External Imbalances in the European Union and International Fragmentation of Production: Is There a Link?

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Abstract

In this paper we assess whether the expansion of international fragmentation of production (IFP) and the creation of production linkages among European countries are (partly) responsible for the persistent trade imbalances registered within the European Union (EU) area in the past decade. Even if exporting intermediate and semi-finished goods and re-importing finished and assembled goods can give rise to a trade deficit (both in gross terms and in value added terms) for countries in the upstream parts of the international production chain, this international re-organization of production allows countries to improve their competitiveness (both in terms of cost reduction and in terms of technological improvements) and to gain access (even indirectly) to new export markets, with ambiguous effects on the trade balances. Using the recently released WIOD database on international production linkages, we analyze the existing relationship between IFP and trade imbalances, controlling for other factors that have affected international trade flows.

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1   Introduction

The rapid increase of international trade in intermediate and semi-finished goods in the past twenty years has been studied extensively in the international trade literature in order to understand how the shift from trade in final goods to this "vertical trade" affected trade patterns and specialization of countries (see for example Deardorff, 2001; Hummels et al. 2001; Yi, 2003). Intermediate goods are estimated to represent today over half of total goods' trade and over two thirds of services' trade (Miroudot and Ragousiss, 2009). The growing relevance of trade in intermediate goods is directly related to the expansion of international fragmentation of production (IFP), or the development of international production chains stretching across different countries, where the various production phases and the creation of value added for a given final good is taking place in different locations. This phenomenon, initially studied especially for the U.S., has become increasingly relevant also for the European Union (EU) countries, affecting both extra-EU and intra-EU trade relations (Egger and Egger, 2005; Baldone et. al, 2007). In particular, both the deep integration process that accompanied the introduction of the single European currency and the enlargement of the EU to the Central and Eastern European Countries (CEECs) fostered the integration of production processes across the EU, giving rise to extensive intra-European production chains.

IFP and the high share of intermediate goods on overall trade flows lead to partially revise the traditional measures of trade flows across countries and the related indices of comparative advantage (Deardorff, 2005, Baldone et. al, 2007, Stehrer, 2012, Koopman et al., 2012), but generally less attention has been devoted to the implications of this type of trade for countries' trade balances. There are at least two very relevant implications to consider in this respect. First of all, from the accounting point of view, the presence of trade in intermediates and of international production chains means that for a given country its gross trade balance and trade balance in terms of value added at the bilateral level need not to be the same in magnitude or even in sign. Observing the trade balances in terms of value added and taking into account the role of intermediates can modify the understanding of trade balances' effects on growth, employment and international income distribution (Timmer et al., 2013). Secondly, the extent and form of participation of a country to the global value chain might affect the amount of its exports and imports well beyond the business cycle effects, thereby affecting its trade balance. As awareness of the growing impact of IFP on trade flows, and thereby on trade balances, grew, some international projects (WIOD, OECD-WTO, GTAP, UNCTAD, IDE-JETRO) begun to develop specific measures of trade

balances in terms of value added, now available for a subset of countries.

These macroeconomic effects of IFP started to be discussed recently also in the international economics literature, prompted by the widening trade imbalances and sharp trade fluctuations registered before and during the global crisis (Escaith and Gonguet, 2009, Escaith et al., 2010, Levchenko et al. 2010, Gopinath and Neiman, 2011, Falzoni and Tajoli, 2012). For over a decade, macroeconomic data show a large and widening increase in the current account imbalances all over the world, as if some structural global change had occurred. The problem was exacerbated by observing that right before the burst of the 2008 crisis some countries' balances had become a reason of serious concern. The issue might play a role also for the European countries. As the financial tensions affected more seriously the EU countries, it became apparent that one of the dimensions of the EU problems is the persistent difference in its members' trade balances. In fact, while the EU as whole vis--vis the rest of the world has a nearly balanced trade, its member states appear quite differentiated in this respect (Guerrieri and Esposito, 2012).

