

Andrzej CIEŚLIK*, Anna MICHAŁEK**, Jan Jakub MICHAŁEK*

European integration and firm's export performance in the new EU member countries¹

Abstract: The main goal of this paper is to investigate whether the accession to the European Union and the common currency adoption increased the export activity of individual firms in the new EU member states. To evaluate these effects we use probit estimation, based on the Melitz [2003] model and firm-level BEEPS dataset. We demonstrate that both the accession of the CEECs to the EU and the common currency adoption increased the firms' propensity to export in those countries. Our results indicate also that the probability of exporting increases with the share of university graduates in employment, larger spending on R&D, the use of foreign technology licenses, foreign ownership, the productivity and the firm's size.

Keywords: European integration, exports, firm level data, new EU members states.

JEL codes: F12, F14, F33.

Introduction

The accession to the European Union (EU) and the adoption of the common currency should have important consequences for trade flows of joining countries. Several Central and East European countries joined the European Union in the three waves of the Eastern enlargement during the last decade:

* University of Warsaw, Faculty of Economic Sciences, ul. Długa 44/50, 00-241 Warsaw, Poland, corresponding author: michalek@wne.uw.edu.pl.

** European Central Bank, Frankfurt am Main.

¹ This research has been undertaken under the NCN grant (financial project: GR 4353). The authors would like to thank the National Science Centre for financial support. The opinions expressed by authors in the paper reflect neither those of the Faculty of Economic Sciences, University of Warsaw, nor of the European Central Bank.

the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovakia, Slovenia in 2004, Bulgaria and Romania in 2007 and Croatia in 2013. The new EU member states (NMS) have been obliged to join the Eurozone, however the majority of them still have not introduced the common currency.

The accession the Eurozone requires the fulfillment of the Maastricht convergence criteria. One of them is related to the accession to the exchange rate mechanism (ERM II). Estonia, Lithuania and Slovenia joined the ERM II already at the time of their accession to the EU in June 2004, Cyprus, Latvia and Malta in May 2005 and Slovakia in November 2005. Larger NMS such as Bulgaria, the Czech Republic, Hungary, Poland and Romania, that joined the EU despite their declarations to adopt the euro, have not joined the ERM II so far.² Slovenia was the first country to join the Eurozone in January 2007 followed by Cyprus and Malta which joined the Eurozone in January 2008, Slovakia in January 2009, and Estonia in January 2011 and Latvia in January 2014.

The aim of this paper is to investigate whether the accession to the European Union and the adoption of the common currency increased the export activity of individual firms in the new EU member states. To evaluate these effects we use probit estimation, based on the Melitz [2003] model and firm-level data. In addition to the use of firm-level data we also control for country characteristics such as the size and the level of development which may affect firms' propensity to export. This study will help in understanding whether and by how much European integration contributed to the firm's exports from the new EU member states.

The paper is divided into three sections. In the first section we survey the literature on firms' heterogeneity with special focus on the Central and European countries. In the second section we describe the analytical framework and discuss data sources. In the third section we present estimation results. Finally we summarize and conclude with policy recommendations and directions for further studies.

1. Literature review

The early empirical studies concentrated on the evaluation of ex ante and ex post consequences of trade liberalization in the Central of Eastern European countries. In the later years the focus of analysis has switched towards stud-

² Bulgaria, although it did not officially enter the ERM II, pegged its currency to the euro since its creation in 1999 (before the Bulgarian lev was pegged to the German mark).

ying the trade effects of accession of the common currency adoption in the new EU member states. The majority of those studies were based on gravity models estimated for the aggregate trade flows. Traditionally economists have relied on augmented gravity equations, derived from either the neoclassical or new trade theory models to empirically study the aggregate effects on trade flows. In this approach indicator variables describing the participation in free trade areas, the exchange rate stabilization regimes and membership in the monetary union were used.

The ultimate goal of many Central and Eastern European countries was joining the EU. This has been the major factor shaping foreign trade policies in the CEE countries throughout the 1990's. The EU concluded the Europe Agreements with the majority of the CEE countries in the first half of the 1990's. These agreements aimed at establishing a free trade area covering industrial products and granting limited preferences to agricultural goods between the CEE countries and the EU over a maximum period of ten years. The trade components of the Europe Agreements overshadowed and extended the Generalized System of Preference status granted by the EU to most CEE countries in the early 1990's.³ By January 1, 1997 the EU eliminated practically all tariffs on imports from the CEE countries with the exception of agricultural and "sensitive" products. The free trade area had to be completed by the target date of January 1, 2002. The full trade liberalization including agricultural products took place at the accession of these countries to the EU.

