in domestic hours worked into the following instructive effects:

1. *Domestic Autonomous Demand Effect*: the contribution of changes in $\mathbf{Z_T^{(r)}}$.

2. *Socio-Technical Effect*: the contribution of changes in domestic socioeconomic and technical parameters ($\hat{\mathbf{e}}^{(r)}$, $\mathbf{A_T^{(r)}}$, $\mathbf{H_T^{(r)}}$ and $\mathbf{C_T^{(r)}}$).

We term the sum of these two effects as the *Domestic Sector Effects*.

3. *Foreign Sector Effect*, which is the sum of

   3.1. *Foreign Autonomous Demand Effect*: the contribution of changes in $\mathbf{Z_T^{(-r)}}$.

[129] For example, to estimate the effect on hours worked of changes in the trade structure of domestic intermediates ($\mathbf{B}^{(r)}$) following the recursive hierarchical SDA, we must introduce the two possible decompositions of **B** into the two possible decompositions of **A** belonging to the 120 possible decompositions of **MESM**, which, in turn, are inside the two possible decompositions of **l.** Therefore, we take the average of the 960 possible decomposition forms to estimate this effect for one country and for one year. Programming is easier once we take advantage of the fact that: 1) "for every factor [*n*], there are only $2^{(n-1)}$ different possibilities to calculate the coefficient precedingthe $\Delta$-item of this factor", and 2) "the weight of the coefficient is equal to (*n*-1-*k*)! * *k*!, being *k* the number of factors that are evaluated for the actual year" (Seibel, 2003, p. 15).

3.2. *Foreign Socio-Technical Effect*: the contribution of changes in foreigners' technical and socioeconomic coefficients ($\hat{\mathbf{e}}^{(-r)}$, $\mathbf{A_T}^{(-r)}$, $\mathbf{H_T}^{(-r)}$and $\mathbf{C_T}^{(-r)}$) .

3.3. *Integration Effect*: the contribution of changes in trade structures ($\mathbf{B, \Gamma, E}$ and $\mathbf{\Theta}$). This is almost identical to Koller and Stehrer's (2010) measure of the "integration" effect: it accounts for the employment effects of changes in trade patterns given the production levels. However, we depart from their interpretation of it as "the net effect of (net) outsourcing, exports and imports" on employment because – as they note – these factors also have a level effect that is not registered in this measure (p. 243).

From our viewpoint, the Integration Effect essentially reflects the consequences that changes in the competitive capacity of an economy have on employment, understood as the capacity to gain domestic and international market shares. A measure of the total impact of the international linkages that operate through international trade on employment should include, in addition to the Integration Effect, the consequences deriving from changes in foreign economies that run through the links established by integration. In our model, these effects are summarised in the Foreign Autonomous Demand Effect and Foreign Socio-Technical Effect.

The Integration Effect, in turn, can be divided into

3.3.1. *Trade Structure of Inputs Effect*: the contribution of changes in the geographical trade structure of means of production ($\mathbf{B}$ and $\mathbf{\Gamma}$).

3.3.2. *Trade Structure of Final Goods Effect*: the contribution of changes in the geographical trade structure of final goods ($\mathbf{E}$ and $\mathbf{\Theta}$).

We further divide the Input Sourcing Effect into

3.3.1.1. *Domestic Sourcing of Inputs Effect*: the contribution of changes in the geographical sourcing structure of the means of production used domestically ($\mathbf{B}^{(r)}$and $\mathbf{\Gamma}^{(r)}$). It encompasses the effects of both outsourcing (or insourcing) stages of production abroad and changes in the geographical structure of imported inputs in country *r*. Both insourcing and shifting imports from countries less integrated with country *r* to countries more integrated with country *r* have a positive effect on the employment of country *r*; the reverse is also true.

3.3.1.2. *Foreign Sourcing of Inputs Effect*: the contribution of changes in the geographical sourcing structure of the means of production used abroad ($\mathbf{B}^{(-r)}$ and $\mathbf{\Gamma}^{(-r)}$). The decisions of foreigners to outsource production to country *r* and shift imports from countries less integrated with country *r* to countries more integrated with country *r* have a positive effect on employment in country *r*; the reverse is also true.

We split the Trade Structure of Final Goods Effect as follows:

3.3.2.1. *Domestic Sourcing of Final Goods Effect*: the contribution of changes in the geographical sourcing structure of the final goods that are consumed domestically ($\mathbf{E}^{(r)}$and $\mathbf{\Theta}^{(r)}$).

3.3.2.2. *Foreign Sourcing of Final Goods Effect*: the contribution of changes in the geographical sourcing structure of the final goods that are consumed abroad ($\mathbf{E}^{(-r)}$ and $\mathbf{\Theta}^{(-r)}$).

Finally, it must be noted that the sum of each country's Foreign Sector Effect does not need to be zero; international trade is not necessarily a zero-sum game.

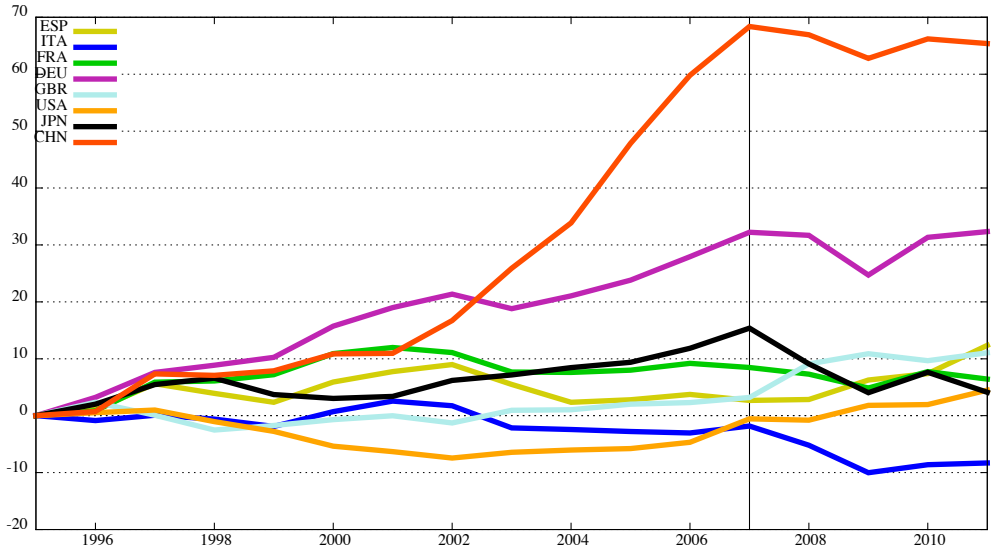
## 5. RESULTS

We compute the just defined effects on domestic employment for all WIOD countries between 1995 and 2011. Here we discuss their accumulated contributions in eight major countries, namely the US, China, Japan, Germany, France, the UK, Italy and Spain. These countries represent 58% of world's GDP in 2011, and the first six countries listed are at the top of the GDP ranking (IMF, 2015). We first examine the years before the inception of the economic crisis, from 1995 to 2007, and then consider the period from 2008 to 2011.

### 5.1. Foreign Sector Effects in the boom, 1995—2007

From 1995 to 2007, hours worked increased by 43.6% in Spain, 22.9% in China, 13.4% in the US, 12.7% in Italy, 8.7% in the UK, and 7.6 in France. Conversely, they decreased by 1.5% in Germany and 8.3% in Japan. To what extent are the international linkages that operate through international trade responsible for the changes in hours worked? Which countries benefit? Figure 2 plots the answer: the accumulated contribution of the Foreign Sector Effect to the accumulated change in hours worked. Both measures are expressed in percentage points of the employment level as of 1995.

FIGURE 2. Accumulated contribution of the Foreign Sector Effect to the accumulated change in hours worked, 1995—2011 (in pp of the employment level as of 1995)




China (68.4 p.p.), Germany (32.2 p.p.) and Japan (15.4 p.p.) benefit the most, whereas France (8.5 p.p.), the UK (3.2 p.p.) and Spain (2.7 p. p.) do less so. The US (-0.5 p. p.) and Italy (-1.8 p. p.) do not benefit at all.

Domestic employment changes also depend on the Domestic Autonomous Demand Effect and on the Socio-Technical Effect. From Table 1, we observe that the countries that profit the most from the Foreign Sector Effect are as well the countries that rely the most on it to promote domestic employment.

Germany is the most extreme case: the foreign sector is the only trigger of additional demand for labour-hours. Due to the foreign sector, hours worked decreases by a mere 1.5%, despite the negative contributions of domestic autonomous demand (-0.6 pp) and the Socio-Technical Effect (-33.2 p.p). In Japan, the Foreign Sector Effect (15.4 p.p) is far more important than the small contribution of domestic autonomous demand (0.8 p.p.), but it is still not sufficient to offset the Socio-Technical Effect (-24.4 p.p.). Chinese employment growth relies on the expansion of domestic autonomous demand (70.9 p.p.) as much as it does on the Foreign Sector Effect (68.4), and both more than offset the negative Socio-Technical Effect (-116.4 p.p.)

The surge of the Foreign Sector Effect in China since 2001 that is apparent in Figure 1 coincides with the acceleration of China's exports after its admission to the World Trade Organisation (WTO), which evidences China's competitive advantage in

traditional industries and the success of its industrial policy in both energy-intensive industries and dynamic high-tech products (Berger and Martin, 2013). In other words, the surge illustrates the success of China's economic model in reaping benefits from greater integration into global capitalism.

TABLE 1. Structural decomposition of changes in domestic employment, 1995—2007 (in pp of the employment level as of 1995)

| Country | Domestic Autonomous Demand (1) | Socio-technical (2) | Foreign Sector (3) | Total (1+2+3) | Level 1995 | Net exports |
|---|---|---|---|---|---|---|
| ESP | 45.7 | -4.8 | 2.7 | 43.6 | 23,514 | -92,012 |
| ITA | 16.0 | -1.5 | -1.8 | 12.7 | 40,600 | -46,759 |
| FRA | 21.8 | -22.6 | 8.5 | 7.6 | 35,398 | -61,901 |
| DEU | -0.6 | -33.2 | 32.2 | -1.5 | 57,679 | 221,771 |
| GBR | 26.9 | -21.5 | 3.2 | 8.7 | 44,994 | -80,087 |
| USA | 31.8 | -17.9 | -0.5 | 13.4 | 242,776 | -602,681 |
| JPN | 0.8 | -24.4 | 15.4 | -8.3 | 128,222 | 9,505 |
| CHN | 70.9 | -116.4 | 68.4 | 22.9 | 1,214,994 | 264,199 |

Note: The employment level as of 1995 is expressed in millions of hours. Net exports is expressed in millions of US dollars.

In contrast, hours worked in France and especially in the UK and Spain depend much more on domestic autonomous demand (21.8, 26.9 and 45.7 p.p.) than on the foreign sector (8.5, 3.2 and 2.7 p.p.), which outweigh the Socio-Technical Effect (-22.6, -21.5 and -4.8 p.p.).

On the other hand, employment growth in the US and Italy is the outcome from the notable expansion of domestic autonomous demand (31.8 and 16.0 p.p.), which outweighs both the negative Foreign Sector Effect (-0.5 and -1.8 p.p.) and Socio-Technical Effect (-17.9 and -1.5 p.p).

In Section 2, we argue that net exports are a misleading indicator of the consequences of international trade on output and employment. The Spanish experience corroborates this point: despite the severe deterioration of net exports (-$92,012 millions), the Foreign Sector Effect was positive.[130] This difference is also observed in both France and the UK.

We now examine the three factors that impact the Foreign Sector Effect (changes in

[130] Of course, if the trade deficits lead to current account deficits, the resulting accumulation of foreign debt may eventually hinder employment by blocking the expansion of domestic demand, as highlighted by the Structuralist tradition (e.g. Prebish 1959) and the Balance of Payments Constrained Growth Theory (e.g. McCombie and Thirlwall, 2004). Indeed, it has been at the root of the recent Eurozone crisis (e.g. Dejuán et al., 2013, Part II)).

foreign autonomous demands, foreign socio-technical parameters, and economic integration), which are presented in Table 2. Given the generalised increase in autonomous demand, the Foreign Autonomous Demand Effect is significantly positive in the countries we examine; given that this effect is higher the more integrated an economy is with other, faster growing economies, Germany has benefited the most from it (21.5 p.p.). This last result is the outcome of the German policy stance since the Second World War which promotes building an export-oriented economy (see Cesaratto and Stirati, 2011). Conversely, the United States and Japan present the lowest Foreign Autonomous Demand Effect (9.3 and 12.1 pp), which is not surprising given their comparatively higher reliance on their respective internal markets.

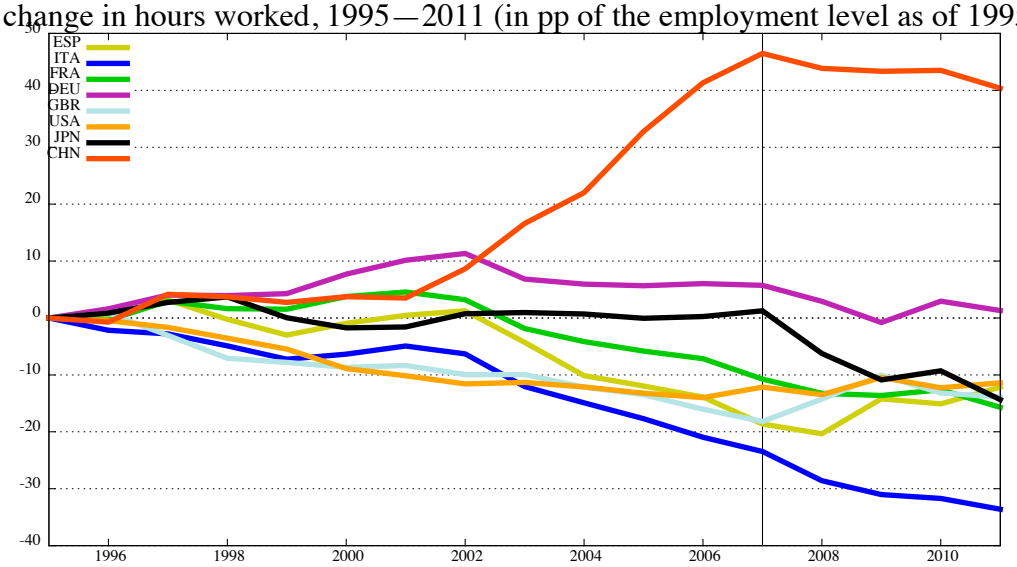
TABLE 2. Structural decomposition of the Foreign Sector Effect on domestic employment, 1995—2007 (in pp of the employment level as of 1995)

| Country | Foreign Autonomous Demand (1) | Foreign Socio-technical Effect (2) | Integration (3) | Foreign Sector (1+2+3) |
|---|---|---|---|---|
| ESP | 17.9 | 3.4 | -18.6 | 2.7 |
| ITA | 18.5 | 3.2 | -23.5 | -1.8 |
| FRA | 16.0 | 3.2 | -10.7 | 8.5 |
| DEU | 21.5 | 5.0 | 5.7 | 32.2 |
| GBR | 18.1 | 3.3 | -18.2 | 3.2 |
| USA | 9.3 | 2.3 | -12.1 | -0.5 |
| JPN | 12.1 | 2.0 | 1.3 | 15.4 |
| CHN | 19.3 | 2.6 | 46.5 | 68.4 |

The impact of new economic integration (or disintegration) on labour-hours is only positive in China (46.5 pp) and, to a much lesser extent, Germany (5.7 pp) and Japan (1.3 pp). Thus, the high Foreign Sector Effect in Germany, contrary to conventional opinion, is more the result of reaping benefits (thanks to previous, favourable integration) from foreign expansion and changes in socio-technical parameters (82% of Foreign Sector Effects) than the outcome of newly gained competitiveness (18%), which indeed only accrued prior to 2003 (Figure 3).[131] All of these observations cast doubt on the alleged effectiveness of the 'Hartz reforms' in fostering German competitiveness. China represents the opposite case (32% versus 68%), thus illustrating the great success of its mercantilist orientation, especially after its admission to the WTO.

[131] These results are in line with those of Timmer et al. (2013).

FIGURE 3. Accumulated contribution of the Integration Effect to the accumulated change in hours worked, 1995—2011 (in pp of the employment level as of 1995)




Employment in other countries is negatively impacted by the international competitive struggle: Italy (-23.5 pp), Spain (-18.6 pp), the US (-12.1 pp), the UK (-18.2 pp), and France (-10.7 pp). Thus, workers in France, the UK and Spain benefit from the Foreign Sector Effect because the gains that they derive from others' economic prosperity outweigh the losses that they derive from any new integration. In France and Spain, the accumulated contribution of Integration Effects has been negative since the early 2000s, which coincides with China's WTO accession, the fast integration of Eastern European countries with EU countries (see Cadarso et al., 2008; Marin, 2006, and Simmonazi et al., 2013) and the appreciation of the Euro.

Conversely, in Italy and the US, the impact of unfavourable Integration Effects on hours worked is not offset by the gains from expansion by other countries or by changes in socio-technical parameters (Table 2). However, from 2002 to 2007, the US realises outstanding benefits from the growth of many of its trading partners, such that these almost offset the employment loss from the Integration Effect (contrast Figure 2 with Figure 3). In Italy, as in France and Spain, Integration Effects have worsened notably since the early 2000s.

In Table 3, we divide the Integration Effect into the Trade Structure of Inputs Effect and the Trade Structure of Final Goods Effect. China and Germany are the only countries that benefit from both (27.7 and 18.8 pp, 2.9 and 2.8 pp, respectively). In contrast, Japan's positive Integration Effect comes exclusively from favourable changes in the trade structure of *final* goods (2.8 pp). Thus, employment in the other countries (Spain, Italy, France, the UK and the US) is negatively impacted by the reconfiguration

of global production.

TABLE 3. Structural decomposition of the Integration Effect on domestic employment, 1995—2007 (in pp of the employment level as of 1995)

| Country | Domestic Sourcing of Inputs (1) | Foreign Sourcing of Inputs (2) | Trade Structure of Inputs (1+2) | Domestic Sourcing of Final Goods (3) | Foreign Sourcing of Final Goods (4) | Trade Structure of Final Goods (3+4) | Integration Effect (1+2+3+4) |
|---|---|---|---|---|---|---|---|
| ESP | -16.9 | 6.5 | -10.4 | -11.5 | 3.3 | -8.3 | -18.6 |
| ITA | -11.0 | -3.6 | -14.6 | -5.8 | -3.1 | -8.9 | -23.5 |
| FRA | -4.8 | -3.4 | -8.2 | -2.8 | 0.2 | -2.5 | -10.7 |
| DEU | -8.4 | 11.3 | 2.9 | -3.5 | 6.4 | 2.8 | 5.7 |
| GBR | -4.7 | -4.2 | -8.9 | -6.9 | -2.3 | -9.3 | -18.2 |
| USA | -6.8 | -2.0 | -8.8 | -2.8 | -0.5 | -3.3 | -12.1 |
| JPN | -5.0 | 3.5 | -1.5 | 0.4 | 2.4 | 2.8 | 1.3 |
| CHN | -18.0 | 45.8 | 27.7 | -1.9 | 20.7 | 18.8 | 46.5 |

Changes in the geographical sourcing structure of inputs used domestically are detrimental to employment in all countries. However, in Germany and China, this effect is outweighed by the impact of higher foreign reliance on inputs produced in their territory and in countries with stronger links with them (-8.4 pp against 11.3 pp in Germany; 18.0 against 45.8 in China). In Spain and Japan, the Foreign Sourcing of Inputs Effect is also positive (6.5 and 3.5 pp) but is not sufficient to compensate for the negative impacts of outsourcing and changes in the sourcing structure of imported intermediates (-16.9 and -5 pp). In Italy, France, the UK, and the US, both domestic and foreign reorganisations of supply chains are detrimental to domestic employment.