The aim of this paper is to explore the possible relationship between these persistent trade imbalances of the EU countries and the expansion of the phenomenon of IFP within Europe. There is no clear a priori effect of IFP on a country trade balance: on the one hand, considering a specific country pair in the global value chain, exporting intermediate and semi-finished goods and re-importing finished and assembled goods can give rise to a trade deficit (both in gross terms and in value added terms, but with different values) for the country in the upstream parts of the international production chain, while it can originate a trade surplus for downstream countries. On the other hand, if this international re-organization of production allows countries to improve their competitiveness (both in terms of cost reduction and in terms of technological improvements) and to gain access (even indirectly) to new export markets, the effect on trade balances can be positive. Using an IFP indicator obtained from the WIOD database, we therefore test empirically the relationship for the EU countries, to assess which effect prevails. Our results show that offshoring indices used to measure the involvement of a country in IFP are generally associated with positive trade balances, supporting the existence of a relationship between the two, and the presence of a pro-competitiveness effect.

The structure of the present paper is as follows. The next section illustrates some descriptive evidence of trade balances and offshoring in the EU. Section 3 provides our empirical estimation of the relationship between offshoring and current account balances. Section 4 concludes.

3

2 Trade balances and offshoring in the EU

As mentioned, in the years before the global financial crisis, the EU as a whole has remained relatively close to external balance, while the current account (CA) balances and the competitive positions of individual member countries have widely diverged. The picture after the creation of the Euro (2002-2007) and before the crisis shows a clear divide in the Euro area between surplus-Northern countries (Austria, Belgium, Germany, Finland, Netherland and Luxembourg) and deficit-Southern countries (Portugal, Greece, Spain, Italy plus Slovenia, Slovakia and Ireland, with France mainly in balance). It is worth noting in particular, that the scale and persistence of the imbalances was much greater than in earlier decades, ranging from -14% to +8% in 2002-2007 compared to the -5% to +7% of the previous decade (see Fig. 1). Including other EU countries (non-Euro Area), again we see Northern countries (Sweden, Denmark) running large surpluses while some Eastern countries run large deficits (Hungary, Czech Republic, Poland), with the UK running only a small deficit.

This pattern of imbalances within the euro area and its persistence has been explained by "traditional" macroeconomic factors (Guillemette and Turner, 2013), but these explanations are only part of the story. As discussed by Chen et al. (2012), the two main explanations refer to the rising financial integration among euro area countries that increased financial flows toward the area debtor countries, and to wage and price rigidities of this same group of countries. Both effects brought about a significant real effective exchange rate appreciation in many Southern countries (even if to a different extent). Therefore, the external divergence is directly related to a steady widening of differences in the competitive positions of the two groups of countries. But Chen et al. (2012) show that trade and financial flows between the euro area countries and the rest of the world also played an important role in explaining the different external imbalances, as the impact of trade developments with countries outside the euro area has been highly asymmetric. For example, the effects of Chinese competition or of integration wih Central and Easter Europe have been quite different, because of the different models of specialization of the European countries (see also Dieppe et al., 2012).[1]

Our analysis moves precisely from these considerations, looking at one specific asymmetry in the international trade linkages of European countries, their involvement in international fragmentation of production and in

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[1] Even less traditional analysis of CA imbalances in the euro area consider the issue of the relative competitiveness of countries as a crucial one. See Collignon, 2013.

global value chains, which impacts directly on countries' international position. Here we measure each country's level of IFP using a variation of the index that has become standard in the literature, the narrow offshoring index.[2] The aggregate offshoring index is given by the following expression:

$$OFFIND_{it} = \frac{\sum_j \sum_s import^i_{js}}{\sum_j input^i_j} \qquad (1)$$

where i is the reporting country (in our case, a member state of the EU), t is time, s is the partner from which a country imports intermediate goods, j is a country's intermediate goods sector.

