

noczonych, a w mniejszym stopniu z Polski. Dodatkowo produkty pochodzące z Polski napotykać na rynkach Europy Zachodniej większą konkurencję ze strony tańszych dostawców pozaeuropejskich (głównie z Chin, Turcji, a także Meksyku). Wzrost znaczenia tych krajów powoduje w ostatnich latach stopniowe zmniejszanie się (od 2011 r.) na rynkach zachodnioeuropejskich udziału dóbr konsumpcyjnych trwałego użytku pochodzących z Polski.

W przypadku żywności mniejsze znaczenie polskich dostawców na rynkach Europy Zachodniej niż na rynkach krajów EŚW jest w dużym stopniu wynikiem większej odległości geograficznej tych rynków zbytu (wykres 11). Odległość geograficzna nie odgrywa natomiast już tak dużej roli przy dostawach części do środków transportu. W tym przypadku decydujące znaczenie mają powiązania w ramach międzynarodowych łańcuchów wartości dodanej (GVC). Przykładem może być stosunkowo duży udział Polski w imporcie części samochodowych we Włoszech.

O dużym udziale Polski w imporcie UE ogółem decyduje stosunkowo wąska grupa dóbr. Obejmuje ona dobra konsumpcyjne trwałego użytku, żywność, części samochodowe oraz dobra konsumpcyjne nietrwałego użytku. Duży udział Polski w imporcie tych kategorii wiąże się głównie z wysoką konkurencyjnością cenowo-kosztową, która powoduje, że znaczenie Polski w imporcie krajów europejskich jest generalnie odwrotnie proporcjonalne do zamożności rynku i jego odległości<sup>4</sup>. Analiza importu poszczególnych krajów Europy wskazuje, że istotny wpływ na zróżnicowanie struktury dostawców mają także rozmiary rynku. Na rynkach dużych europejskich krajów rozwiniętych (Niemcy, Francja, Wielka Brytania czy Włochy), w których struktura konsumentów jest bardziej zróżnicowana, większe znaczenie mają niższe segmenty cenowe niż w krajach z mniejszymi gospodarkami (np. Szwajcaria, Belgia, Irlandia).

Z kolei na bardzo niskim poziomie kształtuje się udział Polski jako dostawcy dóbr inwestycyjnych czy samocho-

dów osobowych (w obu przypadkach na Polskę przypadało nieco ponad 2% importu krajów UE). W przypadku dostaw dóbr inwestycyjnych (BEC 420), Polskę wyprzedzają Czechy, a w przypadku dostaw samochodów osobowych (BEC 510) – Czechy, Słowacja i Węgry. W 2015 r. Czechy były szóstym pod względem wartości eksporterem zarówno dóbr inwestycyjnych, jak i samochodów do Unii. Takie ukształtowanie się strumieni handlu można wiązać ze strategią korporacji międzynarodowych, prowadzącą do swoistej specjalizacji w produkcji tych dóbr.

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<sup>1</sup> Por. np. J. Chojna, E. Duchnowska, K. Marczewski, *Polscy eksporterzy na rynku Unii Europejskiej w okresie poakcesyjnym*, „Unia Europejska.pl”, Instytut Badań Rynku, Konsumpcji i Konjunktury, Warszawa, 2014, nr 4(227), s. 7-18 oraz T. Białowąs, *Zróżnicowanie konkurencyjności a pozycja eksportowa krajów członkowskich Unii Europejskiej w handlu międzynarodowym w latach 1995-2010*, (w:) P. Misztal, W. Rakowski (red.), *Przyszłość integracji europejskiej. Uwagi o rozwoju gospodarczego Unii Europejskiej*, Wyd. CeDeWu, Warszawa 2012, s. 125-146.

<sup>2</sup> W krajach UE-15 import z EŚW zwiększył się w latach 2000-2015 z 4,0% do 8,5%. Znacznym okazał się także wzrost udziału EŚW w imporcie krajów tego regionu (odpowiednio z 10,6% do 19,6%).

<sup>3</sup> Dane według krajów wysyłki; prawdopodobnie znaczenie importu z Chin jest większe ze względu na to, że duża część dostaw z tego kraju trafia do krajów Europy poprzez porty holenderskie.

<sup>4</sup> Do pogłębionej oceny czynników determinujących przepływy handlowe między państwami UE wykorzystuje się panelowe modele grawitacji, por. np. N. Drzewoszevska, M.B. Pietrzak, J. Wilk, *Grawitacyjny model przepływów handlowych między krajami Unii Europejskiej w dobie globalizacji*, Roczniki Kolegium Analiz Ekonomicznych, Toruń 2013, nr 30.

## GOSPODARKA I FINANSE

### HAS THE EURO LED TO THE TRADE CREATION EFFECT?<sup>1</sup>

Krzysztof Barteczko, Grzegorz Tchorek\*

#### Introduction and literature review

The euro introduction as a factor potentially stimulating trade among member countries attracted researchers' attention even before the advent of the single currency<sup>2</sup>. Despite the lack of a clearly confirmed positive impact of the exchange rate risk elimination on trade, it was suggested that the euro area was much more advanced and beneficial than the conventional fixed exchange rate

regimes. Because of its “irreversibility” and greater institutional sophistication, this form of monetary unification within the EU should contribute to enhanced political cooperation and further economic and financial integration, thereby increasing trade<sup>3</sup>.

The initial research on the euro impact on trade was carried out at the aggregate level or was related to the experiences of other forms of monetary unification around the world<sup>4</sup>. The first and relatively big impact of the monetary integration was called “Rose effect” (considering different monetary unification experiences) and “euro effect” (considering the European Monetary Union). With the data time span extension, improvement in econometric techniques, and taking into account additional factors that may affect trade flows, the euro effect was reduced significant-

ly<sup>5</sup>. According to the results formally accepted by the European Commission, based on Baldwin and others' (2008) research, the estimated impact of the euro was assessed at about 3-5% in the first years<sup>6</sup>.

Herwartz and Weber (2010) argue that the impact of the euro on trade should be viewed from the long-term perspective, as complementary to the Single Market<sup>7</sup>. De Sousa (2012) suggests that the effect of the euro is positive; however, due to the impact of other factors related to globalisation, it decreases over time<sup>8</sup>. The changing euro effect is commonly confirmed in trade and FDI flows. Gómez-Herrera and Baleix (2012) found a positive euro effect in 1999-2009 and stated that it was the highest in 2003-2005, while Brzozowski and Tchorek (2017) documented that the euro effect on outward foreign direct investment was the strongest in the years 2003-2005 and 2010-2011<sup>9</sup>.

### **Country level**

The above-mentioned efforts to assess the euro effect were concentrated on the aggregated level and constrained because of short-time data availability<sup>10</sup>. Meanwhile, an attempt to formulate in-depth conclusions related to the euro area experiences requires a more detailed analysis evaluating the impact of the euro at the level of individual countries or groups of countries within a longer perspective. The main observation, which should be remembered from the below literature review, is that the euro effect was rather positive, not large and varies significantly across countries, sectors and companies.

Micco et al. (2003) confirmed that in the period of 1992-2002, the euro introduction led to a trade creation effect among the euro area members and trade creation between the euro area and non-euro members<sup>11</sup>. Using merchandise trade (exports plus imports) as a dependent variable, they confirmed the lack of trade diversion effect. Based on the sample of 22 developed countries, they documented that the euro effect could range between 6% and 26% for the euro area members (among many estimated results, the authors preferred the range of 4-16%) and 4-10% between the euro area members and non-members. Based on individual countries cases, the highest trade increase was observed in Spain and the Netherlands - a rise of about 20% in trade with the euro area. The "second league" in the euro-euro trade increase comprised countries like Belgium, Germany, Austria, Italy, and Ireland. Finland, Portugal and Greece recorded the smallest euro effect in trade with the monetary union and the smallest or even negative effect (Portugal) in trade with non-euro countries. The trade increase beyond the euro area was the highest for the Netherlands, Belgium, France, Italy, and Ireland.

The first studies related to the euro effect at the country level include the publication of Faruquee (2004)<sup>12</sup>. Examining the individual euro area countries until 2002, the author shows that the euro effect could be different

because of initial conditions and structural features. Much of the difference in the estimated impact of the euro between countries can be explained by the degree of openness (countries that are more open can gain more), the structure of trade (countries with a greater share of intra-industry trade can gain more), exchange rate volatility (countries with higher volatility can gain more), and countries with a greater degree of labour and goods market flexibility can also gain more because of their faster adaptability to new market conditions.

Faruquee (2004) points out that at the aggregate level for the whole euro area (till 2002), the common currency increased trade by about 6-9.5% among countries. The trade growth was higher than the euro area average in Spain (13.1%), the Netherlands (12.9%), Germany (9.7%), Austria (9%), and Italy (9%), while at a level similar to the average (8%) in Belgium. The trade growth was lower than in the euro area in the case of Portugal (-1.8%), Finland (-0.05%) and Ireland (5.6%). Despite a slow trade increase with the euro area in Ireland, this country significantly increased trade with partners outside the euro area.

De Nadris, De Santis and Vicarelli (2008), who analysed the "euro effect" taking into account the country and sector levels, showed that most of the positive effects associated with the introduction of the common currency occurred in countries such as Spain, the Netherlands, Austria, Greece, Belgium, and Portugal<sup>13</sup>. These countries, together with the German economy, enjoyed a greater number of sectors with a positive effect of the euro. In the case of France, Finland and Italy, the benefits proved to be smaller, and in some sectors the impact of the euro on trade turned out to be negative. The authors note that in the case of the vast majority of sectors they have failed to confirm any effect of the euro.