Finally, we test Grossman and Rossi-Hansberg's (2008) hypothesis that the negative effect on employment from outsourcing the production of intermediates may be outweighed by a higher demand for the final product (which results from a theorised lower final product price). According to our accounting framework and results, the hypothesis lacks in generality. For the hypothesis to be valid, the Trade Structure in Final Goods Effect should at least counteract the Domestic Sourcing of Inputs Effect.[132] This is only the case in China. If we concede that outsourcing may lead to higher demand for not only final products but also for other means of production, then the Foreign Sourcing of Inputs Effect plus the Trade Structure in Final Goods Effect should at least counteract the Domestic Sourcing of Inputs Effect. This is only the case in Germany, Japan and China.

[132] Provided that this last effect is overwhelmingly governed by the impact of outsourcing rather than the impact of changes in the geographical sourcing structure of imported inputs.

### 5.2. Foreign Sector Effects in the Great Recession, 2007—2011

In 2011, hours worked in Japan, Spain, the US, Italy and France are still below their 2007 pre-crisis levels (by 10.6, 9.6, 5.8, 2.8 and 1.1%), despite a post-2009 rebound in the US, Italy and France. In contrast, hours worked are above the pre-crisis levels in Germany and the UK (by 4.5 and 3.6%), whereas China has continued to show additional labour-hours (9.8%). Do international linkages operating through international trade mitigate or aggravate the impact of the Great Recession on employment?

TABLE 4. Structural decomposition of changes in domestic employment, 2007—2011 (in pp of the employment level as of 2007)

| Country | Domestic Autonomous Demand | Socio-technical | Foreign Sector | Total | Level 2007 |
|---|---|---|---|---|---|
| ESP | -10.7 | -5.7 | 6.7 | -9.6 | 33,757 |
| ITA | -4.7 | 7.6 | -5.8 | -2.8 | 45,751 |
| FRA | -0.2 | 1.0 | -1.9 | -1.1 | 38,095 |
| DEU | 3.8 | 0.6 | 0.1 | 4.5 | 56,788 |
| GBR | -2.1 | -1.6 | 7.2 | 3.6 | 48,898 |
| USA | -3.8 | -6.4 | 4.4 | -5.8 | 275,294 |
| JPN | 0.7 | 1.0 | -12.3 | -10.6 | 117,623 |
| CHN | 23.7 | -11.4 | -2.4 | 9.8 | 1,492,885 |

Note: The employment level as of 2007 is expressed in millions of hours.

The Foreign Sector Effect tempers the dreadful consequences of the Great Recession precisely in the countries where Domestic Sector Effects have become damaging for employment, that is in the UK, Spain and the US (7.2, 6.7 and 4.4 pp of their respective employment levels in 2007). Conversely, the countries that have relied the most on the Foreign Sector Effect in the boom years now show a negative sign, as in Japan and China, or stagnation, as in Germany, whereas Domestic Sector Effects become positive. Similarly, Foreign Sector Effects have become negative in France (-1.9 pp), which is partly offset by a reversal of Domestic Sector Effects (0.8 pp). In Italy, Foreign Sector Effects continue to destroy employment at an even greater rate (-5.9 pp), whereas domestic factors have also become worse.

Thus, the Great Recession has interrupted the fantastic trend of the Foreign Sector Effect in China, Germany and Japan (Figure 2). In the first two countries, after the decline in the Foreign Sector Effect during 2008 to 2009, this effect returned to a level close to its pre-crisis level due to the global recovery. However, resuming the pre-crisis

trend of the Foreign Sector Effect appears unlikely, given the reversal of the Integration effect in Germany since 2002 and in China since 2007 as well as the slower global economic growth relative to that of the Great Moderation. In Japan, the Foreign Sector Effect in 2011 was far below its pre-crisis level (by some 11 pp of the 1995 employment level) because of the deep decrease in the Integration Effect since 2007. Thus, returning to the pre-crisis level of the Foreign Sector Effect appears especially difficult in a low-growth period.

Conversely, the Integration Effect has become positive in Spain, the UK, and the US (4.5, 3.9 and 0.7 pp), which are now the only countries where domestic employment is supported by this effect. This change and the rebound in global growth after 2009 have promoted the rise in the Foreign Sector Effect in these countries. In France and Italy, the Integration Effect continues to destroy employment (-4.6 and -9.0 pp).

TABLE 5. Structural decomposition of the Foreign Sector Effect on domestic employment, 2007—2011 (in pp of the employment level as of 2007)

| Country | Foreign Autonomous Demand | Foreign Socio-technical Eff. | Integration | Foreign Sector |
|---|---|---|---|---|
| ESP | 2.5 | -0.3 | 4.5 | 6.7 |
| ITA | 3.5 | -0.3 | -9.0 | -5.8 |
| FRA | 3.1 | -0.4 | -4.6 | -1.9 |
| DEU | 4.7 | -0.1 | -4.5 | 0.1 |
| GBR | 3.3 | -0.1 | 3.9 | 7.2 |
| USA | 3.4 | 0.3 | 0.7 | 4.4 |
| JPN | 4.4 | 0.3 | -17.0 | -12.3 |
| CHN | 3.5 | -1.0 | -5.0 | -2.4 |

These results must be interpreted with caution because the limitation of the decomposition analysis based on the aggregate model (which disregards the sectorial composition of output and trade flows) becomes especially acute during this period. Indeed, the substantial changes in the level and composition of the demand during 2008—2009 has strongly affected the level and composition of trade in finished and intermediate goods (see, e.g., Bems, Johnson and Yi 2012; Bussière et al. 2013 and Eaton et al. 2011).

For example, the Integration Effect summarises the consequences of changes in the *aggregate* market share for intermediate and final goods; however, these changes can result from variations in the composition of global demand and trade flow. Thus, the recorded reversions of Integration Effects' are affected by the different degrees and

patterns of economic crisis and recovery.

As an example, we consider the case of Spain and Germany. During the harsh years from 2008 to 2011 in Spain, the Domestic Sourcing of Inputs and Final Goods Effects become positive, thus explaining the shift in the Integration Effect from negative to positive (Table 6). To a great extent, these developments may derive from the Spanish specialisation in low and medium income-elasticity products combined with the large import penetration of high income-elasticity products (Alcalá, 2013). As the first products gain quota in the final demand basket at the expense of massively imported goods, the domestic aggregate market share improves.

TABLE 6. Structural decomposition of the Integration Effect on domestic employment, 2007—2011

| Country | Domestic Sourcing of Inputs (1) | Foreign Sourcing of Inputs (2) | Trade Structure of Inputs (1+2) | Domestic Sourcing of Final Goods (3) | Foreign Sourcing of Final Goods (4) | Trade Structure of Final Goods (4+5) | Integration Effect (1+2+3+4) |
|---|---|---|---|---|---|---|---|
| ESP | 1.0 | 0.9 | 1.9 | 3.0 | -0.4 | 2.6 | 4.5 |
| ITA | -3.1 | -4.0 | -7.1 | 0.5 | -2.3 | -1.9 | -9.0 |
| FRA | -1.5 | -1.4 | -2.9 | -0.3 | -1.4 | -1.7 | -4.6 |
| DEU | 0.4 | -3.4 | -3.0 | 0.5 | -2.0 | -1.5 | -4.5 |
| GBR | 0.3 | 1.8 | 2.0 | 1.4 | 0.5 | 1.9 | 3.9 |
| USA | -1.4 | -0.1 | -1.5 | 1.7 | 0.4 | 2.1 | 0.7 |
| JPN | -4.1 | -9.4 | -13.5 | -0.9 | -2.7 | -3.5 | -17.0 |
| CHN | -3.3 | 0.6 | -2.7 | -0.8 | -1.4 | -2.2 | -5.0 |

Conversely, the Foreign Sourcing of Inputs and Final Goods Effects have become negative in Germany, which has led to a negative Integration Effect. Such a reversion may also be derived from changes in the composition of global demand. Germany is a leading exporter of high-income and investment products, and its demand typically falls the most during recessions.

## 6. CONCLUSION

We have extended the GMRIO framework by endogenising the demand for both domestic and imported intermediates, private business investment and non-durable household consumption; equivalently, we have generalised the supermultiplier formula. Thus, ours is a novel contribution to the intertwined traditions of Input—Output Analysis and Classical—Keynesian Economics.

We argue that all of this is crucial for an accurate and theoretically grounded employment accounting framework, most notably of the impact of international linkages operating through international trade on domestic employment. This is even more crucial given the growing gap between growth in gross trade flows and the generation of incomes and jobs (see Alsamawi et al., 2014; Timmer et al., 2013; Johnson, 2014; Koopman et al. 2014).

From such a framework, we have derived a comprehensive set of Domestic and Foreign Sector Effects. Next, we estimate them using a recursive hierarchical SDA and data from the WIOD and National Accounts. This empirical analysis covers 8 major economies, namely Spain, Italy, France, Germany, the UK, the US, Japan and China, for the years 1995 to 2011. All in all, our results suggest the following:

- The effects of international trade and production interrelations on the level of domestic employment vary highly across countries. During the economic upswing, countries such as Germany, Japan and China have profited from and relied heavily on these effects to generate employment. France, the UK and Spain depend much more on domestic autonomous demand than on Foreign Sector Effects. In contrast, countries such as Italy and the US have been hurt by changing foreign economic relations and rely exclusively on domestic autonomous demand to generate net employment.
- In contrast to conventional opinion, the positive Foreign Sector Effects in Germany have been derived more from foreign expansion and changes in foreign socio-technical parameters (82% of Foreign Sector Effects) than from heightened competitiveness (18%), which only occurred prior to 2003.
- The trade balance is a misleading indicator of the impact of international linkages operating through international trade on domestic employment.
- The possible detrimental effects on domestic employment that result from losses in

the international competitive struggle for market share are, in most countries of our sample, offset by the domestic expansion triggered by the economic growth of other countries.

- The analysis of the different components of Integration Effects reveals crucial aspects of the pattern of the integration into global capitalism. For example, from 1995 to 2007, with the exception of Germany, the restructuring of intermediate product supply chains has been unfavourable to employment in the advanced countries analysed here.
- Grossman and Rossi-Hansberg's (2008) hypothesis that outsourcing the production of intermediates may ultimately cause a net increase in domestic employment appears to lack generality.
- The Foreign Sector Effect (and the Integration Effect) mitigate the impact of the Great Recession on employment in Spain, the US and the UK.
- During the Great Recession, the Foreign Sector Effect changed its sign in most of the countries examined, largely because of shifts in the Integration Effect. However, these shifts may not be stable because they presumably derive from substantial changes in the level and composition of trade flows resulting from the very same economic crisis.

It is our hope that our framework will be used to monitor the set of Foreign Sector Effects that are defined here. However, we agree that a major limitation of our empirical analysis should be addressed, namely, future studies should account for the sectorial composition of output.

It is also our hope that the present study will foster further applications of this "general methodological approach designed to reduce the steady widening gap between factual observation and deductive theoretical reasoning that threatens to compromise the integrity of economic analysis as an empirical science" (Leontief 1989, p. 3). For example, disaggregating by country may enable us to assess the effects of trade with particular economies on domestic employment, thereby establishing the basis for answering: Are there winners and losers, in employment terms, from European integration? To what extent has Chinese competition displaced employment in the US?

**APPENDIX**

The number of hours worked in the RoW is estimated as follows. To the number of people employed in the world we subtract the "number of persons engaged" in the 40 WIOD countries as reported in the SEA.[133] The result is multiplied by the average ratio of hours worked in all 40 WIOD countries. We implicitly assume, therefore, that people in the RoW work the same number of hours as does the average worker of WIOD countries.[134]

We use statistics from National Accounts (for each country and year) to compute the share of gross fixed capital formation carried out by the private sector and not spent on dwellings, and the proportion of household's consumption expenditure that is spent on durable goods. We have to assume that these shares apply regardless of the country of origin of the investment and consumption goods. That is, we resort to the usual proportionality assumption.

To deflate the WIOT we convert the statistics in the aggregated WIOT tables from current US dollars into current national currencies applying the exchange rates published in the WIOD. Then we convert them into prices of the previous year by using the gross output deflators of the SEA.[135] Finally, we convert these previous year's prices in national currency to US dollars by applying the exchange rate of the previous year. For the RoW we followed the deflation procedure applied in the first release of WIOT: we used US' GDP deflators for the RoW (see Dietzenbacher et al., 2013, p. 94, fn. 20).

All these statistics, more than 40 million, were handled with MATLAB® software.

[133] The number of people employed in the world was taken from the International Labour Organisation's report "Global Employment Trends 2014: The risk of a jobless recovery": The data set can be downloaded from: http://ilo.org/global/research/global-reports/global-employment-trends/2014/WCMS_234879/lang--en/index.htm [Last accessed 19 March 2014]

[134] We want to express our gratitude to Dr. Iñaki Arto, who explained to us this procedure that he and his colleges applied, with some further modifications required by their investigation, in Arto et al. (2014).

[135] Gross output deflators in the SEA cover the years 1995 to 2009 (in the update of July 2014). We have obtained the values for 2010 to 2011 from OECD's STAN database for the countries covered in this database. For the rest, we have used GDP deflators from the OECD, AMECO, and the World Economic Outlook of the IMF. WIOTs in previous year's prices were, at the time of writing, "under construction".

# THE BALANCE OF PAYMENTS CONSTRAINT AND THE GLOBALISATION OF PRODUCTION: THE CASE OF SPAIN, 1995-2011

## 1. MOTIVATION: THE ECONOMIC PROBLEMS OF OUR TIME AND THE BALANCE OF PAYMENTS CONSTRAINT

Mass unemployment, widespread poverty, rampant inequality, disrupted life cycles, suicide spikes, and emigration are among the economic problems of our time in Spain.[136] Rather than alleviate them, neoliberal austerity and regulations have impoverished the living standard of the majority of the labour class.[137] Meanwhile, in the opposition most argue for alternative policies that often involve a return to growth via Keynesian fiscal policies.

Indeed, demand management appears necessary for a return to growth.[138] Private over-indebtedness,[139] unemployment, impoverishment and unused productive capacity, for example, augur further weak private domestic demand. A sufficiently large foreign stimulus is unlikely given that only approximately 18% of GDP and 15% of hours worked depend (directly and through productive interdependencies) on foreign demand; moreover, almost half of this demand comes from the stagnating Eurozone, as we shall argue in Section 3.

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[136] After seven years since the start of the crisis, Spain has not yet regained the GDP level of 2008. The unemployment rate shot up from 8.6% in 2007 to 26% in 2012; in 2015, it still bordered on 23%. Almost 30% of Spaniards in 2014 were either in or at risk of poverty or social exclusion (Spanish National Statistical Institute, 2015a). Spain has led the increase in inequality in the OECD since the beginning of the crisis (OECD, 2013). As a manifestation of disrupted life cycles, since 2007 the average age of the parents at childbirth has sharply increased and the number of births has fallen (Spanish National Statistical Institute, 2015b). The rise in suicides is clearly related to the economic crisis, and it is particularly acute among working-age men (Bernal et al, 2013).

[137] These regulations have been implemented systematically since May 2010, and from that time, the average annual income of households has declined, material deprivation has increased (Spanish National Statistical Institute, 2015a), and health indicators have worsened (Legido-Quigley et al, 2013).

[138] We address neither political obstacles (such as those explained by Kalecki in *Political Aspects of Full Employment* (see also Cesaratto (2013a; 2013b) on the issue of mercantilism) nor redistributionary policies.

[139] Households' and non-financial corporations' indicators of indebtedness and financial fragility are still very high and well above those of the Eurozone, while simultaneous deleveraging continues to hinder domestic demand growth (Bank of Spain, 2013; Pérez Caldentey and Vernengo, 2015; EU Commission, 2015).

However, Keynesian reflationary policies are problematic insofar as they worsen the Net International Investment Position (NIIP).[140] Recent data suggest an extremely pro-cycle bias: the NIIP shot up from 30% of GDP at the launch of the euro to 78% in 2007, and it has stabilised at approximately 94% since 2009 due to the reduction of the trade deficit resulting from the contraction of domestic demand (EU Commission, 2015, pp. 10-24) (Figure 1).

An expansionary fiscal policy would thus easily meet financial markets' 'discipline' unless the European Central Bank intervenes to facilitate finance at low interest rates, as the recent attacks on Spanish sovereign bonds have made clear –even though foreign debt was mainly private debt in the hands of the non-financial corporate sector (Godley and Lavoie, 2007; Lavoie, 2015; Pérez Caldentey and Vernengo, 2015). Although the European Monetary Union has proved apt at providing liquidity to states under distress (Loublier, 2015), it does so by promoting the reversal of current account positions in indebted countries (i.e. the liquidation of foreign debt) through deflationary, neoliberal policies.[141]

Therefore, Spain de facto operates under a balance of payments constraint that undermines the viability of policies for a return to growth as a (sustainable) remedy for mass unemployment.[142] Lifting this constraint would require a better understanding of its origin. Here, we focus on the determinants of the worsening trade deficits of 1995-2007 because they brought one of the highest current account deficits in the world in relative terms and the second in absolute terms after the US, which led Spain to accumulate external debt at an explosive rate (Figure 1).[143]

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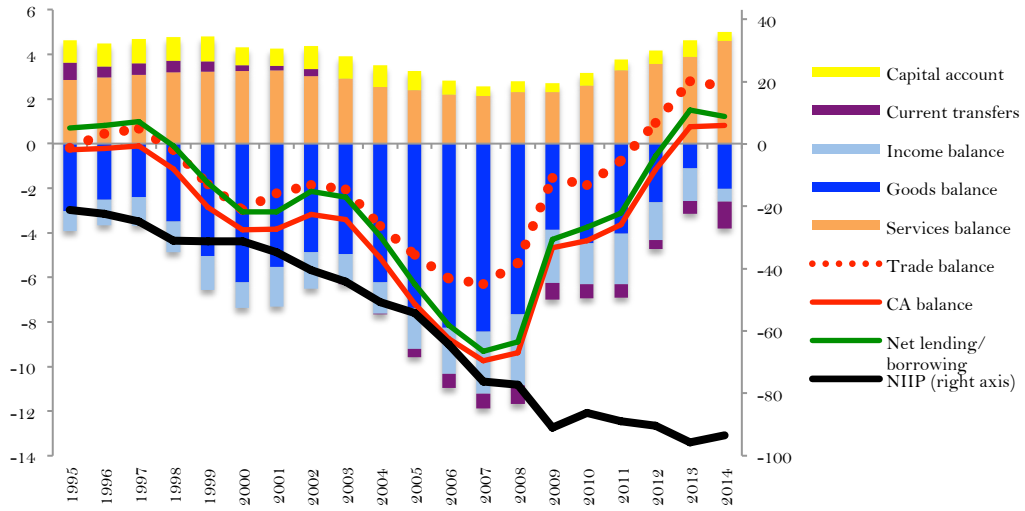
[140] Keynesian full-employment policies in a purely demand-constrained economy are sustainable under fairly weak conditions (see Lavoie, 2014, pp. 343—346). However, in a balance-of-payments-constrained economy these policies generate explosive foreign debt owed by domestic public or private agents (Godley and Rowthorn, 1994).

[141] As Cesaratto (2015a, p. 9) puts it: in the absence of a fully integrated and redistributive federal union and "of a legal limit to T2 imbalances, a political limit has been set by core countries by imposing a reversal of the current account position of the peripheral countries (albeit not to themselves!) through a paraphernalia of fiscal regulations (European semester, Six pack, Two pack, Fiscal compact etc.)". Currently, Spain is under a "Macroeconomic Imbalance Procedure" of the European Commission (2015).