The data used to build our measure of international fragmentation of production (or intermediate goods trade) come from the World Input-Output Database (WIOD) recently released within a project founded by the Seventh Framework Programme of the European Commission. The database is built on national accounts statistics, national Input-Output tables and national Supply-Use tables for 40 countries (among which the EU27 countries), for the period 1995-2009. In particular, it provides domestic and international input-output flows at two digits.[3] Even if imperfect, this measure is considered a good starting point to assess a country's involvement in the global value chain.[4]

As shown in Table 1, the offshoring index presents relevant variations across EU members. The different values of the index can be the result of a combination of factors: the extent of international fragmentation of production used by local firms and the involvement of the country in international production chains, the position of a country within such international production chains, and the dependence of a country's manufacturing system on imported inputs. Therefore these indexes should be read with care. In any case, on average, the level of IFP measured through this index appears quite relevant for all the EU countries, and with a slight increasing trend over the

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[2]Our index is based on the so called 'narrow offshoring', commonly used in the literature to measure the weight of imported intermediate inputs belonging to sector j and employed for production in the same sector, originally introduced by Feenstra and Hanson (1996), and subsequently improved thanks to the use of input-output tables for imports. We take the aggregate measure by summing up by sectors and by partners, so that our numerator is the sum of the value of all intermediate goods imported by all intermediate goods' sectors of country i from all sectors of all partners' country s (including the Rest of the World aggregate), while at the denominator we have the total value of all intermediate inputs used in production in all sectors of country i.

[3]For a detailed description of the dataset, see Stehrer, 2012.

[4]One aspect that this index does not allow to capture is the upstream or downstream position of a country in the production chain, which might be relevant in affecting its overall international position. See Antrs et al., 2012.

past decade for most countries. Table 1 also reports the offshoring index computed using intermediate inputs imported only from high wage countries (most of them European), and only from low wage countries.[5] It appears that for the EU countries in our sample, intermediate inputs are imported mainly from high wage countries, but the relative importance of the two groups also varies.

This general observation on the relevance of IFP for the European countries is confirmed by other indicators used to assess this phenomenon. Recent analyses undertaken using the WIOD database to compute countries' involvement in global value chains using the foreign content of their export indicate that the involvement of European countries in international production chains has increased, and it remains quite strong at the European regional level (Amador et al., 2013). On average, well over 10% of the value added in exports of a euro area country is originated in another euro area country, and the share increases to over 15% considering value added coming from all EU members. Overall, the foreign value added content of the Euro area exports was above 21% in 2011. This average summarizes quite different involvements of EU members. Confirming what is already apparent in the offshoring indices, also the foreign value added content of exports show high variations across countries, going from 36% for Ireland to 16% for France (Amador et al., 2013). Also the change over time did not follow the same trend for each country: Italy and Germany experienced a strong growth in the foreign content of exports, while countries like Greece and Portugal experienced a reduction. But for euro area countries, in the past decade supply linkages within the euro area maintained their relative importance, with little geographic re-orientation toward other parts of the world.

These strong intra- and extra-EU production linkages have certainly affected import and export flows of EU countries and their trade balance. Countries' international competitiveness, in addition to macroeconomic factors, is in fact strictly related to countries' specialization and to the organization of production. IFP, by affecting the organization of production (Grossman and Rossi-Hansberg, 2008; Timmer et al., 2013), can certainly affect competitiveness, both through direct cost effects (Baldone et al., 2002), or through productivity effects (Olsen, 2006). This is why we proceed to analyze the relationship between CA balance and IFP.

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[5]The sum of the offshoring index from the two groups does not coincide with the total index of offshoring, as in the WIOD database a share of imported inputs does not have a defined geographical origin and it comes from the "rest of the world".

3 Estimating the relationship between offshoring and trade balances

3.1 The empirical framework

We use two sources of data. As mentioned, our measure of international fragmentation of production is based on WIOD Database recently released, and it is the index described in (1). In the first set of regressions, we have considered an aggregate index of offshoring for each EU27 reporting country, so the index is given by the ratio of the total value of intermediate goods imported by all sectors of country i from all partners s, i.e. the total value of intermediate goods imported by country i, over the total use of intermediate goods by country i at time t. Since we are interested in the relationship between a country's involvement in the global value chain - proxied by the offshoring index - and a country's current account balance, we build a dataset to estimate a standard model of current account determination, by using national data provided by Eurostat. We focus on EU27 Countries for the period 1999-2009.

As a first step, we check the correlation between our offshoring indicator and EU countries' current account balances by estimating the following simple regression:

$$\mathsf{CA_{it}} = a_0 + a_1 \mathsf{OFFIND_{it}} + u_{it} \tag{2}$$

where CA_{it} is country i current account at time t expressed as a ratio to GDP and $OFFIND_{it}$ is our international fragmentation of production measure as in 1.