### **Sector level**

Other studies examining the euro effect on trade indicate that its magnitude might be dependent on many sectoral and company-specific features and characteristics<sup>14</sup>. Empirical studies suggest that the sectors based on economies of scale can be sensitive to exchange rates fluctuations<sup>15</sup>. Flam and Nordström (2006), assessing the impact of the euro on trade, indicate a stronger effect in industries with different products and vertical specialisation between countries such as beverages and tobacco, chemicals and derivative products, and transport equipment<sup>16</sup>. De Nadris et al. (2008) indicate that the positive impact of the euro was seen primarily in the industries based on economies of scale. Monetary integration also stimulated trade in the production of transport, radio, and television and communications equipment<sup>17</sup>. Rotili (2014) suggests that the euro has a positive effect on trade in intermediate goods which are the result of the labour division within the so-called global value chains (GVC)<sup>18</sup>.

Murphy and Siedschlag (2011), examining the impact of the euro at the sectors level in Ireland, indicated a positive

impact of the euro on exports of chemical products (excluding pharmaceuticals), non-metallic mineral products, computers and office, radio, television, and communications equipment<sup>19</sup>. The authors also point out to the presence of the euro effect on exports outside the euro area in the case of less technologically advanced products. Based on the analysis of the 12 euro area countries concerning trade in forest products (wood and wood products, paper and paper articles), Buongiorno (2015) confirms a positive impact of the common currency (the average impact of the euro on mutual trade is estimated at 1.3–6.5% among the countries of the monetary union)<sup>20</sup>. That author indicates that while the biggest impact occurred in the case of Italy, the smallest was observed in Finland.

### **Company level**

Based on the literature examining experiences of the euro area companies, two main channels of the euro influence on exports can be detected: intensive and extensive margin. In the first case, it means that companies intensified exports based on current trade relations (Italian companies<sup>21</sup>), while in the second, that new companies started to export (Spanish companies<sup>22</sup>) and current companies introduced new products (Belgian companies<sup>23</sup>). The other process, which affected exporters, was also lowering international prices and fewer incentives to differentiate them among various markets in the euro area (weakening pricing to market phenomenon). The main reason is that the euro has had a pro-competitive impact reducing firms' mark-ups thanks to exchange rate risk and transaction costs reduction<sup>24</sup>. According to Bugamelli et al. (2010), the euro could also spur the company's restructuring channel intensifying reallocation of activity within the sectors and shift companies operations to business activities such as product design, advertising, marketing, and distribution. According to the financial channel, the euro had a greater influence on the sectors rivalling mostly based on competitive devaluations before full monetary unification. Mancini-Griffoli (2006) claims that the euro introduction ensured lower costs of financing accompanied by easier access to money, which spurred investment and increased production capacity<sup>25</sup>. Bris et al. (2011) confirmed that the single currency could increase the level of investment in the countries that had previously weakened currencies, and that companies experienced financial constraints<sup>26</sup>.

### **New EU member states and the euro**

There are minor studies in this area, but they suggest that the euro could act as a determinant of trade between the euro area and the EU-2004 during the 2000s, even though some of them adopted the euro later<sup>27</sup>. It is in line with the conclusions from the other studies that the euro could also create trade with non-euro area members. Literature related to the experiences of new euro area mem-

bers is also rare. The research on the euro effect on trade in countries such as Slovenia and Slovakia does not confirm its positive influence on international trade<sup>28</sup>. It may be the result of relatively short time that has elapsed since the euro introduction in those countries and the appearance of the global financial crisis in 2008 accompanied by global trade collapse. Based on the companies level, the euro effect was confirmed by Cieřlik et al. (2013) in Slovenia and Slovakia<sup>29</sup>.

In the following part of our article, we present data and analyse countries (or groups of them). In the third part, we examine the export intensity index among the studied countries. In the fourth part, we conclude our observations.

### **Data and analysed countries**

The analysis was conducted in the time span between 1995 and 2014 (occasionally 2015, according to the data availability). Comparability of data was ensured thanks to using the HS 1988/1992 (H0) trade classification. The data were obtained from Comtrade through WITS website (<http://wits.worldbank.org/WITS>) in 4-digit ISIC rev 3. aggregation. The considered countries and groups of countries are as follows<sup>30</sup>:

- ☞ Individual euro area countries (Austria, Germany, Spain, Finland, France, Ireland, Italy, and Portugal),
- ☞ Euro-12 – Twelve euro area countries that formed the monetary union in 2002,
- ☞ EU-3 – Countries without the euro (the United Kingdom, Sweden, and Denmark),
- ☞ EU-2004 – Ten new EU member states since 2004,
- ☞ EU-2007 – New EU member states since 2007,
- ☞ Euro-2007 – New euro area member states since 2007 (Cyprus, Lithuania, Latvia, Estonia, Slovakia, and Slovenia),
- ☞ Norway and Switzerland –high-income Europe outside the EU,
- ☞ High-distance countries – important high-distance (global) countries (Argentina, Australia, Brazil, Canada, China, Israel, Japan, Korea, Mexico, Thailand, Taiwan, USA, and Vietnam),
- ☞ Bel-Rus-Ukr – Belarus, Russia, and Ukraine,
- ☞ PL – Poland.

The distinction between different groups of the EU countries is justified by their varied levels of institutional, economic and financial integration, and development which can influence the euro effect magnitude. Looking at the exports to the group called high-distance countries may also give some insight about export competitiveness because the ability to reach long distance destinations might confirm some unique company resources and higher productivity of the companies from a given country. Altomonte et al. (2012) and Navaretti et al. (2010) notice that exports to far distance countries may confirm companies' competitiveness and internationalisation modes sophistication<sup>31</sup>.

## Export intensity index

In order to assess trade changes between the euro area countries and their counterparts, we used the export intensity index. Following the World Bank definition, we assume that the export intensity index is "defined as the share of one country's exports going to a partner divided by the share of world exports going to the partner<sup>32</sup>. It is calculated as:

$$E_{ij} = (x_{ij}/X_i)/(x_{wj}/X_w) \quad [1]$$

where  $x_{ij}$  and  $x_{wj}$  are the values of country  $i$ 's exports and of world exports to country  $j$  and where  $X_i$  and  $X_w$  are country  $i$ 's total exports and total world exports respectively."

This indicator allows for evaluating if a country exports more (less) to other countries (a group of countries) than would be expected based on their (average) importance in the world trade. The index values equal to 1 mean neutrality of exports to a given market; this is seemingly the expected value in the hypothetical model of exports distribution according to the shares of partners' import demand in the global import demand<sup>33</sup>.

The value of the export intensity index of more than 1 suggests closer trade relationships between partners and an increase in the value of the index means growing importance of a given market to exporters.

The export (import, trade) intensity indices have been applied for a long time in studies of the intensity of trade relationships and trade creation and trade diversion effects<sup>34</sup>. In the theoretical literature, they most often have a little different form from equation [1], namely:

$$E'_{ij} = (x_{ij}/X_i)/[M_j/(M_w - M_i)] \quad [2]$$

where:  $M_j$  – imports of country (group)  $j$ ,  $M_w$  – world imports,  $M_i$  – imports of country (group)  $i$ .

The denominator presents the share of exports to country (group)  $j$  in the total world exports, disregarding exports of country  $i$ . The arguments for taking into account the "remaining part of the world" (excluding the "reporter", i.e. country or group  $i$ ) in the denominator of exports may be diversified – from the demand reasons to paying attention to the fact that without exclusion of exports of the "reporter" the maximum values of the export intensity index depend on the "reporter's" economy's weight in world exports<sup>35</sup>. These arguments may be considered as right ones, though in the international institutions' practice a simpler formula is applied that has also been adopted by us (formula [1]).

It is also worthwhile noting that the use of the import category in formula [2] does not seem optimal as it is obvious that in the "reporter's" and "partner's" statistics in bilateral trade relations "reporter's" exports very often is not equal to "partner's" imports and, what is still worse, in the formula [2] approach, the export intensity index will heavily depend on the "partner's" exchange rate (as imports  $M_j$  will be settled upon). As in our further analysis we shall

be most interested in the changes over time in the export intensity index of the EU12 countries, we shall – with regard to all theoretical reservations – apply formula [1], because:

- ☞ the statistics for the EU12 countries on the export side (to various partners) are reliable (which hardly can be said of the mirror import statistics of some partner countries);
- ☞ the dependency of the maximum possible level of the intensity index on the share of a country (group) in world exports is not important in this analysis; on the other hand, one may abstract from occurrence of the dependency of changes over time in the index on the changes of the share of "reporter's" exports in world exports since the analysis focuses on short-term periods (1999–2001, 2004, 2007–2009);
- ☞ changes in the exchange rates of "reporters" and "partners" should not substantially affect the index values: in the numerator of formula [1], the exchange rate deflators are levelled, whereas the denominator's changes in the share of world exports to the "partner" in total world exports slightly depend on changes in the "reporter's" exchange rate.

It is also proper to state explicitly that the export intensity index (or the extended – taking into account the sum of exports and imports – trade intensity index) not necessarily must indicate the weight of trade relations between two countries. For instance, the value of the index of intensity of exports from Germany to Austria was between 4 and 5 (the highest among all Germany's partners) in the period in question, while that for Germany's exports to France – approx. 2. Nevertheless, France was the most important trade partner for Germany, with the approx. 9% share in the export structure, whereas Austria's share was lower by approximately half. The index informs us not about "how important (for Germany) Germany's exports to Austria are", but about "how important role German exports play in the Austrian market". With the value equal to 5, it means that German exports to the Austrian market are five times greater (overrepresentation) vis-à-vis the potential coming from Austria's global imports.

The interpretation of EI might be similar to that of the revealed comparative advantage (RCA), but for markets rather than products. More widely, the export intensity index can be considered as a certain type of home bias measure. The bias towards a given market stems from various factors such as geographical distance, country size, structure of trade by type, etc. We abstract from them focusing our attention on the issue whether the euro introduction was accompanied by changes in the export intensity index.

