Asymmetric Trade Liberalizations and Current Account Dynamics*

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EXTREMELY PRELIMINARY
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Abstract

The current account surplus of Germany can be decomposed into a surplus in goods trade and a deficit in services. Spain, Greece and Portugal are all characterized by deficits in goods trade and surpluses in services. Moreover, there is a systematic positive relation between specialization in the production of manufacturing and the current account over GDP ratio in a sample of 24 OECD countries plus the BRICS. Starting from these intriguing facts, I propose a simple model that rationalizes how asymmetric trade liberalizations can affect current account dynamics. I solve analytically a log-linear version of the model and derive an expression for the current account depending only on present and future *relative changes* in the exogenous trade costs. I then apply the insight of the model to the study of the current account implications of the asymmetric trade liberalization in manufacturing versus service trade that took place in the last decades. I build *relative trade liberalization measures*, and I show empirical evidence that broadly supports the main prediction of the model.

JEL classification: F1, F32, F40
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*All errors are mine.

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1 Introduction

The emergence of external imbalances has been an important concern for economists and policy makers for at least the last couple of decades. In the context of the European Union, for instance, the European Commission has recently introduced a mechanism to monitor the formation of excessive macroeconomic imbalances that can trigger an "excessive imbalance procedure". The current account is one of the key indicators monitored. Figure 1 reports the evolution of the current account over GDP for four European countries, where we can see how the increasing current account surplus of Germany is accompanied by increasing current account deficit in the southern European countries (Spain, Greece, Portugal).

The motivation for this paper is the uncovering of some new facts that have not been noticed before. Figures 2 to 5 propose a simple decomposition of the trade balance of the same four European countries included in Figure 1 into their goods balance and service balance components. While for Germany (Figure 2) the large trade surplus emerges from a trade surplus in goods, accompanied by a trade deficit in services, the opposite is true for the other countries. Spain, Portugal, and Greece, in fact, exhibit increasing trade deficits in goods, but surpluses in services (Figures 3, 4, and 5).[1] Moreover, in Figure 6, I report evidence of a systematic positive relationship between the share of manufacturing in value added (in 2000) and the current account as a percentage of GDP (in 2007) for a sample of 24 OECD countries plus the BRICS (Brazil, Russia, India, China, South Africa).

Starting from this motivating evidence, the contribution of this paper is to propose a theory of how asymmetric trade liberalization processes can affect current account dynamics and test it using the case of the asymmetry in the liberalization of manufacturing versus service trade that took place in the last two decades that I documented in Barattieri (2014).

I start by outlining a simple theoretical model where I show how asymmetric trade liberalizations can affect current account dynamics. In order to maximize the intuition and the simplicity of the exposition, I use a very simple framework: an environment with two periods, two countries, no production, complete specialization, and exogenous trade costs. I

[1] A very similar picture could be drawn also for the UK.

propose a log-linear version of the model around a symmetric equilibrium and I show how the evolution of Home's current account depends purely on consumption smoothing. All else equal, an increase of the value of the home endowment relative to the foreign endowment in period 1 (period 2) pushes the Home current account toward surplus (deficit) due to a wealth effect. Moreover, due to a substitution effect, an increase of the home price index in period 2 relative to period 1 tends to push Home's current account toward deficit, as would a decrease in the foreign price index in period 2 relative to period 1. I solve explicitly for the current account only as a function of the exogenous trade costs, and I show how the relevant shock for current account dynamics is the change in the trade cost the home good *relative* to the change of the transport cost of the foreign good. Any symmetric trade liberalization in which the trade costs for the home and the foreign good move in the same way would not have any impact on the current account. On the other hand, asymmetric trade liberalization processes – where the *timing of trade liberalization* is different for the home and foreign goods – affect current account dynamics.

While the insight of the model is fairly general, it can be applied to the facts reported in Figures 1-6, where the relevant asymmetry would be represented by the different timing in the liberalization of trade in manufacturing and services.

I propose an empirical analysis in three stages to explore the relevance of the model. In the first stage, I use the constructed home bias index (CHB) first proposed by Anderson and Yotov (2010) as a way of describing the timing of liberalization in manufacturing trade and service trade for a sample of 24 OECD countries plus the BRICS. The CHB, derived by the structural gravity model, is a pure number that indicates how much more a country trade with itself in a given sector *relative to* what it would do if the world were completely frictionless. I show how that while the level of this indicator is lower for Germany than for the southern European countries, the trend over time of this indicator is rising for Germany, while decreasing in Spain, Portugal and Greece.

In the second stage of the empirical analysis, by dividing the sample of countries into the countries relatively specialized in the export of manufacturing and those relatively specialized

in the export of goods, I build *relative trade liberalization* measures, defined as the differences in the change of the average CHB faced in the export sector and the change of the CHB in the import sector. I show how, on average, Spain, Portugal and Greece were characterized by *positive relative trade liberalizations* during the period 1995-2009. This means that the fall in the barriers to trade in the sector they tend to import (manufacturing) were on average larger than the fall of the trade barriers in the sector where they tend to export (services). Germany, on the contrary, exhibits, on average a *negative relative trade liberalization*, meaning that the barriers to trade in the German export sector decreased by more than the barriers to trade in its import sector.

Finally, I explore the role of relative trade liberalizations as determinants of current account dynamics. Following the specification of the key equation of the model, I regress the change in the ratio of current account as a share of GDP on both the contemporaneous measure of relative trade liberalization and on some of its leads. Consistently with the theory, I find a negative a statistically significant coefficient on the contemporaneous relative trade liberalization measure (a country tends to experience a deficit when the restrictions to trade in its import sector fall by more than those in its export sector) while the coefficients on the leads of the same measure are positive and statistically significant (a country tends to experience a deficit if in the future it expects the impediments to trade in its export sector to fall by more than the impediments to trade in its import sector). These correlations are robust to the inclusion of several controls, including growth, openness, gdp and gdp per capita, as well as year and country fixed effects. Moreover, I formally test the equality of the coefficients on the contemporaneous and forward relative trade liberalization measures, as predicted by the model, and I am unable to reject it at any reasonable confidence level. Albeit the overall explanatory power of the relative trade liberalization measures is modest (with R-squared of around 12%), I conclude that asymmetric trade liberalizations are indeed a driver of current account dynamics.

This paper is linked to several strands of the literature. First, it is broadly linked to the literature on global imbalances. While the literature on global imbalances is extremely vast[2],

[2]See for instance Blanchard and Milesi-Ferretti (2009), Blanchard and Giavazzi (2002), Caballero, Farhi

a subset of papers have tried to specifically link trade reforms and industrial structures to current account dynamics. Ju and Wei (2012) presents a model where the interaction of Heschker-Ohlin forces and trade liberalization can affect current account dynamics. While the theoretical channels proposed by Ju and Wei (2012) are operating on the production side, the only force operating in the model proposed in this paper is consumption smoothing. Jin (2012) links industrial structure to capital flows (and hence to current account dynamics) in a model where the specialization in capital intensive sectors rises the demand for capital, and thus explain the emergence of current account deficits. However, Jin (2012) abstracts from trade cost, considering a world with no trade frictions.

Second, the paper is linked to the literature on structural gravity and the construction of trade restrictiveness measures (Anderson and Van Wincoop, 2003, Anderson adn Yotov, 2010).

Finally, this paper is linked to empirical literature on the current account dynamics (see for instance Gruber and Kamin, 2003). [TBC - EUROPE]

Most closely to this paper, in a companion paper (Barattieri, 2014) I examine the extent to which the asymmetry in the liberalization of service trade and manufacturing trade of the last decades can explain the current account dynamics of the U.S. There are similarities but also important differences between Barattieri (2014) and this paper. First, I develop here a closed form solution for a two-country two-period model where I show how asymmetric trade liberalizations can trigger current account movements, unlike in Barattieri (2014), where I calibrate a quantitative dynamic general equilibrium model to match the current account dynamics of the U.S.. Second, as in Barattieri (2014), I use here the concept of constructed home bias index. However, differently from Barattieri (2014), in this paper the CHB is used in order to build relative liberalization measures and then (and most importantly) to test the key prediction of the model. Finally, in this paper a different way of computing the constructed home bias indexes allows me to circumvent some data restrictions that I faced in my previous work.

and Gourinchas (2008), Engels and Rogers (2006), Hausman and Sturzenegger (2006), Mendoza, Quadrini and Rios-Rull (2009).

