II. The role of FDI in preventing imbalances in the euro area ([13])

The recent crisis has revealed the unsustainability of large debt-financed negative external positions. Foreign direct investment is a more stable financing option for the current account because in general it is not debt-generating and has positive effects on the productivity of the recipient economy. After reviewing the determinants and mechanisms driving total FDI, this focus section goes on to look at the composition of FDI. Tradable sector FDI has the potential to improve the trade balance by stimulating exports. Policies that can attract FDI in tradable sectors are therefore highly desirable. The empirical analysis identifies wages and education as the two main determinants of this type of FDI in the euro area. The quality of business-relevant infrastructure and distance from important industrial centres are also components that boost the proportion of FDI in the tradable sector.

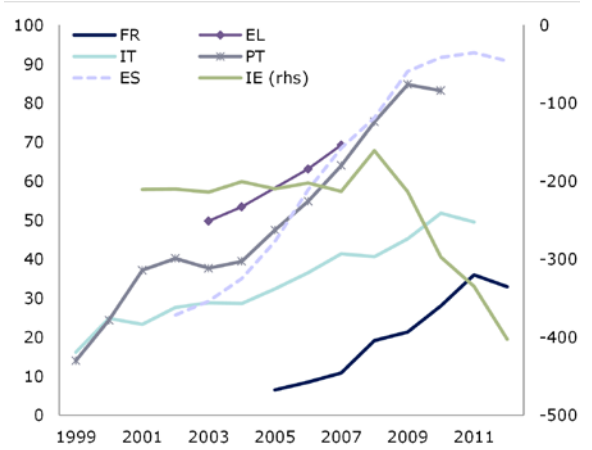
II.1. Introduction

The ability of countries to attract foreign direct investment (FDI) is affected on the one hand by geographical proximity to important potential source countries, quality of infrastructure (e.g. transport and communication networks and business facilitating infrastructure) and labour skills, and on the other by costs relating to labour and taxes. With EU enlargement, existing Member States gained access to new customers in countries which were geographically closer to the old industrial centre and where costs were considerably lower. These factors may go some way towards explaining why FDI has flowed into some of these new Member States in the pre-crisis decade, whereas for others, in particular those considered vulnerable, but not only, inward FDI has decreased substantially. As well as the volume of FDI, the type of FDI is also of interest. In a process of macroeconomic re-balancing and growth promotion shadowed by external sustainability concerns, non-debt-creating cross-border capital flows increase in importance. The role of FDI, and the degree to which it falls short of potential levels, is therefore an important factor in the growth prospects of a number of euro-area countries, in particular the most vulnerable.

A number of euro-area countries experienced large current-account deficits leading to deteriorating external debt positions prior to the 2007-08 financial crisis. Since then, there has been a substantial correction in these deficits. However, the sustainability of external positions (measured by the net international investment position, or the net external debt, as shown in Graph II.1) remains a pressing issue.

Graph II.1: **Net external debt (1)**

(1999-2012, % of GDP)



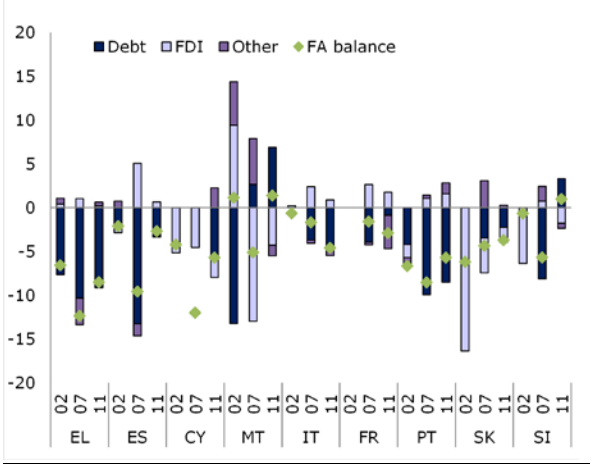
(1) Net external debt is the subset of the net international investment position that excludes equity and financial derivatives; it is calculated as liabilities minus assets.
Source: Eurostat.

Graph II.2 plots the net contributions of debt and FDI in the financing of the current account balance in a number of euro-area countries in 2002, 2007 and 2011 (last available data). The graph shows data for the countries which had persistent deficits in the first decade of the century. A positive/negative number indicates a current-account surplus/deficit position and net FDI or debt outflows/inflows. For some euro-area countries (Greece, Spain, Portugal and Italy), debt has been the biggest component of the external deficit. At the same time, low FDI in these countries was a significant negative factor affecting the sustainability of their external position. For others, e.g. Malta, Slovakia and to a lesser extent Cyprus, FDI also made an important contribution to financing the current-account deficit. FDI also accounted for a large proportion of external financing for non-euro Member States such as Bulgaria, Romania, Latvia and Lithuania.

([13]) Section prepared by Maria Demertzis and Peter Pontuch.