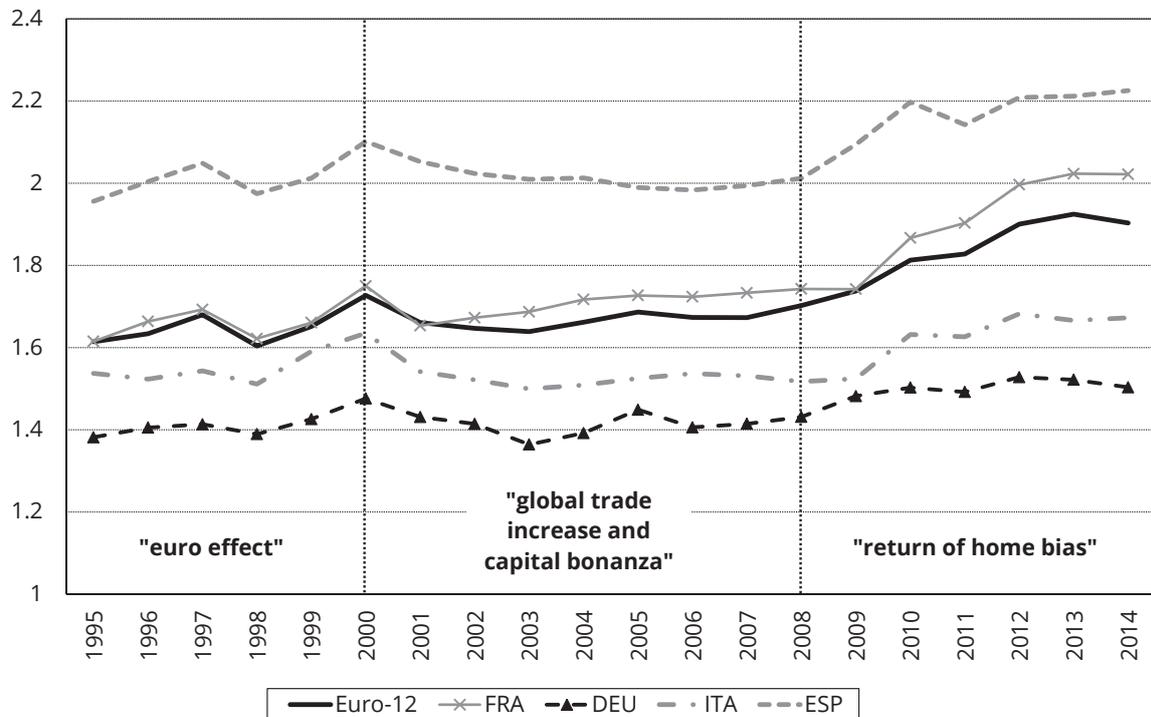
### **Trade creation between the euro area countries?**

As it can be observed based on Figure 1 (which describes importance of exports of a particular country in

the Euro-12 imports), in line with expectations, the euro area countries are very important (and rather stable) export partners for other euro area members (Euro-12), but the export intensity index changes over time between them.

We can distinguish two waves of export intensification among the euro area member states between 1995 and 2014: first in the years 1998–2000 (in a broader picture between 1995 and 2000 with correction in 1997–1998) and the second in 2008–2014.

**Figure 1**  
**Export intensity index - Euro-12 as an importer**



Source: own compilation.

Looking from the mid-1990s perspective, trade intensity within the euro area countries increased between 1995 and 1997 and rose more significantly between 1998 and 2000 (falling between 1997 and 1998 in the meantime). It is worth remembering that the second half of the 1990s was characterised by accelerating GDP growth and increasing business cycles synchronisation among the future euro area countries (which was also a result of increasing integration). The dot-com bubble, stock markets records and perspectives of companies' operation on more integrated market with the single currency spurred the wave of mergers and acquisitions in Europe. Those factors undoubtedly influenced trade among the euro area countries.

Based on the export intensity index, we can confirm that export flows intensified mainly during the period of 1998–2000. The pace of export intensity speeded up from 1998, when a formal decision about establishing the euro area was made and when final (conversion) exchange rates were fixed. While we are not able to give convincing empirical proofs that it was a result of the euro, it is in line with the literature evidence where the euro effect was detected in the period starting in 1998. Micco et al. (2003) and Bald-

win and Nino (2006) indicated that trade could have increased as a result of the euro introduction already in 1998. It can be a consequence of the euro adoption preparation spurred by the Single European Act in 1986 and the Maastricht Treaty in 1992, accompanied by the Exchange Rate Mechanism participation (fulfilment of the exchange rate criterion since 1996 and other Maastricht criteria), and the subsequent introduction of a common currency in 1999 (in the non-cash form).

The “euro effect”, even if can be detected, is far less profound than originally expected based on the OCA endogeneity doctrine. A weaker euro effect among the euro area countries and increasing trade relations with non-euro area countries could have resulted from the following reasons.

Firstly, advanced European integration before the euro adoption. The success of the previous stages of integration like the customs union and the single market allowed trade effects to materialise. Because the European integration had reached a high institutional level, the reduction in transaction costs as a result of common currency could not be significant because they were already generally low in

the main euro area countries before 1999. Moreover, the exchange rate risk was gradually decreased as the Deutsche mark zone, ERM and ERM II played the role of exchange rate stabilisers.

Secondly, a cyclical slowdown of global trade between 2000 and 2001. Global trends were increasingly affecting trade in developed countries, including the euro area trade. At the beginning of the 21<sup>st</sup> century, world trade decreased because of the end of the dot-com bubble with a consequent global slowdown.

Thirdly, the euro exchange rate appreciation from 2000 till the Lehman Brothers collapse in 2008. After the euro introduction in 1999, it depreciated till the coordinated intervention of the main global central banks focused on stopping the euro depreciation in 2000. The euro appreciation speeded up in 2001 after terrorist attacks on WTC. The strong euro could diminish incentives to trade with other euro area countries, while it was cheaper to import goods from the countries outside the euro area.

Fourthly, inclusion of emerging economies into global trade (with the biggest, China, which entered the WTO in 2001), increasing foreign direct investment (FDI) flows around the world and establishing global value chains, fostering global financial integration and lower transaction costs accompanied by the ICT revolution<sup>36</sup>.

Fifthly, the new EU countries' entrance in 2004. This process was preceded by an intensive institutional preparation and FDI flows from the "old" EU countries. As it is assumed, FDI is seen as an "export platform" which is particularly true for the EU<sup>37</sup>. While the ten new EU members (especially the Czech Republic, Hungary, Slovakia, and Poland) absorbed a lot of FDI (often in the greenfield form) allocated in industry since the mid-1990s; the established "industrial and export machine" started to work since the early 2000s.

Sixthly, speeding up globalisation forces between 2002 and 2007 which seemed to play a more important role than the European monetary integration in that sense that they spurred more trade with developing countries and more extra-euro openness. More turbulent times like between 1995 and 2000 (many crises in emerging markets and relatively high global risk measured by volatility index – VIX) and 2008–2014 are characterised by more intra-euro trade consolidation and adjustment.

The trade increase impulse among the euro area countries between 1998 and 2000 was short-lived. The export intensity between the euro area countries decreased in 2001–2003 (it can be to some extent attributed to the dot-com bubble burst, world's GDP weakening and accompanied trade decrease) and only in 2009 reached the level of 2001. The stable, but lower or decreasing than before euro introduction, export intensity between the euro area countries in a longer time span between 2001 and 2008 can be a result of the above described and many other external (global) factors which also determined the trade flows in

the euro area. They exposed the euro area countries to more extra-euro openness.

The second wave of trade intensification between the euro area countries can be observed since the 2008 crisis. It might be a result of the crisis adjustment and close economic cooperation and geographical locations during the "windy" time. Interestingly, a significant increase in the intensity of exports between the euro countries and the developed countries of the EU-3, which did not adopt the common currency (the United Kingdom, Denmark, Sweden), occurred only during the financial crisis.

### ***Extra-euro area trade creation?***

What is interesting, the export intensity increase between the euro area member states (1998-2000) was not profoundly higher than between the euro area and non-member states (EU-3 without euro, high-income Europe outside the EU – Switzerland and Norway and EU-2004). All these groups represented the high level of institutional and economic integration. Simultaneously, all these groups followed a similar export intensity index path since 1995 till the crisis in 2008 in terms of the level of export intensity index as well as changed the direction. The exception is Euro-2007 group of countries in case of which intensification of exports with the euro area decreased between 1995 and 2014 (Figure 2).

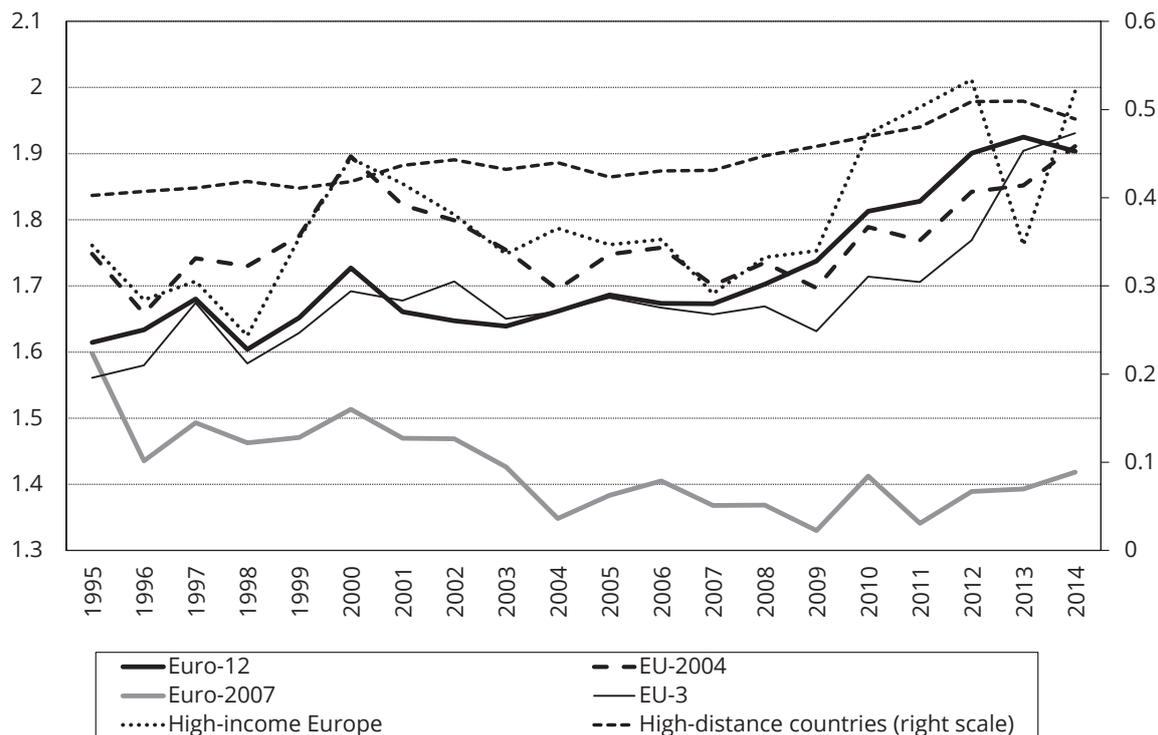
Comparable (or even lower than in the case of the EU-2004 and High-income Europe) export intensity between the euro area members and other considered groups of countries may be taken as lack of the euro effect. On the other hand, it can also be considered that the euro effect is not only attributed to the euro area members but could be also dispersed among those close to the EU countries. While the euro has become the second world currency, its impact is mainly visible in Europe.

