

Exporting in Transition and Exchange Rate Systems - A Comparative Case Study of Firm-level Export Performance in the Czech Republic, Lithuania, Poland and Slovakia over the course of the Great Recession

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Preliminary draft version only!

Abstract

The paper investigates for the relationship between exchange rate systems at the country level and export performance at the firm-level using the World Bank Enterprise Surveys. We ask using the Great Recession as an event study whether there is any evidence showing that firm-level responses exhibited a synchronised response to the event that may have roots in the differential exchange rate systems of their respective home countries. Sampling questions at both levels (country and firm) are essential for the study to render robust findings, with large consequences for inference but in different ways. The preliminary findings show that at the aggregate level Lithuanian exports suffered the most. At the sample level Slovakian exporters fared worst on both the extensive and intensive margins and absolute value exported. At the unmatched firm level Polish exporters suffered the most on their extensive and intensive margins, with little effect on value exported and with very large differences in productivity responses of exporters and non-exporters relative to the other countries. We show that these results are robust to a variety of matching procedures. Future research should seek to control or connect this finding to the import intensity of each firm. We did not have access to this information in our research.

Keywords: Exchange rate systems, export performance, comparative research of institutions, statistical sampling methods, case study research.

JEL Codes: C21, G01, F14, F33, F61

1 Introduction

The choice of the best exchange rate system is a difficult question that has been sought interpreted in a variety of ways in the past using both macroeconomic and microeconomic datasets. The globalization and current changes in the international financial system reopened the debate about the exchange rate systems' effects on trade. The recent currency fluctuations, as the IMF survey (2015) stated, are unusually large and questioned the relation between exchange rate system and trade. As this relation depends on the firms' peculiarities (multinational or national, high productive or low productive, included in global value chain or not etc.) research conducted at the micro or firm-level is assuming increasing importance in this literature. Theoretically the fixed exchange rate has to support the stability of finance system and reduce exchange rate uncertainty. The exporting companies have lower cost for they don't need to hedge against currency fluctuation in order to guarantee their income. At the same time the fixed exchange rate system means that exchange rate policy cannot be used as an instrument to stabilize the economy. Flexible exchange rate systems are always related with higher uncertainty and involves additional costs as currency fluctuations or volatility have to be managed by hedging if macroeconomic fundamentals don't contribute to stable exchange rate. But the flexible exchange rate system could be used as an export stimulating policy in order to preserve the country's competitiveness. In studies focusing on firm-level performance there is often the assumption that (temporary) depreciations or devaluations are helpful rather than harmful to firm competitiveness even though a depreciation or devaluation analytically can be shown to have a non-disciplining effect on firms by creating more slack both for exporters and import-competing firms similar to temporary subsidies and tariffs. While firms that participate in global value chains are most likely hurt by a decline in the value of the local currency (because it reduces their relative value position in the chain) except if they are a subsidiary of a multinational firm. Oppositely are currency crisis associated with longer or deeper depreciation episodes (currency crisis) almost always associated with a negative firm-level effect even though studies in this tradition are rare (see e.g. Desai et al, 2008).

Here we pursue a relatively simple question asking how exporters and non-exporters in four countries with four different exchange rate systems performed over the Great Recession. Studies of exchange rate systems that focus on the microeconomic behaviour of sampled firm populations rarely pool datasets across countries and therefore often lack the comparative (institutional) dimension. With this study we try to fill several voids in the literature on exchange rate systems and export performance, e.g. our study is the first to conduct a controlled comparative case study experiment and focusing explicitly on the relative performance of exporters and non-exporters in each country. Even though the four countries studied are very similar (relative to other countries in the region and the world) they exhibit high variation in their exchange rate systems from a free float in Poland to a relatively long history of fixed exchange rates in Lithuania. It therefore provides a quite ideal ground for a comparative case study of

exchange rate systems.

Section 2 provides for a literature review of studies taking outset in firm-level datasets that investigate the relationship between exchange rates and export competitiveness. Section 3 introduces the country cases studied and provides evidence of their formal exchange rate systems over the 2000s while also analysing the de facto performance of their regimes using information about real exchange rates and aggregate export performance. Section 4 introduces the firm-level data and provides for a number of descriptive statistics of each country case at the sample level. The descriptive statistics are brought together in a comparative table in Section 4 while individual country results are reported in the appendix. Section 5 reports the findings at the firm-level using econometrics seeking to control for firm heterogeneity using covariates and hereby also controlling for differences in the industrial structure of the four countries. Finally, different balanced samples are analysed in Section 6 using Mahalanobis distance matching, e.g. reducing any variation in the previous results that could owe to factors such as the size of the domestic market (ranging from barely 3 mio inhabitants in Lithuania to 38.5 mio in Poland).

2 Literature review

Earlier research on exchange rate systems and export performance has mostly been conducted at more aggregate levels such as industry and country level. In this short review we therefore focus on recent literatures that take a similar approach to ours with outset in data on exporting at the firm-level.

Starting from Bernard and Jensen (2004) (who found in a panel style one country case study of the US that adverse exchange rate movements (an appreciation in the USD) at the industry level hampered export performance) and reviewing the available empirical and quantitative (econometric) literature on exporting and performance using a mix of firm-level, industry and macro or country level explanatory variables, we only found relatively few studies that specifically addressed currency crisis, depreciations or exchange rate risk and volatility as a factor that affect export performance at the firm level. A number of studies have focused on exchange rate pass-through at the firm level. Yet a number of other studies have investigated the differential performance of exporters during depreciation episodes focusing on ownership factors. Only the latter have taken a multi-country approach. We found no studies focusing on the differential performance of exporters and non-exporters during similar currency events or episodes.