As a second step, we consider a standard empirical model of current account determination (see, for instance, Lane and Milesi-Ferretti, 2012). The following empirical specification is considered

$$\mathsf{CA_{it}} = a_0 + a_2 \mathsf{X_{it}} + u_{it} \tag{3}$$

where the dependent variable is as in (2) the country i current account balance at time t expressed as a ratio to GDP and X_{it} is a vector of explanatory variables. We follow the literature on current account determination (Lane and Milesi-Ferretti, 2012, Ca' Zorzi, Chudik, Dieppe, 2012) in considering the following potential determinants of current accounts:

- as for demographic variables, we consider the total population and the population growth rate, which is expected to have a negative sign as a positive demographic trend tends to increase aggregate consumption in

the short run; we also include the old-age dependency ratio as the ratio of people older than 65 years to the population aged between 15 and 64, the sign of which is also expected to be negative, since a country with a relatively high share of economic dependent population is expected to have a lower level of national saving and therefore a lower CA balance;

- fiscal balance, as a percentage of GDP; several recent models show potential lines along which a departure from the Ricardian equivalence is possible and predict a positive relationship between government budget balances and current account in the medium term, e.g. the 'twin deficits' idea;

- real GDP growth rate, capturing catching up factors, is usually expected to have a negative sign, since the higher the real GDP growth, the higher the income expected in the future, and the higher the current consumption;

- income per capita, measured as GDP in Purchasing Power Standard (PPS) per inhabitant, again capturing catching up factors. This variable is expected to have a positive relationship with the CA balance since the lower the income per capita the larger the current account deficits expected in the catching up process;

- investment, i.e., gross capital formation as a share of GDP, is usually expected to be negatively associated with the CA balance since the higher the current investment the higher the growth rate expected in the future, on the one hand, and the higher the current demand, on the other hand, both ways worsening the CA balance;

- real effective exchange rate as a measure of a country competitiveness is expected to have a positive relationship with the CA balance (the sign of the coefficient should be negative in our case depending on how the exchange rate if defined);

- net external debt (expressed as a share of the GDP), according to the literature, should have a positive sign as this variable should capture the effect of foreign capital inflows, which can negatively affect the CA;

- energy products balance (values of net export of energy products [6] as a share of GDP) is usually expected to have a positive relationship with the CA balance.

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[6]We use the aggregated group G27 - Mineral Fuels, Mineral Oils and Products of their distillation; Bituminous substances; mineral waxes.

In the third step, we check whether the relationship between a country's current account over GDP and the offshoring index estimated in (2) is robust to the inclusion of all the regressors usually considered as the main determinant of current account balances, i.e., the regressors considered in (3) listed above. We then construct the following model:

$$CA_{it} = a_0 + a_1 OFFIND_{it} + a_2 X_{it} + u_{it} \qquad (4)$$

where the dependent variable is, as in both (2) and (3), the country i CA balance at time t expressed as a ratio to GDP, X_{it} is the vector of explanatory variables as in (3) and $OFFIND_{it}$ is our international fragmentation of production measure as in (1).

3.2 Results

As reported in Column 1, Table 2 below, by estimating equation (2) over the period 1999-2009 for the EU27 countries, with the inclusion of country and time fixed effects, a positive and significant relationship between a country's CA balance and its offshoring index emerges.[7] In particular, 1% of offshoring is related to an improvement of a country's current account as a ratio of GDP by 7 percentage points, and the relationship is significant at the 5%. The positive relationship between the offshoring index and the current account shows that importing more intermediate inputs is not necessarily correlated to a worsening of the CA, and it could indeed be that countries more involved in the global value chain are more likely to get competitiveness advantages and therefore to have a better perfomance in the current account balance.[8]

We then turn to analyse the main determinants of current account balances for the same set of countries in the same time period, by carrying out the estimation of the model in (3); results are reported in Column 2, where again country and time fixed effects are included. First of all it is worth noting that our R-squared is in line with that of the other mentioned contributions analysing current accout determinants like Lane and Milesi-Ferretti (2012). Our results show that investment and net foreign debt are significantly and negatively and positively, respectively, related to EU countries' current account. This is in line with the results of the literature, as reported in the previous section.