The paper is structured as follows. The next Section introduces the theoretical model. Section 3 contains the the empirical strategy. Section 4 contains the main results of the analysis. Section 5 concludes.

2 Theoretical Model

In this Section I lay out a simple model aimed at showing how asymmetric trade liberalizations can affect the dynamics of the current account. The world consists of two countries: Home and Foreign (with foreign variables denoted by *). Each country is populated by a representative household that lives for two periods. Two goods are consumed: a home good (h) and a foreign good (f). The endowment of the home good is Y_t^h with $t = \{1, 2\}$. The endowment of the foreign good is Y_t^{f*} with $t = \{1, 2\}$. The price of the home good at Home is p_t^h. The price of the home good in Foreign is $p_t^{h*} = \tau_t^h p_t^h$, where $\tau_t^h > 1$ is an iceberg trade cost. The foreign good f is imported in Home from Foreign. The Home price of the foreign good is $p_t^f = \tau_t^f p_t^{f*}$, where p_t^{f*} is the price of the foreign good in Foreign (set to be the numeraire) and $\tau_t^f > 1$ is an iceberg trade cost.

In both countries, households maximize lifetime utility, given by:

$$\frac{X_1^{1-\frac{1}{\sigma}}-1}{1-\frac{1}{\sigma}} + \beta \frac{X_2^{1-\frac{1}{\sigma}}-1}{1-\frac{1}{\sigma}}$$

where $X = C$ or C^* depending on the country. The asset menu features only an international bond denominated in units of a common world currency. The first-period and second-period budget constraints are, respectively:

$$B_1 = p_1^h Y_1^h - P_1 C_1, \qquad B_1^* = Y_1^{f*} - P_1^* C_1^*, \tag{1}$$

$$P_2 C_2 = p_2^h Y_2^h + (1 + r_1) B_1, \qquad P_2^* C_2^* = Y_2^{f*} + (1 + r_1) B_1^*, \tag{2}$$

where B_1 and B_1^* are the net bond positions of Home and Foreign and r_1 is the riskless net rate of return in units of the *numeraire*.

The consumption basket aggregates home and foreign goods. I assume a C.E.S. aggregate with elasticity of substitution different from 1. The reason is that, as shown by Cole and Obstfeld (1991) and Corsetti and Pesenti (2001), in the presence of unitary elasticity of substitution between home and foreign goods, there are no intertemporal transfers of wealth across countries (i.e., no current account movements). Therefore, the consumption basket in the Home country is defined to be:

$$C_t = \left[\left(C_t^h\right)^{\frac{\theta-1}{\theta}} + \left(C_t^f\right)^{\frac{\theta-1}{\theta}} \right]^{\frac{\theta}{1-\theta}},$$

where θ is the elasticity of substitution between goods and services, assumed to be larger than 1. C_t^h represents the consumption of home goods in Home at time t, while C_t^f is the consumption of foreign good in Home at time t. C_t^*, C_t^{h*}, and C_t^{f*} are defined in analogous fashion. The price indexes in Home and Foreign are respectively:

$$P_t = \left[\left(p_t^h\right)^{1-\theta} + \left(\tau_t^f\right)^{1-\theta} \right]^{\frac{1}{1-\theta}}, \qquad P_t^* = \left[\left(\tau_t^h p_t^h\right)^{1-\theta} + 1 \right]^{\frac{1}{1-\theta}}. \tag{3}$$

The intertemporal optimization problem yields standard Euler equations for both Home and Foreign:

$$C_1 = \beta^{-\sigma} \left((1+r_1) \left(\frac{P_1}{P_2} \right) \right)^{-\sigma} C_2 \qquad C_1^* = \beta^{-\sigma} \left((1+r_1) \left(\frac{P_1^*}{P_2^*} \right) \right)^{-\sigma} C_2^*. \tag{4}$$

The intratemporal optimization decision gives the following demand equations for $t = \{1, 2\}$:

$$C_t^s = \left(\frac{p_t^h}{P_t} \right)^{-\theta} C_t, \qquad C_t^{h*} = \left(\frac{\tau_h^h p_t^h}{P_t^*} \right)^{-\theta} C_t^*, \tag{5}$$

$$C_t^f = \left(\frac{\tau_t^f}{P_1} \right)^{-\theta} C_t, \qquad C_t^{f*} = \left(\frac{1}{P_t^*} \right)^{-\theta} C_t^*. \tag{6}$$

To close the model, we must impose goods and bond market clearing conditions. The nature of the iceberg trade costs implies the following goods market clearing conditions:

$$Y_t^h = C_t^h + \tau_t^h C_t^{h*}, \tag{7}$$

$$Y_t^{f*} = \tau_t^f C_t^f + C_t^{f*}. \tag{8}$$

Finally, bond market clearing requires:

$$B_1 + B_1^* = 0. \tag{9}$$

We thus have 21 endogenous variables $(C_t, C_t^*, P_t, P_t^*, C_t^h, C_t^{h*}, C_t^f, C_t^{f*}, p_t^h, B_1, B_1^*, r_1)$ with $t = \{1, 2\}$. The 21 equations (1)-(9), together with the evolution of the exogenous variables Y_t^j and τ_t^j (with $t = \{1, 2\}$ and $j = h, f$) completely characterize the equilibrium of this economy.

Unfortunately, one cannot obtain closed-form solutions without unitary elasticity of substitution between home and foreign goods. To make the results transparent, instead of relying on numerical examples, I will present analytical results based on the log-linearized version of the model around a symmetric equilibrium.

2.1 A Symmetric Equilibrium

The analysis below is based on a log-linearization of the model around a symmetric equilibrium where $\bar{p^h} = \bar{p^{f*}} = 1$, $\bar{B}_1 = \bar{B}_1^* = 0$, $\bar{Y^h} = \bar{Y^{f*}} = \bar{Y}$, and $\bar{\tau^h} = \bar{\tau^f} = \tau$.

In this symmetric equilibrium, price indexes are equal:

$$\bar{P} = \bar{P^*} = \left(1 + \tau^{1-\theta}\right)^{\frac{1}{1-\theta}}. \tag{10}$$

Moreover, we have:

$$\bar{C} = \bar{C}* = \frac{\bar{Y}}{\bar{P}}, \tag{11}$$

$$\bar{C^h} = \bar{C^{h*}} = \bar{P}^\theta \bar{C}, \tag{12}$$

$$\bar{C^f} = \bar{C^{f*}} = \tau^{-\theta} \bar{P}^\theta \bar{C}. \tag{13}$$

Finally the Home share of consumption of the home good is equal to the Foreign share of consumption of the foreign good:

$$\frac{\bar{C^h}}{\bar{C^h} + \tau \bar{C^{h*}}} = \frac{\bar{C^{f*}}}{\tau \bar{C^f} + \bar{C^{f*}}} = s_h = s_f^* = \frac{1}{1 + \tau^{1-\theta}}. \tag{14}$$

Notice that the foreign share of consumption of the home good includes also the amounts lost to trade costs. On the other hand, the Home share of consumption of the foreign good is:

$$\frac{\tau \bar{C^f}}{\tau \bar{C^f} + \bar{C^{f*}}} = \frac{\tau \bar{C^{h*}}}{\bar{C^h} + \tau \bar{C^{h*}}} = s_f = s_h^* = \frac{\tau^{1-\theta}}{1 + \tau^{1-\theta}} \tag{15}$$

Consistent with intuition, it is straightforward to check that $\frac{\partial s_h}{\partial \tau} > 0$ and $\frac{\partial s_f}{\partial \tau} < 0$. In other words, the introduction of the trade costs creates home bias in this setting even in absence of home bias in preferences.[3] Finally, symmetry implies that $s_h = 1 - s_f$. This property is extremely useful in the process of log-linearization.