Graph II.2: **Financing the current account (1)**

(% of GDP)



(1) Debt is defined as other investment plus portfolio investment, debt securities. Columns do not add up to the FA balance if component data are missing.
Source: Eurostat.

As countries in the euro-area periphery are seeking to redress imbalances and reduce their liabilities in a period of low growth prospects, FDI is becoming increasingly important as a potential driver of growth. This is because it is a non-debt-creating liability, but also because it is typically more productive than internal investments, given the types of firm that engage in it. ([14]) Evidence suggests that a **one percentage point** increase in the ratio of FDI **inflows** to GDP in the EU Member States increases the growth rate by **more** than one percentage point (between **1.2** and **1.5 pps**) in the medium term.([15]) This high multiplier is due to the direct effect of FDI on aggregate demand and to its second-order effect on total investment and productivity. At the same time, FDI inflows are not without risk. For example, inflows may be subject to abrupt breaks which, though not representing reverses *per se*, can be very disruptive to productive processes.

([14]) Helpman, E. (2006), 'Trade, FDI and the organisation of firms', *Journal of Economic Literature*, Vol. XLIV, September, pp. 589-630.
([15]) European Commission (2012), 'FDI flows and EU industrial competitiveness', European Competitiveness Report; 'Reaping the Benefits of Globalisation', Commission Staff Working Document 299.

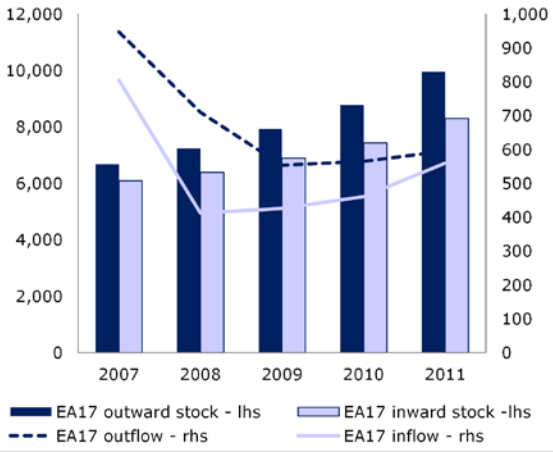
II.2. The role of FDI

FDI in the euro area

Although a major player in global FDI, the euro area (and the EU as a whole— see Graphs II.3 and II.4) has witnessed a significant **decline** in both inward and outward flows since the end of 2007, when the crisis hit. The flows and stocks of outward FDI by the euro area have remained above those of inward FDI.

Graph II.3: **Total outward and inward FDI**

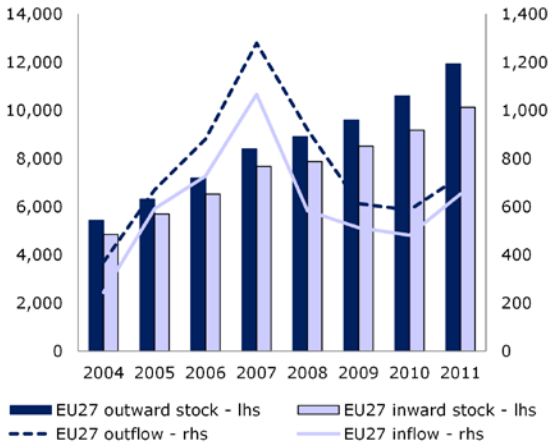
(stocks and flows, euro area, in EUR billion)



Source: Eurostat.

Graph II.4: **Total outward and inward FDI**

(stocks and flows, EU, in EUR billion)



Source: Eurostat.

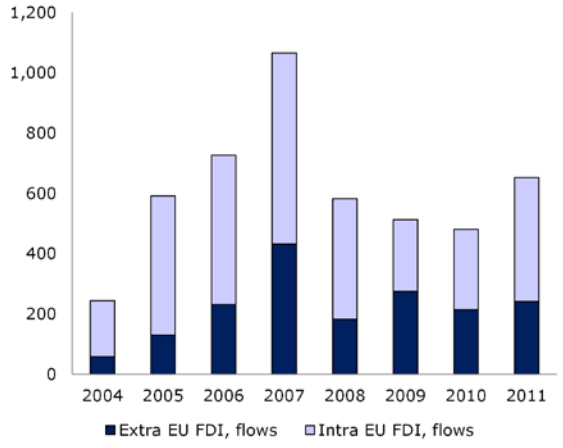
Graphs II.4 shows that European countries returned to 2005 nominal levels after the peak of

inflows in 2007. ([16]) This may reflect an adjustment towards new long-term levels after the exceptional enlargement-linked increase in 2005-07. As regards **outflows**, until recently EU capital invested abroad accounted for over half of the global total. Between 2009 and 2010, however, the proportion dropped to a third. ([17])

The largest share of FDI into EU Member States is from EU firms (intra-EU), and this is also the component that has seen the greatest decline since the end of 2007 (Graph II.5). Since inward flows into the EU are predominantly into euro-area countries (compare Graphs II.3 and II.4), Graph II.5 can also be seen as representative of developments in the euro area.