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[7]In what follows we will use the term 'CA balance' to refer to its ratio with the GDP.

[8]This result is in line with the evidence reported by Beltramello et al. (2012), showing a positive relationship between the 1995-2007 growth in imported intermediates and the growth in exports of final products.

In Column 3 we show the results of estimation of the model in (4), where we include among the current account determinats our main variable of interest, i.e. the offshoring index in (1). As one can see the main results reported for the estimation of the previous model still hold; moreover, a negative relationship between GDP growth rate and current account balance turns significant. More important for the focus of this paper, results show that the relationship of the offshoring index with the current account balances observed in model (2) is robust to the inclusion of all the main determinants of current account balances taken into account by previous empirical contributions. By including all the control variables listed above the coefficient of the offshoring index decreases, but it is still significant at the 10% level.

In Column 4 are reported the results of our preferred specification, where we estimate the model in (4) by checking not only for time correlation like in the previous regressions, but for both time and spatial correlation, by correcting standard errors following Driscoll and Kraay (1998). This is particularly relevant since we are considering EU27 countries which in the decade considered have been involved in a process of economic and policy integration. Also in this case, the previously obtained results still hold. In particular, we show that the fiscal balance, the GDP per capita, and the net external debt are all significantly and positively related to a country's current account, while the investment ratio on GDP is negatively correlated with it. These results are in line with those of the previous contributions on current account determinants. The same applies to the signs of the other regressors which are nevertheless not significant in our estimations, like the real effective exchange rate, the rate of population growth, the energy balance and the GDP growth rate (which, nevertheless, was significant in the previous estimations and with the expected negative signs). It is worth noting that our analysis, by including country fixed effects, is exploiting a within country - over time variability, which could be not so high for the variables considered in EU27 countries in the period considered. This may explain the fact that some of the determinants of current account are not significant in our results. The only exception in sign with respect to the previous works is the dependency ratio, that is to say, the ratio of old population over total active population: according to the previous literature, the expected sign of relationship between this ratio and the current account is negative, due to the fact that old people are supposed to save less. Our results show that this ratio is positively and significantly related to the current account. This result can be due to some specificity of the EU countries and their institutional system, i.e., both the welfare state system and the financial system, in which the relationship between age and saving, and therefore between dependency ratio and current account, could be mediated by several factors which are usually less relevant

10

and therefore not considered in the literature dealing with current account balances analysing both developed and developing countries.

As for our main variable of interest, i.e. the offshoring index, is still positively related with the current account balance and it becomes even more significant. Our analysis shows overall that an increase in the offshoring index of 1% is related to an improvement of the current account balance on GDP of almost 4 percentage points on average. This relationship is robust to the inclusion of all the regressors usually considered by the literature and to different estimation techniques. This result seems to confirm that the access to foreign factors of productions, foreign knowledge and technology and, indirectly, the access to foreign markets by means of foreign imported inputs improves a country's competitiveness, overcoming the negative effect of larger imports.

In order to further test this "competitiveness effect" related to IFP, we also run our preferred specification splitting the offshoring index according to the origin of the imported intermediate inputs, low-wage and high-wage countries. Results are reported in Table 3. While the signs and significance of the macroeconomic variables associated to the CA do not change, results show that the sign of the correlation between the CA balance and the offshoring index crucially depends on the type of offshoring partner. Offshoring from high wage countries is significantly associated to an improvement of the CA, even when controlling for our set of CA determinants. Instead, offshoring from low-wage countries, even if it should have a less negative direct effect on the CA, because of its lower value, is associated with a worsening of the CA. The same sign switch is observed when running the regression over the sub-sample of Central and Eastern EU countries (Table 4). These results confirm that what is captured through the offshoring index is not a simple import effect. *Per se,* more imports of intermediate inputs enter into the CA balance with a negative sign, but if some specific inputs are imported, there can be a competitiveness effect that overcomes the negative one.