At about the same time when the Europe Agreements were signed the CEE countries started to liberalize trade also amongst themselves. Their efforts resulted in a matrix of sub-regional and bilateral agreements that were supposed to complement trade liberalization with Western Europe. The most important of these was the Central European Free Trade Area (CEFTA) established by former Czechoslovakia, Hungary and Poland and the Baltic Free Trade Area (BAFTA) established by Estonia, Latvia and Lithuania. The CEFTA agreement was signed on December 21, 1992 and came into force on March 1, 1993. The BAFTA agreement was signed on September 13, 1993 and came into force on April 1, 1994.⁴ Many BAFTA and CEFTA members signed bilateral trade agreements in subsequent years.

³ Unilateral trade liberalization with the CEE countries was initiated by the EU immediately after the fall of communism in Central and Eastern Europe. In 1990 the EU granted the Generalized System of Preference (GSP) status to Hungary and Poland, in 1991 to Bulgaria and former Czechoslovakia, and in 1992 to three former Soviet republics: Estonia, Latvia and Lithuania.

⁴ In contrast to CEFTA, BAFTA did not increase its membership but the coverage of the agreement was increased over time at a faster pace than in the CEFTA member states. In par-

Two main strands in the early empirical literature employing the gravity models in the context of Central and Eastern European countries can be distinguished. The first strand that emerged in the early 1990's concentrated on estimating the trade potential of CEE countries and predicting the volume of their trade flows with the West. The most commonly cited examples in this strand include Wang and Winters [1991], Hamilton and Winters [1992], Baldwin [1994], Gross and Gonciarz [1996], Piazzolo [1997] and Fidrmuc, Huber and Michałek [2001].⁵ The second strand that emerged in the late 1990's and early 2000's focuses on evaluating the ex-post effectiveness of trade liberalization in Central and Eastern Europe. The examples include studies by Adam, Kosma and McHugh [2003], De Benedictis, De Santis and Vicarelli [2005], Cieřlik [2007], Milner and řledziewska [2008], Cieřlik and Hagemeyer [2011].

In recent years the discussion switched towards studying the effects of the adoption of the common currency in the new EU member states. The standard argument is that the reduction in transaction costs due to the elimination of the exchange rate risk should stimulate exports of existing firms and encourage non-exporters that previously limited their operations to their domestic markets to start exporting [Baldwin, Skudelny & Taglioni 2005]. It is argued that the reduction of the transaction cost is important for countries that are characterized by the concentration of their trade with one large trading partner or a group of countries using the same currency. This is exactly the case for EU new member states for which Germany is the main trading partner and where more than 50% of their trade takes place with the members of the Eurozone.

In the context of Central and Eastern European countries several attempts were made to estimate *ex ante* trade effects of the euro adoption by these countries using the gravity model. The *ex ante* effects were studied by Maliszewska [2004], Belke and Spies [2008], Cieřlik, Michałek and Mycielski [2009, 2012a]. The literature dealing with the *ex post* evaluation of the aggregate trade effects of euro adoption in the Central European countries is less abundant. In par-

ticular by January 1, 1997 BAFTA included not only industrial but also agricultural and fish products. In this way BAFTA became the first free trade area in the region that provided for completely liberalized trade in these economically sensitive areas. Significant differences in the pace and the coverage of trade liberalization between the BAFTA and the CEFTA member states did not allow creating a single free trade area that would embrace all the CEE countries before their accession to the EU.

⁵ These studies find that the initially high unexploited trading potential of Central and Eastern Europe quickly eroded as a result of adjustment in trade flows that took place in the early 1990's. See Brenton and Manzoocchi [2002] for the review of this literature.

ticular it includes the recent empirical studies by Aristovnik and Meze [2009] and Cieřlik, Michałek and Mycielski [2012b, c].