Graph II.5: **Inward FDI in the EU**

(extra- and intra-EU, in EUR billion)



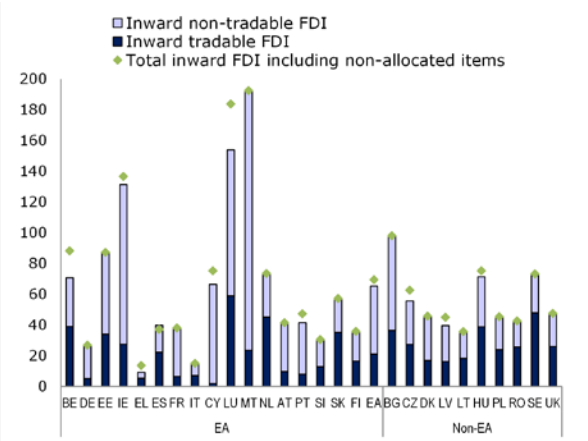
Source: Eurostat.

The main recipients of European outward FDI have been the US and the EFTA countries. Since 2007, EU and euro area firms have been less willing to invest inside the area and have sought destinations more resilient to the financial crisis. This comprises **emerging** and **transition** economies, including the 'BRICs', Turkey and Mexico. ([18]) Foreign firms'(from outside the EU), investments in the EU on the other hand, have not diverged substantially from historical standards.

This focus section goes beyond overall FDI trends to look also at the **sectoral breakdown.** It examines how inward FDI in euro area and other EU countries has evolved differently in the tradable and non-tradable sectors. ([19]) This is motivated by the different ways that inflows in these sectors may affect the external balance of each economy. On the one hand, export capacity is directly affected by inflows in the tradable sector. On the other hand, inflows in the non-tradable sector have only an indirect positive effect on exports, by increasing competition and lowering prices in sectors that produce input. They may even reduce exporting capacity by diverting resources away from tradables. Although FDI is beneficial in all its forms, shifting inflows from the non-tradable to the tradable sector could allow all benefits to be reaped while maximising the positive effect on the recipient country's external balance. It is thus important to identify the determinants of FDI in the tradable sector in order to adopt policies that promote them.

Graph II.6: **FDI in the tradable and non-tradable sectors (1)**

(stocks, 2010, % of GDP)



(1) Data for LU, IE exclude construction.
Source: Eurostat.

Graph II.6 plots the tradable and non-tradable components in total FDI stocks as a percentage of GDP in euro-area and other EU economies in 2010. The non-tradables represent the **biggest component** of FDI in most, but not all, euro area

([16]) Data availability problems do not allow showing data before 2007 in the case of the euro area.
([17]) European Commission, 2012, see footnote 15.
([18]) European Commission, 2012, see footnote 15. (BRICs: Brazil, Russia, India and China).
([19]) In line with convention, tradables are defined as: agriculture, mining, manufacturing, energy and utilities, trade, transport, accommodation and food services. The non-tradables are defined as information, communication, finance, other services, construction, and real estate.

countries. This is related to the importance of the banking sector in non-traded FDI. However, for a number of Member States, e.g. Belgium, the Netherlands and Slovakia (where many large export-oriented multinationals are based), the stock of FDI in tradable sectors dominates. Outside the euro area, the stock of FDI in tradables also dominates in the Czech Republic, Hungary, Sweden and the UK. ([20])

FDI appears to have recently (in 2010) **shifted** slightly from the tradable to the non-tradable sector. This is the case for Slovakia, but also for Ireland, France, Cyprus and Malta, and outside the euro area for Bulgaria, the Czech Republic, Lithuania, Hungary and Poland.

In what follows, a closer look is taken at what influences total FDI and the **scope of policy** for affecting it.

Determinants of total FDI

Before turning to an analysis of the benefits and determinants of FDI in the tradable sector, it is useful to review the main determinants of total FDI (tradable and non-tradable) as identified in the economic literature. Why do companies decide to service a foreign market by producing locally, rather than through trade (exports), or to locate production abroad? What are the factors that encourage a firm to invest in a particular location or discourage it from doing so?

To understand the drivers of FDI, the issue should be looked at from two sides. First, that of the **firm** that is considering to invest abroad: what are its motives and are there any inherent characteristics that favour such a decision? Second, from the side of the **destination country**: how can a country attract foreign firms and encourage them to invest domestically?