4   Conclusion

In this paper we start exploring the potential relationship between the current account imbalances of the EU countries and the expansion of the phenomenon of IFP within Europe. We build an indicator of a country's involvement in the global value chain, i.e., an offshoring index obtained from the WIOD database and we test empirically this relationship for the EU countries in the period 1999-2009.

Our results show that indeed IFP is a relevant component of EU countries'

CA, as the offshoring index is significantly correlated to the CA balance in our observation period. In particular, offshoring is positively associated with CA balances, supporting a pro-competitiveness effect of this organization of production. The relationship is robust to the inclusion of the main determinants of current account balances in the EU (which present the signs in line with the literature on current account determinants), to country and year fixed effects, and to allowing general forms of spatial correlation in the countries' error terms, which is relevant due to the high political and economic integration of the EU area.

In the future work, we plan to develop other measures of a country's involvement in the IFP, taking into account for instance the possible position of a country in the production chain, as well as specific offshoring indices at the industry level.

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13

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Table 1: Offshoring in EU countries (average index for 2007-2009)

Country	Offshoring index (total)	Offshoring index from high-wage partners	Offshoring index from low-wage partners
Luxembourg	60.83	54.21	4.08
Malta	43.81	29.73	6.37
Hungary	43.77	26.53	10.69
Ireland	43.65	34.36	4.57
Lithuania	38.99	10.62	8.54
Slovakia	38.36	16.84	11.44
Belgium	37.74	28.49	4.48
Netherlands	34.75	20.32	4.89
Slovenia	34.48	22.11	5.54
Cyprus	33.25	18.66	6.72
Bulgaria	32.78	12.41	8.77
Estonia	32.73	16.94	7.61
Denmark	32.50	23.16	4.87
Austria	30.69	18.50	6.96
Czech Republic	30.66	17.96	8.59
Greece	30.19	15.78	4.24
Sweden	28.20	17.99	4.84
Romania	25.51	12.94	6.75
Latvia	25.46	10.27	8.70
Finland	24.75	13.26	4.55
Poland	24.14	14.71	4.57
Germany	23.54	12.89	5.94
Portugal	23.29	15.56	2.46
United Kingdom	17.76	11.05	2.73
Spain	17.39	9.34	3.55
France	17.32	10.71	2.40
Italy	16.69	8.13	2.60

Notes. The offshoring index is computed for each year as in (1) and we computed the simple average for the years 2007-2009. High-wage countries include Austria, Belgium, Luxemburg, Netherland, Sweden, Denmark, Spain, Finland, France, UK, Italy, Germany, Ireland, Japan, Korea, Australia, USA, Canada. Low-wage countries (countries whose nominal wage is less than half the average EU wage) include Bulgaria, Czech Rep., Hungary, Estonia, Lithuania, Latvia, Poland, Portugal, Romania, Slovakia, Slovenia, Turkey, Brazil, Mexico, India, China, Taiwan, Indonesia.
Source: Our elaborations on WIOD database.

Table 2: Models of Current Account Balance determinants

	(1)	(2)	(3)	(4)
dependency ratio		0.543	0.524	0.524***
		(0.546)	(0.543)	(0.137)
fiscal balance		0.217	0.214	0.214***
		(0.171)	(0.171)	(0.043)
gdp growth		-0.235	-0.248*	-0.248
		(0.142)	(0.144)	(0.173)
gdp per capita		0.000	0.000	0.000***
		(0.000)	(0.000)	(0.000)
investment		-0.882***	-0.874***	-0.874***
		(0.126)	(0.127)	(0.106)
reer		-0.008	-0.011	-0.011
		(0.047)	(0.047)	(0.019)
total population		-0.000	-0.000	-0.000
		(0.000)	(0.000)	(0.000)
population growth		-0.194	-0.246	-0.246
		(0.636)	(0.619)	(0.419)
net external debt		0.009**	0.010**	0.010***
		(0.004)	(0.003)	(0.003)
energy balance		82.766	96.539	96.539
		(124.230)	(125.448)	(80.318)
offind	0.073**		0.039*	0.039***
	(0.030)		(0.019)	(0.013)
R-squared (a)	0.173	0.684	0.686	0.686
N	296	222	222	222

* p<0.10 ** p<0.05, *** p<0.01

Notes. Dependent variable: Current Account balance as a ratio to GDP. All models include year and country fixed effects. Standard errors in models (1), (2) and (3) are clustered by country. In column (4) Driscoll-Kraay standard errors, which are robust to general forms of spatial correlation, are reported. (a): within R-squared.