The literature studying the trade effects of the accession to the European Union and later the Eurozone based on the gravity model and aggregate trade data is fairly abundant. However the empirical evidence that refers to the most recent theme in trade theory literature that is based on firm-level data is still scarce. It is frequently argued that the aggregate data can mask micro-economic gains therefore it is important to complement the aggregate level evidence with more detailed firm-level studies.

The alternative micro-economic approach is based on the Melitz [2003] model in which the export performance of heterogeneous firms depends on labour productivity and the costs of exporting. The Melitz [2003] model implies important microeconomic effects of reduction in international transaction costs from trade liberalization or elimination of exchange rate volatility. This reduction should lead to significant changes within sectors: growth of the most efficient firms, a richer variety of goods, tougher competition (i.e., smaller mark-ups), and, consequently, exit of the least efficient firms.

Testing for the microeconomic effects of the reduction in international transaction costs requires highly disaggregated data. Two possible approaches can be considered. The first approach is to use trade data at the product level. However using such data it is not possible to assess whether an increase in the value of bilateral exports in one product category can be explained by incumbent firms increasing the value of their shipments, or new firms exporting to the same trade partner within the same product category. The second approach is to use firm-level trade data which permits a description of the micro-level adjustment.

In the context of Central and Eastern European countries, according to the best of our knowledge, it seems that there are very empirical studies based on firm-level data. Studies of export performance based on firm-level data for Poland and later for all the Visegrad countries (i.e. the Czech Republic, Slovakia, Hungary and Poland) have been recently made by Cieřlik, Michałek and Michałek [2012a, b, 2013]. Their analysis showed that the productivity of the labour force was positively related to the probability of exporting, confirming the key prediction of the Melitz [2003] model. In addition, in their empirical studies, other factors such as spending on R&D, size of the firm, internationalization of the firm and the stock of human capital may affect export business decisions were examined.

However the aforementioned studies did not control for the effects of EU and EMU accession and other country characteristics. Therefore this paper

complements the previous empirical evidence by including in the estimating equations variables describing the EU and the EMU membership and country characteristics such as the country size and the level of economic development.

2. Empirical methodology and data description

The new strand of trade theory provides a very useful tool for the analysis of trade performance in response to the reduction of transaction costs due to removal of trade barriers and the adoption of the common currency. In particular we refer to the Melitz [2003] model and focus on the effect of increased participation of non-exporters in international markets. This is equivalent to analyzing the extensive marginal effects studied in the literature.

According to the Melitz [2003] model productivity differences amongst firms are the key variable in explaining the firm's ability to enter export markets. In his model firm productivity is exogenously given and each firm has to pay a fixed cost when entering the domestic and foreign markets. The model predicts that the most productive firms with the lowest marginal costs can pay the fixed cost of entry and become an exporter. On the one hand a fall in importing costs forces the least productive firms to exit the domestic market and reallocate market share from these firms to the more productive ones. As a result the average level of productivity within the sector increases. On the other hand a reduction in the costs of exporting reduces the threshold level of productivity that firms need to achieve in order to export, and consequently the non-exporters with the highest productivity are able to enter the foreign market.

The importance of the firm's productivity for exporting has been stressed in the EFIGE [European 2010] report for the European countries. This report demonstrated that firm's export performance in seven EU countries depends on labour productivity and other firm characteristics. However these studies did not include Central and Eastern Europe countries with the exception of Hungary. Similar studies for selected Central and Eastern Europe countries and separately for Poland were performed by Cieřlik, Michałek and Michałek [2012 a, b, 2013]. In their empirical analysis it was shown that the productivity of the labour force was positively related to the probability of exporting and this relationship was highly statistically significant. In addition in their empirical studies as to how other factors such as spending on R&D, size of the firm, internationalization of the firm and the stock of human capital may

affect export business decisions were examined. Their results were similar to the results reported in the EFIGE [European 2010].

However in all the aforementioned studies the authors did not check the country characteristics postulated by the traditional trade theories such as the country size and the level of economic development. Therefore in this paper we combine both approaches: the traditional approach stressing the role of country characteristics and the new approach stressing the role of firms' characteristics in the single empirical framework.