2.2 The Log-Linear Model

I denote percentage deviations from the symmetric equilibrium with a hat. So $\hat{x} = log\left(\frac{x}{\bar{x}}\right)$, where $\bar{x}$ is the value of x at the symmetric equilibrium. The details of the log-linerarization and the solution of the model are described in the appendix. To focus my attention on the effect of trade costs, from now on I assume that endowments are constant. The Euler

[3] A point already made by Obstfeld and Rogoff (2001).

equations take the log-linear form:

$$\hat{C}_1 = -\sigma(1-\beta)\hat{r_1} - \sigma\hat{P}_1 + \sigma\hat{P}_2 + \hat{C}_2, \tag{16}$$

$$\hat{C}_1^* = -\sigma(1-\beta)\hat{r_1} - \sigma\hat{P}_1^* + \sigma\hat{P}_2^* + \hat{C}_2^*. \tag{17}$$

The log-linear versions of the period-1 budget constraint in Home and Foreign are:

$$\hat{B}_1 = \hat{p_1^s} - \hat{P}_1 - \hat{C}_1, \tag{18}$$

$$\hat{B}_1^* = -\hat{P}_1^* - \hat{C}_1^*, \tag{19}$$

where importantly the current account the percentage deviation from the equilibrium output $\bar{Y}$.[4]. The budget constraints for period 2 are:

$$\hat{C}_2 = \hat{p_2^s} - \hat{P}_2 + \frac{1}{\beta}\hat{B}_1, \tag{20}$$

$$\hat{C}_2^* = -\hat{P}_2^* + \frac{1}{\beta}\hat{B}_1^*. \tag{21}$$

Taking the difference between (18) and (19) and imposing the bond market clearing condition, we get the following expression for the current account of the Home country in period 1 (equivalent to the country's net foreign asset at the end of the period):

$$2\hat{B}_1 = \hat{p_1^s} - \left(\hat{P}_1 - \hat{P}_1^*\right) - \left(\hat{C}_1 - \hat{C}_1^*\right). \tag{22}$$

Equation (22) expresses the current account of the Home country as a function of the terms of trade (p_1^h), the real exchange rate and the consumption differential. Everything else equal, an improvement of the terms of trade would lead to a current account surplus and a real appreciation to a current account deficit. An increased consumption differential between the Home and the Foreign country would lead to a current account deficit at Home. Using the difference between (16) and (17) and the difference between (20) and (21), we can

[4]This is necessary because net foreign asset are zero in the symmetric equilibrium

rewrite (22) as

$$\frac{2\left(1+\beta\right)}{\beta}\hat{B}_1 = \hat{p_1^s} - \hat{p_2^s} + \left(\sigma - 1\right)\left(\hat{P}_1 - \hat{P}_2\right) - \left(\sigma - 1\right)\left(\hat{P}_1^* - \hat{P}_2^*\right). \tag{23}$$

Equation (23) allows us to interpret the evolution of Home's current account as depending on four factors. The first two represent a wealth effect. All else equal, consumption smoothing tends to push the Home current account toward surplus (deficit) in case of an increase of the value of the home endowment relative to the foreign endowment in period 1 (period 2). The next two terms represent a substitution effect. All else equal, if the intertemporal elasticity of substitution is larger than 1, an increase of the home price index in period 2 relative to period 1 tends to push Home's current account toward deficit, as would a decrease in the foreign price index in period 2 relative to period 1.

Obviously, one must solve fully the model to have the impact of the different exogenous variables on the current account. While the appendix explains the procedure in detail, I will give only a quick sketch here. For both periods, I substitute the budget constraints into the demand functions for the home good, and then I use the goods market clearing conditions to solve for $\hat{p_t^s}$ as function of the trade costs and $\hat{B}_1$ (imposing bonds market condition eliminates $\hat{B}_1^*$ from the system). I then express all the four elements of equation (23) as functions of the trade costs and $\hat{B}_1$. Finally, I substitute these functions back into equation (23). This allows me to express Home's current account only as function of the exogenous trade costs:

$$\hat{B}_1 = -\eta\left(\hat{\tau_1^h} - \hat{\tau_1^f}\right) + \eta\left(\hat{\tau_2^h} - \hat{\tau_2^f}\right) \tag{24}$$

where η is a function of the structural parameters of the model $(\beta, \theta, \sigma, \tau)$. η is a positive number as long as $\theta > 1$ and the elasticity of intertemporal substitution is sufficiently large.[5]

Equation (24) is the key equation. It is important to notice that the relevant shock is the change in the trade cost the home good *relative* to the change of the transport cost of the

[5]The requirement here is weaker than $\sigma > 1$. More precisely, it is sufficient that $\sigma > 1 - g(\beta, \theta, \tau)$. See the appendix for details.

foreign good. Any symmetric trade liberalization in which the trade costs for the home and the foreign good move in the same way would not have any impact on the current account. On the other hand, asymmetric trade liberalization processes for which $\left(\hat{\tau_1^h} - \hat{\tau_1^f}\right) > 0$ and/or $\left(\hat{\tau_2^h} - \hat{\tau_2^f}\right) < 0$ push the current account of the Home country into deficit.[6]

More generally, equation (24) challenges the view that trade policies cannot influence the trade balance because they cannot affect savings and investment decisions.[7] While this is certainly true in static settings, things can be different in dynamic settings where the timing of the trade policy potentially matters for saving and investment (which are intertemporal decisions).[8]

3 Empirical Strategy

While the insight of equation (24) is a general one, it can be applied to the evidence proposed in the Figures 1-5. In this case, the relevant asymmetry I will concentrate on is the asymmetry between the liberalization of trade in manufacturing versus services. My empirical strategy can be conceived as being composed by three stages.

Constructed Home Bias. In the first stage, I propose some measures of impediments to trade in manufacturing and services. A major challenge here is how to capture over time the liberalization in service trade. In Barattieri (2014) I propose the use of the constructed home bias index (CHB), first proposed by Anderson and Yotov (2010) as a convenient way to capture the dynamics of trade frictions. The CHB index is a pure number and it express how much more a country is trading with itself in a given sector, relative to what it would do if the world were frictionless. Obviously, this definition requires to define a benchmark of what would be trade in the case of a frictionless world. The structural gravity model

[6] Allowing endowments to change would likely make present and future relative output in the two countries important determinants of the current account. This would also indicate the importance of the evolution of productivity in the different sectors over time. In this paper I'm shutting off this channel not because I do not recognize its importance, but just to focus more directly on the role of trade barriers.

[7] see for instance Lamy (2010).

[8] Obviously here the point is made only for savings.

contains such a prediction.

Following Anderson and Van Wincoop (2003), let X_{ij}^k be the total shipment from the origin country i to the destination country j in sector k, Y_i^k the total output of sector k in the origin country i and E_j^k the total expenditure in sector k in the destination country j (defined as output minus total exports plus total imports of country j in sector k). The structural gravity model can be expressed as follows:

$$X_{ij}^k = \frac{Y_i^k E_j^k}{Y^k} \left(\frac{t_{ij}^k}{P_j^k \Pi_i^k} \right)^{1-\theta_k} \tag{25}$$

where Y^k represents the world output of sector k and t_{ij}^k represents the bilateral trade cost of shipping a unit of sector k good from country i to country j. P_j^k and Π_i^k are the inward and outward multilateral resistance terms, which are in turn weighted averages of the bilateral trade costs t_{ij}^k.[9]

The equivalent expression for the internal trade would be:

$$X_{ii}^k = \frac{Y_i^k E_i^k}{Y^k} \left(\frac{t_{ii}^k}{P_i^k \Pi_i^k} \right)^{1-\theta_k}. \tag{26}$$

where X_{ii}^k is defined as output minus total exports. Equations (25) and (26) can be used to get a prediction of the amount of trade that would prevail in the absence of trade frictions. If $t_{ij}^k = 1$ for every country pair ij, in fact, then $\Pi_i^k = P_j^k = 1$, and $X_{ij}^k = \frac{Y_i^k E_j^k}{Y^k}$. In the case of internal trade, we get $X_{ii}^k = \frac{Y_i^k E_i^k}{Y^k}$.