[142] This constraint has repeatedly operated in Spain at least since the developments leading to the Stabilisation Plan of 1959, as we argue in the first article of this thesis. See also Alonso (1999), Alonso and Garcimartín (1998), Garcimartín, Rivas and Martínez (2010) and Leon-Ledesma (1999). Contrary to conventional opinion, the structure and governance of the euro has not eliminated the possibility of problems in external accounts (e.g. Barba and de Vivo, 2013; Bordo and James, 2014; Cesaratto, 2015a, 2015b; Lavoie, 2015; Pérez Caldentey and Vernengo, 2015).

[143] It must also be noted that this pattern implied, in addition, net investment income payments to the rest of the world on the order of 2% of GDP between 2005 and 2012 (Figure 1).

FIGURE 1. Current and capital accounts and NIIP in Spain 1995-2014 (in %GDP)




Source: Eurostat. The values for 2014 were computed according to the BPM6, and thus, they represent a break in the previous BMP5 series. To link them, we have assumed that the 'primary income balance' corresponds to the old 'income balance' and that the 'secondary income balance' corresponds to the 'current transfers balance'.

The analysis of the worsening trade deficits, we argue in Section 2, must crucially account for the implications of the globalisation of production. To this aim, we depart from a global multiregional input-output model and derive novel value-added trade measures. In light of these measures, in Section 3 we examine the Spanish experience, also in comparison to the cases of France, Italy and Germany (the main Eurozone economies).

In contrast to the mainstream narratives both from the left and the right (see Storm and Naastepad, 2015), our major conclusion is that the recent trade deficits were almost exclusively the consequence of faster growth of domestic demand relative to foreign demand, not changes in competitiveness, which in fact were more *favourable* to the trade balance of Spain than in Germany, France or Italy.

The tightest interdependence among domestic productive systems and its extensive consequences on the balance of payments' dynamics motivates the second goal of the article: to advance a framework for Keynesian balance of payments constrained growth models[144] that accounts for productive and income generation interlinkages in a global

[144] For a review of these models, see McCombie and Thirlwall (2004); Thirlwall (2011); McCombie (2011); Setterfield (2011).

multiregional setting.[145] We provide a sketch of this model in Section 4. Finally, we summarise our main findings and conclusions in Section 5.

## 2. ACCOUNTING FOR INTERDEPENDENCIES: IMPORTANCE, METHODOLOGY AND DATA

International trade has been transformed through the globalisation of production processes lead by Transnational Corporations (TNCs): so-called Global Value Chains shaped by TNCs accounted for some 80% of global trade in 2010 (UNCTAD 2013). As a consequence, trade in intermediate products has sharply increased to the point that in 2011, they represented 55% of the world's non-fuel exports (World Trade Organisation 2013, p. 183).

Such a transformation renders obsolete some widely invoked assumptions in macroeconomic theory and analysis. For example, imports become functions of *foreign* demand and not just domestic demand, which is in contrast to Andersen (2004). Empirically, we observe that official trade statistics become less suitable for analysing trade patterns, their determinants and their effects, as recently acknowledged by most international economic organisations.[146]

First, because trade statistics are measured in gross terms (which include both intermediate and final products), they 'double count' the values of intermediate goods that cross borders more than once (Koopman, Wang and Wei, 2014). UNCTAD (2013, p. 4) calculates that as much as $5 trillion of the $19 trillion in 2010 world exports of goods and services were double-counted. Similarly, we estimate (in Section 3) that 30% of Spanish exports' total value was of foreign origin, and thus, registered at least twice in global trade statistics.

Second, the international slicing-up of production processes entails a growing gap between growth in gross trade flows and the generation of incomes and jobs. Consequently, as Blecker and Ibarra (2013) highlight in relation to Mexican production, by not taking into account the dependency of exports on imported intermediate goods, estimates of income trade elasticities may be biased.

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[145] Neoclassical economics is rapidly incorporating the implications of the 'slicing-up' of production chains (e.g. Robert, 2014). Keynesians ought to follow suit.

[146] As a result, the OECD and the WTO have launched the "Trade in Value Added Initiative" (see http://www.oecd.org/sti/ind/measuringtradeinvalue-addedanoecd-wtojointinitiative.htm); the UNCTAD has started to monitor global value chains (e.g. 2013); furthermore, the IMF aims to account for global value chains in their 'surveillance' work, for example, in their estimation of the real effective exchange rate (IMF, 2013).

Third, trade statistics alone do not allow us to disentangle trade specialisation. For example, they could give us the wrong impression that China is a major producer of technically sophisticated products such as computers because many of them are exported from there. However, in 2007 only approximately 34% of their value was actually added in China (Koopman, Wang and Wei, 2012).[147]

Fourth, bilateral gross trade balances do *not* reflect the difference between two countries' domestic production that is absorbed by the respective trading partner. This is mainly so because some trade flows between them actually respond to final demands in third countries. For example, 28% of the gross bilateral trade balance between Germany and the Netherlands is due to demand in other countries (Nagengast and Stehrer, 2014). Thus, not only differences in bilateral growth rates and relative competitiveness, but also the indirect links established through their respective interrelations with third countries affect bilateral trade balances.

In short, accounting for global productive interdependencies is paramount for trade and balance of payments analyses. This accounting can be accomplished with a demand-led global multiregional input—output model because it registers all inter-industry and intra-industry flows that take place domestically and internationally to meet a certain final demand (see Foster-McGregor and Stehrer, 2013; Koopman, Wang and Wei, 2014; Tukker and Dietzenbacher, 2013).

Without loss of generality, we may write the model for a three-country world in partitioned matrices notation:[148]

$$\begin{bmatrix}\mathbf{x}_1\\ \mathbf{x}_2\\ \mathbf{x}_3\end{bmatrix} = \begin{bmatrix}\mathbf{B}_{11} & \mathbf{B}_{12} & \mathbf{B}_{13}\\ \mathbf{B}_{21} & \mathbf{B}_{22} & \mathbf{B}_{23}\\ \mathbf{B}_{31} & \mathbf{B}_{32} & \mathbf{B}_{33}\end{bmatrix}\begin{bmatrix}\mathbf{f}_{11}+\mathbf{f}_{12}+\mathbf{f}_{13}\\ \mathbf{f}_{21}+\mathbf{f}_{22}+\mathbf{f}_{23}\\ \mathbf{f}_{31}+\mathbf{f}_{32}+\mathbf{f}_{33}\end{bmatrix}$$

where $\mathbf{x_c}$ ($c$ = 1, 2, 3) denotes the $p$×1 vector of gross output of country $c$ of each $q$ industry ($q$ = 1, 2, …, $p$), $\mathbf{B_{cc}}$ is a square block matrix of the global Leontief inverse

[147] Thus, as noted by Blecker and Ibarra (2013), the domestic value content is relevant to the debates surrounding Thirwall's law (i.e. the limit set through the balance of payments to domestic growth as a result of world growth and import and export elasticities), which must take into account the weight of domestic value added in domestic production to consider the effects of structural changes on the balance of payments constrained equilibrium growth rate.

[148] Matrices are indicated with bold-faced capital letters, vectors are columns by definition and are indicated with bold-faced lower-case letters, and scalars are denoted by italicised lower-case letters. A prime indicates transposition and a hat signifies diagonalisation. The first subscript denotes the country of origin and the second denotes the destination, and furthermore, a minus sign in front of a subscript stands for 'all countries except'.

$\mathbf{B}$,[149] and $\mathbf{f_{cc}}$ denotes a final expenditure vector. More precisely, $\mathbf{f_{31}}$ denotes the final imports of country 1 from country 3, $\mathbf{f_{13}}$ denotes the final exports of country 1 to country 3, and $\mathbf{f_{11}}$ denotes the final demand of country 1 that is satisfied with domestic final goods.

In a more compact notation, we have: $\mathbf{x} = \mathbf{B} \cdot \mathbf{f}$. We may obtain the vector of value added in each industry and country activated by final domestic expenditures by premultiplying the above expression by the (diagonalised) value-added-to-gross-output coefficient $\mathbf{v}$: $\mathbf{y} = \hat{\mathbf{v}} \cdot \mathbf{B} \cdot \mathbf{f}$.

The model is coherent with "the superior approach, both in principle and practice, of relating imports to expenditure [and not to income as in conventional income analysis]" advocated by Kennedy and Thirlwall (1979, p. 173). Furthermore, the global model accounts for the fact that exports are the counterpart of induced imports, being thus endogenous and related to expenditure. These relations depend on structural features of the domestic and international economy and their linkages, which are recorded in global input—output tables.

Thus, domestic final demands lead the system, while the concept of vertical integration will allow us (via the Leontief inverse) to carry out a Keynesian dynamic multi-sectorial analysis that accounts for the structure and circularity of the production process at the global level (Pasinetti, 1986). In other words, we can trace the complete supply counterpart (including imports) activated by each domestic and foreign final demand component and study its evolution.[150] Exercises based on such logic are nowadays referred as "slicing up global value chains" (Timmer et al., 2014).

For example, consider the value of imports induced by final domestic demand for cars in country 1: it should include not only the values of the imported cars for the domestic market, but also the values of all of the imported components (regardless of which industry they come from) contained in 'Spanish Made' cars that cater to domestic demand; conversely, this value should exclude Spanish exports contained in imported cars and components. To compute this value departing from the above equation, we must omit domestic value-added coefficients, the vectors of foreigners' demand and

[149] That is, $\mathbf{B} = (\mathbf{I} - \mathbf{H})^{-1}$, where $\mathbf{I}$ is the identity matrix and $\mathbf{H}$ is the $(3 \cdot p) \times (3 \cdot p)$ matrix of technical input-output coefficients.

[150] In Section 4, it will be shown that the model can be extended along Keynesian lines to render the GDP and the trade balance in terms of the supermultiplier and autonomous demands.

final domestic demands for all products but cars. Mathematically, the income generated abroad ($y_{-1}$) as a result of domestic demand for cars ($dd_{1\ for\ cars}$) is

$$y_{-1}, dd_{1\ for\ cars} = [\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \begin{bmatrix} \mathbf{B}_{11} & \mathbf{B}_{12} & \mathbf{B}_{13} \\ \mathbf{B}_{21} & \mathbf{B}_{22} & \mathbf{B}_{23} \\ \mathbf{B}_{31} & \mathbf{B}_{32} & \mathbf{B}_{33} \end{bmatrix} \begin{bmatrix} \mathbf{f_{11}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{21}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{31}} + \mathbf{0} + \mathbf{0} \end{bmatrix}$$, where the elements in $\mathbf{f_{c1}}$ are all zero except for the entry denoting 'cars'.

The measures examined in the following sections follow a similar logic, and their precise computation is explained in Appendix A. The World Input—Output Database (WIOD) is our source for the World Input—Output Tables (WIOTs) in current and previous years' prices (pyp). These tables cover 40 countries (all 27 European Union countries and 13 other major economies) and the 'Rest of the World' (RoW) at a 35 industry level of disaggregation for the years from 1995 to 2011, except for WIOTs in pyp, which end in 2009 (see Dietzenbacher et al., 2013; Timmer et al. 2015, and the web page www.wiod.org). Complementary data come from official national accounts and balance of payments accounts.

## 3. DETERMINANTS OF THE SPANISH TRADE BALANCE

To elucidate the origin of the Spanish trade deficits between 1995 and 2007 and their subsequent correction, we proceed sequentially: first, we examine the evolution of imports, and then, we consider the evolution of exports. Finally, we merge both analyses.

### 3.1. Increasing import dependency in a growing economy

In this subsection, we document the rapid growth of Spanish imports between 1995 and 2007[151] deriving from the high and rising penetration of imports in final domestic demand and the high import content of exports in a period of fast economic growth.

We start from the following equation: $imp = m_{dd} \cdot dd + m_{exp} \cdot exp$. It states that the level of imports (*imp*) depends on the level of effective final domestic demand (*dd*) times its average import coefficient ($m_{dd}$) plus the level of exports (*exp*) times its average import coefficient ($m_{exp}$). We first examine the import coefficients of domestic

[151] Imports of goods and services grew in Spain by 219% in current prices and by 170% in chain-linked volumes (Eurostat). In France, they grew, respectively, by 115 and 102%; in Italy by 137 and 75%, and in Germany by 114 and 110%.

demand, which are plotted in Figure 2 for Spain, France, Italy and Germany from 1995 to 2011; in panel a) they are measured in current prices, in panel b) in chain-linked volumes with the year 1995 as a reference.

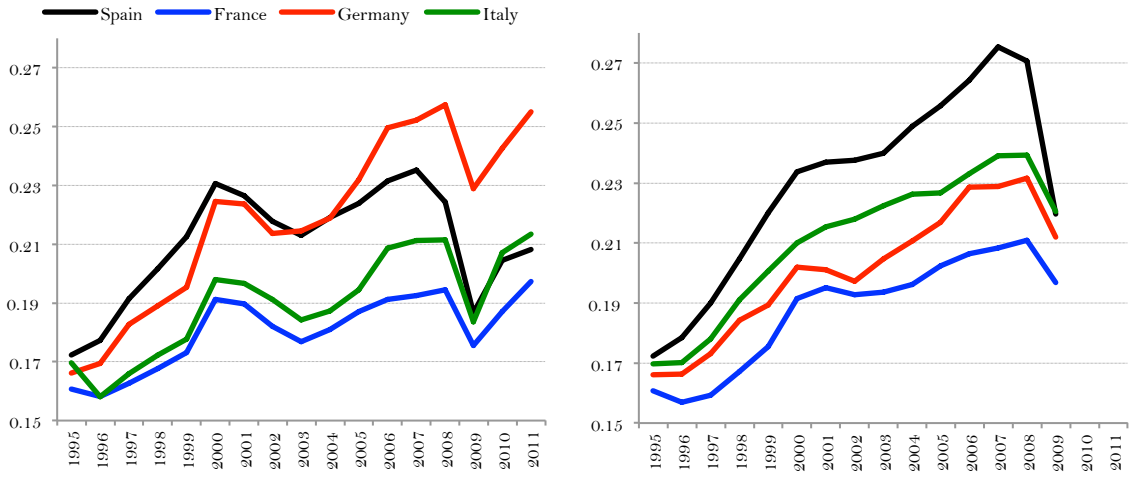
In panel a) we see that in 1995, for every US dollar of Spanish final domestic expenditure, 17 cents leaked to foreign producers, and this figure is slightly higher than in the other economies. Then, the coefficient for Spain evolved both pro-cyclically and in synchrony with the coefficients for France, Italy and Germany. Still, a large positive gap emerged in relation to France and Italy until 2007 as the Spanish coefficient reached 23.5%; then, the gap narrowed, as the coefficient fell to 19% in 2009 and bounced back to almost 21% by 2011. In contrast, a negative gap arose in relation to Germany after 2003, which further deepened during the crisis –very probably because Germany massively off-shored production processes to the new EU member states in Eastern Europe, Russia and Ukraine (see Marin, 2010).

The issue is what caused these changes in the Spanish average import coefficient of final domestic demand. As a first approximation, we 'freeze' domestic and world prices and exchange rates by chain-linking the $m_{dd}$ of year *t* measured in current prices and that of year *t+1* measured in the previous year's prices.

According to this 'real' measure, the $m_{dd}$ was the highest and grew the most quickly in Spain. Between 1995 and 2000 it shot up like the actual rate, but from 2000 to 2007 it increased 4 percentage points (pp) more (Figure 2, panel b). This different path implies that imports cheapened in relation to domestic production for the domestic market in the second period, which restrained the increase in the actual $m_{dd}$.

FIGURE 2. Import coefficients of final domestic demand 1995-2011

a) Current prices b) Chain-linked volumes (ref. 1995)




Source: Our own calculations with WIOD's data (see Appendix A.1).

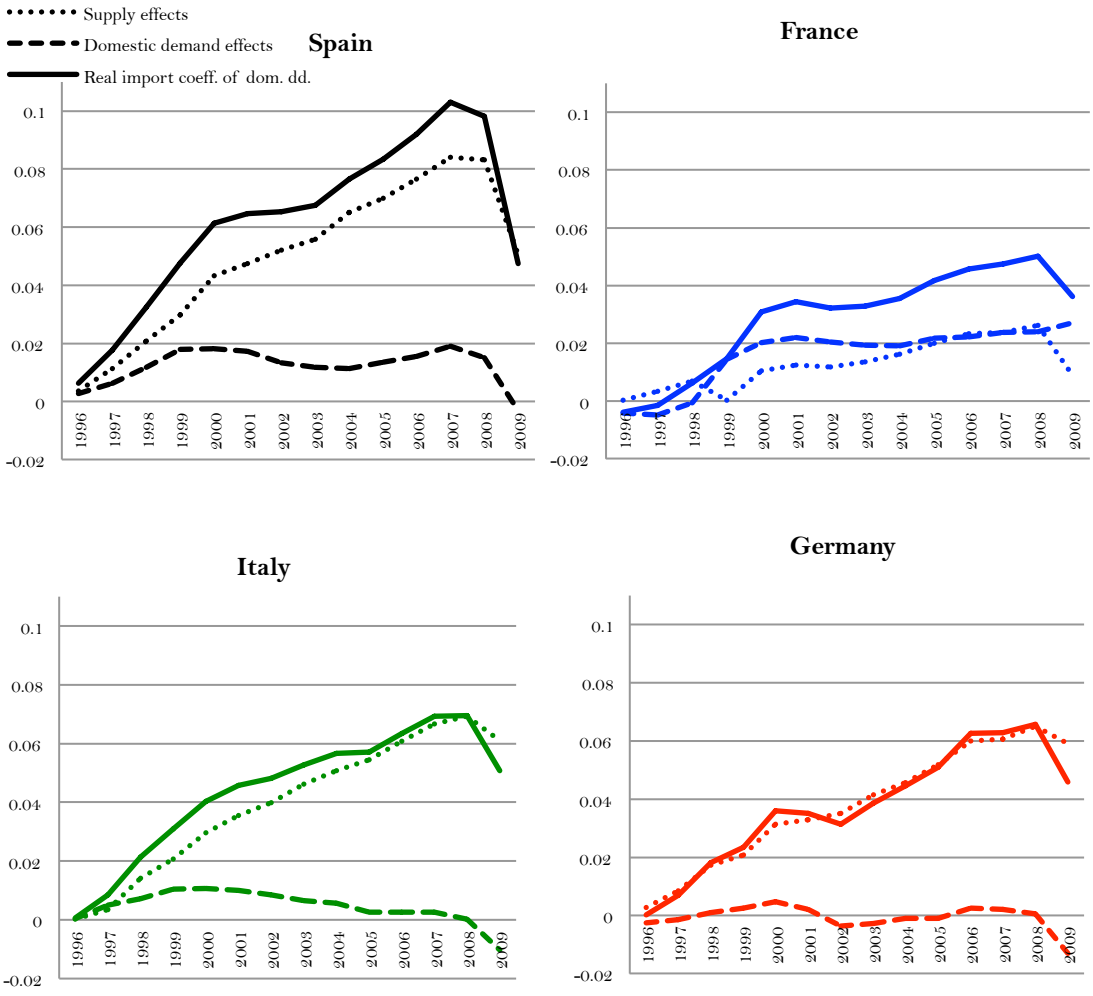
The real appreciation of the euro may have fostered the increase in the real $m_{dd}$ between 2000 and 2007. Income effects may have been important as well because in the upswings, the shares in total final expenditure of products with higher than average income elasticity rise, whereas the same shares fall in downswings. All of these products tend to present higher import content; in Spain, they are indeed massively imported, as shown later in Figure 5 (see also Alcalá, 2013). Consequently, as highlighted by Giovannetti and Siniscalco (1986) and Bussière et al. (2013), the aggregate coefficient linking imports with expenditure is pro-cyclical.

However, more importantly than the price and income elasticities of demand, the real $m_{dd}$ increased essentially because of the transformation of the Spanish and global productive structure. This is apparent in Figure 3, where we decompose the accumulated change in the real $m_{dd}$ into two components: 1) the accumulated contribution of the changes in the final domestic demands (both their levels and compositions in real terms), and 2) changes in the global supply structure. The results entail that had the Spanish and global productive structure remained constant, by 2007 the observed evolution of Spanish domestic demand would have worsened the $m_{dd}$ by some 2 percentage points of final domestic expenditure; the remaining 8.4 pp (82% of the variation) occurred because the productive structure did indeed change.