We employ the probit model with clustered standard errors to study the relationship between exporting and the two stages of European integration having controlled for firms' and country characteristics. Based on the previous theoretical literature we develop an empirical model to investigate how the reduction in trade costs affects the probability of exporting. This probability is modelled as a linear function of firm, industry and country characteristics. In addition to account for the unobserved heterogeneity we run the probit model with clustered standard errors. The clustering is done with respect to the country.

Let Y_i^* be the dependent variable that indicates the export status of firm i . This variable is a latent variable which means that instead of observing the volume of exports, we observe only a binary variable Y_i indicating whether the firm is exporting or not. Hence, our dependent variable follows a binary distribution and takes the value 1 when the firm exports and 0 otherwise:

$$Y_i = \begin{cases} 1 & \text{if } Y_i^* > 0 \\ 0 & \text{if } Y_i^* = 0 \end{cases} \quad (1)$$

In addition, we assume that $Y_i^* = X_i q + \varepsilon_i$, where X_i is a vector of explanatory variables affecting exports, q is the vector of parameters on these variables that needs to be estimated and ε_i is an error term which is assumed to be normally distributed with a zero mean. Hence, the probability that a firm exports can be written as:

$$Pr(Y_i = 1 | X_i) = \Phi(\beta + X_i \theta). \quad (2)$$

Our analysis is based on the EBRD-World Bank Business Environment and Enterprise Performance Survey (BEEPS) data collected by the World Bank and the European Bank for Reconstruction and Development for the post-communist countries located in Central and Eastern Europe. Their sur-

veys covered the manufacturing and service sectors and are representative of the variety of firms according to sector and location within each country. The data was collected for the years 2002, 2005, 2009 and 2010. In all countries where a reliable sample frame was available (except Albania), the sample was selected using stratified random sampling. Unfortunately only a small proportion of firms appears every year in the sample which means that the application of the standard panel data estimation techniques is not possible. Therefore we decided to use instead the standard probit procedure on the pooled dataset without controlling for individual firm effects. Nevertheless, we are able to control for individual sector and time effects. We assume that export activity occurs when at least one percent of sales' revenue comes from sales made abroad.⁶

The probability of exporting for the CEE firms analysed is dependent on firm and country characteristics. Firm characteristics are based on survey questions regarding the individual characteristics of the firm, sector of activity, legal and economic status, characteristics of managers and the size of the firm, economic performance and key characteristics of the firms reviewed, as well as stakeholders. Unfortunately a set of our explanatory variables is not available for all firms. The sample used in our econometric analysis includes cross-section data for less than five thousand observations for firms located in the CEE countries for which explanatory variables were available in all analyzed years. Table 1 shows the definitions of firm characteristics used in our study.

In addition to the firm characteristics we also included country characteristics such as the GDP and GDP per capita measuring the country size and the level of economic development in addition to the EU and EMU membership. The EU membership variable is a dummy variable that takes value 1 when the country is a member of the European Union and zero otherwise. In a similar manner we define the EMU membership variables which takes value 1 when the country is a member of the Eurozone. Our sample covers the period 2002–2010. Therefore it is possible to analyze the effects of the euro adoption for trade flows of only two NMS for which data was available, i.e. Slovenia and Slovakia.

We also included the country characteristics reflecting the size of the domestic market (level of GDP in current US dollars) and the level of development, proxied by the level of GDP per capita (expressed also in current US dollars). Data on GDP and GDP per capita were obtained from the World

⁶ In Table A1 in the appendix we present the list of countries for which data was available and the associated export propensity of firms from those countries.

Table 1. Explanatory variables: firm characteristics

Variable name	BEEP input name	Description
Lprod	$lprod = \log(lprod)$ $prod = \text{exchange rate} * (d2/l1)$	Logarithm of productivity expressed as total amount of annual sales per full time employee. The annual sales are converted from local currencies to USD
Firm_size	l1	Logarithm of number of permanent, full-time employees in this firm at end of last fiscal year
Age		Logarithm of number of years since start of operations
Luniv	$luniv = \log(ECAq69)$	Logarithm of % employees at end of fiscal year with a university degree
lRaD	$RaD = (ECAo4/d2) * 100$ $lRaD = \log(RaD)$	Logarithm of % of total annual sales spent on research and development
foreign_tech	e6	The use of technology licensed from a foreign-owned company
foreign_cap	b2b	Shares in capital of private foreign individuals, companies or organizations

Development Indicators (WDI) compiled by the World Bank. Those variables are very frequently used in estimations of bilateral trade flows based on the standard gravity models. The expected sign of GDP level variable is negative since countries with larger markets are usually less open, whilst the GDP pc should be positive because more developed countries are more open in the majority of cases. In our estimations we used both variables in logarithms. Finally we also control for individual time and sectoral effects.