In this meaning the euro might have stimulated trade inside the monetary union and outside it, mainly in those countries which were geographically and institutionally close to the monetary union. Institutional, economic and financial links allowed transmitting the euro to the developing and developed countries operating in close relations with the euro area. They benefited from the cheaper and more available financing denominated in the second global currency. Those countries also broadly used the euro as a reference currency (substitution to the national one) in private (e.g. euro-denominated credits, issuance of bonds, trade invoicing) and public sectors (anchor, reserve and intervention currency), which was stimulated by the network externalities<sup>38</sup>. It means that the "euro global currency" features were transmitted to Europe and the EU countries by real (trade) and financial (assets and liabilities) channels.

The above assumption indicates that the *extra-euro trade creation effect* is also possible. It is based on some studies highlighting that the euro could spur trade not only

**Figure 2**

**Export intensity index - Euro-12 as an exporter**



Source: own compilation.

between the euro area countries but also between euro and non-euro countries. The explanation is that using the euro as own currency makes countries more open and simultaneously gives them a possibility to use more liquid currency and hedge against the risk because of trade invoicing in international money.

Micco et al. (2003) noticed that the euro effect in trade with non-euro countries also appeared in 1998 but was a little bit lower than in the case of the euro area member states' trade. The extra-euro trade creation effect seems to be more profound in the period of speeding up globalisation forces after 2000–2002 when the euro became more credible and broadly accepted the second best world currency.

*Euro area big countries*

The considerations presented below confirm that for particular countries changes in trade intensity were differentiated and that the biggest economies are characterised by more stable values of the export intensity index. In the case of Germany, which is the biggest euro area country and the biggest exporter, the tendencies related to trade intensification with other euro area countries were similar to those previously described in the case of the Euro-12 (see Figure 3). There was export intensification between 1998 and 2000, a decrease between 2001 and 2003, stabilisation till 2008, and an increase since 2009. What is inter-

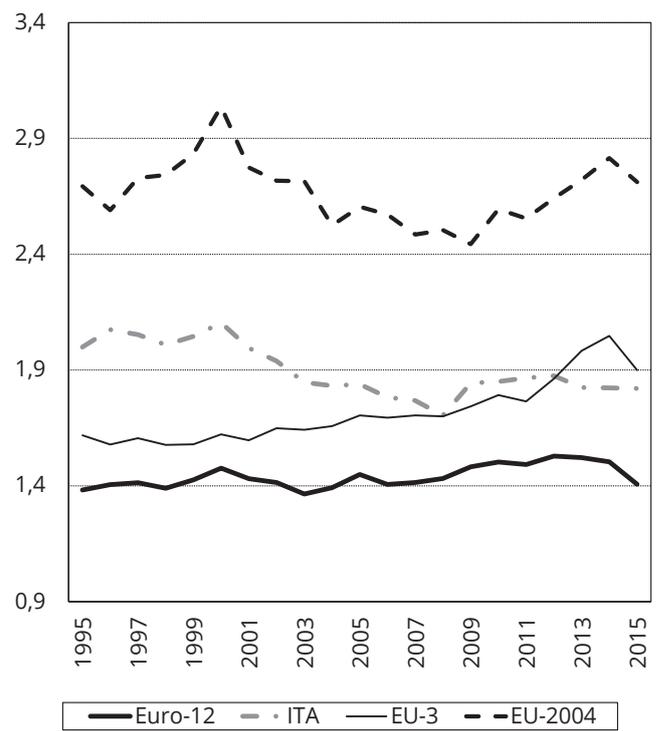
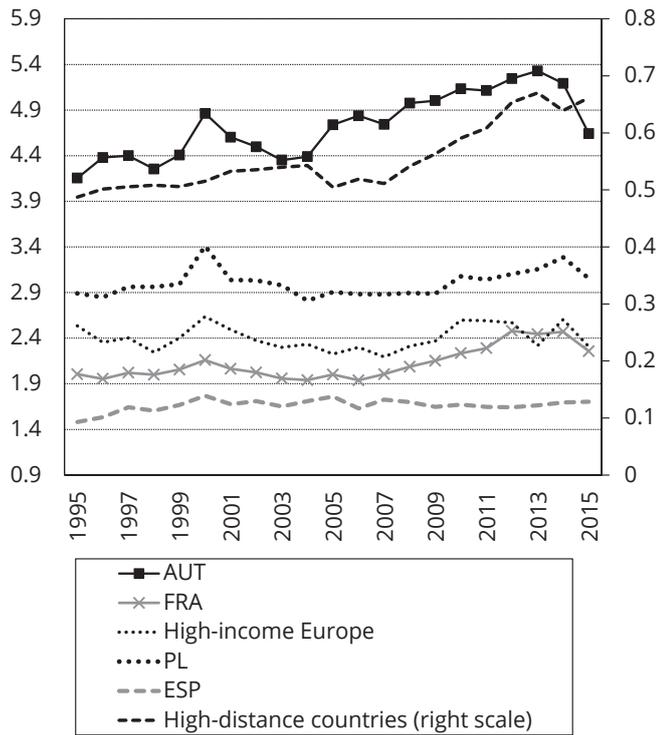
esting, German exporters intensified export relation more with the countries that joined the EU in 2004 than with the Euro-12, while the trade intensity index still exceeded the value close to 1.5 for the latter group (the lowest value among big euro countries). Among the euro area countries, relatively high export intensity was observed in the case of Germany's relations with Austria. Third countries: Belarus, Ukraine, Russia, high-income countries outside the EU, and high-distance countries also played an important role (in comparison to other euro area countries). It confirms global orientation of Germany's exports. After 2000, Italian, French and the EU-2004 markets became less attractive for German exports.

For the French exporters their presence on the Euro-12 markets was mainly due to high trade intensity with Spain, Italy and Germany – see Figure 4. What is interesting, the importance of Euro-12 increased slightly within the whole period of 1995–2014 and accelerated since 2010. The euro effect seems to be small, while between 1998 and 2000 there is an increase in trade intensity between France and Euro-12, yet with a greater magnitude of this effect than in the case of Germany. Poland, the groups of EU-2004, EU-2007 and Euro-2007 were increasingly penetrated by French exports between 1995 and 2005.

In the case of Italy, the path of the export intensity index is quite similar to Germany's one, and the euro area countries played a similar role as export absorbers. Italian export was important for the EU-2007 countries markets

**Figure 3**

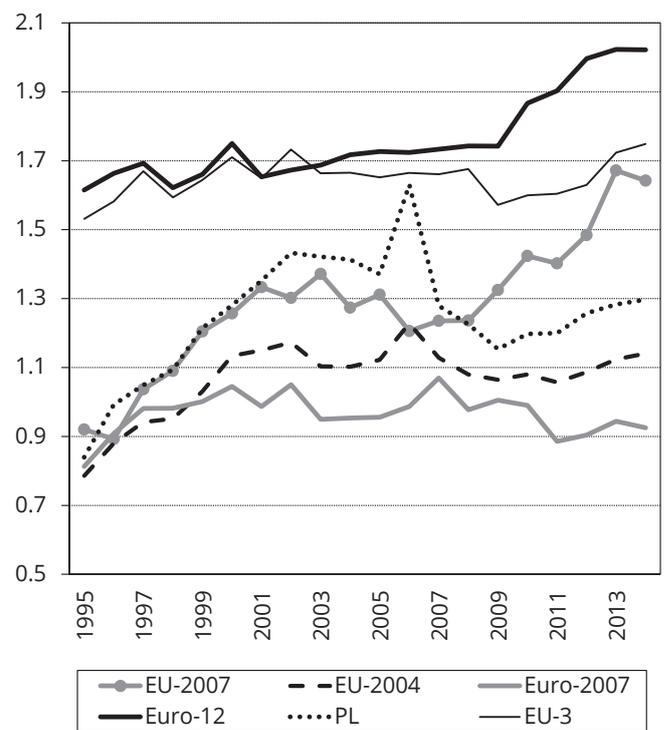
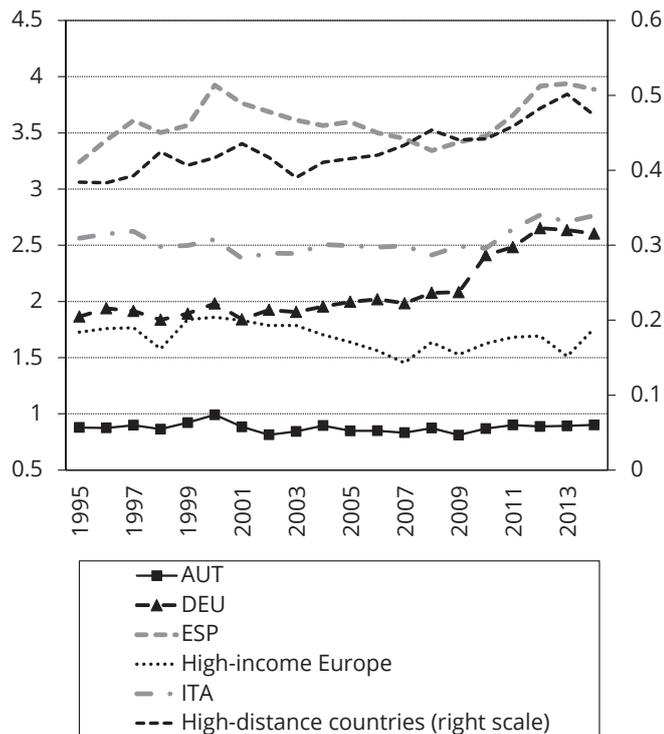
**Export intensity - Germany as an exporter**



Source: own compilation.