France is the only exception to the pattern observed in the other countries, as it is the only country where 'demand effects', which were similar in magnitude to the Spanish

ones, generally outpaced 'supply effects'. In other words, France better coped with the globalisation of supply chains, and this strength is reflected in the lower level and increase of its $m_{dd}$.

FIGURE 3. Accumulated changes in the real import coefficients of final domestic expenditures, the accumulated contribution of changes in domestic demand and the global structure of production (in pp of final domestic expenditure)




Source: Our own calculations with WIOD's data (see Appendix A.2).

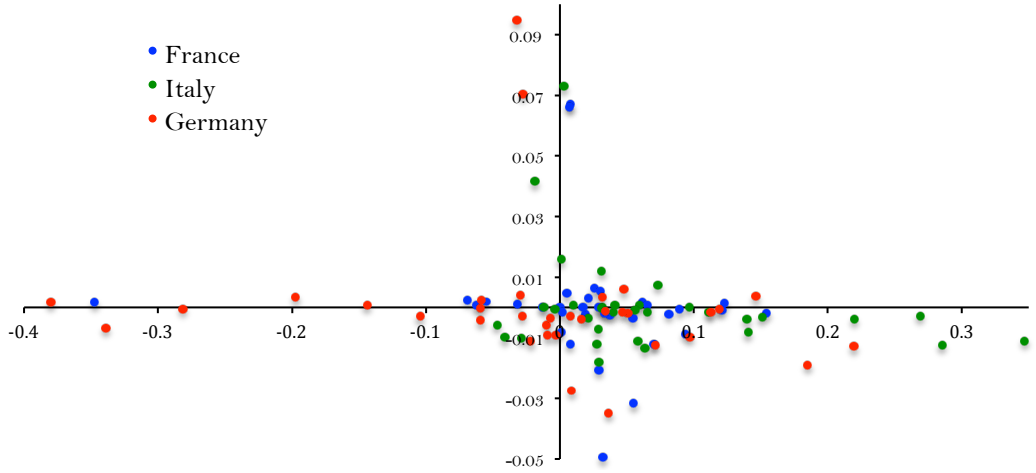
In short, the rapid *increase* in the Spanish $m_{dd}$ between 1995 and 2007 essentially derives from a weakened capacity of the domestic productive system to competitively cater to domestic demand rather than the changing structure of relative prices and final domestic demand. Now we will contend that the high *level* of Spain's $m_{dd}$ cannot be attributed to the structure of the domestic demand.

At a certain time, countries may show different aggregate $m_{dd}$ due to two causes that are not mutually exclusive. One cause is the distinct compositions of the final domestic

demands; the other cause is that if their compositions are equal, the import coefficients of domestic demand for individual products differ.

Figure 4 suggests that the latter possibility dominates. It shows a comparison at a level of disaggregation of 35 products of the difference in import coefficients (the horizontal axis) and of relative weights in total final domestic demand (the vertical axis) between Spain and the other countries in 2007.[152] Most demands are very close to the source on the vertical axis, implying a similar structure of domestic demand among countries. Most demands fall to the right of the vertical axis, indicating that import coefficients of domestic demand are higher in Spain except in comparison to Germany, in which there is not a clear pattern. Thus, the high Spanish (and German) aggregate import coefficient cannot be attributed to a peculiar structure of domestic demand, but to supply-side features.

FIGURE 4. The differences in import coefficients of domestic demand (the horizontal axis) and its structure (the vertical axis) between Spain and France, Italy and Germany in 2007

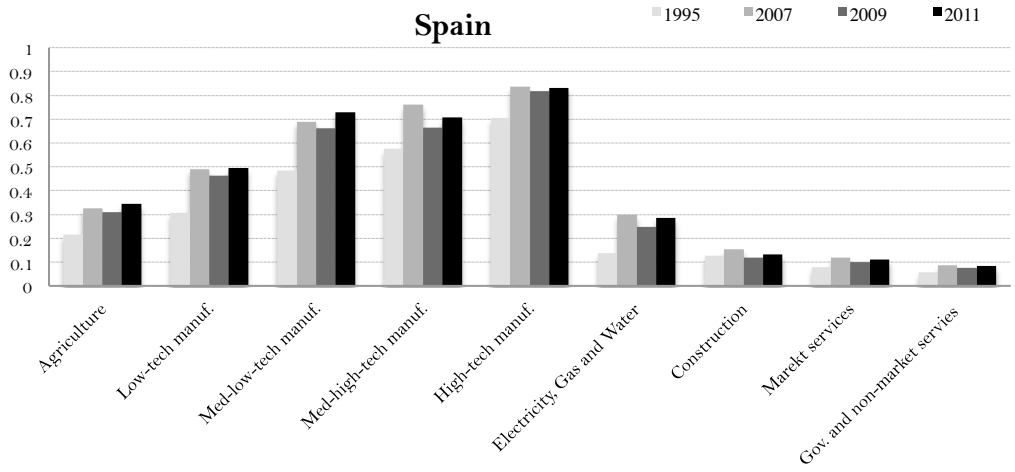



Source: Our own calculations with WIOD's data (see Appendix A.3).

To better identify such supply-side features, we focus on the import coefficients of domestic demand for agriculture, manufactures according to technological content, electricity, gas and water, and market and non-market services. These coefficients are shown in Figure 5 for the beginning of the period (1995), right before the crisis (2007), in the worst moments of the crisis (2009) and for the latest year for which data are available (2011).

[152] We have chosen the peak of the cycle, namely, the year 2007, because that was when the different growth models were at their zenith.

FIGURE 5. Import coefficients of final domestic demand for groups of products in the years 1995, 2007, 2009 and 2011




Source: Own calculations with WIOD's data (see Appendix A.3).

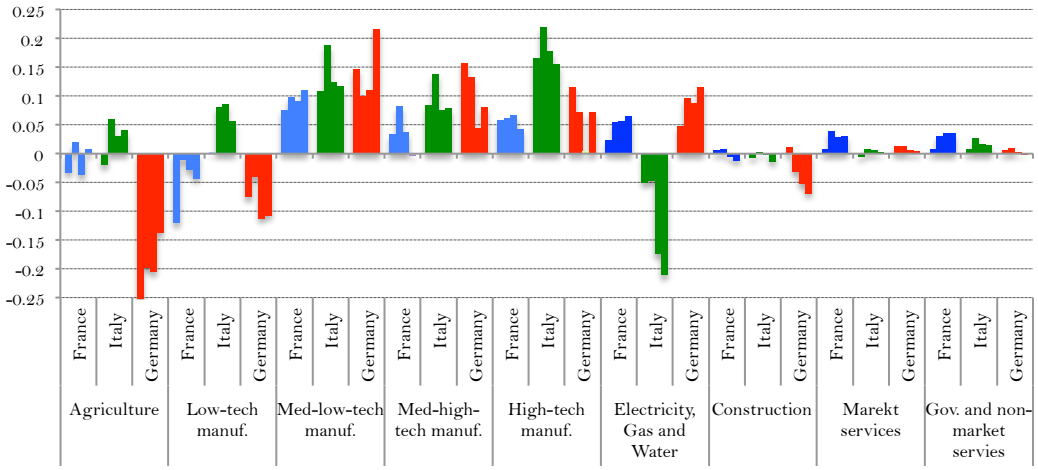
The differences in the coefficients' level and evolution are noteworthy. Manufactures present the largest coefficients, and these are larger given higher technological content to the point that from 2007 to 2011, for every dollar spent on final high-tech manufactures, more than 80 cents ended up abroad (much above the total average of this period: 20 cents). The next largest coefficients correspond to agriculture, which are close to 0.3. At the lower end, we find construction, with coefficients of approximately 0.12, and especially market services and non-market services, whose coefficients are usually below 0.1. All of these coefficients increased between 1995 and 2011 and evolved pro-cyclically, but some increased more than others. The largest increases occurred in manufactures, especially those of medium-technological content.

A similar distribution of import coefficients is observed in France, Italy and Germany, but as Figure 4 already suggested, it is more acute in Spain.[153] This finding is apparent in Figure 6, which plots the differences in the import coefficients of final domestic demand for each product group between Spain and France, Italy and Germany. In Spain, a significantly higher share of domestic demand for medium-low, medium-high and high-tech manufactures is covered with imports, whereas for low-tech manufactures only Italy has lower import coefficients (because of its powerful textile industries). This is not only due to the penetration of imported final manufactured goods, but also to the higher import content of Spanish manufactured products, which

[153] The finding corroborates Giovannetti and Siniscalco's (1986, p. 322) observation that the variability of import coefficients among products "is due in part to the international specialisation of the country, but mainly depends on the technological and structural characteristics of the different vertically integrated sectors".

increases in accordance with the technological level (Cabrero and Tiana, 2012). The differences in construction and services are minor, and those for agriculture are substantial only in relation to Germany, which needs to import as much as half of its final domestic demand for agriculture.

FIGURE 6. Differences in the import coefficients of final domestic demand for each product group between Spain and France, Italy and Germany; years 1995, 2007, 2009 and 2011 (in pp of domestic demand for each product group)

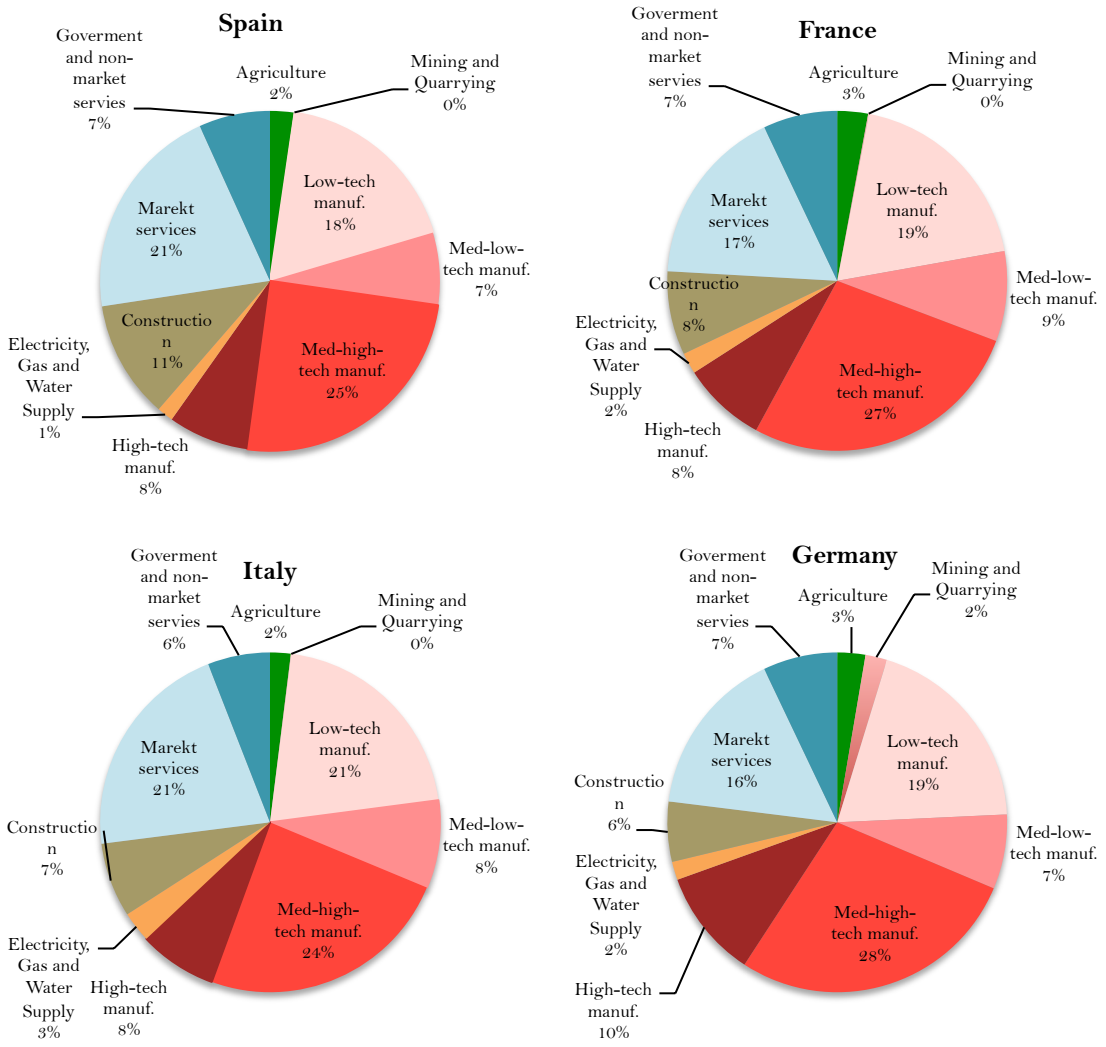



Source: Our own calculations with WIOD's data (see Appendix A.3).

Although the values of $m_{dd}$ for manufactures and agriculture are by far the highest, the amount of imports induced by domestic demand for the remaining final products is by no means negligible. As shown in Figure 7, in 2007 these quantities represented 40% of the total imports induced by domestic demand in Spain, 37% in France and Italy and 31% in Germany; even services account for 28%, 24%, 28% and 23% of such imports, respectively. Thus, both tradable and non-tradable sectors clearly matter in balance-of-payments analyses.[154]

[154] Along these lines, while the share of services in gross exports worldwide is about 20 percent, almost half (46%) of the value added in exports is contributed by services-sector activities (UNCTAD, 2013, pp. xxi-xxii).

FIGURE 7. The proportions of imports induced by domestic demand according to the product demanded: Spain, France, Italy and Germany in 2007




Source: Our own calculations with WIOD's data (see Appendix A.3).

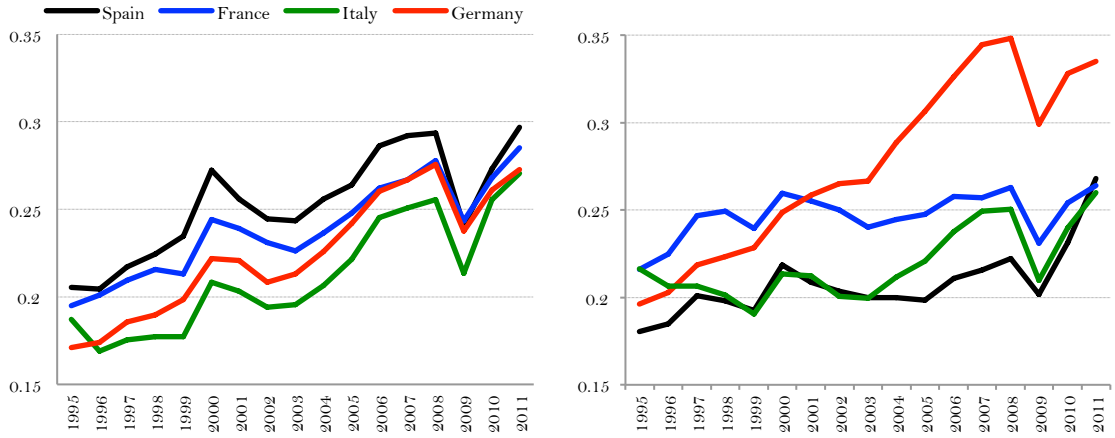
Furthermore, domestic demand is not the only important factor in import analysis. As noted in the beginning of this section, Spanish exports also have a high import content ($m_{exp}$), as shown in Figure 9, panel a). For every US dollar exported in 1995, 20 cents were remunerated to foreign producers, some 3 cents more than in the country with the lowest coefficient, i.e. Germany. Then, this rate increased until it reached 29% in 2008, and after its sudden fall in 2009 it reached 29.7% in 2011; therefore, it always remained above the corresponding rates of the other countries we are considering. Indeed, this rate was larger than the corresponding rate of the entire Eurozone, though it was smaller

than those of smaller Eurozone states (see Amador, Capariello and Stehrer, 2015, p. 9 and p. 16).[155]

Most of this foreign value added in Spanish exports has its origin in the Eurozone (35% in 2011, 10.7 pp of which are from Germany), followed by Asian countries (9.4%), the US (7.4%) and non-Eastern and Eastern EU countries (5 and 3%) (Amador, Capariello and Stehrer 2015, pp. 20 and 24).

Thus, *foreign* demand induces a significant share of the total imports, as shown in Figure 8, panel b). In Spain, foreign demand usually accounts for slightly more than 20% of the total imports, though this figure reached 27% in 2011 because of the deep fall in domestic demand. In other countries, this proportion is higher despite their lower $m_{exp}$ because exports represent a larger share of their aggregate final demand. Germany is an extreme case: its export-led model entailed that by 2008, almost a third of their imports responded to foreign demand.[156]

FIGURE 8. The proportion of foreign value added content in gross exports (left plot) and the proportion of total imports induced by foreign demand (right plot)




Source: Our own calculations with WIOD's data (see Appendix A.4).

The rapid increase in the value of Spanish imports until 2007 has more to do, however, with fast economic growth than with the high and rising import propensities we have documented. This fact can be seen in Figure 9, where we plot both the actual evolution of total imports in Spain (the solid, black line) and hypothetical paths. The

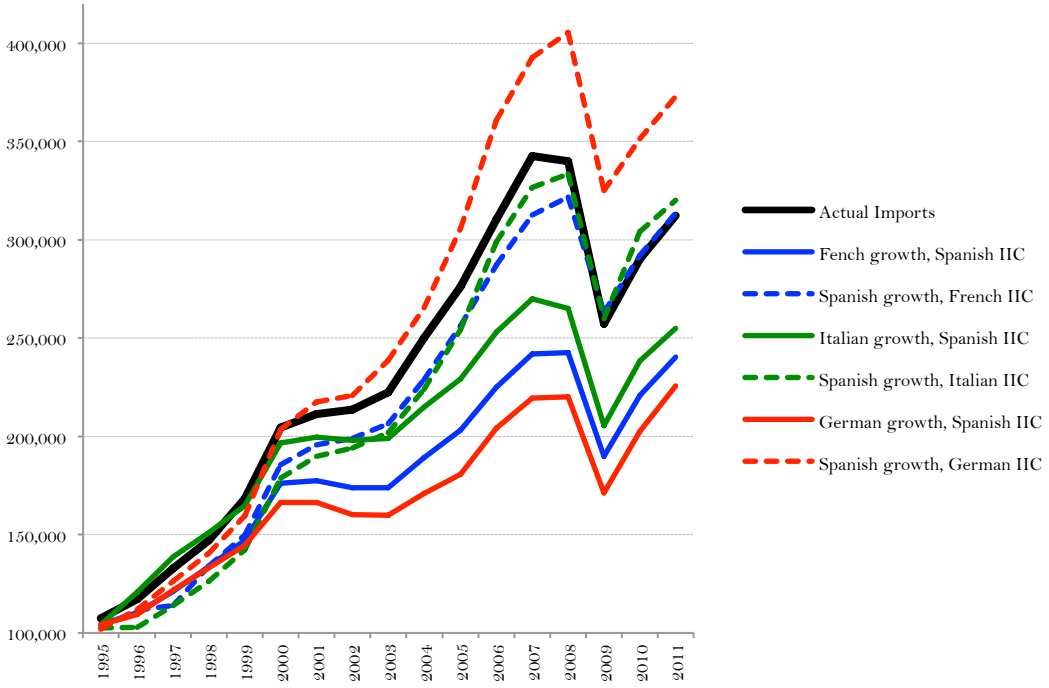
[155] The obvious inverse relation between import coefficients and the size of an economy entails that the relevant result is that Spanish coefficient was above those of bigger economies, not that it was smaller than those of smaller Eurozone states.