3. Estimation results

In Table 2 we present our estimation results. In column (1) we show the baseline results without controlling for country characteristics, time and sectoral effects. In column (2) we also check the robustness of our results by controlling for the country size and the level of development as well as individual time effects. Finally, in column (3) we control also for the sector specific effects.

The key explanatory variables stressed by the Melitz [2003] model – productivity is expressed as the total amount of annual sales per full time employee (*lprod*). Other factors that may affect export activity include the level of innovation proxied by the R&D spending (*IRaD*), the stock of human capital proxied by the percentage of employees with university degrees (*luniv*). In addition we control for the foreign ownership (*foreign_cap*), the foreign technology (*foreign_tech*) and the age (*age*) and the size of the firm (*firm_size*).

First we discuss the benchmark results presented in column (1) for the standard firm characteristics but without controlling for the country size and the level of economic development variables. Our estimation results reveal that all the explanatory variables display the expected signs and are statistically significant at the 1% level. The estimated parameters on the key explanatory variable describing two stages of European integration: the EU and the EMU dummy variables display positive signs. This means that firms from the EU and the Eurozone countries face lower transaction costs in entering the markets in other EU and Eurozone countries and reveal a higher propensity to export. However the magnitude of the estimated parameter on the EMU variable is about four times as large as the one on the EU variable. This means that from the perspective of the CEE countries the accession to the EU increases the propensity to export of their firms and the accession to the Eurozone generates an additional increase in the extensive margin of exports.

The signs of the estimated parameters for other variables are in line with expectations and results from other empirical studies based on the Melitz [2003] model. In particular the level of labour productivity is positively related to the probability of exporting and statistically significant at the 1% level. Moreover the level of R&D spending and proportion of workers with university degrees are positively related to the probability of exporting. Finally the probability of exporting increases with the firm's size, foreign ownership and the use of foreign technology.

In column (2) of Table 2 we control for two country characteristics: their size and the level of economic development and individual time effects for the particular years of our sample. Both GDP and GDP per capita variables are statistically significant at already at the 1% level and display expected trends. The estimated parameter on the level of economic development – GDP per capita variable – is positive whilst the estimated parameter on the variable reflecting the size of the home market – the GDP level – is negative. These results are in line with empirical studies based on the aggregate data. On the one hand bigger economies are usually less open and their firms have smaller

Table 2. Estimation results (standard errors in parentheses)

Variables	1	2	3
lprod	0.0128*** (0.00463)	0.00747 (0.00496)	0.0102** (0.00410)
firm_size	0.285*** (0.0136)	0.259*** (0.0142)	0.259*** (0.0120)
age	0.00304*** (0.00105)	0.00327*** (0.00108)	0.00279*** (0.000928)
foreign_cap	0.00734*** (0.000733)	0.00798*** (0.000750)	0.00799*** (0.000611)
IRaD	0.0701*** (0.0216)	0.0741*** (0.0221)	0.0702*** (0.0172)
luniv	0.0498*** (0.00760)	0.0591*** (0.00782)	0.0634*** (0.00762)
EU	0.492*** (0.0405)	0.275*** (0.0575)	0.242*** (0.0507)
EMU	1.234*** (0.245)	0.460* (0.257)	0.494* (0.263)
lgdp		-0.147*** (0.0167)	-0.148*** (0.0143)
lgdp_per_capita		0.363*** (0.0368)	0.390*** (0.0272)
foreign_tech	0.674*** (0.0838)	0.0790 (0.0955)	
Constant	-2.132*** (0.0884)	-0.868** (0.368)	-1.414*** (0.293)
time effects	no	yes	yes
sectoral effects	no	no	yes
Observations	5,932	5,932	7,508
Log likelihood	-2961	-2804	-3696
Pseudo R2	0.179	0.223	0.212

*** p < 0.01, ** p < 0.05, * p < 0.1.

incentives to export. On the other hand more developed countries are more export oriented as it is easier for their firms to enter foreign markets.