2.1 Longitudinal one-country studies

Bernard and Jensen's (2004) study of the exporting decision in a large panel data sample for the US adopts the following specification with a linear probability model on the decision to export ($Y_{it} = 0/1$) (e.g. the extensive margin):

$$Y_{it} = \theta Y_{it-1} + \beta X_{it-1} + \gamma Z_{it-1} + \varepsilon_{it} \text{ (eq. 1)}$$

and adopting firm-specific covariates contained in Z and other firm external covariates (such as industry level real effective exchange rates) contained in X . Bernard and Jensen (2004) argue that firm-level factors are endogenous, whereas industry and spatial factors (or firm external factors) such as the real effective exchange rate at the industry level are exogenous. However, exchange rates are only negative and significant for the exporting decision (where an improvement in the real exchange rate here signifies an appreciation episode) in the level and fixed effect specification but insignificant in the differenced IV estimations.

Another similar study for Turkey (longitudinal panel) investigates export performance (again on the extensive margin) among Turkey's top 500 firms (Atici and Gursoy, 2012). The findings of that study were in accord with Bernard and Jensen (2004) in the sense that a favourable movement in the local currency (here a depreciation in the nominal price of the USD expressed in Turkish lira) led to a systematic increase in the decision to export (extensive margin) across all the firms studied. The same result was obtained for multi-product firms exporting out of China by Xu, Mao and Tong (2016). Another recent and longitudinal study by Jensen (2017) of the top 1000 firms exporting out of Turkey confirmed the findings of Atici and Gursoy (2012), controlling for firm-specific effects in a panel and controlling for exchange rate volatility. The study by Jensen (2017) also showed that foreign owned firms were less impacted by exchange rate movements on their export performance and when compared to the Turkish owned firms. A study of China by Liu, Lu and Zhou (2013) investigated the effects of unexpected exchange rate reform (2005, July 21, Chinese government reevaluated the currency and it appreciated by 2,1%) on exporting companies. Using different methods and macro and micro levels the authors found statistically significant negative effect of a currency appreciation on exports and no trade deflection by exporters after the currency appreciation (intensive and extensive margin) to other countries except US and heterogeneous effects across regions, firms and industries. A study of India by Cheung and Sengupta (2013) dealt with the real effective exchange rate effects on the exports of Indian non-financial sector firms. They found (using micro level study, sample starts from 3200 firms, period 2000-2010) a strong and significant negative effect of currency appreciation and volatility on firms export shares but also stressed the asymmetrical response to currency fluctuation: the stronger response is on appreciation and weaker on depreciation. The investigation demonstrated that bigger impact was found on the companies with smaller export shares and exporting services.

2.2 Studies focusing on exchange rate pass-through

Berman and Martin (2012) analyzed the heterogeneous reaction of exporters to real exchange rate changes using French firm-level data on the period 1995–2005. Findings of their paper demonstrated that high performance firms react to a depreciation by increasing significantly more their markup and by increasing less their export volume. This heterogeneity in pricing-to-market is robust to different measures of performance, samples, and econometric specifications. It is consistent with models where the demand elasticity decreases with firm per-

formance. The findings of Bermand and Martin (2012) were confirmed in the context of Chinese exports in a recent study by Li, Ma and Xu (2015). Another recent study of Argentina by Chen and Juvenal (2014), takes a sectoral focus (the wine industry) over a period of prolonged real depreciation history (2002-2009) after Argentina abandoned its fixed exchange rate system in early 2000. The particular focus of the study makes it possible to account very accurately for the quality of the produce. Chen and Juvenal (2013) hereby are able to demonstrate that exchange rate pass-through on final product pricing vary considerably with product quality. Where high product quality when exported to high income destinations lead to a more than 1:1 pass-through of exchange rate changes on final product prices, while lesser quality producers do not respond in the same way possibly due to their perceiving higher demand elasticities. The authors also find that export volumes expand following an exchange rate depreciation but less so among exporters of higher quality wine. Hence all the longitudinal studies found a positive relationship between firm-level exporting indicators and deprecation episodes, however, often not tackling the question of whether the relationship is causal running from exchange rate movements to firm-level performance or likely to be endogenous and/or persistent in longitudinal studies.

2.3 Multi-country studies of firm-level responses to currency crisis

A few studies have reported evidence in a multi-country study design, but with outset in a somewhat different research question relating to the differential reaction in the performance of foreign and domestic owned firms to a protracted depreciation or currency crisis in the host country. Sampling here has typically taken outset in data on US foreign owned affiliates. Desai et al (2008) offer a major study reporting strong evidence that differential performance across ownership is rooted in financial constraints. Desai et al (2008) adopt the following base specification (where Y is a performance variable such as sales or investment and the footnote includes the tags of firm i , industry j , country k and time t) to test a number of hypothesis related with currency crisis or protracted depreciation episodes (defined as a nominal drop in the local currency value of at least 25% over one year) and their differential impact across ownership (X stands for firm-level control factors and η is a vector of industry-time specific dummies):

$$Y_{ijkt} = \theta_1 Depreciation(t-1)_{kt} + \theta_2 Depreciation(t)_{kt} + \theta_3 Depreciation(t+1)_{kt} + \theta_4 Depreciation(t+2)_{kt} [1 + \theta_{5..8} Multinational] + \theta_9 X_{ijkt} + \eta_{jt} + \alpha_i + \epsilon_{it} \quad (\text{eq. 2})$$

The authors find that the sales of local firms increase slightly at the time of the depreciation, and then fall below their pre-depreciation level in the first and second year after the depreciation episode (Desai et al, 2008, page xx). However, Desai et al (2008) do not distinguish between domestic exporters and non-exporters in their sampling approach even though they match the sampled firms, but the export status of the local companies is an unknown factor in

their study. In a similar vein Alfaro and Chen (2012) study now with data from the 2007-08 financial crisis the differentiated response to the crisis for sales growth by ownership. They base their findings in the different credit constraints that mark foreign and domestically owned firms in crisis ridden markets and the difference was shown to grow by Alfaro and Chen (2012) with the relative credit standing of each host country that the foreign subsidiaries operated in. Dikova et al (2013) showed over 83 financial crisis in 50 countries that US affiliates were more resilient due to their ability to switch their relative sales dependencies across the domestic markets of the host countries and third country export markets.