When considering investing abroad, firms' motives typically include either gaining new markets or improving efficiency, primarily in terms of costs. The former is referred to as **horizontal** and the latter as **vertical** FDI. There is also FDI aimed at exploiting natural resources, which does not necessarily fall into either category. Over the years, however, this traditional classification has become less meaningful in practice, ([21]) as firms' sourcing strategies and multinationals' integration strategies have become more **complex**. Large multinationals seek to invest in countries that have low costs but then use them as platforms to serve other countries around the world. ([22]) In other words, they exploit efficiency gains and seek markets at the same time. It is this type of FDI that will be particular relevant for rebalancing in the euro area.

Regarding firms' inherent characteristics, evidence shows that firms that engage in FDI are typically larger and more productive than firms that export. In turn, exporting firms are larger and more productive than non-exporting firms. **Productivity** is therefore a crucial factor as firms shift from trading only in the domestic market to trading and possibly investing in foreign markets. A new theory has been developed to allow for a firm's productivity to be a key factor in its production and distribution decisions. ([23]) In this respect the structure of the firm is an important determinant in its decision to invest abroad.

Turning to the drivers of FDI from the point of view of the destination country, these can be roughly grouped into two categories: **gravity** and **policy-affected** factors. Gravity factors include the market size of the destination country and other relevant markets, proximity to the source country, language and cultural factors. Policy-influenced factors relate to the general macroeconomic and policy environment and include macroeconomic variables such as per capita income, credit risk and exchange rates. Variables that reflect the level of costs, e.g. production costs, taxes, tariffs, transport costs that add to (dis-)economies of scale, as well as a range of institutional factors, such as the level of education, infrastructure, the rule of law, rigidities, governance and enforcement of contracts, are also potentially important considerations. ([24]) Empirical studies show that market-seeking (horizontal) FDI is typically affected by the host country's market size, its potential to grow and the absence of market

([20]) Ideally, one would also look at the composition of flows, but many components are missing.

([21]) Helpman, E., 2006 (see footnote 14).

([22]) It is difficult to investigate this empirically as it requires data at the firm level. For an attempt in the case of Japan, see Baldwin, R. and T. Okubo (2012), 'Networked FDI: Sales and sourcing Pptterns of Japanese foreign affiliates', *CEPR Discussion Papers* 8963.

([23]) Melitz, M. (2003), 'The impact of trade on intra-industry reallocations and aggregate industry productivity', *Econometrica*, 71(6), pp. 1695-1725.

([24]) Bloniger, B.A. and J. Piger (2011), 'Determinants of foreign direct investment', *NBER Working Paper* 16704.

impediments (e.g. tariffs and transport costs). Efficiency-seeking (vertical) FDI is helped primarily by low-cost labour. ([25])

In the European context, the existence of cost advantages and a country's membership of the EU encourage investments. ([26]) Similarly, the evidence shows that being a member of the euro area, or having a clear timeline for joining it, has a positive impact in attracting FDI. This is because, for the most part, euro-area membership eliminates currency risk and promotes a stable macroeconomic environment. Naturally, there are differences between countries. The **corporate tax rate** appears to be important for many European countries. **Unit labour costs** play a major role in some of the more peripheral EU countries, including the 'new' Member States. More generally, however, a well-functioning domestic market and improvements in cost-competitiveness are crucial for attracting FDI.

It is only in the context of a specific country or sector that it is possible to identify which of these factors matter most. However, there is a consensus that gravity factors as a whole explain about 60 % of aggregate FDI, irrespective of the region. ([27]) This implies that policy can only partially affect the decision to invest in a foreign destination. Furthermore, the extent to which policies can be adjusted is limited by what neighbours and competitors do.

The impact of policies also depends on what is known as **thresholds effects**. ([28]) When a country first tries to attract foreign investors, there are a number of variables that are of crucial importance. Typically, these are gravity factors relating to culture or distance. As FDI increases, these factors become less relevant and are overtaken by concerns about costs or general macroeconomic conditions. Such threshold effects may also exist for other variables. For example, a minimum level of infrastructure and education may be required before FDI is even considered.

II.3. FDI in the tradable versus non-tradable sectors

This section looks at FDI in the two composite sectors (tradables and non-tradables) and asks two questions: does the composition of FDI matter for the trade balance and, if so, what can policy do to affect it?

The channels of transmission

There are two channels, **imports and exports**, through which sectoral FDI can affect the trade balance. ([29]) Both tradable and non-tradable FDI are associated with a temporary increase in demand that feeds into imports. However, the relationship between exports and FDI in the two sectors may differ. Foreign investment in the tradable sector may increase production capacity and thereby raise exports and reduce the deficit. The impact on exports of an increase in FDI in the non-tradable sector is however less clear-cut. On the one hand, the potential reallocation of capital and labour resources from tradables to non-tradables may depress export capacity and damage the external balance. On the other hand, FDI in non-tradables may increase competition in the economy and its overall efficiency. Although, by definition, the non-tradable sector does not contribute to an economy's exporting capacity, many non-tradables are inputs to tradables and efficiency gains in the sector may boost overall competitiveness. This indirect effect is, however, likely to be less strong than the direct effect of FDI in the tradable sector.