In this case the estimated parameters of the EU and the EMU variables remain positive and statistically significant although at different levels. Moreover the magnitudes of estimated parameters on both variables decrease significantly compared to the baseline estimation. The inclusion of the country specific variables does not affect the statistical significance of the firm characteristics with the exception of the productivity and foreign technology variables which lose their previous statistical significance. Therefore in the next column we report the estimation results omitting this variable. This allows us to increase the number of observations by more than 1000.

In column (3) of Table 2 we control for sector-specific effects with other services treated as the benchmark. In the majority of cases the estimated parameters on the sectoral dummies were statistically significant but at different levels of statistical significance. The estimation results for other variables are similar to those reported in column (2). In this estimation we dropped the use of foreign technology variable which was not statistically significant. The estimated parameter on the EU and the EMU variables display positive signs and remain statistically significant at the previous levels. The major difference is that the estimated parameter on the productivity variable now becomes statistically significant at the 5% level.

Conclusions

In this paper we investigated the export effects of the two stages of the European integration in Central and Eastern European countries: EU accession and adoption of the common currency. In contrast to many previous studies that were based on the gravity model and the aggregate trade flows we used the extended Melitz [2003] model which included both the firm-level and country-level characteristics. The key explanatory variable in this model were two dummy variables indicating the EU and the EMU membership. In addition we controlled for other factors that may affect export activity both at the level of the firm and at the level of the country. Firm-level characteristics included the level of productivity, the level of innovation, the stock of human capital, foreign ownership and the use of foreign technology and the age and the size of the firm. The country-level characteristics included the country size and the level of economic development.

Our estimation results demonstrated that both the EU and EMU membership are positively related to the probability of exporting. This means that the accession to the EU and the adoption of the common currency increases firms' propensity to export. The estimated parameters on our control variables such as productivity, the size of the firm and the stock of human capital, were in line with the results of previous empirical studies based on the original Melitz [2003] model. The estimated parameters on the country characteristics were also in line with the expectations.

Moreover it should be noted that the results concerning the significance of the EMU membership differ considerably from the previous studies based on the aggregate trade flows. However these results do not have to be mutually exclusive as the results based on the aggregate data may not properly reflect microeconomic gains resulting from the common currency adoption. In other words the value of aggregate exports may be affected by the increased competition resulting in the depression of prices. However these results should also be treated with some caution as it was not possible to use panel data and only the equivalent of the extensive margin effect was estimated. Therefore a more detailed analysis that requires firm-level data on the geographical structure of their exports should be performed in future studies.

Appendix

Table A1. A comparison of the propensity to export among the firms Central and Eastern European countries

Export (national sales less than or equal 99% of establishment's sales)		
country	mean	freq.
Slovenia[euro2007]	0.55	685
Croatia	0.42	1148
Serbia	0.37	900
Slovakia[euro2009]	0.37	654
FYROM	0.36	736
Estonia	0.35	660
Lithuania	0.35	680
Hungary	0.35	1149
Bosnia	0.35	737
Czech Rep.	0.35	857
Bulgaria	0.32	1853
Latvia	0.29	651
Albania	0.27	732
Poland	0.27	2008
Belarus	0.26	848
Moldova	0.24	887
Ukraine	0.22	1902
Romania	0.21	1382
Russia	0.17	2359
Montenegro	0.13	153
Total	0.31	20981

Source: Own calculations based on the BEEPS data.