3 The country cases studied

All the four countries are part of the EU. Slovakia and Lithuania are small countries (with 5 and 3 million inhabitants) but with different exchange rate regimes before introduction of the Euro. Slovakia is the country that entered the ERM II after managed floating exchange rate policy and adopted the Euro in 2009, while Lithuania had Currency Board Arrangement before ERM II and adopted the Euro recently in 2015. Poland and the Czech Republic are the largest of the Member Countries (with 38.5 and 10.5 million inhabitants) in the sample and went from pegged exchange rate system to free floating when becoming Members of the EU in 2004 and have yet to adopt the Euro. Hence on a scale from flexible to fixed exchange rate system, the four country cases represent very different exchange rate systems and changes herein over the period of study as shown in Table 1. The Czech and Slovak Republic are near perfect mirror studies or comparative cases of opposite exchange rate systems as they originate from one country sharing a similar history and institutions over a considerable period. However, historically they have somewhat different industrial and sectoral structures, the Czech Republic more highly developed and with a more advanced industrial structure and a larger share of services in exports (see also Hoekman and Djankov, 1997). Poland and Lithuania are not nearly as perfect mirror studies and the differences in their size is a major factor distancing their firm populations from one another. Also the soviet legacy of Lithuania coupled with a much more independent Polish industrial history (Poznanski, 1996) suggest remaining sharp differences in their firm populations. However, in other aspects of culture and geography it will be difficult to find better comparators, therefore also a reasonable comparative case study. Ideally a large country with a fixed exchange rate system and small country with flexible exchange rate system should be added to the study but these have not been identified yet as the cases sampled should be from the region and also have Enterprise Survey data available.

INSERT TABLE 1 HERE (OVERVIEW OF THE COUNTRY CASE STUDIES)

INSERT FIGURE 1 HERE (NOMINAL EXCHANGE RATES)

Figure 1 shows the nominal exchange rates for the four country cases. The

Polish Zloty was the most volatile of the four currencies over the period of study and the Zloty experienced the sharpest correction during the height of the Global Financial Crisis, whereas Lithuanian Litas was the most stable as the exchange rate has been completely fixed against the Euro since 2002. The Slovak and Czech Koruna have exhibited a pattern of continuous appreciation since the beginning of the 2000s, where the Slovak Koruna was replaced with the Euro in the beginning of 2008 while the Czech Koruna as a managed float did not escape a minor currency crisis or depreciation episode during the Global Financial Crisis (yet in percentage terms not as strong as that experienced by the Zloty). Nominally, neither the Zloty nor the Czech Koruna have returned to their pre-crisis levels and therefore undergone at least in nominal terms a protracted depreciation episode over the course of the Great Recession.

INSERT FIGURE 2 HERE (REAL EFFECTIVE EXCHANGE RATES)

But it is the broad real effective exchange rate (BREER) which gives us the most accurate picture of the real value position (also net of differential inflation rates) of any given currency vis-a-vis the broad basket of currencies of each country's major trading partners. In reality the trend in the nominal and real effective exchange rates are not entirely out of line (though the curves as drawn here move opposite, e.g. an improvement in the BREER index indicates a real appreciation of the currency in question). But whereas in Figure 1 we cannot see the direct or indirect influence of the Euro on the value of the four countries' exchange rates, this influence is part of the overall picture that we get from Figure 2. Therefore much more accurate also in this aspect, because in part the virtue of a fixed exchange rate with the EU for Slovakia and Lithuania here also translates into how this arrangement affects the de facto or external value position of these two euro zone countries. In real terms Figure 2 shows that all the currencies have depreciated, to date the Lita the least, followed by the Slovak Koruna, then the Czech Koruna and finally the Polish Zloty, mirroring in real terms quite exactly what we would expect based on their formal exchange rate arrangements as shown in Table 1. However, in real terms the Czech Koruna has in the later period in fact undergone a deeper depreciation than the Zloty whereas in real terms the Zloty has by far exhibited the most volatility among the four currencies or currency regimes studied.

INSERT FIGURE 3 HERE (AGGREGATE EXPORTS IN THE GREAT RECESSION)

Figure 3 shows the development in exports of the four countries since the beginning of transition based on historical merchandise export values available from the World Development Indicators tables. Over the transition all the four countries exhibit a highly similar growing trend with takeoff in the beginning of the 2000s and leading up to their accession to the Internal Market in 2004 followed by a sudden decrease during the Global Financial Crises but also succeeded in every case at the aggregate level by a speedy recovery. The differenced and percentage changes in the merchandise export values show that in absolute terms Poland experienced the greatest loss due to the crisis, whereas in relative terms Lithuania experienced the greatest loss in the value of merchandise exports.

4 More on methodology and a description of the firm-level data

The influence of exchange rate system on export performance can be challenging to uncover using statistical methods. The main barrier is that the relationship is likely to be endogenous and difficult to separate from other country-level factors and influences. For example, in periods of normalcy freely floating exchange rates will be caused by firm competitiveness (e.g. relative demand from abroad for national produce) rather than vice versa. We use the event study approach (the main reason why we single out what happens over the Great Recession) to overcome the endogeneity problem and observe whether sudden changes in the economic environment can lead to the discovery of regularities between certain type of institutions and their outcomes because of the way agents systematically behave before, during and after the event. Unfortunately we are only able to accurately observe the before and after due to that the data consists in repeated cross sections that are available from the World Bank's Enterprise Surveys for the selected years of 2001, 2004, 2007 and 2011.