Using (26), it is possible then to express the ratio of realized internal trade to the trade that would prevail in absence of friction as functions of observable variables:

[9]Defined as follows:

$$\begin{aligned} \left(\Pi_i^k\right)^{1-\theta_k} &= \sum_j \left(\frac{t_{ij}^k}{P_j^k} \right)^{1-\theta_k} \frac{E_j^k}{Y^k}, \\ \left(P_j^k\right)^{1-\theta_k} &= \sum_i \left(\frac{t_{ij}^k}{\Pi_i^k} \right)^{1-\theta_k} \frac{Y_i^k}{Y^k}. \end{aligned}$$

$$CHB_{ik} = \frac{\frac{Y_i^k E_i^k}{Y^k}\left(\frac{t_{ii}^k}{P_i \Pi_i}\right)^{1-\theta_k}}{\frac{Y_i^k E_i^k}{Y^k}} = \left(\frac{t_{ii}^k}{P_i \Pi_i}\right)^{1-\theta_k} = \frac{X_{ii}^k Y^k}{Y_i^k E_i^k}. \tag{27}$$

In this paper I use (26) to calculate the CHB index, differently from Barattieri (2014).[10] Using (26) allows to circumvent the need of using bilateral trade flows, and thus allows me to build CHB in services also for the period 1994-2000, which was not possible using the empirical strategy of Barattieri (2014) due to data constraints. The index has several advantages and some disadvantages. First, it is time varying. Second, the index allows the separation of the effects of changes in productivity (captured by the production data) from those determined by other frictions (such as transport costs and legal barriers). Third, the index is a number and thus invariant to the elasticity of substitution θ_k.[11] On the other hand, the index relies on the gravity model to determine the benchmark trade in case of no friction. I use (27) to compute the CHB in manufacturing and services for a sample of OECD countries plus the BRICS.

Relative Trade Liberalization. In order explore the correlation between current account dynamics and asymmetric trade liberalization expressed by (24), I also compute *relative trade liberalization measures*. I divide the sample into two groups: the "service-oriented" and the "manufacturing-oriented" countries. The division is based on the average revealed comparative advantage in services for the period considered.[12] Then, I compute for each country i a *relative liberalization measure* as the difference between the change in an average CHB of the sector where country i exports are concentrated and the change in country i CHB in the sector where it concentrates its imports:

$$(\hat{\tau}_t^h - \hat{\tau}_t^f) = \Delta \left[\sum_i \omega_i CHB_i^h\right]_t - \Delta CHB_{it}^f \tag{28}$$

[10]The two way of measuring the CHB, however, gives similar results. The correlation between the CHB in Manufacturing computed under the alternative methodologies (which in both cases was constructed for the period 1994-2009) is 0.90.

[11]I'm not aware of reliable estimates of θ_k the for the service sector.

[12]More on this later.

where h and f are respectively the sectors where exports and imports are concentrated. For instance for Germany, a goods-oriented country, h would be manufacturing while f would be services. For Spain, instead, a service-oriented country, h would be services and f would be manufacturing. ω_i are weights computed as the output shares of country i in total world output.

Current Account Dynamics. Armed with an estimate of the $(\hat{\tau}_t^h - \hat{\tau}_t^f)$, I then use it to explore the relation expressed by equation (24) between current account dynamics and asymmetric trade liberalization. I use the following econometric specification (in its more complete form):

$$\Delta \frac{CA}{GDP}_{it} = \eta_0 + \eta_1(\hat{\tau}_t^h - \hat{\tau}_t^f) + \sum_{s=1}^{S} \eta_{s+1}(\hat{\tau}_{t+s}^h - \hat{\tau}_{t+s}^f) + \psi Z_{it} + \delta_i + \delta_t + \epsilon_{it} \tag{29}$$

where I use the current relative trade liberalization indexes $(\hat{\tau}_t^h - \hat{\tau}_t^f)$ and S of its leads. Z_{it} is a set of time varying country level controls including openness, growth, GDP and per capita GDP, and a proxy for financial development. δ_i and δ_t are country and time fixed effects, aimed at controlling for fixed unobserved characteristics at country level and common trends over time. Finally, ϵ_{it} is an error term, which can be interpreted as measurement error in the dependent variable, supposed to be iid normally distributed with mean zero and variance σ_ϵ^2.

The empirical prediction of the model outlined in Section 2 would be to find $\eta_1 < 0$ and $\eta_s > 0$. Moreover, the model has a precise testable implication, namely that $\eta_1 + \sum_{s=1}^{S} \eta_{s+1} = 0$. I will test this prediction in the following Section.

4 Results

This Section contains the main empirical results of the paper, which are organized in the same way as the exposition of the empirical strategy. Some details on the data used and the data sources are contained in the data appendix.

Constructed Home Bias. Table 1 contains the results obtained by using (27) to build CHB indexes for service and manufacturing for 24 OECD countries and the BRICS. I report the level of the CHB in manufacturing and services in 1995 and 2008, as well as their percentage change over the period. Several observations stand out. First, both services and manufacturing CHB indexes decline over time in most countries. Notable exceptions are the U.S., which however has the lower level of CHB in both sectors, Japan and Germany. Second, the decline of CHB in manufacturing is greater than that of services in most countries.

In Figure 6 I report the yearly evolution of the CHB in Services in Germany and the evolution of the CHB in Manufacturing for Spain. Two features clearly emerge. First, a level effect. In Germany the CHB in services appears to be lower that the CHB in manufacturing in Spain. However, the evolution over time of the CHB reveal how in Spain the CHB for manufacturing is declining over time, while the CHB for services in Germany is increasing.

Figure 7 reports the evolution of the CHB in manufacturing for Portugal and Greece. Compared to Spain and Germany, the CHB for Portugal and Greece are much higher. On the other hand, we do see a lowering of the CHB for manufacturing in both countries, though the reduction is more pronounced in the case of Greece. Interestingly, in both case, there is a clear increase of the CHB in 2009.[13]

Relative Trade Liberalization. In order to compute measures of relative trade liberalization I first divide the countries of my sample in two groups: the "goods-oriented" and the "service-oriented" countries. In order to do so, I use an average of the Revealed Comparative Advantage in Services (RCA_SERV). RCA_SERV is simply an measure of relative export specialization, computed as the ratio of the service share in total export in a given country i divided by the service share in total export for the world as a whole. Clearly, an $RCA\_SERV > 1$ reveals a relative specialization in the export of services, while an $RCA\_SERV < 1$ would signal the contrary. Table 2 reports the average RCA_SERV for all the countries in the sample. Countries like Greece, Spain, Portugal or the UK display

[13]The extent to which this reflects an increase of the barriers to trade following the Great Recession is an interesting venue for future research.

high levels of revealed comparative advantage in the export of services, while countries like Mexico, Germany and Canada exhibit levels of RCA_SERV far below one.[14]

Once divided the countries in two groups, I can compute the relative trade liberalization using equation (28) for each country in the sample. Notice that this indicator is a difference between two changes. For a country i, it is the difference between the change of the trading partners' CHB in the sector of export specialization of country i and the change in the country i CHB in its importing sector. Hence, a positive number can reflect *either* that the CHB of the trading countries in the export sector of country i *increased by more* than country i own CHB in its importing sector, *or* that the country i own CHB in the importing sector *decreased by more* than the CHB of the trading countries in the export sector of country i. In both cases, a positive number signal a *higher relative trade liberalization*. Conversely, a negative number indicates a *lower relative trade liberalization* Figure 10 reports the average relative trade liberalization for four European countries. Interestingly, Spain, Portugal and Greece all features a positive average relative trade liberalization, while Germany display, on average, a negative relative trade liberalization. Table 3 reports the average relative trade liberalization measure for each country in the sample. We observe how all the BRICS countries are characterized by positive relative trade liberalizations, while countries like the U.S., Japan, and Germany are characterized by a negative relative trade liberalizations.