[156] Hence, the typical assumption in macroeconomic analyses that imports depend solely on domestic income and relative prices seems largely outdated.

dotted, coloured lines represent the hypothetical import bill in Spain had its final demand components (private consumption, public expenditure, gross fixed capital formation and exports) presented the same import coefficients (IIC) as those of France, Italy and Germany. Conversely, the solid, coloured lines represent the hypothetical imports had the final demand components grown as in France, Italy and Germany.

The solid, coloured lines are far below the dotted lines, which remain closer to the actual evolution of imports. Thus, as stated, demand growth rates mattered more than the import intensities. For example, had Spain had the import intensities of France, its imports would have been ceteris paribus equivalent to 91% of the actual imports in 2007. In contrast, had the Spanish final demand components evolved as in France, the imports would have been 71% of the actual imports.

FIGURE 9. Actual and hypothetical Spanish imports in 1995-2011 (millions of euros)



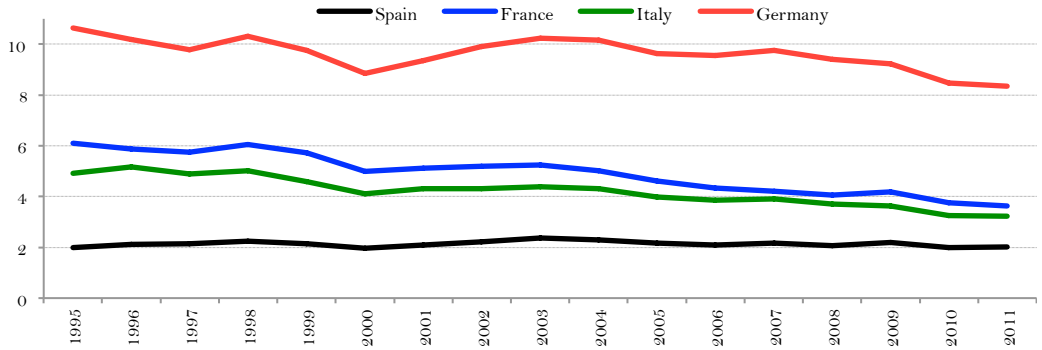

Source: Our own calculations with WIOD's data (see Appendix A.5).

### 3.2. The remarkable evolution of exports and foreign competitiveness

Spanish exports performed remarkably well both in the run-up to the crisis (despite the alleged price-competitiveness losses) and after it. The evidence is categorical.

First, from 1995 to 2011 the world's value added exports at current prices increased by 209% (based on our own estimates from WIOD). Despite the export success of emerging economies, the Spanish share remained at 2%, while the shares of France, Italy and Germany decreased by some 2 pp (Figure 10). Of course, the Spanish trade share in 2011 was still below the French (by 1.6 pp), Italian (1.2 pp), and German shares (6.3 pp). Still, it was remarkable considering Spain's inferior share in global production (1.3 and 0.7 pp less than the French and Italian shares), though not as remarkable as the German figure (2.2 pp).[157]

FIGURE 10. Market shares in world value added exports (in %)




Source: Our own calculations with WIOD's data (see Appendix A. 6).

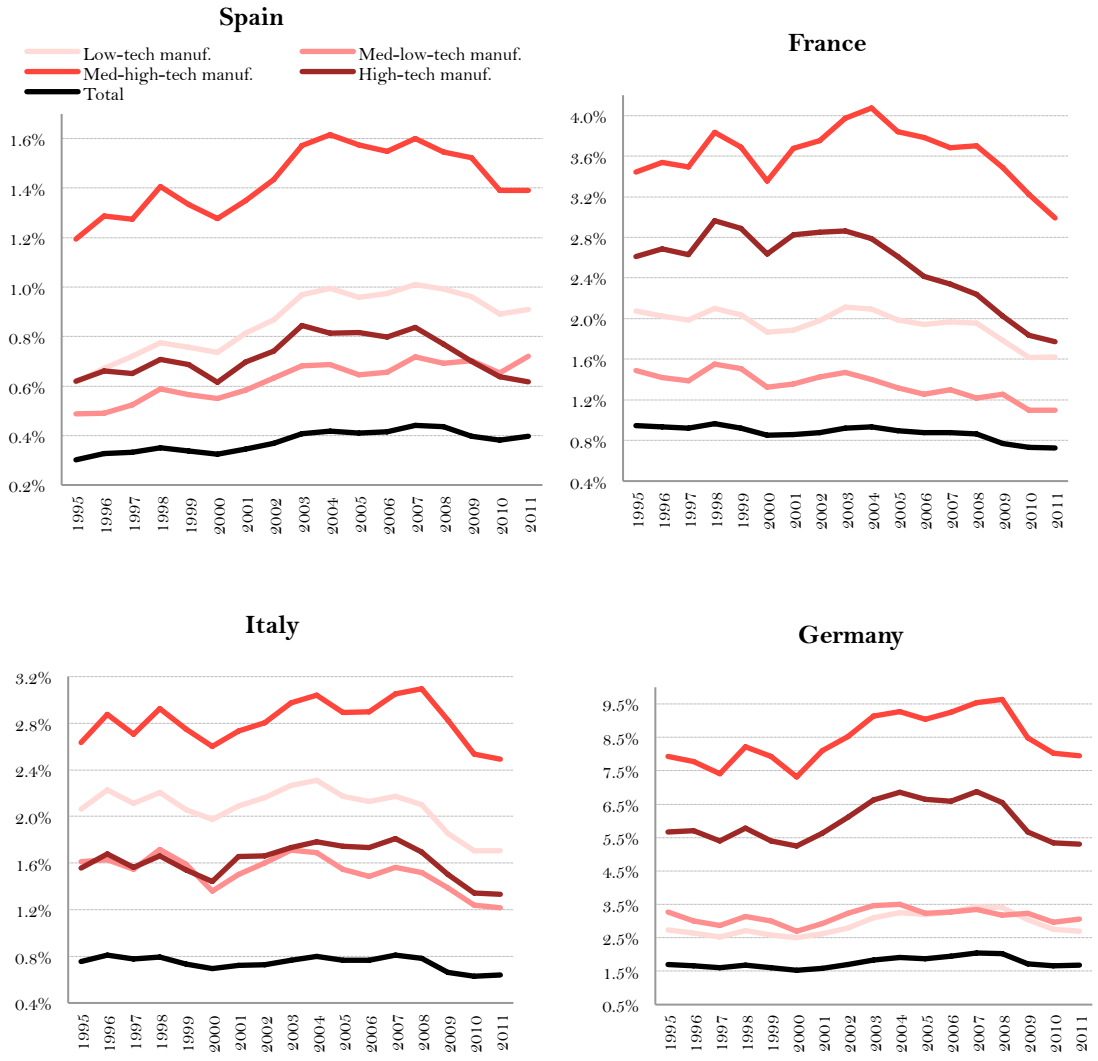
Second, contrary to the popular narrative, Spain increased its foreign competitiveness between 1995 and 2007. To our understanding, the best indicator of competitiveness in foreign markets is the share of foreign final expenditures (in current prices) captured by domestic producers.[158] Spain was able to increase this share from 0.30% in 1995 to 0.44% in 2007 and maintain it at approximately 0.40% (Figure 11). In contrast, it decreased in France from 0.95% to 0.73%; in Italy it remained at approximately 0.75% between 1995 and 2007, and then, it fell to 0.64% by 2011. Accounting again for the difference in respective GDP levels, by 2011 the Spanish foreign market share was on a

[157] We use the shares in global GDP as reported by the World Economic Outlook Database.
[158] The study of the causes deserves a separate, in-depth analysis, as they may include factors such as better technology, cheaper means of production, privileged access to crucial resources, favourable exchange rate developments, marketing, or tariff and trade agreements.

par with the French and Italian shares, but much lower than the German, which increased from 1.71 to 2% between 1995-2007 and then fell to 1.6% in 2011.

Furthermore, until 2007 Spain gained quota in all foreign expenditures for the products analysed in the previous section (in Figure 11, we only plot these quotas for manufactures classified according to their technological level). This behaviour suggests that the increase in the total foreign market shares was based on widespread competitive gains rather than improvements in a few products or sectors.

FIGURE 11. Market shares in final foreign demands (in %)



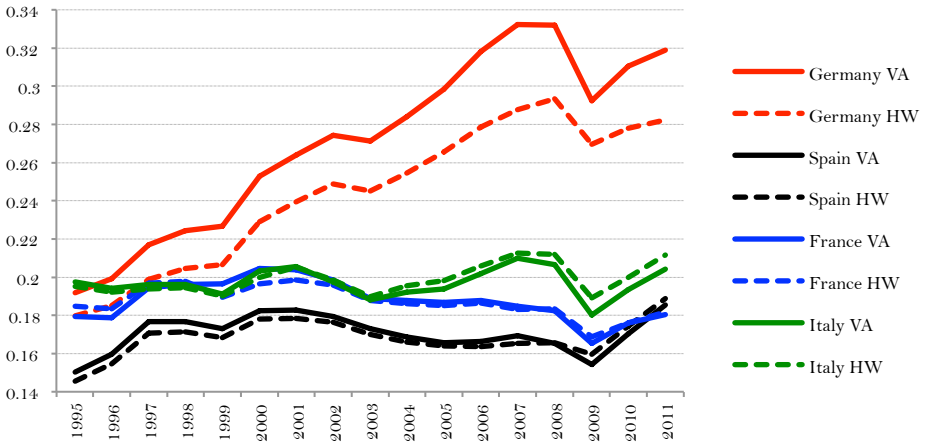

Source: Our own calculations with WIOD's data (see Appendix A.7).

Despite the maintenance of market shares in world exports and the increasing penetration into foreign markets, Spain continued to rely less on foreign final demand to generate domestic income than the other countries we examined (Figure 12). Foreign demand induced only between 15 and 18% of the total Spanish value added during

1995-2007. The reason is simple: Spain's growth engine (as is well known) was domestic demand led by building and real estate activities and fuelled by cheap and easy credit. Once the engine seized up, the percentage rapidly grew.

In contrast, although Germany was no more dependent on foreign demand for domestic income generation than Italy and France in 1995 (19%), foreign demand induced the tremendous figure of 33% of the domestic value added in Germany in 2007 because of low domestic demand. The same pattern applies to hours worked, as shown in Figure 12.

FIGURE12. Proportion of value added (VA, solid lines) and hours worked (HW, dotted lines) induced by foreign final demands in Spain, France, Italy and Germany in 1995-2011



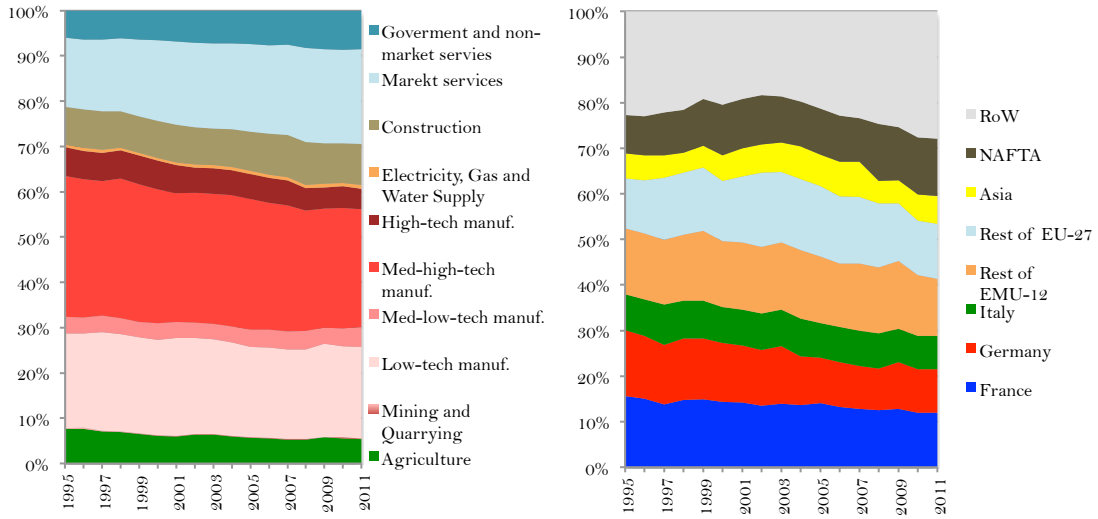

Source: Our own calculations with WIOD's data (see Appendix A.8).

The most relevant foreign demands for domestic value added generation in Spain were those for agriculture and manufactures, in particular for low and med-high-technology (Figure 13, left plot). However, their relative importance decreased from 70 to 61% between 1995 and 2011 in favour of market services, which evidences again the importance of final demands for non-tradables in export analyses. Geographically, Spain mostly relied on Eurozone countries' demand even though their relative contribution declined by 11 pp starting from 53% in 1995 (mainly because of Germany and France (-4.9 and -3.7 pp)) in favour of Asia and the rest of the world (4.0 and 5.2 pp) (Figure 13, right plot).

Given the low proportion of total value added that depends on foreign demand and the high import content of exports, and given the stagnation of the Eurozone and the slowdown of emerging economies in the second half of 2013, we can conclude that the

export-led recovery envisaged by the European institutions is a chimera. Nonetheless, Spanish exports have performed remarkably well, and the evidence suggests they may continue doing so.

FIGURE 13. Distributions of value added induced in Spain by final foreign demand for different products (left plot) and according to countries and regions (right plot)




Source: Our own calculations with WIOD's data (for computational details of the left plot, see Appendix A. 7; for the right plot, see Appendix A.9).
Notes: 'Asia' includes only China, Indonesia, India, Japan, South Korea and Taiwan.

### 3.3. Trade balances, growth and competitiveness

The advance of exports did not prevent high and worsening import coefficients, and above all, rapid economic growth from deepening the trade deficit from -2.8% of the VA in 1995 to -9.2% in 2007 (Figure 14, panel b).[159] The bulk of the variation (-6.4 pp of VA) resulted from larger deficits in mining and quarrying (-1.6 pp) and manufactures (-4.6 pp), in particular in manufactures of medium-high and high-technology (-2.0 and -1 pp). Conversely, the increase in the trade deficit in the booming years was almost fully wiped out in the economic crisis (6.1 pp) due to the adjustment of the manufacturing balance (6 pp), especially of manufactures of medium-low and medium-high technology (1.8 and 2.5 pp).

Thus, the Spanish manufacturing sector is clearly inefficient in Singh's sense: "an efficient manufacturing sector […] sells enough of its products abroad to pay for the nation's import requirements […] *at socially acceptable levels of output, employment and the exchange rate*" (Singh, 1977, p. 128, emphasis added).

[159] This trade balance measure accounts for all trade in goods and services and excludes tourism. The conventional trade balance is depicted in Figure 1.

But which final demands are ultimately responsible, given the productive structure, for the deficits? Figure 14, panel a) shows vertically integrated balances (VIB) that express how all demand components contributed negatively to the trade balance between 1995 and 2007. Whereas a positive balance for an item means that the income received from abroad due to foreigners' final demand for it exceeds the payments made to foreigners to cover the final domestic demand for it, a negative balance implies the reverse. Thus, the vertically-integrated approach reveals which final demands are ultimately responsible for the trade balance, whereas the conventional one shows how these demands translated into trade flows of particular products.[160]

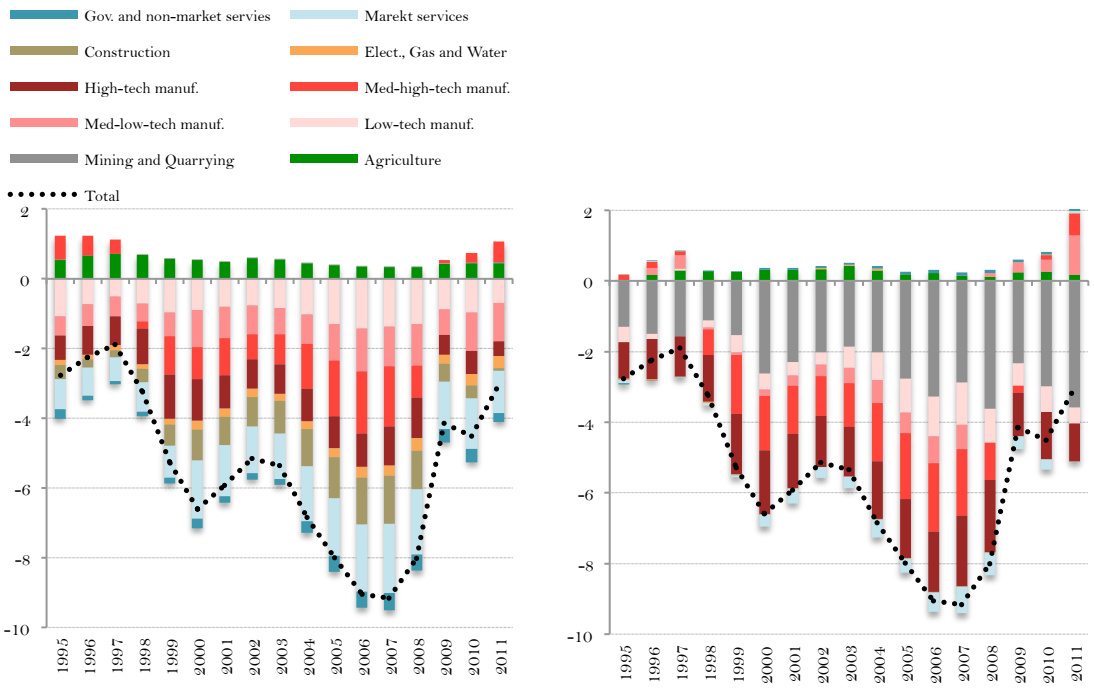
Contrasting the vertically-integrated with conventional balances, the starkest difference appears in mining and quarrying. Because energy-producing materials and other commodities are essentially used as intermediate inputs, their vertically-integrated balance is negligible. However, given their ubiquity in production processes and Spain's poor endowment of these primary inputs, a huge deficit emerges in the conventional balance.

Along these lines, the final demands for construction, market and non-market services significantly widened the trade deficit (by -1.0, -1.1 and -0.2 pp of GVA, respectively). However, inasmuch as they basically induce trade flows of manufactures and commodities, they translated into higher trade deficits in manufactures and mining and quarrying in the conventional balance. Conversely, the amelioration of the trade balance during the crisis by 6.13 pp of GVA, which (as shown) essentially occurred in the manufacturing balance (6 pp), was spurred not only by the manufacturing VIB (3.7 pp), but also the VIBs of construction (1.3 pp), market services (0.8 pp), non-market services (0.2 pp) and agriculture (0.1 pp).

FIGURE 14. Trade balance (in % of Spanish GVA)

a) Vertically-integrated balance b) Conventional (product) balance

[160] Parenthetically, our methodology can also shed light on bilateral trade (im)balances. Given the productive structure, we can compute the bilateral trade balance that results from the respective final domestic demands and compare it with the conventional gross trade balance. The differences can be significant. For example, in 2007 the conventional trade balance between Spain and Germany was almost 0.5 pp of Spanish GVA higher than the value-added balance (based on our own computations with WIOD's data). The difference is informative: it essentially reflects value-added generated in third countries and value-added that ultimately responds to final demand in other countries (Nagengast and Stehrer, 2015). Thus, the value-added balance can be employed to examine to what extent bilateral trade balances are determined by factors that are not under the direct influence of the trading partners.




Source: Our own calculations with WIOD's data (see Annex A. 10).

We proceed to examine to what extent the changes in the trade balance were the consequence of variations in competitiveness (i.e., the share of domestic and foreign final demand captured by domestic producers) and in the relative growth rates of the final domestic demands. As shown in Figure 15, the Spanish trade deficits until 2007 were almost exclusively the consequence of faster growth of domestic demand in relation to the foreign demand of trading partners, and the effects of the changes in competitiveness were negligible by then. The adjustment after 2009 was the result of restricting domestic demand growth to be far below the growth of foreign demand.