Overall, this analysis suggests that an increase in FDI in the tradable sector may be more beneficial to the trade balance (and therefore the current account). If redressing the current account balance is an important issue, which it currently is for a number of euro area countries, policies that promote FDI, in particular in tradable sectors, would facilitate the rebalancing process.

Before following an integrated approach to identify what affects FDI in the tradable sectors, one can

([25]) Campos, N.F. and Y. Kinoshita (2003), 'Why does FDI go Wwere it goes? New evidence from the transition economies', IMF, WP/03/228.

([26]) Competitiveness report (see footnote 15) and PriceWaterhouseCoopers (2010), 'Foreign direct investment in central and Eastern Europe: A case of boom and bust?', *Economic Views*, March, come to the same conclusion.

([27]) Demekas, et al 2005 from above as well as Feenstra, R.C., J.R. Markusen and A.K.Rose (2001), 'Using the gravity equation to differentiate among alternative theories of trade', *Canadian Journal of Economics*, Vol. 34, No. 2; Lim, E.G. (2001), 'Determinants of, and the relation between, foreign direct investment and growth: A summary of the recent literature', IMF, WP/01/175.

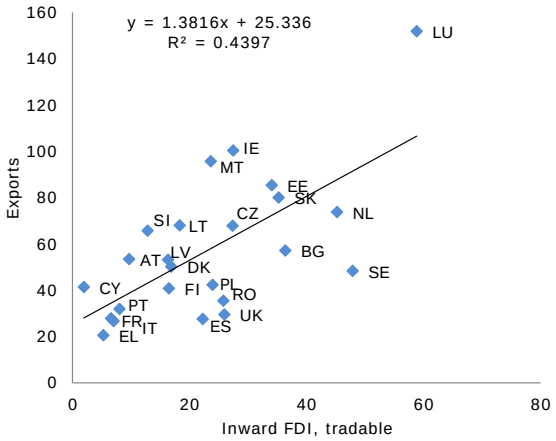
([28]) Demekas, D.G, B. Horvath, E. Ribakova and Y. Wu (2005), 'Foreign direct investment in Southeastern Europe: How (and how much) can policies help? ', IMF, WP/05/110.

([29]) Kinoshita, Y (2011), 'Sectoral decomposition and FDI and external vulnerability in Eastern Europe', IMF, WP/11/123.

take a first look at snapshots of relevant relationships. The data suggest that there is a strong positive correlation between FDI in the tradable sector and exports (see Graph II.7). Ignoring the data for Luxembourg, the relationship is almost one-to-one, i.e. a 1 % increase in the ratio of FDI inward stock in the tradable sector to GDP is associated with a 1 % increase in the ratio of exports to GDP in the medium term. This relationship also holds for pre-crisis years.

Graph II.7: **Exports and FDI in tradables**

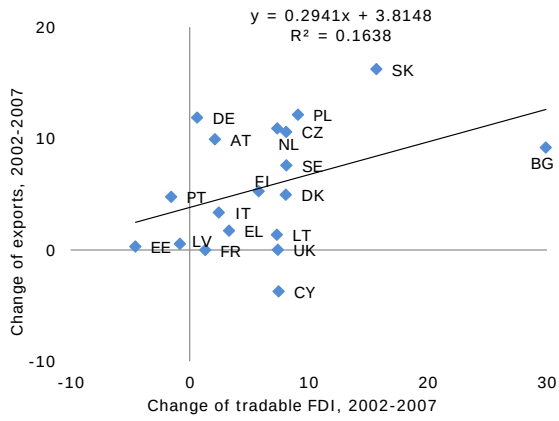
(2010, % of GDP)



Source: DG ECFIN based on Eurostat data.

Graph II.8: **Change of exports and FDI in tradables**

(2002-2007, % of GDP)



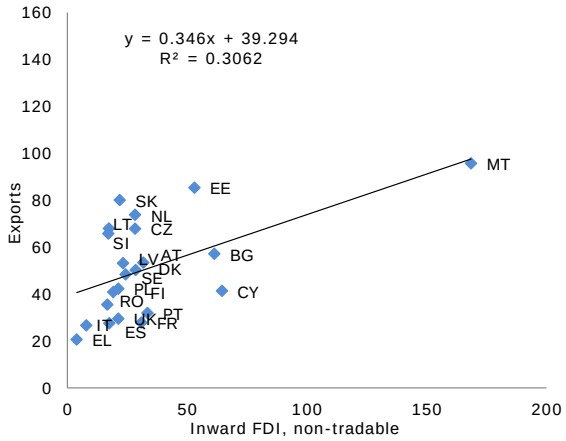
Source: DG ECFIN based on Eurostat data.

Moreover, this relationship remains positive as regards changes over longer periods. Graph II.8 shows changes for the period from 2002 to 2007 only, since variables in changes are more sensitive to big disturbances such as those experienced since then.