In addition can there be limits to the possibility of conducting studies of this kind for groups or clusters of data due to the very low number of observations at the group level (see Wooldridge, 2003, Donald and Lang, 2007, Cameron and Miller, 2010). This is a very general problem in research on institutions. Normal statistical inference can be conducted at the upper or cluster (country) level when sample size approaches 50. But such large samples at the country level are extremely rare. To overcome these methodological barriers we combine relatively few country cases in a combined case study and econometric approach, where the firm-level is studied using econometrics and statistics while the country-level or institutional level is studied using a comparative case study approach and where statistical inference is based on firm-level sample means evaluated using t-statistics. With the econometric equation we are able to calculate the country-year mean deviation of firms export behaviour from the comparative mean behaviour of firms in the other three countries using the following equation (where Y_{it} either measures export performance as the extensive or intensive margin or absolute value exported):

$$Y_{it} = \alpha_0 + \beta X_{ijkt} + \delta_\eta \eta_j + \delta_\kappa K_k + \delta_\theta t + \epsilon_{it} \text{ (eq. 3)}$$

X are firm-specific control factors including also ownership dummies. Apart from firm-level control factors the estimated equations include η control dummy for sectoral and industry belonging j (exactly how varies across specifications, the most detailed is 3-digit ISIC codes) and then country-specific and time-specific dummies. The latter are those we are most interested in interpreting towards answering our research question (whether exchange rate system matters systematically towards explaining export performance). For the intensive margin (export intensity of the export active firms or percentage of sales exported) and the absolute export value we also estimate tobit regressions that control for the bias due to the censoring of observations around zero for the non-exporting part of the firm population as an alternative method to obtain

the same country-year mean deviations.

Using the above equations however only render a row (year) and column (country) means for r-1 and c-1 unpaired country-year deviations whereby country-year means are inferred as the products of row and column estimators:

$$\begin{array}{cccccc}
 2001 & 2004 & 2007 & 2011 & & \\
 \cdot & \delta_{1,2} & \delta_{1,3} & \delta_{1,4} & \textit{CzechR} & \\
 \delta_{2,1} & \delta_{2,2} & \delta_{2,3} & \delta_{2,4} & \textit{Lithu} & (3.1) \\
 \delta_{3,1} & \delta_{3,2} & \delta_{3,3} & \delta_{3,4} & \textit{Poland} & \\
 \delta_{4,1} & \delta_{4,2} & \delta_{4,3} & \delta_{4,4} & \textit{SlovakR} &
 \end{array}$$

A more accurate method as shown with matrix 3.1 therefore inserts dummies for each country-year pair whereby $(4 \times 4 - 1)$ year-country means can be obtained now all deviations from the first omitted dummy. (But noting that the observed intercept will also contain information about the other omitted dummies for industries etc.). However, evaluating the significance of the year-country mean difference with only $K - 1$ degrees of freedom. The Stata programme automatically defaults on the t-statistic at $K - 1$ degrees of freedom when specifying that standard errors are clustered by country K (see also Cameron and Miller, 2010, Page x). The interpretation of the dummies therefore mainly should be attached to their significance using a t-test with $3df$ and in their relative distances from one another. Hence the rank order of the country-year means has real meaning whereas their sign and size takes on little meaning.

While statistical inference deviates for the firm- and country-level there are strong analogies in the methodological principles applied. For example, Yin (1994) proposes using a randomized experiment analogy when selecting cases for a case study, where by adding each additional new case, new information will be added to the study but at a decreasing rate. The optimal case study in this tradition encompasses cases until additional information obtained goes towards zero. However, as King and Nielsen (2016) have shown for statistical sampling, a blocked experiment might be the more appropriate analogy on which to perform matching. Therefore even for case studies exact matching can be an important method towards controlling the experiment and helping to reduce imbalance. This is what the comparative case study does, e.g. it is designed to be purposeful for making the comparison on the variables or institutions of interest whereas oppositely reducing the potential noise or information overload that is likely to result from making improper case matches. The only difference is in the process of selection or matching: human cognition is used at the country level but replaced by computational programming at the firm-level due to the massive amounts of data and information. In other words more data or more cases is generally not the equivalent of better results across different sampling methods in the social sciences.

The data we use obtained from the Enterprise Surveys are summarized and described in detail in the Appendix. The specific variables that we use at the firm-level to measure exporting performance are the extensive and intensive margins of firm level exports (e.g. a dummy capturing whether the firm is an exporter or not and the export intensity of the export active firms) and the exported value of produce of each firm. All values are expressed in thousand

Euros using annual official exchange rates between local currency units and Euros from the European Central Bank’s Data Warehouse. Besides dummy or indicator variables for year, country, industry (various measures of industry belonging are used), and ownership factors (controlling for foreign and state ownership up against the normal or omitted ownership dummy which is the domestic private held firm) we also adopt firm-level covariates to control for the influence that factors such as firm age and size have on the margins of export behaviour including total value exported by each firm. Finally, are we also able to control for whether the firm has a quality certification as a reflection of firms abiding to international standardisation systems and hence ability to differentiate their produce from prevailing local standards and norms. The covariates are chosen from a large pool of variables available from the Enterprise Surveys but also taking into account that data must be broadly available for all firms, years and countries to avoid censoring of any parts of the dataset.

Extensive summary statistics for means across years and exporters and non-exporters by country are reported in the Appendix tables. Table 2 here below provides a snapshot or summary of these initial results, where it is tested using simple t- and F-test for mean differences whether there are particular trends in the data and especially for the period covering the Great Recession (e.g. 2007-2011). Add comments to Table 2 here.

INSERT TABLE 2 (SUMMARY DESCRIPTIVE STATISTICS BASED ON COUNTRY CASES IN THE APPENDIX)

5. Regression results

Currently the preliminary regression tables are reported in the attached exhibits following the order listed below.

The research is at the stage where we are running a lot of regressions and still need to select which results to show in the paper. Hence to save effort only the results for the country-year means that we think will be the final results are reported here. The full but raw (no time to edit) regression tables that support these summary statistics can be found at <https://github.com/cjens/XRS>.

The main result at the moment is that we get the following rank order for export performance over the Great Recession: Lithuania>Czech Republic>Slovak Republic>Poland.

Hence our preliminary conclusion is that exporting firms from the country with the most flexible exchange rate system suffered the most whereas oppositely that exporting firms from the country with the fixed exchange rate system over almost the entire period of study suffered the least on average. There is some variation on this result depending on the performance measure and the exact econometric specification (OLS or Tobit). However, we think this result is robust to most checks but still need to run a lot of different matching exercises at the firm-level to ascertain this result fully.