Current Account Dynamics. Table 4 reports the results obtained using equation (29). In the first column, I regress the change in the ratio of the current account over GDP on the contemporaneous relative trade liberalization measure. The coefficient, as predicted by the model, is negative, and highly statistically significant: a country tends to experience a deficit when the restrictions to trade in its import sector fall by more than those in its export sector. In the second column I use as a regressor only one leads of the relative trade liberalization, and as expected the coefficient is positive and statistically significant: a

[14]Importantly, this is an average over the entire period, and as such it might be endogenous. I will control how the results of the empirical analysis change when I exclude from the regression the countries that "switched" from an $RCA\_SERV > 1$ to an $RCA\_SERV < 1$ or viceversa. The results will be stronger when excluding those countries.

country tends to experience a deficit if in the future it expects the impediments to trade in its export sector to fall by more than the impediments to trade in its import sector. In the third column, I include both the current and up to three leads of the relative trade liberalization measure. The coefficient on the current measure is negative, while the coefficients on all the three leads are positive. However, only the first two leads display statistically significant coefficients. In the spirit of the model, I test whether I can reject the hypothesis that $\eta_1 + \eta_2 + \eta_3 = 0$, and I cannot reject it. The overall R-squared of the regression is modest (0.127), but non-negligible. In the fourth column, I insert time varying country level control, and the main results do not change substantially. The degree of openness displays a positive and statistically significant coefficient, while the coefficient on the the per capita gdp growth is negative and statistically significant. Once controlling for these two factors, the GDP, the GDP per capita and a measure of financial development do not seem to be strongly correlated with the change in the ratio of current account over GDP. In the fifth column I present the results obtained by inserting also time and country fixed effects. Again, there are no major changes to the core result. Finally, in the last column, I run the regression excluding those countries whose specialization in export changed significantly over the period considered.[15] Interestingly, the coefficients on the current and future relative trade liberalizations appears to be larger in this case. This is not surprising, since we are now focusing on the countries for which our division into "goods-oriented" and "service-oriented" is better targeted. Even in this last case, however, we cannot reject the hypothesis that the coefficients of the leads of the relative trade liberalization measures sum up to the coefficient of the current relative trade liberalization measure. Albeit the overall explanatory power of the relative trade liberalization is modest, I conclude that asymmetric trade liberalizations are indeed a driver of current account dynamics.

[15]The "switchers" countries are Czech Republic, Finland, Hungary, India, Ireland, Italy, Poland and Sweden.

5 Conclusion

In this paper, I propose a theoretical model where asymmetric trade liberalization can affect current account dynamics, and I test it using the case of the asymmetric trade liberalization in manufacturing and service trade that took place in the last two decades. I show empirical evidence that broadly support the main prediction of the model.

This paper has obvious policy implications for the process of global rebalancing in general, and for the rebalancing in Europe in particular. A further liberalization of trade in services might help countries like Spain, Portugal, Greece and the UK, to fully exploit their comparative advantage in the provision of services and thus helping their rebalancing process without the need to resort solely on draconian austerity measures, as the one implemented in the period 2010-2013.

While this is a fairly general insight, more research is clearly needed to clarify which particular services sectors might help the rebalancing process of deficit countries. These are likely to be different for the UK than for Portugal, Spain or Greece. Finally, an important point to stress is that there is not necessarily a direct link between the relative trade liberalization measures computed in Section 4 and policy action of specific countries. Take for example Germany and the case of tourism, where Germany exhibit a deficit with Greece, Spain and Portugal. Lowering the barriers to export of services in this particular case (every dollar of spending of a German tourist in Greece is an export of services from Greece to Germany) is not likely to involve more action from the German authorities than it could require it from the Greek authorities (for instance, in terms of fostering the learning of German in the operators of the tourism sector in Greece). This particular example makes clear how the passage from the theory and the evidence proposed in this paper to the reality of economic policies might be more subtle than it could first appear.

This paper leaves open several research questions. First, it would be interesting to be able to move to a fully bilateral specification of the testable equation of the model proposed in this paper. The limit here is the relative scarcity of data on bilateral current account balances. This limit, however, might be overcome in the future. Second, it is important to

study more the evidence for relative trade liberalization using finer disaggregated data, thus moving beyond the aggregate approach used in this paper. Lastly, it would be important to incorporate in the analysis also the study of foreign direct investments and foreign affiliate sales. I plan to pursue these venues of research in the future.

A Model Appendix

A.1 The Complete Log Linearized Model

I denote with a ˆ the percentage deviations from the symmetric steady state. So $\hat{x} = log\left(\frac{x}{x^*}\right)$, where x^* is the value of x at the symmetric equilibrium. Log-linearizing the model around the symmetric steady state described in the main texts gives us:

$$\hat{C}_2 = \sigma(1-\beta)\hat{r_1} + \sigma\hat{P}_1 - \sigma\hat{P}_2 + \hat{C}_1 \qquad \hat{C}_2^* = \sigma(1-\beta)\hat{r_1} + \sigma\hat{P}_1^* - \sigma\hat{P}_2^* + \hat{C}_1^* \tag{30}$$

$$\hat{B}_1 = \hat{p_1^h} - \hat{P}_1 - \hat{C}_1 \qquad \hat{B}_1^* = -\hat{P}_1^* - \hat{C}_1^* \tag{31}$$

$$\hat{C}_2 = \hat{p_2^h} - \hat{P}_2 + \frac{1}{\beta}\hat{B}_1 \qquad \hat{C}_2^* = -\hat{P}_2^* + \frac{1}{\beta}\hat{B}_1^* \tag{32}$$

$$\hat{C_t^h} = -\theta\left(\hat{p_t^h} - \hat{P}_t\right) + \hat{C}_t \qquad \hat{C_t^{h*}} = -\theta\left(\hat{p_t^h} + \hat{\tau_t^h} - \hat{P}_t^*\right) + \hat{C}_t^* \tag{33}$$

$$\hat{C_t^f} = -\theta\left(+\hat{\tau_t^f} - \hat{P}_t\right) + \hat{C}_t \qquad \hat{C_t^{f*}} = \theta\hat{P}_t^* + \hat{C}_t^* \tag{34}$$

$$\hat{P}_t = s_h\hat{p_t^h} + s_f\left(\hat{\tau_t^f}\right) \qquad \hat{P}_t^* = (1-s_h)\left(\hat{p_t^h} + \hat{\tau_t^h}\right) \tag{35}$$

$$s_h\hat{C_t^h} + (1-s_h)\left(\hat{\tau_t^h} + \hat{C_t^{h*}}\right) = 0 \tag{36}$$

$$\hat{B}_1 + \hat{B}_1^* = 0 \tag{37}$$

A.2 Solution

In order to solve the model, I plug into equation (36) the home and foreign version of equation (33) for period one. I then substitute in the resulting equation the Price indexes and the aggregate consumption levels using the period 1 budget constraints (31) and the Price index definitions (35). This gives me an equation in two unknowns, from which I derive an expression for $\hat{p_1^h}$ as function of $\hat{\tau_1^h}$, $\hat{\tau_1^f}$ and $\hat{B}_1$:

$$\hat{p_1^h} = \gamma_1\left(\hat{\tau_1^h} - \hat{\tau_1^f}\right) - \beta\gamma_0\hat{B}_1 \tag{38}$$

Where I defined the following parameters (some of the signs are valid only under the restriction $\theta > 1$):

$$\begin{aligned}
\alpha_0 &= \frac{s_h - s_f}{\beta} > 0 \\
\alpha_1 &= s_f s_h(\theta - 1) > 0 \\
\alpha_2 &= 2\alpha_1 + s_f > 0 \\
\gamma_0 &= \frac{\alpha_0}{\alpha_2} > 0 \\
\gamma_1 &= -\frac{\alpha_1}{\alpha_2} < 0
\end{aligned}$$

Moreover, It is easy to show how:

$$\hat{P}_1 - \hat{P}_1^* = \gamma_2 \left(\hat{\tau_1^h} - \hat{\tau_1^f} \right) - (s_h - s_f)\beta\gamma_0 \hat{B}_1 \tag{39}$$

with $\gamma_2 = (s_h - s_f)\gamma_1 - s_f < 0$.
Repeating the same procedure for period two, I get a very similar expression:

$$\hat{p_2^h} = \gamma_1 \left(\hat{\tau_2^h} - \hat{\tau_2^f} \right) + \gamma_0 \hat{B}_1 \tag{40}$$

and

$$\hat{P}_2 - \hat{P}_2^* = \gamma_2 \left(\hat{\tau_2^h} - \hat{\tau_2^f} \right) + (s_h - s_f)\gamma_0 \hat{B}_1 \tag{41}$$