On the other hand, the link between exports and FDI in the non-tradable sectors, although positive, is much weaker in economic terms (see Graph II.9).

Graph II.9: **Exports and FDI in non-tradables**

(2010, % of GDP)



Source: DG ECFIN based on Eurostat data.

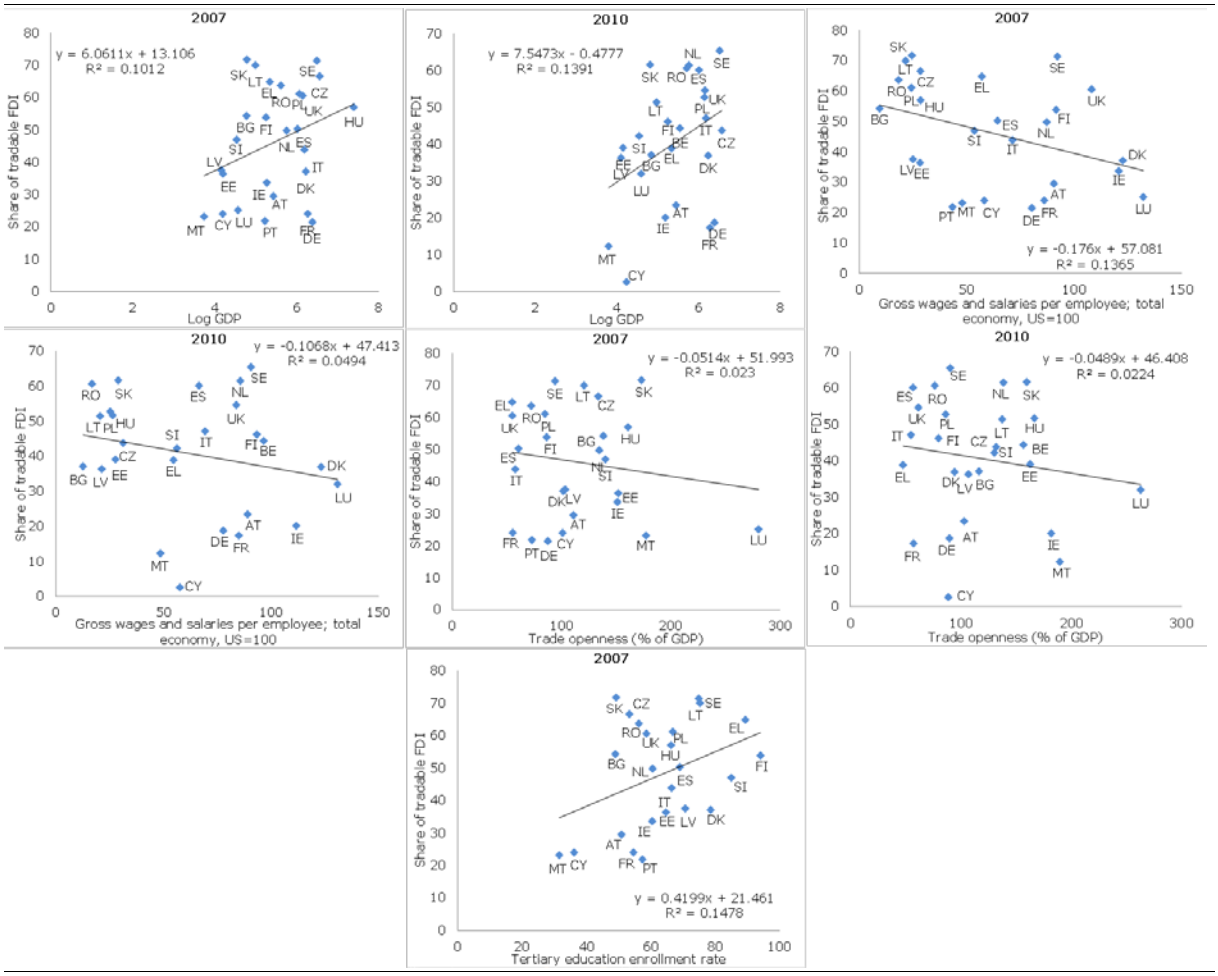
The relationship between imports and FDI in the two sectors is very similar. In this respect, FDI is no different from any other type of investment that has an immediate impact on imports. However, this negative effect (in terms of trade balance) is economically less significant than the effect on exports shown above.

Determinants of FDI in the tradable sector

As mentioned in the previous section, the determinants and effects of overall FDI have been studied extensively in the literature. The results shown above raise the obvious question as to which factors determine the choice of investing in tradable FDI.