INSERT TABLE 3 HERE (REGRESSION RESULTS, ALL SECTORS)

INSERT TABLE 4 HERE (REGRESSION RESULTS, MANUFACTURING ONLY)

INSERT TABLE 5 HERE (REGRESSION RESULTS, ALL SECTORS WITH 3-DIGIT ISIC DUMMIES)

Country-year means (dummies) for the extensive margin (OLS)

2001	2004	2007	2011	
.	-0.02	-0.04	.04*	<i>CzechR</i>
.01	.01	.03**	.03**	<i>Lithu</i> (5.1)
-.06**	-.06*	-.06*	-.10**	<i>Poland</i>
.09*	.03**	-.02	-.31	<i>SlovakR</i>

Country-year means (dummies) for intensive margin (Tobit)

2001	2004	2007	2011	
.	0.08	-0.69	10.55***	<i>CzechR</i>
4.14**	2.25**	10.21**	11.08***	<i>Lithu</i> (5.2)
-10.60***	-10.18***	-9.11**	-13.16***	<i>Poland</i>
7.45***	3.51	3.91	2.36	<i>SlovakR</i>

Country-year means (dummies) for exported value in th. Euros (Tobit)

2001	2004	2007	2011	
.	0.18	0.50*	2.44***	<i>CzechR</i>
1.19***	1.32***	2.26***	2.11***	<i>Lithu</i> (5.3)
0.07	-0.08	0.51*	-0.12	<i>Poland</i>
1.19**	0.78*	1.94***	0.93	<i>SlovakR</i>

6. Regression results with Mahalanobis distance matching

INSERT TABLE 6 HERE (REGRESSION RESULTS, TABLE 5 WITH MAHALANOBIS DISTANCE MATCHING)

Country-year means (dummies) for the extensive margin (OLS)

2001	2004	2007	2011	
.	-0.07*	-0.12*	-0.14**	<i>CzechR</i>
-0.01	0.01	-0.04	-0.04	<i>Lithu</i> (6.1)
0.08*	0.08	-0.10*	-0.15**	<i>Poland</i>
0.05	-0.02	-0.09*	-0.12*	<i>SlovakR</i>

Country-year means (dummies) for intensive margin (Tobit)

2001	2004	2007	2011	
.	-7.43***	-17.27***	-17.62***	<i>CzechR</i>
0.25	2.92	-0.68	2.75	<i>Lithu</i> (6.2)
-11.67***	-10.72***	-12.69***	-18.81***	<i>Poland</i>
6.44	-3.49	-13.63***	-13.65***	<i>SlovakR</i>

Country-year means (dummies) for exported value in th. Euros (Tobit)

2001	2004	2007	2011	
.	0.39	-0.76*	0.07	<i>CzechR</i>
0.94***	1.61***	1.66***	1.58***	<i>Lithu</i> (6.3)
0.32	0.08	0.45	-0.10	<i>Poland</i>
0.60	0.01	1.05**	0.45	<i>SlovakR</i>

7. Discussion

Forthcoming..

REFERENCES

Alfaro, L., & Chen, M. X. (2012). Surviving the global financial crisis: foreign ownership and establishment performance. *American Economic Journal: Economic Policy*, 4(3), 30-55.

- Atici, G., & GURSOY, G. (2012). Foreign Direct Investment and Export Decision Relationship in the Large Turkish Firms. *Journal of Applied Finance & Banking*, 2(4), 167-184.
- Berman, N., & Martin, P. (2012). How do Different Exporters React to Exchange Rate Changes? (2012). *The Quarterly Journal of Economics*, 127 (1), 437-492.
- Bernard, A. B., & Jensen, J. B. (2004). Why some firms export. *Review of Economics and Statistics*, 86(2), 561-569.
- Cameron, A. C., & Miller, D. L. (2010). Robust inference with clustered data. *Handbook of empirical economics and finance*, 1-28.
- Chen, N., & Juvenal, L. (2014). Quality, trade, and exchange rate pass-through, (No. 14-42). *International Monetary Fund*. Das, S., Roberts, M. J., & Tybout, J. R. (2007). Market entry costs, producer heterogeneity, and export dynamics. *Econometrica*, 75(3), 837-873.
- Cheung, Y. W., & Sengupta, R. (2013). Impact of exchange rate movements on exports: An analysis of Indian non-financial sector firms. *BOFIT Discussion Papers* 10/2013, 4-30.
- Desai, M. A., Foley, C. F., & Forbes, K. J. (2008). Financial constraints and growth: Multinational and local firm responses to currency depreciations. *Review of Financial Studies*, 21(6), 2857-2888.
- Dikova, D., Smeets, R., Garretsen, H., & Van Ees, H. (2013). Immediate responses to financial crises: A focus on US MNE subsidiaries. *International Business Review*, 22(1), 202-215.
- Donald, S. G., & Lang, K. (2007). Inference with difference-in-differences and other panel data. *The Review of Economics and Statistics*, 89(2), 221-233.
- IMF (2015). Exchange rates still matter for trade. *International Monetary Fund*, September 28, 2015. <http://www.imf.org/external/pubs/ft/survey/so/2015/RES092815B.htm>
- Gashi, P., Hashi, I., & Pugh, G. (2014). Export behaviour of SMEs in transition countries. *Small Business Economics*, 42(2), 407-435.
- Ghosh, Atish and Uma Ramakrishnan (2012): 'Current Account Deficit: Is There a Problem?', *Finance and Development* (online), *International Monetary Fund*, March 28, 2012, <http://www.imf.org/external/pubs/ft/fandd/basics/current.htm>
- Hoekman, B., & Djankov, S. (1997). Determinants of the export structure of countries in Central and Eastern Europe. *The World Bank Economic Review*, 11(3), 471-487.
- Jensen, C. (2017). *Global Integration Strategies in Times of Crisis*. Forthcoming in *Advances in International Management*, 2017.
- Josifidis, K., Allegret, J.P., Beker Pucar, E. (2009). Monetary and exchange rate regimes changes: the cases of Poland, Czech Republic, Slovakia and Republic of Serbia. *Panoeconomicus*, 2009, 2, 199-226.
- King, G., & Nielsen, R. (2016). Why propensity scores should not be used for matching. Copy at <http://j.mp/1sexgVw> Download Citation BibTeX Tagged XML Download Paper, 378.
- Kominkova, Z. (1999). Monetary and exchange rate policy in Slovakia. *National Bank of Slovakia, Working Paper KOM/0036*.