Plugging back equations (38)-(41) into equation (23) after rearranging and defining

$$\eta = -\frac{\beta \left(\gamma_1 + (\sigma - 1)\, \gamma_2 \right)}{2\,(1+\beta) + \beta\gamma_0\,(1+\beta)\,[1 + (s_h - s_f)\,(\sigma - 1)]} > 0 \tag{42}$$

gives equation (24) in the main text. From Equation (42) is possible to derive the restriction on the intertemporal elasticity of substitution that makes η a positive number (given $\theta > 1$). In particular, it has to be $\sigma > 1 - \frac{\frac{\alpha_1}{\alpha_2}}{(s_h - s_f)\frac{\alpha_1}{\alpha_2} + s_f}$

B Data Appendix

The data sources used in this paper are several. The data used for Figures 1-6 are taken from the World Bank World Development Indicators (WDI). WDI is the source also for the controls used in the empirical analysis: the GDP, the real gdp per capita, the gdp per capita growth, the real gdp the private credit over GDP. In order to build the CHB indicators, I used production as well as trade data for services and manufacturing. The data on trade in services come from the Trade in Service Database, developed by Francois and Pindyuk (2013) using OECD, Eurostat and IMF data. The data for trade in manufacturing are taken from the UN-Comtrade database. The data on gross output at the sectoral level, from the OECD-STAN database, is available only for few countries. The output data at the sectoral level for the BRICS are obtained using OECD-STAN input output matrices in order to convert value added into output values for manufacturing and total services. Using the same procedure for Germany, Japan and the United States, I obtained estimates of the output values whose correlation with the raw data is of the order of 0.98.

These data constraints limit the sample of countries to 24 OECD countries plus the BRICS (Austria, Brazil, Canada, Switzerland, China, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Hungary, India, Ireland, Israel, Italy, Japan, Korea, Mexico, Norway, New Zealand, Poland, Portugal, Russia, South Africa, Sweden, UK, US).

References

[1] Anderson, James E. and Yoto V. Yotov. 2010. "The Changing Incidence of Geography." *The American Economic Review* vol. 100(5): 2157-86.

[2] Anderson, James E. and Van Wincoop, Eric. 2003. "Gravity with Gravitas: A solution to the Border Puzzle." *The American Economic Review.* vol 93(1), pp 170-192.

[3] Barattieri, A. 2014. "Comparative Advantage, Service Trade, and Global Imbalances." *Journal of International Economics* Vol. 92: 1-13.

[4] Blanchard, Olivier and Gian Maria Milesi-Ferretti. 2009. "Global Imbalances: In Midstram?." *IMF staff position note* SPN/09/29.

[5] Blanchard, Olivier and Francesco Giavazzi. 2002. "Current Account Deficits in the Euro Area: the End of the Feldstein Horioka Puzzle?." *Brookings Papers on Economic Activity.* vol 2002 (2), pp 147-186.

[6] Caballero, Ricardo J., Emmanuel Farhi, and Pierre-Olivier Gourinchas. 2008. "An Equilibrium Model of 'Global Imbalances' and Low Interest Rates." *The American Economic Review.* 98: 358-93.

[7] Engels, Charles and John Rogers. 2006. "The US Current Account Deficit and the Expected Share in World Output." *The Journal of Monetary Economics.* vol 53 (July). pp 1063-1093.

[8] Francois, Joseph and Olga Pindyuk. 2013 "Consolidated Data on International Trade in Services," IIDE Discussion Papers 20130101, Institute for International and Development Economics.

[9] Gruber, Joseph and Steve Kamin. 2009. "Do differences in Financial Development Explain the Global Pattern of Current Account Imbalances?." Review of International Economics. vol. 17. pp.667-688.

[10] Hausmann, Ricardo and Frederico Sturzenegger. 2006. "Global Imbalances or Bad Accounting? The Missing Dark Matter in the Wealth of Nations." Harvard CID w.p. 124.

[11] Jin, Keyu. 2012. "Industrial Structure and Financial Capital Flows." *The American Economic Review*, 102(5): 2111-46.

[12] Ju, Jiandong, Shi, Kang and Shang-Jin Wei. 2012. "Trade Reforms and Current Account Imbalances: When Does the General Equilibrium Effect Overturn a Partial Equilibrium Intuition?." NBER w.p. 18653

[13] Laibson, David and Johanna Mollerstrom. 2010. "Capital Flows, Consumption Booms and Asset Bubbles: A Behavioural Alternative to the Saving Glut Hypothesis." *The Economic Journal*, vol. 120(544), pages 354-374

[14] Lamy, Pascal. 2010. "Comparative Advantage is Dead? Not at All." Speech at the Paris School of Economics. 12 April 2010. Available at on-line at http://www.wto.org/english/news_e/sppl_e/sppl152_e.htm

[15] Mendoza, Enrique G., Vincenzo Quadrini, and Jose-Victor Rios-Rull. 2009. "Financial Integration, Financial Deepness, and Global Imbalances." *The Journal of Political Economy.* 117 (3): 371-416.

[16] Obstfeld, Maurice and Rogoff, Kenneth. 2001. "The Six Major Puzzle in International Macroeconomics: Is There a Common Cause." NBER Macroeconomic Annual, vol 15. pp 339-390.

Table 1: **CHB, Manufacturing and Services**

Sector	MANUF	MANUF	MANUF	SERV	SERV	SERV
Time	1995	2008	Δ%	1995	2008	Δ%
AUT	63.01	40.91	-0.35	99.86	112.08	0.12
BRA	33.87	27.02	-0.20	32.09	31.44	-0.02
CAN	24.46	23.57	-0.04	43.42	35.26	-0.19
CHE	47.55	37.56	-0.21	74.91	76.19	0.02
CHN	13.78	4.00	-0.71	41.78	10.58	-0.75
CZE	200.51	56.64	-0.72	417.64	203.34	-0.51
DEU	7.33	6.74	-0.08	10.32	13.89	0.35
DNK	84.81	52.38	-0.38	130.80	113.09	-0.14
ESP	30.24	23.28	-0.23	42.86	32.14	-0.25
FIN	110.14	91.45	-0.17	198.65	175.50	-0.12
FRA	12.66	13.03	0.03	15.55	16.13	0.04
GBR	14.95	16.20	0.08	20.02	13.72	-0.31
GRC	192.71	157.32	-0.18	199.27	141.30	-0.29
HUN	278.33	52.28	-0.81	538.44	300.42	-0.44
IND	49.00	25.29	-0.48	82.94	36.43	-0.56
IRL	87.40	76.97	-0.12		101.15	
ISR	182.56	143.13	-0.22		206.42	
ITA	14.77	14.30	-0.03	21.83	20.32	-0.07
JPN	4.13	7.71	0.87	4.96	11.66	1.35
KOR	22.46	18.45	-0.18	57.02	55.38	-0.03
MEX	49.54	28.30	-0.43	96.46	61.68	-0.36
NOR	142.09	107.53	-0.24	165.69	120.60	-0.27
NZL	283.67	281.00	-0.01	336.92	344.93	0.02
POL	125.12	44.11	-0.65	204.08	96.94	-0.53
PRT	130.43	122.36	-0.06	220.62	214.17	-0.03
RUS		29.78		62.18	30.12	-0.52
SWE	58.18	48.99	-0.16	90.85	88.68	-0.02
USA	3.37	3.93	0.16	2.93	3.00	0.02
ZAF	128.28	118.54	-0.08	155.14	142.92	-0.08