**Figure 4**

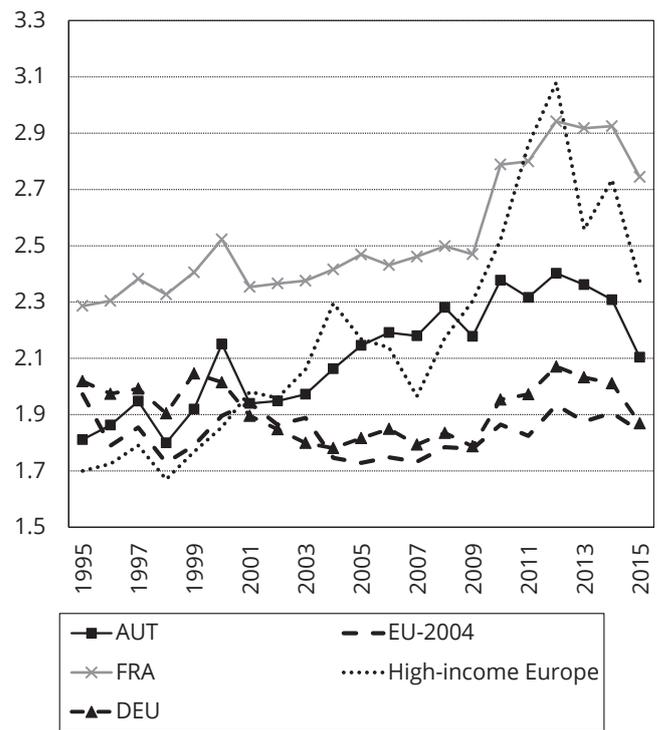
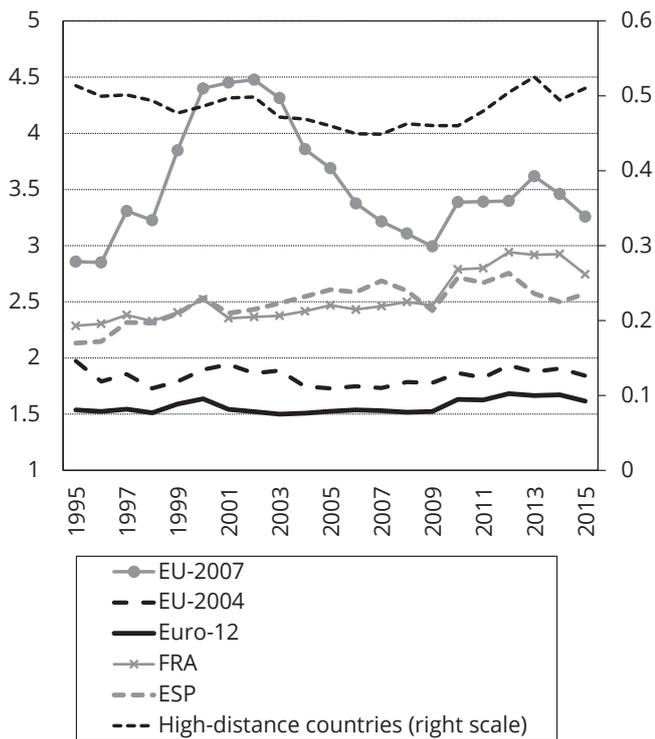
**Export intensity index - France as an exporter**



Source: own compilation.

**Figure 5**

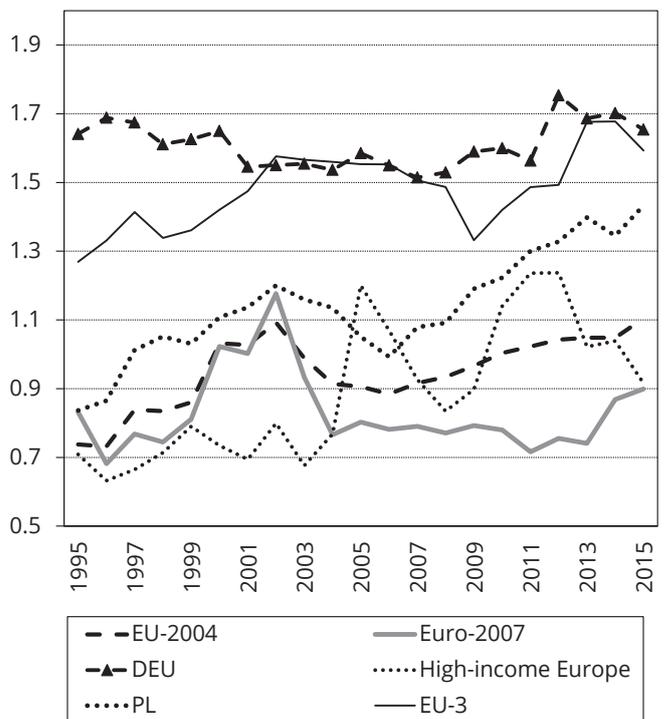
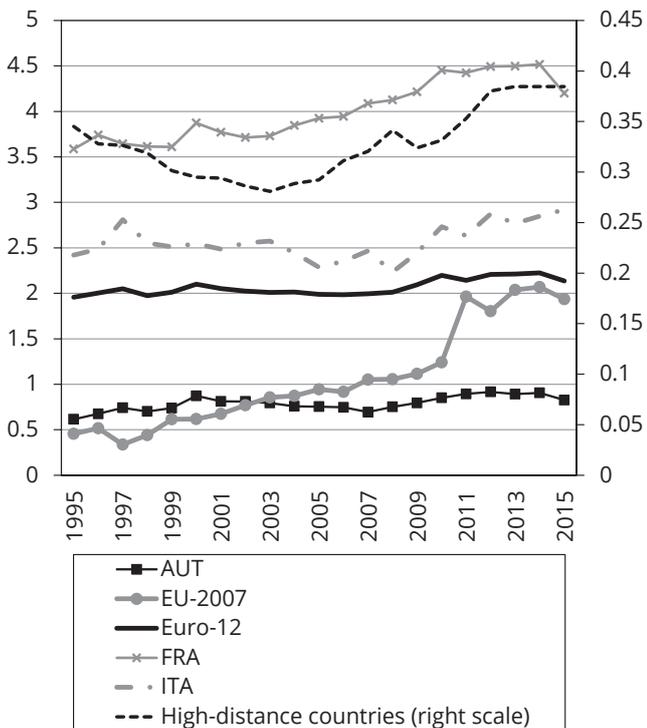
**Export intensity index - Italy as an exporter**



Source: own compilation.

**Figure 6**

**Export intensity index - Spain as an exporter**



Source: own compilation.

but with big changes – see Figure 5. Norway and Switzerland were also increasingly important export partners, especially during the crisis. Similar to Germany, changes of the export intensity index with the Euro-12 were smaller in comparison to France, for which the Euro-12 played a more important role in export absorption. After the crisis Italian exporters increased penetration of the high-income Europe group as well as the EU-2004 and Euro-2007 and individual countries like France and Austria.

Spain was characterised by the closest (among the biggest countries) trade relationships with the euro area with similar patterns as in the case of the described economies – its trade intensity increased slightly between 1998 and 2000 and then more profoundly after 2008 (see Figure 6). Due to the geographical distance Spanish exports do not penetrate the EU-2004 countries, while Poland seems to be an important export destination.

#### *Euro area small countries*

A relatively strong trade creation effect could be theoretically expected in the case of small countries because, as pointed by Badinger and Breuss (2009) (for Casella's trade model), market extension due to the introduction of the euro should give greater benefits for smaller countries than for bigger ones<sup>39</sup>. This is a result of the fact that a market increase is more important for smaller countries than for bigger ones. What we can confirm is that the euro area small countries were characterised by similar export

intensity changes in comparison to other euro area members and the trade effect does not seem to be stronger than in the case of bigger countries. The data presented below do not confirm the above expectation – see Figure 7.

Among euro area small countries, Austria was the country with high and increasing presence in the Euro-12 markets. It can be mainly justified by intensive relations with Germany because of close distance and cultural proximity. In the case of Austria, trade intensity with the euro area increased between 1998 and 2000 and then was decreasing till 2007. For Ireland, noticeable is its important trade with the EU-3 countries (especially the United Kingdom) and the United States (Figure 8). For Ireland, export intensity with the Euro-12 decreased in the years 1995-2000 and then grew from 2001 till 2012. Simultaneously export intensity from Ireland to high-distance countries increased in the period of 1995-2014 reaching the highest level among analysed countries.

The more peripheral geographical location also determines to a large extent trade relations of Finland and Portugal. In the first case, trade intensity is high with Russia and with the EU-3. In the case of Finland, export intensity with Euro-12 is relatively low, with a value close to 1. It increased a little in the period of 1996-2000 and then stabilised till 2011, but still was the lowest among the analysed countries.