Thus, the popularised story that Spanish trade deficits arose due to lost competitiveness and their correction due to 'internal devaluation' is simply incorrect.[161] Indeed, the impact of changes in the competitive position on the trade balance was far more beneficial to Spain than to Germany, France and Italy.

Germany developed a trade surplus simply by constraining its domestic demand below the corresponding demand of its trade partners. This clearly suggests that the German strategy to restrict increases in labour costs so that they are far below the corresponding costs of its Eurozone peers contributed to the German surplus not so

[161] See also Felipe and Kumar (2014) and Storm and Naastepad (2015).

much via increased competitiveness (if that occurred), but via its deflationary effect on domestic demand.

FIGURE 15. Accumulated contributions to changes in the trade balance of variations in competitiveness and relative domestic demands (in millions of US dollars)


Source: Our own calculations with WIOD's data (see Annex A. 11).

To repeat, the tale of worsened competitiveness as the origin of Spain's current account deficits finds no empirical support. While Spain's exports performed remarkably well, the growing imbalance in the run-up to the crisis reflects excessive import growth driven by a comparatively rapid growth of Spanish domestic demand and an unfavourable transformation of the domestic and global productive structure. The adjustment has mainly operated through the level of income, that is, through impoverishment and unemployment.

## 4. WHAT DOES IT TAKE TO BALANCE TRADE? INSIGHTS FROM A GLOBAL INPUT—OUTPUT SUPERMULTIPIER MODEL

We have argued with supportive evidence that the domestic and global supply structure and their interrelations cannot be taken as rigid or of second-order importance: we must explicitly incorporate supply in our demand-led balance of payments models.

However, until now we have neglected distribution, consumption and accumulation. For example, we saw that the final domestic expenditures on construction induced imports equivalent to 11% of Spanish imports for the domestic market in 2007. From basic Keynesian principles it follows that such a demand for construction may have been at the origin of other trade flows. The newly generated incomes (and jobs) in the country may have induced greater household consumption (such that its level and composition is strongly conditioned by the class of the income earner) and perhaps greater investment as well, and thereby greater imports according to the global productive structure (i.e. the import coefficients). In addition, inasmuch as imports generate incomes abroad, they may have facilitated Spanish exports, which in turn required imports for their production and raised domestic incomes.

To take into account these productive and income generation interlinkages that impact the trade balance, in the following we develop a Global Input–Output model supplemented with the Keynesian emphasis on demand following the work of Dejuán (2006), which models (among other issues) the system of quantities embedded in social accounting matrices (SAMs) and input-output tables along Classical-Keynesian lines.

Then, an equation of the income level consistent with balanced trade will be derived. The model is built with an eye to empirical applications, that is, to be filled with input-output tables and data from national accounts. We simplify the exposition by assuming a three-country world (n = 3) and a single industry in each country.

The total gross production in country $i$ ($x_{iT}$) is used as an intermediate product ($u$) and/or as a final product ($f$) in the country and/or abroad. This is expressed in standard notation by the following identity:[162]

[162] Matrices are indicated with bold-faced capital letters; vectors are columns by definition and are indicated with bold-faced lower-case letters, and scalars are denoted by italicised lower-case letters. A prime (‘) indicates transposition and a hat (^) signifies diagonalisation. Moreover, the first subscript

$$\begin{bmatrix} x_{1T} \\ x_{2T} \\ x_{3T} \end{bmatrix} \equiv \begin{bmatrix} u_{11} & u_{12} & u_{13} \\ u_{21} & u_{22} & u_{23} \\ u_{31} & u_{32} & u_{33} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix} + \begin{bmatrix} f_{11} & f_{12} & f_{13} \\ f_{21} & f_{22} & f_{23} \\ f_{31} & f_{32} & f_{33} \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}$$

The same identity can be written in a more compact notation as follows:

$$[\mathbf{x}]_{nx1} \equiv [\mathbf{U}]_{nxn} \cdot [\mathbf{1}]_{nx1} + [\mathbf{F}]_{nxn} \cdot [\mathbf{1}]_{nx1}$$

In turn, the final products from country *i* ($f_{iT}$) are used for the consumption of households (*c*) and the public sector (*g*), and for investment by firms (*h*), households and the public sector ($\bar{h}$); that is:

$$[\mathbf{f}_{iT}]_{nx1} \equiv [\mathbf{C}]_{nxn} \cdot [\mathbf{1}]_{nx1} + +[\mathbf{G}]_{nxn} \cdot [\mathbf{1}]_{nx1} + [\mathbf{H}]_{nxn} \cdot [\mathbf{1}]_{nx1} + [\bar{\mathbf{H}}]_{nxn} \cdot [\mathbf{1}]_{nx1}$$

We now introduce causality into the above identities. First, we incorporate the notion that household consumption largely depends on household disposable income. This is the induced component of household consumption (*ci*). The other component is to some extent autonomous with respect to current incomes and production and it is financed with new credit, accumulated wealth or public transfers ($\bar{c}$). Thus, we write:

$$[\mathbf{C}]_{nxn} = [\bar{\mathbf{C}}]_{nxn} + [\mathbf{Ci}]_{nxn}$$

Induced consumption evolves according to the following equation:

$$[\mathbf{Ci}]_{nxn} = [\mathbf{\Phi}]_{nxh\cdot n} \cdot \langle \mathbf{cp} \rangle_{h.nxh\cdot n} \cdot [\mathbf{Y_d}]_{h.nxn} \text{ ; where}$$

$$[\mathbf{Y_d}]_{h\cdot nxn} = \underbrace{[\mathbf{P}]_{h\cdot nxh\cdot n} \cdot [\mathbf{O}]_{h\cdot nxf\cdot n} \cdot [\mathbf{VA}]_{f\cdot nxn}}_{[\mathbf{D}]_{h\cdot nxn}} \cdot \langle \mathbf{y} \rangle_{nxn}$$

The level of induced consumption is determined by the propensity to consume of each household group of each country (**cp**) out of their respective disposable income ($\mathbf{Y_d}$). The manner in which such consumption expenditures are distributed among the output of the *n* countries is given by $\mathbf{\Phi}$, which is defined as the gross market shares of consumption goods.

To arrive at disposable income starting from the total income originally generated in each country (**y**), we employ the matrix $[\mathbf{D}]_{h\cdot nxn}$, which summarises its final distribution

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indicates the country of origin and the second gives the country of destination. **I** stands for the identity matrix and **1** represents the summation vector. When we wish to make explicit the dimensions of a matrix, we write its symbol in squared brackets, and then, we give the dimension using subscripts ($[\text{symbol}]_{\text{rowsxcolumns}}$). Similarly, when the matrix is a diagnolised column vector, we write its symbol in between angle brackets.

to institutions. This matrix results from pre-multiplying $[\mathbf{VA}]_{\text{f·nxn}}$ (the share of domestic income received by the *f* factors of production located in each country)[163] by $[\mathbf{O}]_{\text{h·nxf·n}}$ (which redistributes the primary incomes among the *h* institutions, i.e., households classified according to their income level, governments and firms)[164], and then by $[\mathbf{P}]_{\text{h.nxh·n}}$ (households' effective tax rates after public monetary transfers)[165].

Second, we introduce the accelerator principle as governing private businesses' investment:

$$[\mathbf{H}]_{\text{nxn}} = [\mathbf{\Gamma}]_{\text{nxn}} \cdot \langle \mathbf{k} \rangle_{\text{nxn}} \cdot \langle \mathbf{g} \rangle_{\text{nxn}} \cdot \langle \mathbf{x} \rangle_{\text{nxn}}$$

where $k_i$ is the normal capital-to-gross output ratio and $g_i$ is the (expected) growth rate of gross output in country *i*. The domestic investment expenditures are distributed among the products of the *n* countries according to the coefficients $\gamma$.

The remaining demands are autonomous, namely: government consumption ($g$), households' autonomous consumption ($\bar{c}$) and private investment in dwellings and public investment ($\bar{h}$). Denoting the autonomous demands by $z$, we can write:

$$\mathbf{Z} = \begin{bmatrix} z_{11} & z_{12} & z_{13} \\ z_{21} & z_{22} & z_{23} \\ z_{31} & z_{32} & z_{33} \end{bmatrix} = \begin{bmatrix} \omega_{11} & \omega_{12} & \omega_{13} \\ \omega_{21} & \omega_{22} & \omega_{23} \\ \omega_{31} & \omega_{32} & \omega_{33} \end{bmatrix} \begin{bmatrix} z_{T1} & 0 & 0 \\ 0 & z_{T2} & 0 \\ 0 & 0 & z_{T3} \end{bmatrix} = \mathbf{\Omega} \cdot \mathbf{Z_T}$$

where the coefficients $\omega_{ji}$ indicate the country of origin of the goods that satisfy $z_{Ti}$.

In summation, the aggregate demand for products finished in country *i* ($\mathbf{f}_{iT}$) can be written as follows:

$$\mathbf{f_{iT}} = \underbrace{\mathbf{\Phi} \cdot \widehat{\mathbf{cp}} \cdot \mathbf{D} \cdot \hat{\mathbf{y}} \cdot \mathbf{1}}_{\text{induced consumption}} + \underbrace{\mathbf{\Gamma} \cdot \hat{\mathbf{k}} \cdot \hat{\mathbf{g}} \cdot \hat{\mathbf{x}} \cdot \mathbf{1}}_{\text{induced investment}} + \underbrace{\mathbf{\Omega} \cdot \mathbf{Z_T} \cdot \mathbf{1}}_{\text{autonomous demands}} \qquad (1)$$

---

[163] In our example, neglecting net taxes on production, **VA** has the following dimension and elements:

$$\mathbf{VA} = \begin{bmatrix} \frac{w_1}{y_1} & 0 & 0 \\ \frac{p_1}{y_1} & 0 & 0 \\ & \frac{w_2}{y_2} & 0 \\ 0 & & 0 \\ 0 & \frac{p_2}{y_2} & \frac{w_3}{y_3} \\ 0 & & \\ 0 & 0 & \frac{p_3}{y_3} \\ & 0 & \end{bmatrix}$$

, where $w$ stands for the compensation of employees (wages for short) and $p$ represents the gross operating surplus and mixed incomes (profits for short).

[164] The first column shows the share of wages in country 1 paid to the different households in each country. The second column shows the portion of profits in country 1 retained in firms and the portion distributed to the other institutions of each country (including those in the form of taxes to the state). The following columns are filled analogously.

[165] If we consider three household groups, in the first cell in column 1 we write '1 - $t_1$', where $t_1$ is the effective tax rate net of transfers on the income of low-income households. In the cell corresponding to the government in this column, we write $t_1$. The remaining entries in the column are filled with zeros. The other columns are filled analogously.

We also endogenise the consumption of intermediate products and account for their trade flows because (to repeat) these products represent approximately 55% of the world's non-fuel exports. To that end, we need the total technical coefficient matrix $\mathbf{A}$ implied by the sources and uses identity:

$$\mathbf{A} = \begin{bmatrix} a_{\mathrm{T}1} & 0 & 0 \\ 0 & a_{\mathrm{T}2} & 0 \\ 0 & 0 & a_{\mathrm{T}2} \end{bmatrix}$$

where $a_{\mathrm{Ti}}$ denotes the total value of the (imported and domestically produced) intermediate inputs used in country $i$ per unit of gross output produced in country $i$. In addition, we require a matrix indicating the gross market share of each country in domestic and foreign intermediate products: $\mathbf{\Theta}$, which is composed of $\theta_{ji} = a_{ji}/a_{Ti}$ $(i, j = 1, 2, 3)$. Inserting these matrices into the identity of sources and uses, we have:

$$\mathbf{x} = \mathbf{\Theta} \cdot \mathbf{A} \cdot \mathbf{x} + \mathbf{f_{iT}} \quad (2)$$

The gross output and domestic income vectors can be expressed as a function of autonomous demands and a multiplier. By inserting Equation 1 into Equation 2 and noting that $\hat{\mathbf{y}} = \hat{\mathbf{v}} \cdot \hat{\mathbf{x}}$ (where $\langle \mathbf{v} \rangle_{\mathrm{nxn}}$ is the diagonalised matrix of value added coefficients, i.e., $\langle \mathbf{v} \rangle_{\mathrm{nxn}} = [\hat{\mathbf{y}}\ ]_{\mathrm{nxn}} \cdot [\hat{\mathbf{x}}^{-1}]_{\mathrm{nxn}}$), we obtain:

$$\mathbf{x} = \underbrace{\left(\mathbf{I} - \mathbf{\Theta} \cdot \mathbf{A} - \mathbf{\Phi} \cdot \widehat{\mathbf{cp}} \cdot \mathbf{D} \cdot \hat{\mathbf{v}} - \mathbf{\Gamma} \cdot \hat{\mathbf{k}} \cdot \hat{\mathbf{g}}\right)^{-1} \cdot \mathbf{\Omega}}_{\text{global gross output supermultiplier } (\mathbf{GOSM})} \cdot \mathbf{z_T} = \mathbf{GOSM} \cdot \mathbf{z_T} \quad (3)$$

Then, after pre-multiplying each side of the equation by $\hat{\mathbf{v}}$ we derive the following:

$$\mathbf{y} = \underbrace{\hat{\mathbf{v}} \cdot \left(\mathbf{I} - \mathbf{\Theta} \cdot \mathbf{A} - \mathbf{\Phi} \cdot \widehat{\mathbf{cp}} \cdot \mathbf{D} \cdot \hat{\mathbf{v}} - \mathbf{\Gamma} \cdot \hat{\mathbf{k}} \cdot \hat{\mathbf{g}}\right)^{-1} \cdot \mathbf{\Omega}}_{\text{global supermultiplier } (\mathbf{SM})} \cdot \mathbf{z_T} = \mathbf{SM} \cdot \mathbf{z_T} \quad (4)$$

We have expressed the gross output and domestic income of each country as a function of autonomous demands and what we call the 'global output supermultiplier' (GOSM) and 'global supermultiplier' (SM), respectively. It is our extension of the supermultiplier formula in open economies (Serrano, 1995; Dejuán, 2005; Bortis, 2011) to a global multiregional setting with Social Accounting Matrices (SAMs).

Equally, domestic income can be expressed as a function of domestic and foreign trade supermultipliers. Equation 4 can be rewritten as:

$$\begin{bmatrix} y_1 \\ y_2 \\ y_3 \end{bmatrix} = \begin{bmatrix} sm_{11} & sm_{12} & sm_{13} \\ sm_{21} & sm_{22} & sm_{23} \\ sm_{31} & sm_{32} & sm_{33} \end{bmatrix} \begin{bmatrix} z_{\mathrm{T}1} \\ z_{\mathrm{T}2} \\ z_{\mathrm{T}3} \end{bmatrix}$$

Therefore, the income of, for example, country 1 is:

$$y_1 = sm_{11} \cdot z_{T1} + sm_{12} \cdot z_{T2} + sm_{13} \cdot z_{T3} \qquad (5)$$

where $sm_{11}$ is the domestic supermultiplier of domestic autonomous demands and $sm_{12}$ and $sm_{12}$ are the foreign trade supermultipliers, one in relation to the autonomous demand of country 2 and the other to country 3. These foreign multipliers are all in relation to truly autonomous demands from a global standpoint, not to exports as they were originally conceptualised (Harrod, 1933), which is still conventional practice.

Given the level of autonomous demands abroad, country 1 can seemingly reach the full-employment income level simply by acting on domestic autonomous demands, for example, through public expenditure programmes. While in a purely demand-constrained economy such a policy is sustainable under fairly weak conditions (see Lavoie, 2014, pp. 343—346), it may not be sustainable in a balance-of-payments-constrained economy (Godley and Rowthorn, 1994). If that is the case in country *i* (as it is in Spain currently), it is important to investigate to what extent can public authorities expand aggregate demand without fostering foreign indebtedness; or worse, to what extent austerity is necessary to stop feeding foreign debt.

To this aim, we must first search for the level of country *i*'s autonomous demand that is consistent with balanced trade in country *i* given foreign autonomous demands. In other words, we wish to determine which level of country *i*'s autonomous demand equates the income received from domestic production with the domestic expenditures.

It must be noted that Equation 3 already implies the trade balance (*tb*) of country *i* because it is the *i*-th element of the following vector:

$\mathbf{tb} = (\mathbf{X} - \mathbf{X}') \cdot \mathbf{1}$, where according to the above definitions:

$$\mathbf{X} = (\boldsymbol{\Theta} \cdot \mathbf{A} + \boldsymbol{\Phi} \cdot \widehat{\mathbf{cp}} \cdot \mathbf{D} \cdot \hat{\mathbf{v}} + \boldsymbol{\Gamma} \cdot \hat{\mathbf{k}} \cdot \hat{\mathbf{g}}) \cdot \widehat{\mathbf{GOSM}} \cdot \mathbf{z_T} + \boldsymbol{\Omega} \cdot \mathbf{Z_T}$$

Thus, the trade balance depends on the components of the GOSM and autonomous demands. This dependence implies that our problem must have a precise answer, which we now derive.

First, we rewrite the domestic expenditures as a function of the components of the global supermultiplier and autonomous expenditures:

$$\mathbf{f'_{Ti}} \equiv \mathbf{1}' \cdot (\mathbf{C} + \mathbf{H} + \mathbf{Z}) = (\mathbf{cp}' \cdot \mathbf{D} \cdot \hat{\mathbf{v}} + \mathbf{k}' \cdot \hat{\mathbf{g}}) \cdot \widehat{\mathbf{SM} \cdot \mathbf{z_T}} \cdot \hat{\mathbf{v}}^{-1} + \mathbf{z'_T} \qquad (6)$$

Hence, the constraint that guarantees trade balance in country *i* is:

$$\mathbf{s}' \cdot \mathbf{y}^{tbi} = \mathbf{s}' \cdot (\mathbf{f'_{Ti}})' \qquad (7)$$

where **s** is a vector of length *n* that contains the number *1* in the *i*-th element and zeros in the remaining entries, and the subscript 'tb*i*' denotes 'which balances trade in country *i*'. By inserting Equations 4 and 6 into 7, the constraint can be written as:

$$\mathbf{s'} \cdot \mathbf{SM} \cdot \mathbf{z_T^{tbi}} = \mathbf{s'} \cdot \left( \mathbf{z_T^{tbi}} + \left( (\mathbf{cp'} \cdot \mathbf{D} \cdot \hat{\mathbf{v}} + \mathbf{k'} \cdot \hat{\mathbf{g}}) \cdot \widehat{\mathbf{SM} \cdot \mathbf{z_T^{tbi}}} \cdot \hat{\mathbf{v}}^{-1} \right)' \right)$$

which is equivalent to the following:

$$sm_{ii} z_{Ti}^{tbi} + \sum_{j=1}^{n} sm_{ij} z_{Tj} =$$
$$z_{Ti}^{tbi} + \left( \sum_{r=1}^{h \cdot n} cp^r \cdot d_i^r \cdot v_i + k_i \cdot g_i \right) \cdot \left( sm_{ii} z_{Ti}^{tbi} + \sum_{j=1}^{n} sm_{ij} z_{Tj} \right) \cdot \frac{1}{1 - a_{Ti}} \;\; ;$$
$$j, i = 1, 2, 3; j \neq i$$

Solving for $z_{Ti}^{tbi}$, we obtain:

$$z_{Ti}^{tbi} = \frac{\sum_{j=1}^{n} sm_{ij} \cdot z_{Tj}}{\frac{1}{1 - \left( \sum_{r=1}^{h \cdot n} cp^r \cdot d_i^r \cdot + k_i \cdot g_i \cdot \frac{1}{1 - a_{Ti}} \right)}} - sm_{ii} \qquad (8)$$

Since autonomous demands cannot be negative, the following inequality must hold:

$$\frac{1}{1 - \left( \sum_{r=1}^{h \cdot n} cp^r \cdot d_i^r \cdot + k_i \cdot g_i \cdot \frac{1}{1 - a_{Ti}} \right)} - sm_{ii} \geq 0,$$

where $\frac{1}{1 - \left( \sum_{r=1}^{h \cdot n} cp^r \cdot d_i^r \cdot + k_i \cdot g_i \cdot \frac{1}{1 - a_{Ti}} \right)}$ is the domestic supermultiplier if *all* imports were autonomous and $sm_{ii}$ is the actual domestic supermultiplier, which accounts for induced import leakages. Therefore, their difference denotes the reduction of the expansionary effect of domestic autonomous expenditures on the domestic territory resulting from induced imports.