Table 2: **Average Reveled Comparative Advantage in Services**

Country	AV. RCA. SERV.
GRC	3.175
GBR	1.575
ESP	1.563
DNK	1.526
ISR	1.501
AUT	1.436
USA	1.390
IND	1.378
PRT	1.360
IRL	1.310
NZL	1.249
NOR	1.170
CHE	1.154
FRA	1.090
SWE	1.072
POL	0.992
ITA	0.978
HUN	0.956
FIN	0.889
CZE	0.889
JPN	0.732
ZAF	0.730
KOR	0.729
DEU	0.696
CAN	0.638
BRA	0.611
RUS	0.538
CHN	0.529
MEX	0.399

Table 3: **Average Relative Trade Liberalization Indexes**

Period	1995-2009
AUT	0.018
BRA	0.016
CAN	0.011
CHE	0.015
CHN	0.108
CZE	0.044
DEU	-0.022
DNK	0.029
ESP	0.030
FIN	0.011
FRA	0.007
GBR	-0.002
GRC	0.016
HUN	0.022
IND	0.060
IRL	0.012
ISR	0.007
ITA	-0.003
JPN	-0.058
KOR	-0.003
MEX	-0.017
NOR	0.020
NZL	0.002
POL	0.066
PRT	0.010
RUS	0.022
SWE	0.012
USA	-0.012
ZAF	0.008

Table 4: **Relative Trade Liberalization and Current Account**

Dep. var: $\Delta\frac{CA}{GDP_t}$	(1)	(2)	(3)	(4)	(5)	(6)
$(\hat{\tau}^h - \hat{\tau}^f)_t$	-4.906***		-5.826***	-4.478***	-4.103***	-6.153***
	(0.918)		(0.960)	(1.025)	(1.173)	(1.561)
$(\hat{\tau}^h - \hat{\tau}^f)_{t+1}$		2.477***	3.666***	3.912***	3.864***	5.169***
		(0.953)	(1.039)	(1.024)	(1.107)	(1.410)
$(\hat{\tau}^h - \hat{\tau}^f)_{t+2}$			1.928*	2.524***	2.274**	2.688**
			(1.024)	(0.955)	(1.023)	(1.289)
$(\hat{\tau}^h - \hat{\tau}^f)_{t+3}$			0.609			
			(0.966)			
OPENNESS				0.906**	3.949***	5.476**
				(0.430)	(1.497)	(2.258)
Real P.C. GDP				-0.096	-5.050	-0.843
				(0.117)	(4.287)	(5.428)
Real GDP				0.233**	5.123	1.356
				(0.106)	(4.299)	(5.504)
Real P.C. GDP Growth				-0.162***	-0.272***	-0.250***
				(0.047)	(0.068)	(0.084)
CREDIT				-0.004	-0.009	-0.009
				(0.002)	(0.006)	(0.006)
R-squared	0.062	0.017	0.127	0.157	0.247	0.327
N	433	404	346	369	369	265
P-value of Test						
$\eta_1 + \eta_2 + \eta_3 = 0$			0.87	0.24	0.31	0.48