References

- Adam, A., Kosma, T.S., McHugh, J., 2003, *Trade Liberalization Strategies: What Could Southeastern Europe Learn from CEFTA and BFTA*, IMF Working Paper, no. 239.
- Aristovnik, A., Meze, M., 2009, *The Economic and Monetary Union's Effect on (International) Trade: The Case of Slovenia Before Euro Adoption*, MPRA Paper, no. 17445.
- Baldwin, R.E. Skudelny, F., Taglioni, D., 2005, *Trade Effects of the Euro – Evidence from Sectoral Data*, Working Paper Series, no. 446, European Central Bank.
- Belke, A., Spies, J., 2008, *Enlarging EMU to the East: What Effects on Trade?*, *Empirica*, vol. 35, pp. 369–389.
- Brenton, P., Manzoocchi, S., 2002, *Enlargement, Trade, Investment*, Edward Elgar, Cheltenham.
- Cieślak, A., 2007, *Wpływ porozumień o wolnym handlu na wielkość wymiany handlowej Polski w latach 1992–2004*, *Bank i Kredyt*, nr 6, pp. 3–23.
- Cieślak, A., Hagemeyer, J., 2011, *The Effectiveness of Preferential Trade Liberalization in Central and Eastern Europe*, *International Trade Journal*, vol. 25 (5), pp. 516–538.
- Cieślak, A., Michałek, J.J., Michałek, A., 2012a, *Determinanty działalności eksportowej polskich firm*, *Gospodarka Narodowa*, nr LXXX/XXI, nr 7–8, pp. 67–84.
- Cieślak, A., Michałek, J.J., Michałek, A., 2012b, *Export Activity in Visegrad-4 Countries: Firm-level Investigation*, *Ekonomia*, no. 30, pp. 5–29.
- Cieślak, A., Michałek, J.J., Michałek, A., 2013, *The Impact of the Common Currency on Exports of New EMU Members: Firm-level Evidence for Slovenia and Slovakia*, *Equilibrium*, no. 8(4), pp. 7–23.
- Cieślak, A., Michałek, J.J., Mycielski, J., 2009, *Prognoza skutków handlowych przystąpienia do Europejskiej Unii Monetarnej dla Polski przy użyciu uogólnionego modelu grawitacyjnego*, *Bank i Kredyt*, nr 40 (1), pp. 69–88.
- Cieślak, A., Michałek, J.J., Mycielski, J., 2012a, *Measuring the Trade Effects of the Euro in Central and Eastern Europe*, *The Journal of International Trade & Economic Development*, vol. 21, iss. 1, pp. 25–49.
- Cieślak, A., Michałek, J.J., Mycielski, J., 2012b, *Euro and Trade Flows in Central Europe. Equilibrium*, *Quarterly Journal of Economics and Economic Policy*, vol. 7, no. 3, pp. 7–25.
- Cieślak, A., Michałek, J.J., Mycielski, J., 2012c, *Consequences of the Euro Adoption by Central and Eastern European (CEE) Countries for Their Trade Flows*, *National Bank of Poland Working Paper*, no. 118, pp. 1–39.
- De Benedictis, L., De Santis, R., Vicarelli, C., 2005, *Hub-and-Spoke or Else? Free Trade Agreements in the 'Enlarged' European Union*, *European Journal of Comparative Economics*, no. 2, pp. 245–260.
- European Firms in a Global Economy: EFIGE, 2010, *The Global Operations of European Firms. The Second EFIGE Policy Report*, Bruegel.

- Fidrmuc, J., Huber, P., Michałek, J.J., 2001, *Poland's Accession to the European Union: Demand for Protection of Selected Sensitive Products*, MOCT-MOST Economic Policy in Transitional Economies, 11, 1, pp. 45–67.
- Gross, D., Gonciarz, A., 1996, *A Note on the Trade Potential of Central and Eastern Europe*, European Journal of Political Economy, 12, 4, pp. 709–721.
- Hamilton, C.B., Winters, A.L., 1992, *Opening up International Trade with Eastern Europe*, Economic Policy, 14, 1, pp. 77–116.
- Maliszewska, M.A., 2004, *New Member States Trading Potential Following EMU Accession: A Gravity Approach*, Studies and Analyses, no. 286, CASE – Center for Social and Economic Research.
- Melitz, M., 2003, *The Impact of Trade in Intra-Industry Reallocations and Aggregate Industry Productivity*, Econometrica, 71(6), pp. 1695–1725.
- Milner, C., Śledziewska, K., 2008, *Capturing Regional Trade Effects in the Presence of Other Trade Effects: The Impact of the Europe Agreement on Poland's Imports*, Open Economies Review, 19(1), pp. 43–54.
- Piazolo, D., 1997, *Trade Integration between Eastern and Western Europe: Policies Follow the Market*, Journal of Economic Integration, 12, 3, pp. 259–297.
- Wang, Z.K., Winters, A.L., 1991, *The Trading Potential of Eastern Europe*, CEPR Discussion Paper, no. 610.
- World Development Indicators*, World Bank, Washington.