Thus, given the production techniques, trade patterns, income distributions, propensities to consume, expected growth rates and levels of autonomous demand in the rest of the world, there is only one level of autonomous demand in country *i* that guarantees an income level consistent with balanced trade. Specifically, the situation has to be such that the income generated in country *i* by foreign autonomous demands through foreign trade supermultipliers ($\sum_{j=1}^{n} sm_{ij} \cdot z_{Tj}$) is equal to the total loss of domestic income resulting from induced imports.

Finally, we can derive the level of income in country *i* that balances trade given the foreign autonomous demands and the structure of the global economy. Mathematically,

we just need to insert Equation 8 into Equation 5. From the viewpoint of country 1, we have:

$$y_1^{tb1} = \sum_{j=1}^{n} sm_{1j} \cdot z_{Tj} \cdot \left( 1 + \frac{sm_{11}}{\frac{1}{1-\left(\sum_{r=1}^{h \cdot n} cp^r \cdot d_1^r + k_1 \cdot g_1 \cdot \frac{1}{1-a_{T1}}\right)}} - sm_{11} \right) \qquad (9)$$

The income level in country 1 that balances trade is equal to the income that foreigners' expenditures generate in country 1 plus this income times a multiplier. This last multiplier reflects the ratio between the actual domestic supermultiplier and the reduction in the domestic supermultiplier caused by import coefficients. Thus, the larger the import propensities are, the lower the capacity of country 1 to grow without incurring trade deficits will be.

Our model and results have, of course, close affinities with other balance of payments constrained models that do not limit autonomous demands to exports, most notably perhaps with that in McCombie's 1993 article. There, McCombie divides the world into two groups and shows that their growth is a function of their own autonomous expenditures and the expenditures of the other group. In this sense, Equation 4 might be regarded as a generalisation to an *n*-country world with explicit consideration of trade in intermediates of McCombie's 'growth equations' expressed in levels. Equally, we also show that the income level compatible with the trade balance depends on other countries' autonomous demands and domestic and foreign trade multipliers.

To conclude this section, we may sketch some implications of our model for the current Spanish situation. First, Equations 8 and 9 make it apparent that Spain is subject to the 'n-1 problem': inevitably, Spanish authorities' room for manoeuvre is limited by the policies of other Eurozone countries and the rest of the world. In particular, a reflationary fiscal policy would worsen the trade deficit given the Eurozone's application of the 'sound finance' doctrine and the fall in BRICS growth rates. Similarly, to the extent that Spanish agents recover their credit-worthiness, autonomous consumption and investment may also recover, which would worsen the trade balance.

If coordinated reflation is politically out of sight, increasing foreign trade multipliers and reducing import coefficients appears to be the alternative to stagnation. This process entails increasing competitiveness, including in the fabrication of intermediate inputs, to improve Spain's position in global value chains. Of course, industrial policies are the

ideal means to achieve this goal, but unfortunately, they are severely limited by the European Union's laws, in particular by the Competition Law. In addition, such policies may take a long time to materialise. Therefore, to the extent that sufficient employment growth cannot be based on economic growth, fighting mass unemployment demands a more egalitarian distribution of work.

## 5. CONCLUSION

Having argued that Spain operates under the balance of payments constraint, which undermines the viability of policies for a return to growth as a sustainable remedy for mass unemployment, we aim to understand this constraint's origin. We focus on the determinants of the worsening trade deficits of 1995-2007 that brought the huge current account deficits, thereby piling up external debt at an explosive rate.

In this work, accounting for changes in domestic and foreign activity levels, trade patterns and international production interdependencies is critical. We have shown that this accounting can be achieved with a demand-led global multiregional input-output model from which we derive novel vertically integrated measures that perfectly fit important theoretical constructs, such as the import coefficient and international competitiveness. The empirical analysis covers the years from 1995 to 2011 and employs France, Italy and Germany –which are the main Eurozone economies— for comparison.

We document that the rapid increase in the value of Spanish imports until 2007 had more to do with fast economic growth than with the high and rising import coefficients of both domestic demand and exports. In turn, the rapid increase of the import coefficient of final domestic demand mainly resulted from an unfavourable transformation of the Spanish and global productive structure, that is, from a weakened capacity of the domestic productive system to competitively cater to domestic demand. Thus, the primary cause was neither reduced price-competitiveness (although imports cheapened in relation to domestic production for the domestic market between 2000 and 2007) nor the effects of income elasticities of domestic demands. The comparatively high level of Spanish import coefficients in 2007 cannot be attributed either to a peculiar structure of domestic demand, but again to relative productive deficiencies.

On the other hand, exports are not to blame for Spain's trade deficits because their evolution was remarkable. First, whereas the Spanish share in the world's value added exports remained at 2%, the shares of France, Italy and Germany decreased by some 2 pp. Second, Spain gained foreign competitiveness in the sense that the share of foreign final expenditures (in current prices) captured by domestic producers increased. This indicator evolved much better in Spain than in the other countries. Regardless, Spain continued to rely less on foreign final demand to generate domestic income and employment than the other countries we examined: it induced only between 15 and 18% of the total Spanish value added and employment during 1995-2007.

The most relevant foreign demands for value added generation in Spain were those for agriculture and manufactures, in particular for low and med-high-technology. However, these products' relative importance decreased from 70 to 61% between 1995 and 2011 in favour of market services. The final demands for tradables are not the only important factors in export analyses.

Geographically, Spain mostly relied on Eurozone countries' demand even though their relative contribution declined by 11 pp starting from 53% in 1995 in favour of Asia and the rest of the world. Thus, given the low proportion of total value added that depends on foreign demand and the high import content of exports, and given the stagnation of the Eurozone and the slowdown of emerging economies in the second half of 2013, the export-led recovery envisaged by the European institutions may well be a chimera. An expansion of domestic demand seems viable only if it privileges sectors with low import linkages, such as (public) services. However, if the expansion is to last, promoting and upgrading domestic manufactures will be crucial to the necessary shift of domestic demand from imports to home production.

After examining the resulting trade balances, we concluded that the Spanish manufacturing sector is inefficient: it is not capable of selling enough of its products abroad to pay the nation's import requirements at socially acceptable levels of employment. Indeed, the bulk of Spain's trade deficits results from trade in manufactures and commodities. Still, vertically integrated trade balances show that the final demands for construction and services are ultimately responsible for more than one third of the deepening of trade deficits between 1995 and 2007 and of their reduction until 2011.

We have closed our empirical analysis by demonstrating that Spanish trade deficits until 2007 were almost exclusively the consequence of faster growth of domestic demand in relation to the foreign demand of trading partners. The effects of the changes in competitiveness were negligible. The adjustment after 2009 was the result of restricting the domestic demand's growth such that it remained below the growth of foreign demand. Thus, the popularised story that Spanish trade deficits arose due to lost competitiveness and that their correction was due to 'internal devaluation' is simply incorrect. Indeed, the impact of changes in the competitive position on the trade balance was far more beneficial to Spain than to Germany, France and Italy.

In short, while exports performed remarkably well, the growing imbalance in the run-up to the crisis reflects excessive import growth driven by an unfavourable transformation of the domestic and global productive structure, and above all, the comparatively rapid growth of the Spanish domestic demand. The adjustment has mainly operated through the level of income, that is, through impoverishment and unemployment. The problem with Spain's competitiveness has not been its evolution, but its initial low level.

Finally, we advance a framework for Keynesian balance of payments constrained growth models to account for productive and income-generation interlinkages in a global multiregional setting. Our main results are as follows: 1) domestic income growth is a function of domestic and foreign autonomous expenditures and domestic and foreign trade supermultipliers; 2) the domestic income level that balances trade is a function of foreign autonomous demands, domestic and foreign trade supermultipliers, and the proportion by which the actual domestic supermultiplier exceeds the detrimental effect on the domestic supermultiplier of positive import coefficients.

These relations reinforce the argument that motivated this article, namely, that given the current state of affairs, promoting employment with reflationary public policies would feed foreign debt. Therefore, not only lifting the balance of payments constraint via industrial and demand management policies (to curb the increases in import coefficients and foster foreign trade supermutipliers) is paramount to fighting unemployment, but also a reduction in work-times, to absorb the combined effect of low activity levels and ever-rising labour productivity.

**APPENDIX**

Here, we explain in detail the computations of the measures that appear in the main text. For simplicity, we write them for a three-country world and from the viewpoint of country 1 ($c = 1$).

### A. 1. Import coefficient of final domestic demand ($m_{dd}$)

First, we obtain the denominator, that is, the total final domestic expenditure:

$$dd_1 = [\mathbf{1}', \mathbf{1}', \mathbf{1}'] \begin{bmatrix} \mathbf{f_{11}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{21}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{31}} + \mathbf{0} + \mathbf{0} \end{bmatrix}$$

Next, we compute the numerator, which is the value of the final domestic expenditure in country 1 that leaks abroad:

$$y_{-1}, dd_1 = [\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{f_{11}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{21}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{31}} + \mathbf{0} + \mathbf{0} \end{bmatrix}$$

Finally, we compute the ratio $\frac{y_{-1}, dd_1}{dd_1} = m_{dd}$.

The ratio is calculated using current prices (curr) and plotted in Figure 2 panel a). To compute the 'real' import coefficient plotted in panel b), we compute the above ratio with data at previous years' prices (pyp) and 'chain-link' the results. For example, we compute the real import propensity of 1996 as follows:

$$m_{dd}{}^{1996,real} = m_{dd}{}^{1995,curr} \cdot \left(1 + \frac{m_{dd}{}^{1996,pyp} - m_{dd}{}^{1995,curr}}{m_{dd}{}^{1995,curr}}\right).$$

### A. 2. Decomposition of the accumulated changes in the real import coefficient of final domestic expenditure into the accumulated contribution of changes in domestic demand and the global structure of production

We first rewrite $m_{dd}$ as follows:

$$m_{dd} = \frac{y_{-1}, dd_1}{dd_1} = \frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot \mathbf{n} \cdot \mathbf{h_1}}{dd_1},$$

where $\mathbf{n} = \begin{bmatrix} \widehat{\mathbf{n_1}} \\ \widehat{\mathbf{n_2}} \\ (\mathbf{I} - \widehat{\mathbf{n_1}} - \widehat{\mathbf{n_2}}) \end{bmatrix}$ denotes the proportion of each product in the final domestic demand of country 1 ($\mathbf{h}_1 = \mathbf{f}_{11} + \mathbf{f}_{21} + \mathbf{f}_{31}$) sourced from each country.

Thus, $\begin{bmatrix} \mathbf{f_{11}} \\ \mathbf{f_{21}} \\ \mathbf{f_{31}} \end{bmatrix} = \mathbf{n} \cdot \mathbf{h_1}$. Then, to isolate the contribution to changes in the real $m_{dd}$ of changes in the level and composition of domestic demand from changes in production

and trade trade links, we carry out a standard Structural Decomposition Analysis (Dietzenbacher and Los, 1998). Thus, the contribution of changes in domestic demand between years $t+1$ and $t$ is computed as follows:

$$\frac{1}{2}\cdot\left(\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t+1}\cdot\mathbf{B}^{t+1}\cdot\mathbf{n}^{t+1}\cdot\mathbf{h}_1^{t+1}}{dd_1^{t+1}}-\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t+1}\cdot\mathbf{B}^{t+1}\cdot\mathbf{n}^{t+1}\cdot\mathbf{h}_1^{t}}{dd_1^{t}}\right.$$
$$\left.+\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t}\cdot\mathbf{B}^{t}\cdot\mathbf{n}^{t}\cdot\mathbf{h}_1^{t+1}}{dd_1^{t+1}}-\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t}\cdot\mathbf{B}^{t}\cdot\mathbf{n}^{t}\cdot\mathbf{h}_1^{t}}{dd_1^{t}}\right)$$

The joint contribution of the changes in the value added coefficients, the global Leontief inverse and the proportions **n** are:

$$\frac{1}{2}\cdot\left(\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t+1}\cdot\mathbf{B}^{t+1}\cdot\mathbf{n}^{t+1}\cdot\mathbf{h}_1^{t+1}}{dd_1^{t+1}}-\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t}\cdot\mathbf{B}^{t}\cdot\mathbf{n}^{t}\cdot\mathbf{h}_1^{t+1}}{dd_1^{t+1}}\right.$$
$$\left.+\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t+1}\cdot\mathbf{B}^{t+1}\cdot\mathbf{n}^{t+1}\cdot\mathbf{h}_1^{t}}{dd_1^{t}}-\frac{[\mathbf{0}' \quad \mathbf{v_2}' \quad \mathbf{v_3}']^{t}\cdot\mathbf{B}^{t}\cdot\mathbf{n}^{t}\cdot\mathbf{h}_1^{t}}{dd_1^{t}}\right)$$

where the variables of year *t* are measured in current prices and the variables of year *t+1* are measured in the previous year's prices. Finally, we chain-link these contributions.

### A. 3. Import propensity of final domestic demand for each product ($\mathbf{m}_{dd}$)

First, we obtain the denominator, which is the total domestic final demand for each product:

$$\mathbf{dd_1} = \mathbf{f_{11}} + \mathbf{f_{21}} + \mathbf{f_{31}}$$

Next, we compute the vector whose elements denote the final domestic demand for each product that leaks abroad:

$$\boldsymbol{y_{-1}, dd_1} = [sum\ each\ product][\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}']\cdot\mathbf{B}\cdot\begin{bmatrix}\widehat{\mathbf{f_{11}}} & \mathbf{0} & \mathbf{0}\\ \mathbf{0} & \widehat{\mathbf{f_{21}}} & \mathbf{0}\\ \mathbf{0} & \mathbf{0} & \widehat{\mathbf{f_{31}}}\end{bmatrix}$$

where the vector $[sum\ products]$ sums the elements of the final domestic demand vector corresponding to each product. Finally, we calculate the ratio $\mathbf{y_{-1}, dd_1}\cdot(\mathbf{dd_1})^{-1}$.

Figure 4 reports the differences in $\mathbf{y_{-c}, dd_c}\cdot(\mathbf{dd_c})^{-1}$ between Spain and France, Italy and Germany, respectively, on the horizontal axis. Figure 5 presents $\mathbf{y_{-c}, dd_c}\cdot(\mathbf{dd_c})^{-1}$ for Spain after aggregating the demands for manufactured products according to their technological intensity (as reported by Eurostat's "Aggregations of manufacturing based on NACE Rev 1.1") and those for services according to whether they are privately or

publicly provided. Figure 6 plots the differences in $\mathbf{y_{-c}, dd_c} \cdot (\mathbf{dd_c})^{-1}$ between Spain and France, Italy and Germany, respectively, after aggregating the demands as in Figure 5. Figure 7 shows the ratio of each element in $\boldsymbol{y_{-1}, dd_1}$ in relation to the (column) sum of $\boldsymbol{y_{-1}, dd_1}$.

### A. 4. Foreign value added in gross exports

The foreign value added in gross exports of country 1 is as follows:

$$FVAiGX_1 = [\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot \left( \begin{bmatrix} \mathbf{0 + f_{12} + f_{13}} \\ \mathbf{0 + 0 + 0} \\ \mathbf{0 + 0 + 0} \end{bmatrix} + \begin{bmatrix} \mathbf{0 + z_{12} + z_{13}} \\ \mathbf{0 + 0 + 0} \\ \mathbf{0 + 0 + 0} \end{bmatrix} \right)$$

### A. 5. Actual and hypothetical Spanish imports

The calculation of the hypothetical paths of Spanish imports plotted in Figure 9 requires the import coefficient of each component of the final demand. Here, we explain how to compute these components using 'final consumption expenditure by households and NPISH' (c) as an example.

The share of $c_1$ covered with imports, or $\frac{y_{-1}, c_1}{c_1}$, is computed as follows. First, we obtain the denominator:

$$c_1 = [\mathbf{1}', \mathbf{1}', \mathbf{1}'] \begin{bmatrix} \mathbf{c_{11}} \\ \mathbf{c_{21}} \\ \mathbf{c_{31}} \end{bmatrix}$$

Next, we compute the numerator, i.e., the value of the final consumption expenditure by households and NPISH that leaks abroad:

$$y_{-1}, c_1 = [\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{c_{11}} \\ \mathbf{c_{21}} \\ \mathbf{c_{31}} \end{bmatrix}$$

Finally, we compute the ratio $\frac{y_{-1}, c_1}{c_1}$.

This process is essentially the same exercise as that of Bussière et al. (2013). However, our methodology and computations are more accurate because they are based on a *global* input—output model and tables.

### A. 6. Market shares in world value added exports

We defined the foreign value added in gross exports of a country in Appendix A. 4. The formula for computing the market share in global value added trade is $\frac{FVAiGX_1}{FVAiGX_1 + FVAiGX_2 + FVAiGX_3}$.

### A. 7. Market share in final foreign demands

First, we compute the value added induced in country 1 by the foreign demand for each product:

$$\mathbf{y_1}, \mathbf{dd_{-1}} = [sum\ each\ product][\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{0} + \widehat{\mathbf{f}_{12}} + \mathbf{f}_{13} & \widehat{\mathbf{0}} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \mathbf{0} + \widehat{\mathbf{f}_{22}} + \mathbf{f}_{23} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \widehat{\mathbf{0}} & \mathbf{0} + \widehat{\mathbf{f}_{32}} + \mathbf{f}_{33} \end{bmatrix}$$

Then, we compute the ratio $\mathbf{y_1}, \mathbf{dd_{-1}} \oslash \boldsymbol{dd_{-1}}$, where $\oslash$ denotes element-wise division. In Figure 13, we plot the ratio between each element of $\mathbf{y_1}, \mathbf{dd_{-1}}$ and the (column) sum of $\mathbf{y_1}, \mathbf{dd_{-1}}$.

### A. 8. Proportion of Value Added and hours worked induced by foreign final demand

The share in Gross Value Added induced by foreign demand, or $\frac{y_1, dd_{-1}}{y_1}$, is computed as follows. First, we obtain the denominator: the total Gross Value Added in country 1 ($y_1$). Then, we compute the value added in country 1 induced by foreign demands, which is known in the literature as the 'Value Added Exports' (Johnson and Noguera (2012) or the 'trade in value added' (Stehrer, 2012):

$$y_1, dd_{-1} = [\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{0} + \mathbf{f}_{12} + \mathbf{f}_{13} \\ \mathbf{0} + \mathbf{f}_{22} + \mathbf{f}_{23} \\ \mathbf{0} + \mathbf{f}_{32} + \mathbf{f}_{33} \end{bmatrix}$$

The same methodology applies to the proportion of hours worked induced by foreign demand. We only need to replace the value-added coefficients with the labour coefficients (which are defined as the number of hours worked per unit of gross output).