Table 3: Current Account Balance determinants by type of offshoring partner

	(1)	(2)
dependency ratio		0.447***
		(0.124)
fiscal balance		0.238***
		(0.051)
gdp growth		-0.243
		(0.166)
gdp per capita		0.000***
		(0.000)
investment		-0.850***
		(0.088)
reer		0.000
		(0.018)
total population		-0.000***
		(0.000)
population growth		-0.265
		(0.422)
net external debt		0.010***
		(0.003)
energy balance		97.674
		(58.979)
offind to low wage	-0.605	-0.769***
	(0.557)	(0.237)
offind high wage	0.278**	0.244***
	(0.106)	(0.068)
R-squared (a)	0.192	0.706
N	296	222

* p<0.10 ** p<0.05, *** p<0.01

Notes. Dependent variable: Current Account balance as a ratio to GDP. All models include year and country fixed effects. Standard errors in models (1) are clustered by country. In column (4) Driscoll-Kraay standard errors, which are robust to general forms of spatial correlation, are reported. (a): within R-squared.

Table 4: Current Account Balance determinants in EU Eastern Countries

	(1)	(2)
dependency ratio		-0.346
		(0.440)
fiscal balance		0.202
		(0.127)
gdp growth		-0.150
		(0.171)
gdp per capita		0.001*
		(0.000)
investment		-0.940***
		(0.105)
reer		0.027
		(0.048)
total population		-0.000
		(0.000)
population growth		-1.298***
		(0.207)
net external debt		-0.005
		(0.053)
energy balance		185.106
		(118.475)
offind to low wage	0.027	-0.994***
	(0.761)	(0.247)
offind to high wage	0.421**	0.373***
	(0.158)	(0.093)
R-squared (a)	0.444	0.891
N	110	76

* p<0.10 ** p<0.05, *** p<0.01
Notes. Dependent variable: Current Account balance as a ratio to GDP. All models include year and country fixed effects. Standard errors in models (1) are clustered by country. In column (4) Driscoll-Kraay standard errors, which are robust to general forms of spatial correlation, are reported. (a): within R-squared.

Figure 1: Current Account balance in % of GDP, 1999-2009
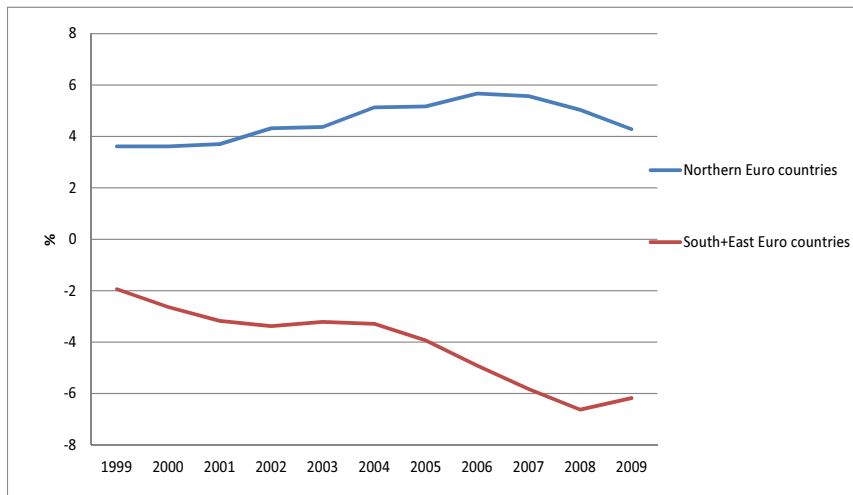
Source: our elaborations on Eurostat database.
Note: Northern Countries include Austria, Belgium, Germany, Finland,
Netherlands, Luxemburg, while South and Eastern Countries include Portugal,
Greece, Spain, Italy, Slovenia, Slovakia, Ireland and France. The graph displays
the simple average for each group.