In the case of Portugal, we can observe consequent export intensification with the euro area in the whole period of 1995-2014 accompanied by its relatively high

**Table 1**

#### **Average export intensity index – Euro-12 as an importer\***

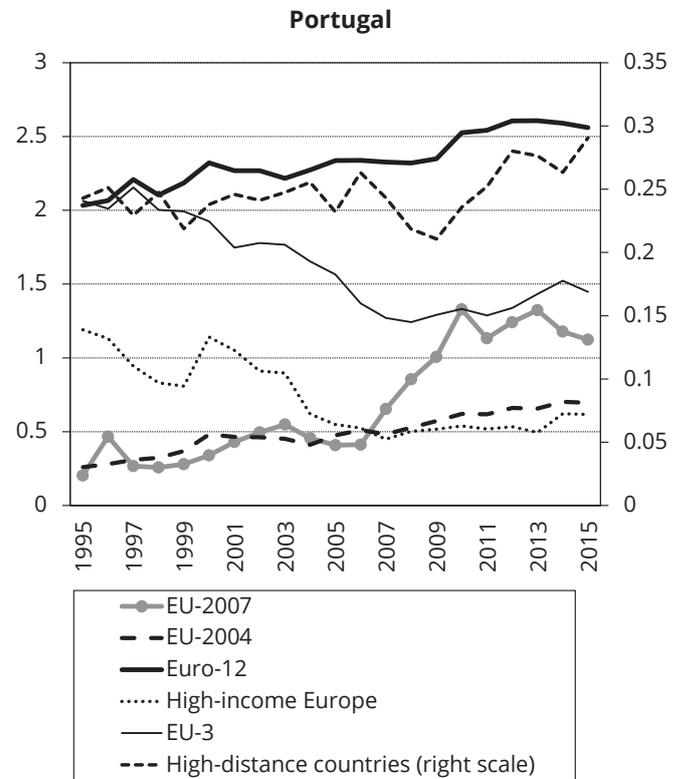
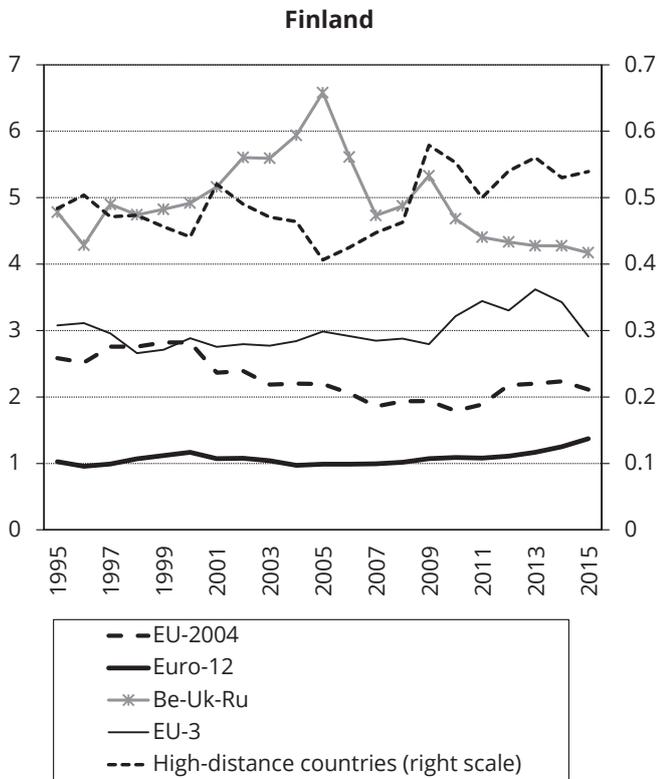
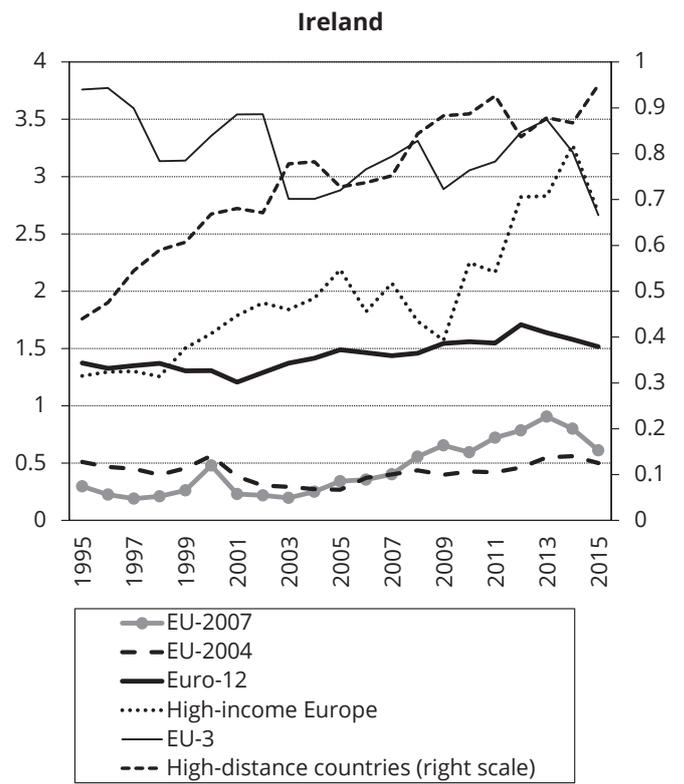
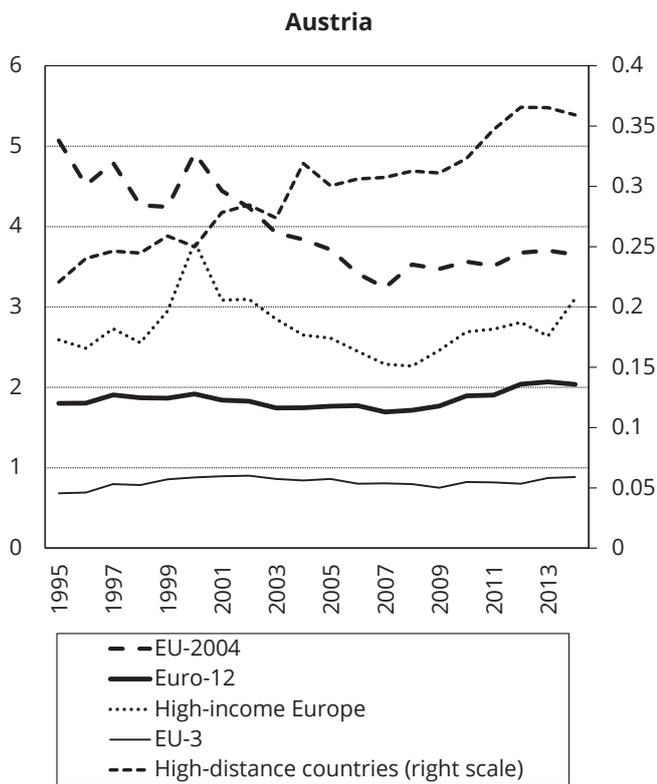
Exporter	1995-1998	1999-2002	2003-2006	2007-2009	2010-2014
PRT	2.103	2.261	2.292	2.332	2.574
ESP	1.996	2.047	1.999	2.034	2.197
PL	1.854	2.027	1.873	1.858	2.080
AUT	1.846	1.864	1.757	1.726	1.989
UK	1.635	1.830	1.806	1.797	1.841
FRA	1.648	1.684	1.714	1.740	1.962
EU-3	1.543	1.681	1.643	1.627	1.730
EU12	1.633	1.672	1.665	1.704	1.874
Norway, Switzerland	1.599	1.651	1.660	1.702	1.725
ITA	1.529	1.572	1.518	1.524	1.656
DEU	1.397	1.437	1.403	1.443	1.510
DNK	1.409	1.399	1.341	1.300	1.500
SWE	1.314	1.344	1.340	1.398	1.573
IRL	1.356	1.277	1.435	1.480	1.606
FIN	1.011	1.109	0.997	1.028	1.140
High-distance countries	0.383	0.398	0.405	0.432	0.416

\*Euro-12 countries are presented as importers while other countries are exporters. It means that we assess importance of the Euro-12 countries for the other countries as export destination markets.

Source: own compilation.

**Figure 7**

**Export intensity index in euro area small countries**



Source: own compilation.

level (value above 2). Around the increasing trend, export to the euro area intensified between 1998 and 2000 and since 2008. Simultaneously between 2000 and 2007 trade intensity with the EU-3 countries and European countries (non-EU member states) decreased. This trade creation effect in relations with the Euro-12 and trade diversion in relations with non-euro member states might be explained by the geographical structure of trade in Portugal, which is affected by its peripheral location, and high trade with Spain. At the same time, both countries have comparatively high export intensity indices with the euro area.

Comparing average values of the trade intensity index in the period of 1999-2002, when the euro circulated in a non-cash form, and 1995-1998, when the preparation process to the euro adoption took place, we can observe that the export intensity index increased for the euro area countries in all cases except two peripheral economies, Ireland and Finland – see Table 1. It means that for both countries, euro area partners became less important export markets in 1999-2002 than in 1995-1998. The trade intensity index of around 2 in the case of Portugal, Spain and Poland means that those countries directed twice more exports to the Euro-12 than it is based on euro area market potential (measured as the share of the euro area in global import).