Graph I.9 plots the relationship between **FDI in the tradable sector as a share of total FDI** and a number of candidate variables. These variables capture the size of the economy (log GDP), labour costs (wages), openness (exports plus imports as a proportion of GDP) and the level of education (completion of tertiary education as a percentage of the population). While these give an indication of the possible strength of the relationship, a proper

Graph II.10: **FDI in the tradable sector and its potential determinants**



Source: DG ECFIN calculations based on Eurostat data.

regression framework, the results of which shown in Table II.1, is needed to identify significant determinants. In addition to the variables mentioned above, a proxy for the quality of infrastructure (percentage electricity losses) ([30]) and the distance between Member State capitals and Düsseldorf are also used as regressors. ([31])

Table II.1 reports the results for the euro area, the whole of the EU and a subset of EU countries that excludes the 'core' members. ([32]) The results are broadly in line with standard conclusions in the literature and are summarised as follows: 1) wage moderation and higher education are two crucial factors in the decision to invest, as they determine the relative attractiveness of the destination country in terms of the cost-to-productivity ratio. This applies to euro-area countries as well as EU Member States in general; 2) a proxy for business infrastructure is relevant for both the euro-area sample and non-core countries; 3) the distance from the source country is relevant only for non-core countries.

However, the relevance of each factor differs between sectors or countries and depends on the existing level of foreign investment. The factors relevant for a country that is just beginning to attract foreign investment would be different from those relevant for one that is already an established FDI destination. Similarly, the levels of different variables also matter. For example, as it increases in quality, the level of infrastructure may also increase in relevance in terms of determining FDI. In other

([30]) Electricity losses have often been used as a proxy for business-related infrastructures; see, for example, Ahmed S. and Ghani E., (2007), 'South Asia, growth and regional integration: an overview', in 'South Asia, growth and regional integration', Ahmed S. and Ghani E. (eds), The World Bank.

([31]) cf. Kinoshita 2011 (see footnote 29). This variable captures proximity to Germany and is a proxy for the distance between countries, relevant in trade. Ideally, one would need to incorporate the pair-wise distance between countries as done in gravity equations.

([32]) See notes in Table I.1 for country composition of the two groups.

words, it is useful to investigate whether **threshold** effects exist. The econometric analysis shows that threshold effects are present in the case of the level of infrastructure although not for the other determinants of FDI in the tradable sector. The results for the infrastructure variable are presented in Graph II.11-II.13.

Table II.1: **FDI in the tradable sector and its determinants (1)**

	Dep. var.: FDI_Tradables/Total FDI		
Variable	EA	EU	Sub-group +
Log (Real GDP)	7.627***	2.899**	1.240**
	(0.01)	(0.05)	(0.02)
Log (Wages)	-19.225***	-15.028***	-13.541***
	(0.00)	(0.00)	(0.00)
Trade Openness	0.261	0.028	-0.072**
	(0.08)	(0.75)	(0.04)
Enrolment in tertiary	0.501***	0.404***	0.280**
education	(0.00)	(0.00)	-0.03
Distance to Dusseldorf	5.112	-1.55	-8.381***
	(0.37)	(0.73)	(0.01)
Infrastructure	-1.436***	-0.641	-0.767***
(electricity losses)	(0.01)	(0.11)	(0.00)
Constant	-16.623	57.611	104.169***
	(0.79)	(0.15)	(0.00)
Time dummies	Yes	Yes	Yes
N	115	217	136
No of Instruments	21	21	21
hansenp	n/m	0.179	n/m

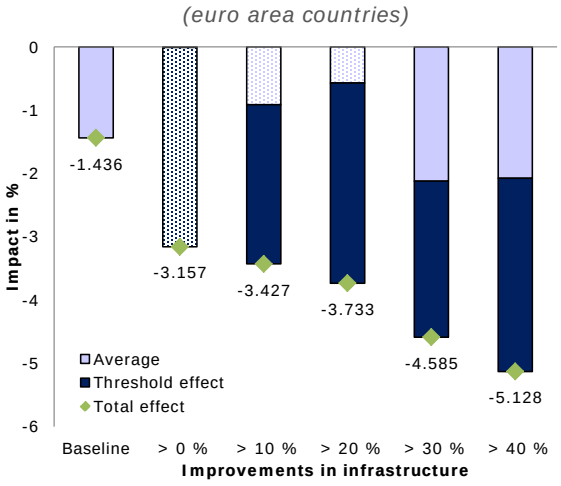
(1) Panel data, 1990-2011, EU26 and EA16 (LU omitted), estimated using system GMM; p-values in brackets; + all countries except: AT BE DE DK FI FR IT NL SE UK; ***,** significance at the 1 and 5 per cent level. Hansen p-value not reported when equal to 1, due to the high number of instruments.
Source: DG ECFIN calculations based on Eurostat data.