Standard Errors in Parenthesis

*,**,*** Statistically Significant at 10%, 5% and 1%

Figure 1: **Current Account Balance Divergence in Europe**

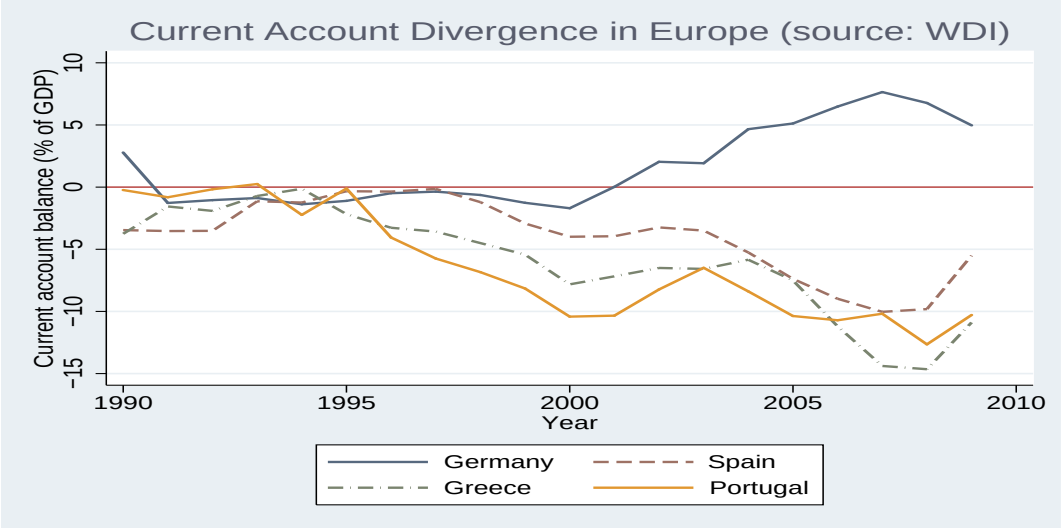

Figure 2: **Decomposition of the Trade Surplus of Germany**

Figure 3: **Decomposition of the Trade Deficit of Spain**

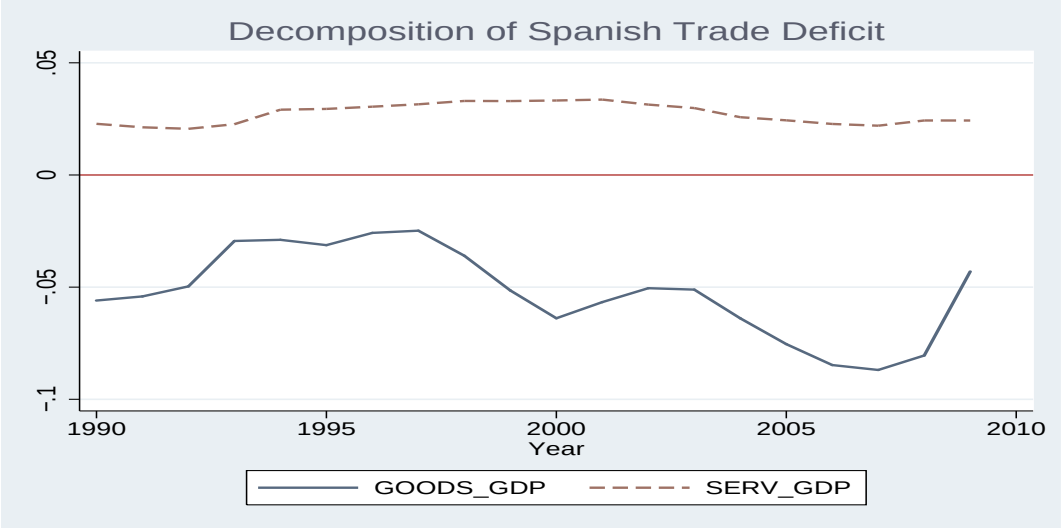

Figure 4: **Decomposition of the Trade Deficit of Portugal**

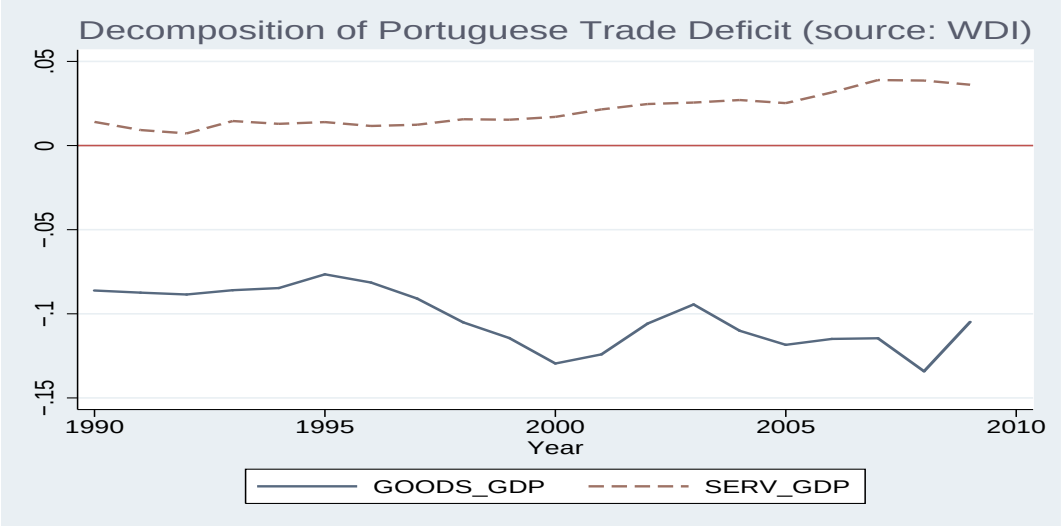

Figure 5: **Decomposition of the Trade Deficit of Greece**

Figure 6: **Specialization in Manufacturing and Current Account Surplus**

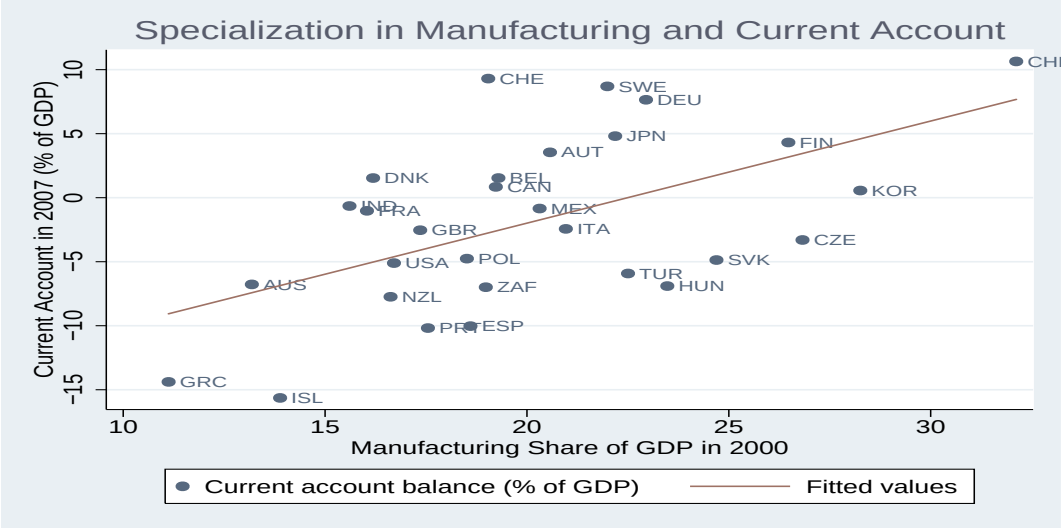

Figure 7: **Constructed Home Bias Index, Manufacturing (ESP) and Services (DEU)**

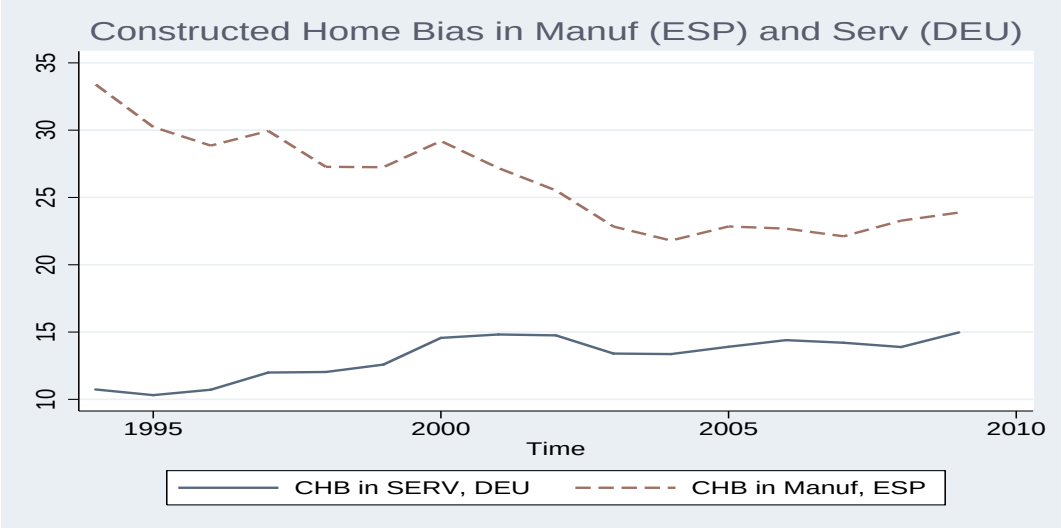

Figure 8: **Constructed Home Bias Index, Manufacturing (ESP) and Services (DEU)**

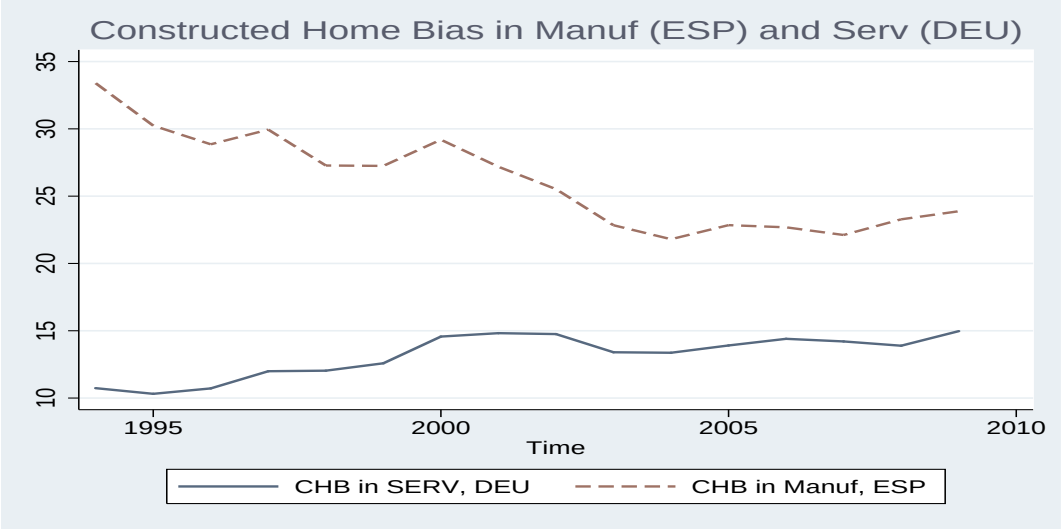

Figure 9: **Constructed Home Bias Index, Manufacturing (PRT and GRC)**

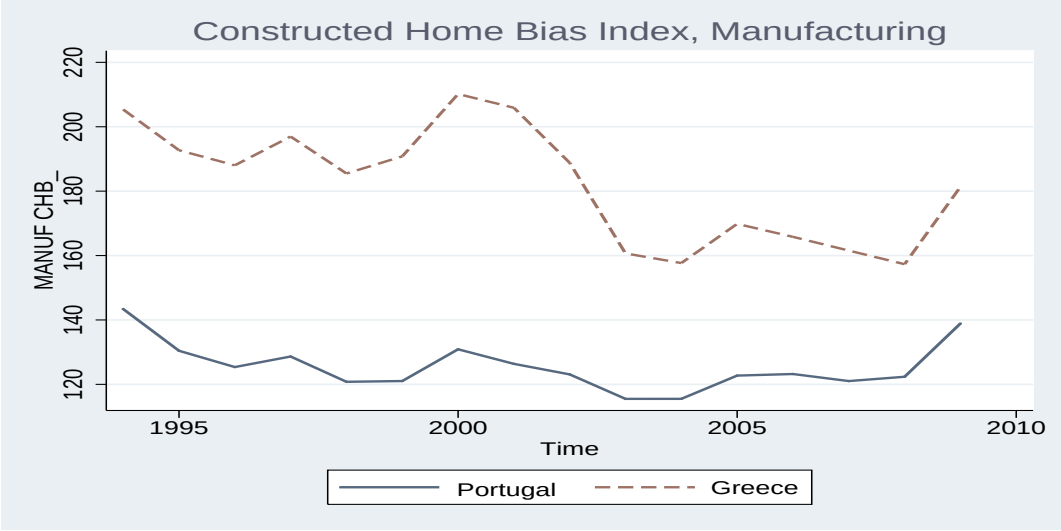

Figure 10: **Change in Relative Protection, Average 1995-2009**