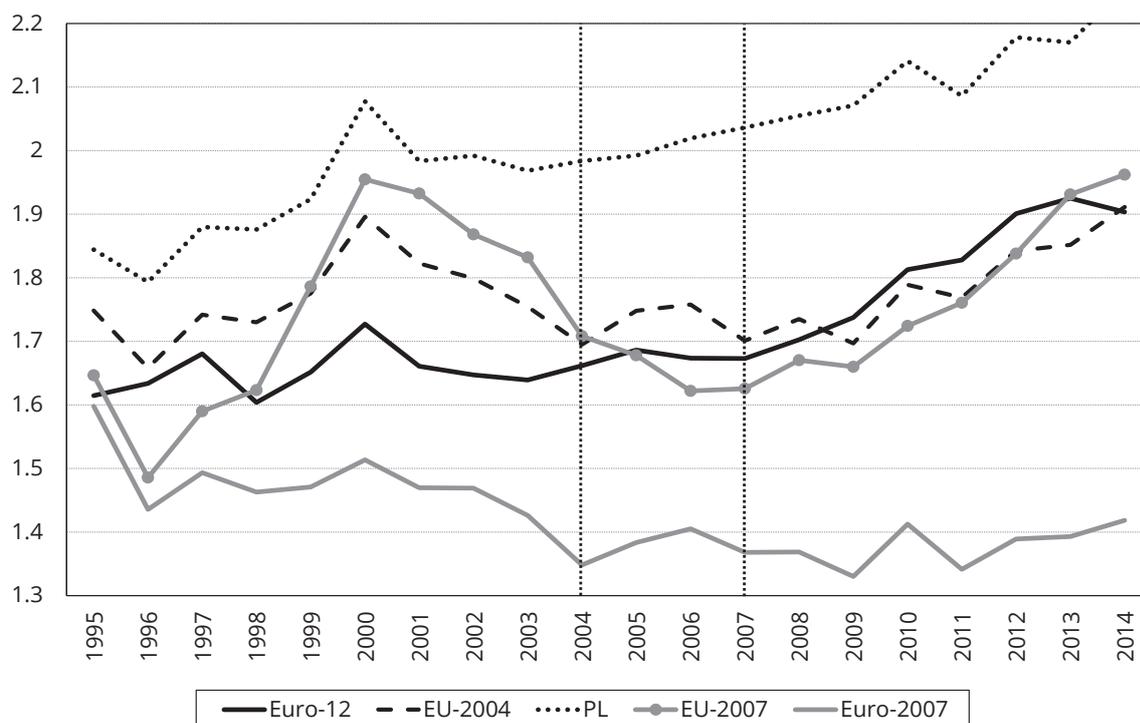
Among the analysed euro area countries, only France, Ireland and Portugal revealed a trade intensity increase in the period after the euro introduction (2003-2006). It means that from 2003 onwards some other forces, prob-

ably global ones, influenced trade intensity more than the European and monetary integration. The euro influence on trade does not seem to be strong in the first years of the euro area functioning, but rather before or during its non-cash circulation. Surprisingly, strong trade intensification appeared after the crisis began. Data confirm relatively high trade intensification in 2010-2014. Tighter relations could be stimulated by the crisis, leading to a “home bias” increase reflected in the fact that during turbulent times countries concentrated mainly on increasing trade in their geographical and institutional neighbourhoods.

#### New EU member states since 2004

Relatively high and increasing export intensity can be observed between the euro area and the countries that joined the EU in 2004, especially in the period between 1996 and 2000 – see Figure 8. Increasing presence of the euro area export (export intensity) on the new EU markets can be observed between the second half of the 1990s and 2000s. From 2001 the export penetration of the new EU markets decreased till the crisis, and then accelerated. Relatively high penetration of the new EU markets by the euro area exports is a result of strong and accelerating capital (in the form of incoming FDI), financial (banking sector and credit) and business relationships among the largest euro area economies (Germany, France, Italy) with countries such as Poland, the Czech Republic, Slovakia and Hungary. While crisis diminished FDI flows to the new EU

**Figure 8**  
**Export intensity index – Euro-12 as an exporter**



Source: own compilation.

countries, they remain an attractive destination for international companies, mainly from the old neighbourhood EU countries. Relatively high involvement in the Global Value Chains make the new EU member states vulnerable to the competitiveness condition of the investors coming mainly from the old EU and operating on global markets. Interestingly, trade intensity between the euro area and Poland increased steadily in the whole period of 1995-2014 and reached the level of the most integrated euro area countries like Austria, Portugal and Spain.

It is difficult to judge on the basis of our analysis using a simple measure like the export intensity index (many other factors should be included in the analysis); however, trade intensity between the two groups of countries could also be a consequence of the common currency introduction and the EU widening in 2004 and 2007

What can be surprising is that the euro effect cannot be confirmed for the group of countries which have joined the

euro area since 2007. It can be a result of the fact that countries joining the euro area after 2007 experienced much more severe economic conditions because of the crisis started in 2008.

Table 2 reveals trade intensity with the EU-2004 group of countries. What is interesting, the average intensity of exports to this region decreased after their accession to the EU in almost all cases. The reason can be that economic and trade relations intensified deeply before 2004. It also seems that during the crisis euro area big countries concentrated on the core euro area and the EU countries, while small like Portugal and Ireland increased trade with the EU-2004 (which was negligible previously). Crisis adjustment can be described as increasing integration or "return to integration" within the EU structures, which is expressed in more trade integration with the EU-2004 and within the Euro-12.

**Table 2**

**Average export intensity index - EU-2004 as an importer**

Exporter	1995-1998	1999-2002	2003-2006	2007-2009	2010-2014
AUT	4.662	4.460	3.723	3.414	3.621
DEU	2.689	2.841	2.604	2.477	2.665
FIN	2.654	2.599	2.159	1.911	2.059
ITA	1.837	1.873	1.778	1.766	1.881
EU12	1.720	1.823	1.739	1.711	1.833
SWE	1.368	1.599	1.370	1.349	1.523
FRA	0.890	1.122	1.139	1.091	1.098
DNK	1.434	1.334	1.135	1.259	1.382
EU-3	0.998	1.031	0.966	0.993	1.064
ESP	0.786	1.003	0.923	0.939	1.033
UK	0.811	0.812	0.796	0.790	0.834
Norway, Switzerland	0.804	0.826	0.737	0.733	0.663
PRT	0.293	0.444	0.463	0.528	0.652
IRL	0.457	0.427	0.302	0.412	0.484
High-distance countries	0.198	0.195	0.235	0.319	0.322

Source: own compilation.

Analysing the export intensity index among eight individual euro area countries and the group of twelve euro area members we can confirm what follows.

Firstly, the four largest euro area countries are highly and increasingly interdependent in terms of export destinations. While the export intensity index for the Euro-12 was roughly equal to 1.5 during the considered period, for four largest euro area countries it was between 2 and 2.5. Secondly, the following groups of countries: Euro-12, EU-2004, EU-2007, EU-3 and High-income Europe seem to

be closely interrelated in terms of the export intensity index level and change direction. Thirdly, Finland and Ireland have some features of being outliers. In the first case export intensity between Finland and Euro-12 is the lowest among the analysed countries. In the second case it results from the highest presence of the Irish exports on High-distance countries markets. Fourthly, the new EU members became important export destinations for the euro area countries in the second half of the 1990s and during the financial crisis.

## Conclusions

Concluding, it seems that two important events in the history of the European integration during the last twenty years – the euro introduction in 1999-2002 and inclusion of the new member states in 2004 – should be seen as having brought about no strong changes in “euro – euro” and “euro – new EU” countries trade intensity. Using the export intensity index, we noticed that the euro effect could be visible, but in most cases only in the period of 1998-2000 with rather small or even negligible impact. Moreover, the euro effect seems to be differentiated across countries with relatively more stable trade intensity indexes in the case of the four largest euro area countries (Germany, France, Italy and Spain) and slightly higher changes in the case of four small euro area countries (Austria, Ireland, Finland and Portugal). What demands further investigation is that being a member of the monetary union intensified trade relations during the crisis. It might be a result of intra-regional crisis adjustment during the global trade collapse and lowered intensity of trade related to GVC flows, which seems to have a structural character.

Even if the euro effect is small, we should be open to some arguments that single currency could stimulate trade between the euro area members and non-euro countries. This effect can be a result of using the second most important global currency in trade invoicing, which could stimulate openness in extra-euro relations. Intuitive rationale behind this way of thinking is that “if you want to do business internationally, international currency would help you with it”.

Good candidates to be benefited by the euro effect are countries operating in close geographical, economic and institutional relations with the euro area including the new EU member states. Their economies and financial systems (through liabilities mainly in poorer countries like EU-2004, and assets and liabilities in richer ones as EU-3) are highly integrated with the euro area, and the euro currency is used in trade transactions.

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<sup>1</sup> This article is a part of the project which received funding from the National Science Center through grant no. DEC-2011/03/D/HS4/01954.

<sup>2</sup> Commission of the European Communities (1990), *One Market, One Money: an Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union*, *European Economy*, 44 (October); A.K. Rose, (2000), *One Money, One Market: Estimating the Effect of Common Currencies on Trade*, “*Economic Policy*”, 15(30), 9-45.

<sup>3</sup> P. De Grauwe and F.P. Mongelli, (2005): *Endogeneities of optimum currency areas: What brings countries sharing a single currency closer together?*, “*ECB Working Paper Series*”, 468.

<sup>4</sup> R. Glick, A.K. Rose, (2002), *Does a currency union affect trade?*, The time-series evidence. “*European Economic Review*”, 46(6), 1125-1151.

<sup>5</sup> See M.J.G. Bun, F.J.G.M. Klaassen (2002). *Has the euro increased trade?*, “*Tinbergen Institute Discussion Paper*”; No. 108/2 and L. Fontange, T.I.P Ottaviano, (2008), *Of markets, products, prices, The effects of the euro on European firms*, Bruegel Blueprint, No. 8.

<sup>6</sup> R. Baldwin, V. Di Nino, L. Fontagné, R. De Santis, and D. Taglioni (2008), *Study on the impact of the Euro on trade and foreign direct investment*, “*European Economy, Economic Papers*” 321.

<sup>7</sup> H. Herwartz. and H. Weber, (2010), *The euro's trade effect under cross-sectional heterogeneity and stochastic resistance*. Technical report, “*Kiel working paper*”, No. 1631.

<sup>8</sup> J. De Sousa, J. (2012), *The currency union effect on trade is decreasing over time*. “*Economics Letters*”, 117(3), 917-920.

<sup>9</sup> E. Gómez-Herrera and J.M. Baleix (2012), *EMU impact of on third countries' exports. A gravity approach*. ThE Papers from ,Department of Economic Theory and Economic History of the University of Granada, 10/26; M. Brzozowski, G. Tchorek (2017), *The “euro effect” and Outward Foreign Direct Investment*, *Revista de Economía Mundial* 45, forthcoming.

<sup>10</sup> The problem with the literature assessing the impact of the euro is that it relies on the results that are difficult to compare because they were based on different country, company and sector samples, different methodologies and time spans.