Li, H., Ma, H., & Xu, Y. (2015). How do exchange rate movements affect Chinese exports?—A firm-level investigation. *Journal of International Economics*, 97(1), 148-161.

Liu, Q., Lub, Y., & Zhou, Y. (2013). Do Exports Respond to Exchange Rate Changes? Inference from China's Exchange Rate Reform. *RIn*, 29, 19921.

Poznański, K. (1996). Poland's protracted transition: institutional change and economic growth, 1970-1994 (Vol. 98). Cambridge University Press.

Turco, A. L., & Maggioni, D. (2013). On the role of imports in enhancing manufacturing exports. *The World Economy*, 36(1), 93-120.

Verdoorn, J. P. (1949). On the factors determining the growth of labor productivity. *Italian economic papers*, 2, 59-68.

Wooldridge, J. M. (2003). Cluster-sample methods in applied econometrics. *The American Economic Review*, 93(2), 133-138.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT press.

Xu, J., Mao, Q., & Tong, J. (2016). The impact of exchange rate movements on multi-product firms' export performance: Evidence from China. *China Economic Review*, 39, 46-62.

Yin, R. (1994). *Case study research: Design and methods*. Beverly Hills.

Yiu, D. W., Lau, C., & Bruton, G. D. (2007). International venturing by emerging economy firms: the effects of firm capabilities, home country networks, and corporate entrepreneurship. *Journal of International Business Studies*, 38(4), 519-540.

APPENDIX

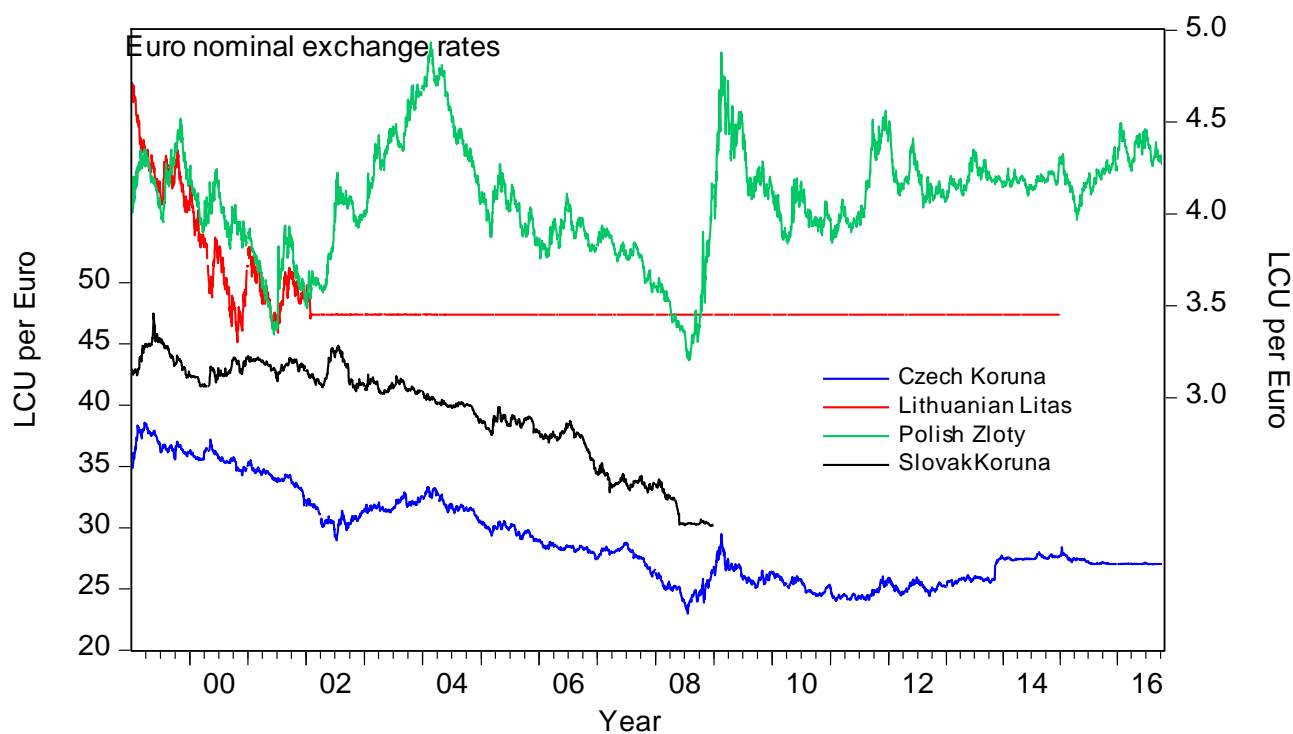
INSERT ALL APPENDIX TABLES HERE

TABLE 1 – OVERVIEW OF THE COUNTRY CASE STUDIES

Poland	Czech Republic	Slovakia	Lithuania
2000.04-free floating exchange rate	1997.05-2009.01 managed floating exchange rate	1998.10-2005.11 managed floating exchange rate 2005.11-2009.01 – ERM II and 2009.01 – euro zone	1994-2015 – Currency board arrangement 2015.01 – euro zone