### A. 9. Value Added induced by final foreign demand according to its country of origin

In Figure 11, we disaggregate $y_1, dd_{-1}$ according to the country of origin of the final demand. In a three-country world, this means computing the following:

$$y_1, dd_2 = [\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{0} + \mathbf{f}_{12} + \mathbf{0} \\ \mathbf{0} + \mathbf{f}_{22} + \mathbf{0} \\ \mathbf{0} + \mathbf{f}_{32} + \mathbf{0} \end{bmatrix}$$

and

$$y_1, dd_3 = [\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot \begin{bmatrix} \mathbf{0} + \mathbf{0} + \mathbf{f}_{13} \\ \mathbf{0} + \mathbf{0} + \mathbf{f}_{23} \\ \mathbf{0} + \mathbf{0} + \mathbf{f}_{33} \end{bmatrix}$$

**A. 10. Vertically-integrated trade balance**

First, we compute the value added induced in country 1 by the foreign demand for each product:

$$\mathbf{y_1, dd_{-1}} = [sum\ each\ product] \cdot [\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot$$

$$\begin{bmatrix} \mathbf{0} + \widehat{\mathbf{f}_{12} + \mathbf{f}_{13}} & \widehat{\mathbf{0}} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \mathbf{0} + \widehat{\mathbf{f}_{22} + \mathbf{f}_{23}} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \widehat{\mathbf{0}} & \mathbf{0} + \widehat{\mathbf{f}_{32} + \mathbf{f}_{33}} \end{bmatrix}$$

Next, we compute the value added induced abroad by the domestic demand for each product:

$$\mathbf{y_{-1}, dd_1} = [sum\ each\ product] \cdot [\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot$$

$$\begin{bmatrix} \mathbf{f_{11}} \widehat{+ \mathbf{0}} + \mathbf{0} & \widehat{\mathbf{0}} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \mathbf{f_{21}} \widehat{+ \mathbf{0}} + \mathbf{0} & \widehat{\mathbf{0}} \\ \widehat{\mathbf{0}} & \widehat{\mathbf{0}} & \mathbf{f_{31}} \widehat{+ \mathbf{0}} + \mathbf{0} \end{bmatrix}$$

Finally, we compute the vertically integrated value added trade balance, that is:

$$\mathbf{y_1, dd_{-1}} - \mathbf{y_{-1}, dd_1}$$

**A. 11. Accumulated contribution to changes in the trade balance of variations in competitiveness and relative domestic demands**

From the viewpoint of country 1, the proportion of foreigners' final demand ($\mathbf{h_{-1}}$) that is satisfied with final products from country 1 is denoted by $\mathbf{d_1}$:

$$\begin{bmatrix} \mathbf{0} + \mathbf{f}_{12} + \mathbf{f}_{13} \\ \mathbf{0} + \mathbf{f}_{22} + \mathbf{f}_{23} \\ \mathbf{0} + \mathbf{f}_{32} + \mathbf{f}_{33} \end{bmatrix} = \begin{bmatrix} \widehat{\mathbf{d_1}} \\ \widehat{\mathbf{d_2}} \\ (\mathbf{I} - \widehat{\mathbf{d_1}} - \widehat{\mathbf{d_2}}) \end{bmatrix} [\mathbf{h}_2 + \mathbf{h}_3] = [\mathbf{d}] \cdot [\mathbf{h_{-1}}],$$

where $\mathbf{h}_2 = \mathbf{f}_{12} + \mathbf{f}_{22} + \mathbf{f}_{32}, \mathbf{h}_3 = \mathbf{f}_{13} + \mathbf{f}_{23} + \mathbf{f}_{33}$ and $\mathbf{h_{-1}} = \mathbf{h_2} + \mathbf{h_3}$.

The proportion of final domestic demands ($\mathbf{h}_1$) satisfied by domestic final production is denoted by $\mathbf{n_1}$:

$$\begin{bmatrix} \mathbf{f_{11}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{21}} + \mathbf{0} + \mathbf{0} \\ \mathbf{f_{31}} + \mathbf{0} + \mathbf{0} \end{bmatrix} = \begin{bmatrix} \widehat{\mathbf{n_1}} \\ \widehat{\mathbf{n_2}} \\ (\mathbf{I} - \widehat{\mathbf{n_1}} - \widehat{\mathbf{n_2}}) \end{bmatrix} [\mathbf{h}_1], \text{ where } \mathbf{h}_1 = \mathbf{f}_{11} + \mathbf{f}_{21} + \mathbf{f}_{31}.$$

Now, we write the trade balance as follows:

$$\mathrm{y}_1, \mathrm{dd}_{-1} - \mathrm{y}_{-1}, \mathrm{dd}_1 = \underbrace{[\mathbf{v_1}' \quad \mathbf{0} \quad \mathbf{0}] \cdot \mathbf{B} \cdot \mathbf{d}}_{\mathbf{z}^{*\prime}} \cdot \mathbf{h_{-1}} - \underbrace{[\mathbf{0} \quad \mathbf{v_2}' \quad \mathbf{v_3}'] \cdot \mathbf{B} \cdot \mathbf{n}}_{\mathbf{z}'} \cdot \mathbf{h_1} =$$

$$\mathbf{z}^{*\prime} \cdot \mathbf{h_{-1}} - \mathbf{z}' \cdot \mathbf{h_1}$$

Thus, we can decompose the trade balance into the fraction of final foreign demand that Spain manages to satisfy with its products ($\mathbf{z}^*$), the fraction of final domestic demand that that leaks abroad ($\mathbf{z}$), the total final foreign demand ($\mathbf{h_{-1}}$) and the total final domestic demand ($\mathbf{h_1}$). To analyse the extent to which changes in these determinants contributed to the change of the trade balance, we do a recursive structural decomposition analysis. The sum of the contributions of $\mathbf{z}^*$ and $\mathbf{z}$ indicate the consequences to the trade balance of a gain or loss in competitiveness; the sum of the contributions of $\mathbf{h_{-1}}$ and $\mathbf{h_1}$ denote the effect of domestic demand growing more or less than foreign demand, respectively.

# GENERAL CONCLUSION

The thesis has identified and examined the structural causes of what is probably the main problem in contemporary Spain: mass unemployment. While current rates are at record highs, well above 20%, the intolerable afflictions it causes to the unemployed and society at large are not unfamiliar to Spaniards. Indeed, mass unemployment is an unresolved structural feature of the socio-economic system at least since the end of Franquism.[166] Hence, the analysis of current mass unemployment referred us to a long half-century of Spanish economic history.

A major conclusion has been reached: the *causa causans* of mass unemployment lies in a deficient productive system and its peripheral integration into the European and global capitalism. In what follows, we summarise the main findings and arguments developed in the three articles that substantiate this conclusion. Finally, we derive some implications of our work for economic analysis and policy as a sketch for future research.

## THE MAIN FINDINGS AND ARGUMENTS OF THE THESIS

The inspection of the main labour market indicators from 1970 to 2013 revealed that the high levels and the volatility of Spanish unemployment rates relative to those of advanced economies arose from lower and more volatile employment rates. Given the total and unparalleled 'flexibility' of Spanish employment to production requirements, unemployment rates reflect insufficient and erratic economic growth. Indeed, official statistics likely underestimate this cause because the strongly pro-cyclical evolution of activity rates suggests that the 'reserve army' was not only composed of the statistically unemployed, but also of 'inactive' population and, in recent times, migrants.

In turn, full-employment output has been elusive mainly because domestic demand has repeatedly been balance of payments constrained. The developments leading to the

[166] During Franquism statistical unemployment was insignificant, but it hid the exclusion of women from paid employment, economic emigration, redundant workers and rudimentary production techniques.

Stabilisation Plan of 1959 were the first modern antecedent of this restriction. After the relaxation of the choking autarky in the early 1950s, the economic growth led by the expansive boom of Western Europe had to be halted due to the paucity of foreign reserves for critical imports. This encouraged the trade and financial liberalisations that culminated in the Plan and its implementation with the technical and financial support of the United States, the IMF and the OECD.

The following years, from 1960 to the mid 1970s, saw the acceleration of economic growth and a substantial productive modernisation, which, nonetheless, proved insufficient to overcome the peripheral condition of the Spanish economy. The still weaker and less diversified productive system, along with the changing pattern of domestic demand and its higher growth rate relative to the trading partners, rapidly worsened the trade deficit despite the spike in exports.

The increase in exports, in turn, derived from the rise in productivity and the diversification of production towards manufactures and capital goods. The transformation was possible thanks to the increased import capacity, alongside foreign direct investment seeking for a cheap export base to the European Economic Community.

If the trade deficit did not block the reproduction of the growth model it was because remittances, touristic revenues and foreign investments provided the necessary foreign reserves. The '*desarrollismo'* did lift the external constraint, but the achievement was subject to the easy access to foreign liquidity, financial and exchange rate stability, favourable terms of trade, expansion of foreign demand, the migratory escape valve, and the direct and implicit support of Western powers to the Francoist Regime for geopolitical concerns.

Contrarily, the radical change of the international economic situation in the early 1970s constituted a 'perfect storm' for the Spanish productive system. A meagre state and the determination of the elites to maintain the *status quo* complicated macroeconomic control, imposed a very regressive distribution of the costs of the crisis, and blocked any significant change in the productive model. Mass unemployment was the immediate consequence of these developments. Then, the deflationary, monetarist policies to curb the heightened distributive conflict and the deterioration of the foreign financial position, along with the failed restructuring of the productive system, raised the unemployment rate to 21% in 1985.

Industrial policy essentially aimed at managing the collapse through greater liberalisation of the economy, instead of implementing interventionist policies to re-industrialise the economy and achieve a minimum of technological autonomy. The politically fundamental goal of European integration and the urgency to comply with the *Acquis Communautaire*, in particular regarding the Common Market, precluded these policies.

In the second half of the 1980s up to the early 1990s, European integration decisively contributed to the high rates of economic growth in Spain and the decline in unemployment rates (15% in 1991). On the other hand, integration further weakened Spain's competitive position. The rapid and radical lifting of trade barriers with far more productive economies entailed spikes in import propensities. All of this caused the trade deficits that would eventually feed one of the highest current deficits in the world. However, these were outweighed by capital inflows, which now derived from the very dynamics engendered by the liberalisation of the financial account and the participation in the European Union and the European Monetary System. The final result was a textbook balance of payments crisis, aggravated by the real state and financial bubbles, which brought the unemployment rate back to levels above 20%.

Once more, the reduction in the unemployment rate in the upswing of 1995—2007 to 8.6% was not the consequence of having overcome the peripheral condition of the Spanish economy. On the contrary, it resulted from the phenomenal growth in activities that must necessarily take place domestically: mainly for construction, tourism, public services and domestic services, which generated almost three out of each four new employments. Meanwhile, the techno-productive articulation of the Spanish productive system with the international one and the absence of industrial policies limited the development of the most advanced sectors –while suffering from the offshoring of highly standardised activities to countries with lower wages and taxes, and a laxer regulation.

The lingering peripheral condition, however, did not entail that foreign developments impacted negatively on domestic employment. Between 1995 and 2007, the number of hours worked in Spain increased by 44%, that is, by 10,243 millions. Out of this rise, 630 millions corresponded to changes in foreign activity levels, trade patterns and income and production interdependencies. The reason is that while variations in trade patterns and interlinkages, what we termed 'Integration Effects', were detrimental to

domestic employment (-4,383 million hours), the gains from overall foreign economic growth, which impact domestic employment through the links created by previous economic integration, outweighed Integration Effects (5,012 million hours). Still, domestic demand growth generated the vast of majority of additional hours worked, 10,750 millions.

On the other hand, the combined effect of changes in domestic technical conditions and propensities to consume only reduced the hours worked by 1,136 millions. Such a low figure suggests that employment growth based on construction, tourism, public and domestic services does not favour significant increases in aggregate labour productivity.

The Spanish experience in the millennial boom is not unique, but highly uneven patterns emerged from our study of the 'Domestic' and 'Foreign Effects' on the employment levels of main economic powers (Germany, Italy, France, the UK, the US, Japan and China). First, while some countries, especially China and Germany, profited extensively from the foreign sector, in other countries, namely the US and Italy, an unfavourable pattern of integration outweighed the benefits from others' economic growth. Spain, as stated, enjoyed modest gains. Second, there were wide differences in the extent to which domestic employment was led by Foreign Effects or Domestic Effects. Germany exclusively relied on the first, Japan almost did so and China built equally upon both effects. In contrast, France, the UK and especially Spain essentially relied on domestic demands, while the US and Italy depended entirely on them.

Three additional results may clarify some common misconceptions. First, the positive Foreign Sector Effects in Germany cannot be attributed to the 'Hartz reforms'. In contrast to conventional opinion, the benefits basically derived from foreigner's expansion (82% of Foreign Sector Effects) rather than from newly gained competitiveness (18%), which only accrued before 2003. Similarly, Germany developed a trade surplus simply by constraining its domestic demand below the corresponding demand of its trade partners. This clearly suggests that the German strategy to restrict increases in labour costs so that they are far below the corresponding costs of its Eurozone peers contributed to the German surplus not so much via increased competitiveness (if that occurred), but by repressing domestic demand.

Second, evidence suggests that workers' fear in advanced countries of the 'slicing-up' of global productions chains is actually well grounded: the changes in the structure of trade in intermediates were unfavourable to employment in the advanced countries

we analysed, with the sole exception of Germany. Third, the trade balance is a misleading indicator of the effects of changes in domestic and foreign activity levels, trade patterns and income and production interdependencies on employment.

Spain is perhaps the starkest example. While these changes contributed to Spanish employment growth during 1995—2007, they also caused the worsening trade deficits that brought one of the highest current account deficits in the world. The imbalance reflected excessive import growth driven by an unfavourable transformation of the domestic and global productive structure (which is at the root of the high and rising import propensities of both domestic demand and exports) and, above all, the comparatively rapid growth of the Spanish domestic demand. The remarkable performance of exports, which also expressed widespread *gains* in foreign competitiveness, could not counter the growing foreign imbalance.

Along these lines, we have demonstrated that the deepening trade deficits were almost exclusively the consequence of the faster growth of domestic demand in relation to the domestic demand of trading partners. The effects of the changes in competitiveness on the trade balance were negligible, and, indeed, far more beneficial to Spain than to Germany, France and Italy. Still, the inefficiency of the Spanish manufacturing sector lingered, as it was not capable of selling enough of its products abroad to pay the nation's import requirements at socially acceptable levels of employment. Spain has not lost competitiveness; rather, it has not gained enough.

As a consequence of the accumulation of external debt at an explosive rate, and given the 'austeritarian' stance of the Eurozone's policies, Spain operates again under the balance of payments constraint that hinders the viability of policies for a return to growth as a sustainable remedy for mass unemployment. The closing of the trade imbalance after 2009 was chiefly the result of restricting the domestic demand's growth such that it remained below the growth of foreign demand. In other words, the adjustment mainly operated through impoverishment and unemployment, in line with Harrodian trade theory. Thus, the popularised story that Spanish trade deficits arose due to a loss in competitiveness, and that their correction has been due to 'internal devaluation' is simply incorrect.

## SOME IMPLICATIONS FOR ECONOMIC ANALYSIS AND FUTURE RESEARCH

From the viewpoint of economic analysis, we conclude that balance of payments constrained growth models of the Structuralist and Kaldorian strand are appropriate and topical for the interpretation of the structural nature of mass unemployment in Spain. Like any powerful model they are subject to simplifying assumptions, which need to be modified according to the problem at hand. For example, to better understand mid-term developments we have disposed of the assumption that exports are the sole component of autonomous demands and that the private sector runs neither a persistent surplus nor deficit (see Palumbo 2009).

Relaxing these assumptions by working with the more general supermultiplier models (Vernengo 2015; Vernengo and Rochon, 2001) enhanced our understanding of the Spanish experience *within its historical setting*. For example, while exports were important in the three upswings examined (1960—1975, 1985—1991 and 1995—2007), the expansion of the internal market, typically led by government expenditures and construction booms fuelled by cheap and easy credit, were far more relevant.

Still, as we have already argued, the worsening external financial position entailed by these growth patterns was a determining factor in their ultimate crisis. Such a financial restriction is absent in supermultiplier models, but we have shown that it can also be derived from them. Nonetheless, as Palumbo (2011) highlights, the economy's ability to pay its external debt defies any general and immutable definition because it depends on multiple factors, among them the specific circumstances of the economy and the historical phase under consideration.

For example, it has been emphasised (cf. Lavoie (2015)) that in the European Monetary Union (EMU) the external constraint need not be binding. Indeed, the EMU has proved apt at providing liquidity to states under distress (see Loublier, 2015). Nonetheless, this liquidity has been conditioned to promoting the reversal of current account positions in indebted countries (i.e. the liquidation of foreign debt) through deflationary, neoliberal policies. That is to say, *de facto*, the adjustment operates through impoverishment in the deficit country, like in any balance of payment crisis.

Methodologically, we conclude that empirical analysis must work at a lower level of abstraction than models, which should not be applied mechanically but used to clarify causalities, in line with Keynes (1938 [1971], p. 296) dictum: "Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant

to the contemporary world" (Keynes, 1938 [1971], p. 296).

Finally, in order to render the supermultiplier models even more relevant to the current globalised world, we have merged them with global multiregional input-output models. Thereby, we can better account for the increasing importance to domestic economies of foreign activity levels, trade patterns and international income and production interdependencies. Thus, we have taken advantage of the "general methodological approach designed to reduce the steady widening gap between factual observation and deductive theoretical reasoning that threatens to compromise the integrity of economic analysis as an empirical science." (Leontief 1989, p. 3).

The increasing globalisation of production processes is topical. International economic organisations such as the OECD, the IMF, the UN and the WTO have acknowledged that these transformations imply that official trade statistics become less suitable for analysing trade patterns, their determinants and their effects. Neoclassical economics is rapidly incorporating the implications of the 'slicing-up' of the production chains (e.g. Robert, 2014). Keynesians, in our opinion, ought to follow suit. Ours is a first attempt in this direction, and the evidence we have derived points out the relevance of such research project.

Along these lines, we plan to use the global multiregional input-output supermultiplier model for an empirical study of the possible routes to close the Spanish trade imbalance at the lowest cost for employment. Also, we aim to study the effects on the current account and employment of changes in income distribution and of foreign direct investment.

At the theoretical and methodological front, the model ought to be extended as to account for changes in relative prices, and introduce the cumulative connection between demand and technical change in line with the work of Araújo and Trigg (2015).

## SOME IMPLICATIONS FOR ECONOMIC POLICY

We have concluded that *mass* unemployment derives from the deficient productive system and its peripheral integration into the European and global capitalism. As a result, when the economy grows and generates employment, current account deficits accumulate until difficulties in accessing external liquidity induce or compound a more or less traumatic deflation of domestic demand to bring external deficits down to the level for which they can obtain foreign finance. Having established the problem, we suggest four general lines for economic policy.

First, since it is a financial restriction, a financial solution could be pursued. We devise two complementary options: a) Establish at the European Union level a system of fiscal transfers like those in place in federal states; b) Spain could implement full-employment fiscal policies *if* the European Central Bank is prepared to modify the structure of its assets by accumulating a rising proportion of Spanish bills (Godley and Lavoie, 2007; Lavoie, 2015).

Second, a coordinated reflation lead by surplus countries would directly generate employment and also create space for domestic expansionary policies. Needless to say, such cooperative strategies are politically out of sight. But the export-led alternative envisaged by European institutions, unfortunately, appears to be a chimera, given the low proportion of total value added that depends on foreign demand, the high import content of exports, and the stagnation of the Eurozone and the slowdown of emerging economies in the second half of 2013.

Third, to the extent that employment growth must rely on economic expansion, the Spanish competitive position ought to improve substantially to avoid further over-indebtedness. Such gain will not be accomplished through wage cuts, which, indeed, have proven counterproductive (Uxó, Paúl and Febrero, 2014; Paúl and Uxó 2014). If the EMU is to resist, the improvement may not be achieved either through a fall in the profit rate (due to the free capital mobility) or devaluations. Similarly, an autonomous technological jump is unlikely, according to the Verdoorn's Law and economic history. Thus, a path should be cleared in the European Treaties to decisively articulate a classic industrial policy to upgrade and reduce the import content of domestic production, and promote high-value-added exports.

Otherwise and to the extent that employment generation cannot rely on economic growth –because European stagnation precludes growing without further feeding

current account deficits—, eradicating mass unemployment will demand a reduction in work-times, to absorb the combined effect of low activity levels and the ever-rising labour productivity.

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