<sup>11</sup> A. Micco, E. Stein, G. Ordonez (2003), *The Currency Union Effect on Trade: Early Evidence from EMU*, *Economic Policy*, 18(37), 315-356.

<sup>12</sup> M.H. Faruqee, (2004), *Measuring the Trade Effects of EMU*, “*IMF Working Paper*”, International Monetary Fund, 04/154,.

<sup>13</sup> S. de Nardis, R. De Santis, C. Vicarelli (2008), *The Single Currency's Effects on Eurozone Sectoral trade: Winners and losers?*, *Economics - The Open-Access, Open-Assessment E-Journal*, 2, 17. <http://www.economics-ejournal.org/economics/journalarticles/2008-17>.

<sup>14</sup> C. Pappalardo, C. Vicarelli, (2017), *Euro introduction and the behaviour of Italian exporting firms*, “*Oxford Economic Papers*”, gpw068, Published online.

<sup>15</sup> D. Taglioni (2002), *Exchange Rate Volatility as a Barrier to Trade: New Methodologies and Recent Evidence*, *Economie Internationale*, 89-90, 227-259.

<sup>16</sup> H. Flam, H. Nordström (2006), *Euro Effects on the Intensive and Extensive Margins of Trade*, CESifo Working Paper, 1881, Munich.

<sup>17</sup> S. de Nardis, R. De Santis, C. Vicarelli (2008), op. cit., 1-34.

<sup>18</sup> L. Rotili (2014), *The Euro effects on intermediate and final exports*, “*Working Paper Series*” 7/2014, Dipartimento Di Scienze Sociali Ed Economiche.

<sup>19</sup> G. Murphy, I. Siedschlag (2011), *Has the euro boosted intra-euro area exports? Evidence from industry data*. “*Review of economics and institutions*” 2 (3), 22.

<sup>20</sup> J. Buongiorno (2015), *Monetary union and forest products trade – The case of the euro*, “*Journal of Forest Economics*” 21, 238-249.

<sup>21</sup> C. Pappalardo, C. Vicarelli, (2017), *Euro introduction and the behaviour of Italian exporting firms*, “*Oxford Economic Papers*”, gpw068, Published online.

<sup>22</sup> S. Esteve-Pérez, S. Gil-Pareja, R. Llorca-Vivero, J.A. Martínez-Serrano (2011). *The impact of the euro on firm export behaviour: does firm size matter?* “*Oxford Economic Papers*”, 63(2), 355-374.

<sup>23</sup> V. Nitsch, M. Pisu (2008), *Scalpel please! dissecting the euro's effect on trade*. ETH Zurich and National Bank of Belgium, mimeo.

<sup>24</sup> J. Martin, I. Méjean (2008), *Trade prices and the euro*. Document de travail CEPII, 29; S. Guillou, & L. Nesta (2015). *Markup Heterogeneity, Export Status and the Establishment of the Euro* (No. 2015-04). Groupe de Recherche en Droit, Economie, Gestion (GREDEG CNRS), University of Nice Sophia Antipolis.

<sup>25</sup> T. Mancini-Griffoli, L.L. Pauwels (2006), *Is there a Euro effect on trade? An application of end-of-sample structural break tests for panel data*. Manuscrit du HEI.

<sup>26</sup> A. Bris, Y. Koskinen, M. Nilsson (2011), *Euro and Corporate Financing*, "Boston School of Management Research Paper Series", 2011-1.

<sup>27</sup> F. Festoc, G. L'Oeillet (2014), *Would the CEECs' international trade be higher with Euro? Evidence from sectorial data*, L'Institut de Recherche sur les Entreprises et les Administrations (IREA), Université de Bretagne.

<sup>28</sup> O. Polyák (2016), *Euro Adoption and Export: A Case Study of the Czech Republic, Slovakia and Old EU Member States*. "Prague Economic Papers" (4), 427-444; A. Cieřlik, J.J. Michałek, J. Mycielski (2012), *Euro and trade flows in Central Europe*. "Equilibrium . Quarterly Journal of Economics and Economic Policy" 7.3, 7-25.

<sup>29</sup> A. Cieřlik, J.J. Michałek, J. Mycielski (2013), *The Impact of the Common Currency on Exports of New EMU Members: Firm-level Evidence for Slovenia and Slovakia*. "Equilibrium. Quarterly Journal of Economics and Economic Policy" , 8.4: 7-23.

<sup>30</sup> We did not focus on the Belgium and Netherlands cases because of their traditional transit character, given that they are European and global transportation hubs. It means that the Netherlands and Belgium have a high share in the EU and global trade because of being on the main logistic route. Sometimes it is called *Rotterdam effect* or *Rotterdam-Antwerp Effect*. We also skipped Greece and Luxemburg, countries mainly involved in services trade. When it comes to the EU3 group which includes Denmark, Sweden and the United Kingdom, we admit that this group is heterogeneous. Nevertheless, all of these countries stay beyond the euro area and their institutional integration within the EU is lower than among euro area countries (even in the case of Denmark). Papers examining the trade effect of the EU or monetary integration in Europe treat those three countries as outsiders juxtaposed to the euro area group, but also notice important differences within our EU-3 group.

<sup>31</sup> C. Altomonte, T. Aquilante, G.I.P. Ottaviano (2012), *The Trigger of Competitiveness – The EFIGE Cross Country Report*. Bruegel Blueprint Series Vol. XVII.; B. Navaretti, G.M. Bugamelli, F. Schivardi, C. Altomonte, D. Horgos, D. Maggioni (2010), *The Global Operations of European Firms*. "Bruegel Blueprint Series".

<sup>32</sup> [http://wits.worldbank.org/wits/wits/witshelp/Content/Utilities/e1.trade\\_indicators.htm](http://wits.worldbank.org/wits/wits/witshelp/Content/Utilities/e1.trade_indicators.htm).

<sup>33</sup> K. Kunimoto (1977). *Typology of Trade Intensity Indices*, "Hitotsubashi Journal of Economics", Vol. 17, 15-32.

<sup>34</sup> E.g. Kojima, K. (1964), *The Pattern of International Trade among Advanced Countries*, "Hitotsubashi Journal of Economics", 5, 1, 16-36; L. Iapadre, (2006), *Regional Integration Agreements and the Geography of World Trade: Statistical Indicators and Empirical Evidence*. In P. De Lombaerde, ed. *Assessment and Measurement of Regional Integration*. London, UK: Routledge.

<sup>35</sup> L. Iapadre, *Regional Integration Agreements and the Geography of World Trade*, op. cit.

<sup>36</sup> W. Mroczek (2009), *Wpływ wprowadzenia euro na stopień otwartości i zmiany strukturalne w handlu krajów strefy euro*, (in:) *Raport na temat pełnego uczestnictwa Rzeczypospolitej Polskiej w trzecim etapie Unii Gospodarczej i Walutowej*, National Bank of Poland; R. Baldwin, D. Taglioni (2014), *Gravity Chains: Estimating*

*bilateral trade flows when parts and components trade is important*, "Journal of Banking and Financial Economics" 2(2), 61-82; ECB (2016), *Understanding the weakness in global trade*, "Occasional Paper Series", No 178.

<sup>37</sup> C. Jensen, (2004), *Formal Integration: FDI and trade in Europe*, *Baltic Journal of Economics*, 5(1), 5-27; K. Ekholm, R. Forslid and J.R. Markusen (2007), *Export platform foreign direct investment*, "Journal of the European Economic Association", 5(4), 776-795.

<sup>38</sup> ECB (2014), *International role of the euro*; T. Scheiber, and C. Stern (2016), *Currency substitution in CESEE: why do households prefer euro payments?*, "Focus on European Economic Integration", (4).

<sup>39</sup> H. Badinger, F. Breuss, (2009), *Country size and the trade effects of the euro*, "Review of World Economics", 145(2).

## STRATEGIA KOSMICZNA DLA EUROPY

Paweł Frankowski\*

### Wprowadzenie

Uruchomienie 15 grudnia 2016 roku systemu Galileo rozpoczęło nową fazę rozwoju europejskiej polityki kosmicznej, wprowadzonej Traktatem z Lizbony<sup>1</sup>, która staje się stopniowo jedną z ważniejszych polityk Unii Europejskiej. Geolokalizacja, jako jeden z kluczowych elementów rewolucji cyfrowej, możliwa dzięki sygnałowi Galileo udostępnianemu bezpłatnie przez Unię Europejską wywiera istotny wpływ zarówno na gospodarkę, bezpieczeństwo, jak i relacje w skali całych społeczeństw i regionów. Precyzyjne określenie czasu i miejsca umożliwi rozwój nowych technologii opartych na pozycjonowaniu, co z pewnością stanowić będzie istotny impuls do rozwoju gospodarki europejskiej, gdy zniknie niepewność związana z dostarczaniem sygnału GPS przez Stany Zjednoczone. Przybliży to państwa członkowskie UE do posiadania w pełni autonomicznych usług pozwalających na precyzyjną nawigację bez konieczności opierania się na zasobach zewnętrznych.

Start systemu Galileo zbiegł się w czasie z ogłoszeniem strategii kosmicznej dla Europy, pierwszego od 2011 roku dokumentu, w którym określono cele, założenia i główne kierunki rozwoju europejskiej polityki kosmicznej. Komunikat Komisji Europejskiej, ogłoszony 26 października 2016 roku<sup>2</sup>, jest jednym z dwóch dokumentów opublikowanych w 2016 roku przez instytucje unijne, traktujących bezpośrednio o wykorzystaniu zasobów kosmicznych i koncepcji rozwoju tychże zasobów w najbliższych latach. Wcześniej, w kwietniu 2016 roku, Parlament Europejski przyjął sprawozdanie oraz rezolucję w sprawie zdolności europejskiej polityki bezpieczeństwa i obrony do działania w przestrzeni kosmicznej, gdzie podkreślono, że europejskie systemy kosmiczne mają przyczyniać się do budowy instrumentów ustanawiających „Unię obronności”<sup>3</sup>.

Celem niniejszego artykułu jest analiza propozycji Komisji zawartych w Strategii kosmicznej dla Europy z punktu