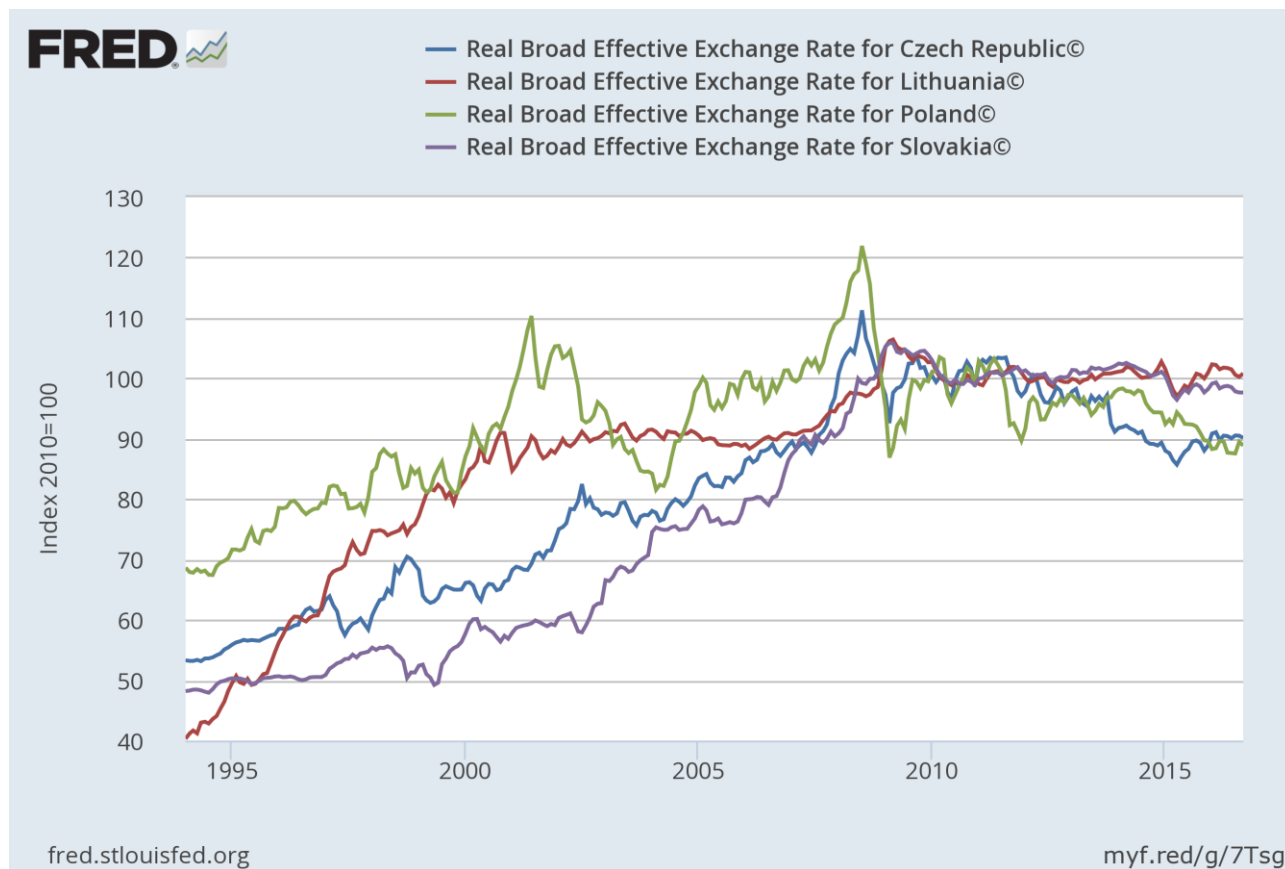
IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) database, available online at www.imfareaer.org, The International Monetary Fund, Washington D.C.

FIGURE 1 – NOMINAL EXCHANGE RATES



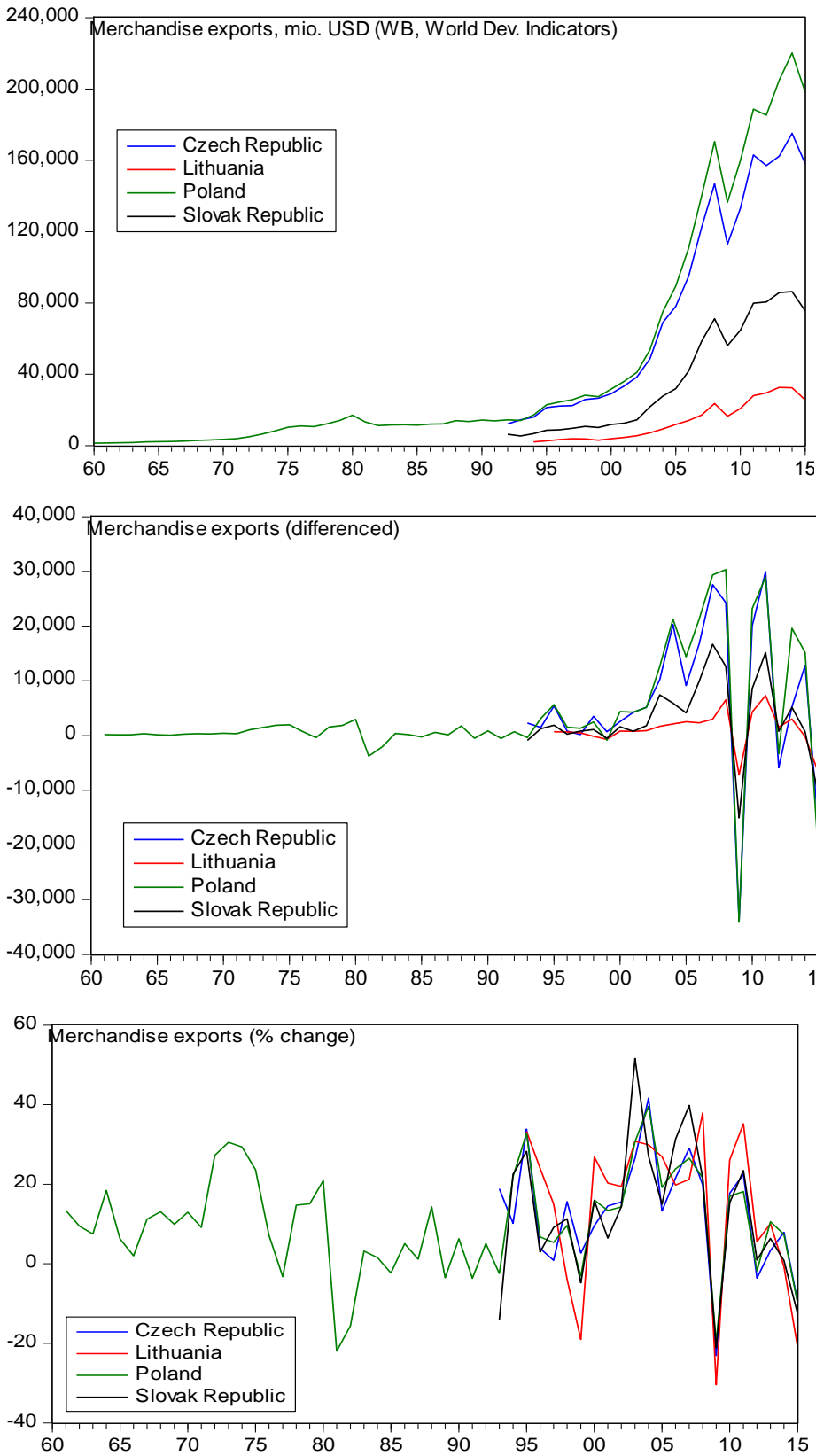
Source: European Central Bank, Statistical Data Warehouse, <http://sdw.ecb.europa.eu/browse.do?node=9691297>