Table II.1 shows that the effect of a unit reduction in electricity losses in the euro area (i.e. an increase in the quality of business-relevant infrastructure) is equal to an increase by 1.44 units in the share of FDI in the tradable sector. This represents an average effect across all countries in the euro area and is found to increase if substantial infrastructure improvements had been made since the start of the period. Countries that have had an at least 10 per cent improvement in the quality of their infrastructure had an equivalent effect of 3.43. In other words, with a further one unit improvement, FDI in the tradable sector in these countries will increase by 3.43 units, more than twice the original impact. (33) The effect also increases with further infrastructure improvement: for a 20 % improvement, it is 3.73, for 30 % it is 4.59 and for 40 % it is 5.13. We also note that the effects described are significant in statistical terms.

(33) This effect is captured with a multiplicative dummy on the variable of infrastructure. The starting period is 1995.

Graph II.11 summarises the effects for the euro area and presents a breakdown of the impact between what is due to the average overall effect and what is the additional effect due specifically to the improvement thresholds considered.

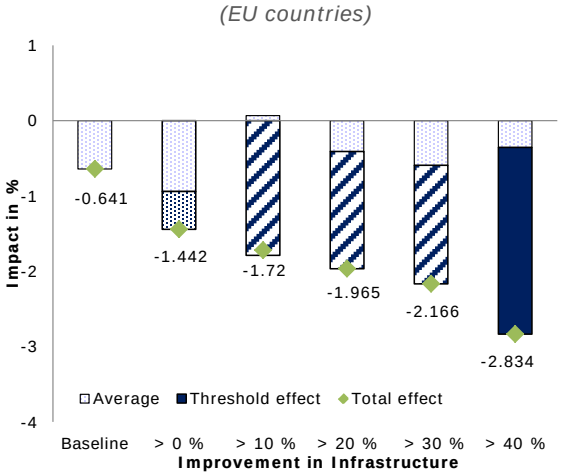
Graph II.11: **Impact of infrastructure improvements on tradable sector FDI (1)**



(1) Solid fill represents significance of the coefficient at the 1 % level, striped fill at 5 %, dotted fill represents a non-significant coefficient.
Source: DG ECFIN.

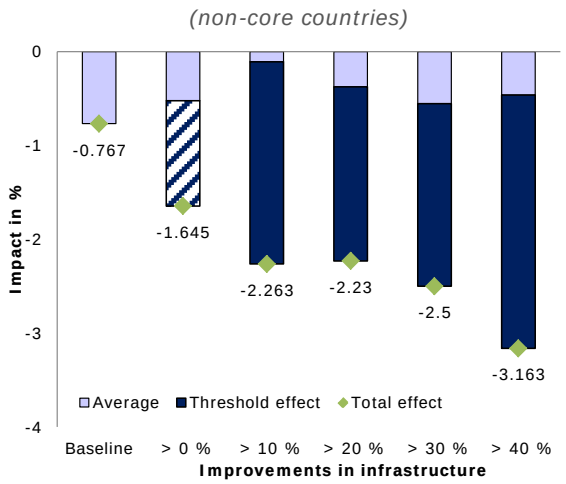
A very similar picture arises for the EU as whole as well as for the sub-group of peripheral countries (Graphs II.12 and II.13 respectively).

Graph II.12: **Impact of infrastructure improvements on tradable sector FDI (1)**



(1) Solid fill represents significance of the coefficient at the 1 % level, striped fill at 5 %, dotted fill represents a non-significant coefficient.
Source: DG ECFIN.

Graph II.13: **Impact of infrastructure improvements on tradable sector FDI (1)**



(1) Solid fill represents significance of the coefficient at the 1 % level, striped fill at 5 %, dotted fill represents a non-significant coefficient.
Source: DG ECFIN.

The total effect estimated is greater (more negative) and statistically significant than that estimated without any threshold effects. For a 40% improvement in electricity losses, the effect on FDI in tradables is 2.83 units for the EU, and 3.16 units for the non-core MS. The impact of infrastructure improvements in this sub-group as well as the euro area is greater than that in the EU.

Countries that have good infrastructure and continue to invest towards improving it see very clear benefits in terms of attracting FDI in the tradable sector.

II.4. Conclusions

Low growth and the process of deleveraging currently under way in a number of euro-area Member States make FDI an important alternative to debt-creating capital flows. This focus section has looked at trends in FDI stocks in the euro area in the recent past and has attempted to understand ways in which they can help prevent imbalances from arising. More specifically, it has distinguished between tradable sector and non-tradable sector FDI. This distinction is important, as FDI in tradables has much more obvious potential to improve the trade balance via exports. Therefore, policies that can attract FDI in general, but more importantly in the tradable sector, can help generate growth without risking a build-up of imbalances. Factors that are empirically shown to stimulate this process are wages and education. Controlling for education, the lowering of wages can stimulate FDI in the tradable sector. Similarly, controlling for labour costs, workers' education levels can be an important attractor. Beyond these, the quality of infrastructure and the distance from important industrial centres are also components that encourage FDI in the tradable sector. Overall, the analysis points to three areas where policy action can support tradable FDI: education, wages and business infrastructure.