FIGURE 2 – REAL EFFECTIVE EXCHANGE RATES



Source: This graph should be substituted for one drawn on the basis of REERs from ECB.

FIGURE 3 – AGGREGATE MERCHANDISE EXPORTS IN THE GREAT RECESSION



Source: The World Bank, World Development Indicators.

TABLE 2 – SUMMARY DESCRIPTIVE STATISTICS BASED ON COUNTRY CASES IN THE APPENDIX

	Lithuania	Slovakia	Poland	Czech Republic
ER in financial crisis:	Fixed	Euro	Free floating	Managed float
Green: Increasing over 2007-2011 Yellow: No change over 2007-2011 Red: Decreasing over 2007-2011				
No. of exporters (% of total)	33%	31%	23%	38%
Export in sales %	47%	45%	31%	41%
Exported value in th. Euros	4,174	7,614	3,038	5,294
Average sales per employee in th. Euros	48.79	61.03	113.75	52.5
-Traded/non-traded ratio	1.32	1.07	0.82	1.31
Relative quality upgrading among exporters	2.06	2.24	2.27	2.28
Manufacturers in % of all exporters	63%	48%	64%	68%
Exported value of foreign investors in th. Euros	8,816	20,314	6,968	6,679
Indebtedness of exporters	26%	NA		
Capacity utilization	61%	NA		

Source: Summary table collated from descriptive statistics tables in the Appendix.

TABLE 3 – REGRESSION RESULTS, ALL SECTORS

Equation no.	(1.1.a)	(1.2.a)	(1.3.a)	(1.4.a)
Dep.var.:	Exporter (1/0)	Export %	Exported Value	Sales/ Employment
Method	OLS	OLS	OLS	OLS
Exporter (1/0)	-	-	-	0.1904*** (0.0457)
Log Age (years)	0.0286*** (0.0084)	0.0613 (0.4458)	0.1980*** (0.0520)	0.0392 (0.0278)
Foreign owned (1/0)	0.1980*** (0.0179)	14.7259*** (0.9545)	1.2647*** (0.1119)	0.4686*** (0.0602)
State owned (1/0)	-0.0491* (0.0246)	-3.9915** (1.3084)	-0.5499*** (0.1531)	-0.0715 (0.0813)
Quality certificate (1/0)	0.1370*** (0.0152)	2.5126** (0.8078)	0.8827*** (0.0925)	0.3257*** (0.0500)
Medium size (20-99 employees)	0.1336*** (0.0139)	5.6990*** (0.7382)	0.8303*** (0.0855)	-0.0823 (0.0462)
Large size (>=100 employees)	0.2062*** (0.0172)	10.1909*** (0.9182)	2.0856*** (0.1068)	-0.1524** (0.0579)
Construction	-0.1539*** (0.0267)	-3.7964** (1.4236)	-0.7931*** (0.1646)	0.5740*** (0.0882)
Manufacturing	0.1866*** (0.0232)	12.2257*** (1.2375)	1.0909*** (0.1437)	0.3196*** (0.0770)
Tourism	-0.1914*** (0.0328)	-4.1025* (1.7502)	-0.5675** (0.2077)	-0.0657 (0.1109)
Trade	-0.0646** (0.0231)	-1.4917 (1.2310)	-0.2338 (0.1437)	0.7727*** (0.0769)
Transport	0.1384*** (0.0294)	13.0671*** (1.5665)	0.9428*** (0.1818)	0.5143*** (0.0969)
Lithuania	0.0194 (0.0182)	1.8551 (0.9678)	0.3607*** (0.1067)	1.0475*** (0.0575)
Poland	-0.0815*** (0.0153)	-4.4639*** (0.8134)	-0.1409 (0.0936)	1.4927*** (0.0508)
Slovakia	0.0377* (0.0188)	1.1359 (1.0023)	0.1684 (0.1165)	0.1812** (0.0627)
2004	-0.0455** (0.0156)	-0.7694 (0.8294)	-0.0941 (0.0995)	0.4988*** (0.0527)
2007	-0.0811*** (0.0177)	-0.1083 (0.9431)	0.3177** (0.1115)	2.3687*** (0.0597)
2011	-0.0822*** (0.0180)	-0.3299 (0.9602)	0.3575** (0.1138)	2.8012*** (0.0608)
Constant	0.1371*** (0.0300)	2.2926 (1.5980)	-0.4374* (0.1905)	-0.5105*** (0.1021)
Sample	All	All	All	All
Number of obs.	5,075	5,075	3,971	3,904
R ²	0.24	0.22	0.33	0.59

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 4 – REGRESSION RESULTS, MANUFACTURING ONLY

Equation no.:	(2.1.a)	(2.2.a)	(2.3.a)	(2.4.a)
Dep.var.:	Exporter 1/0	Export %	Exported Value	Sales/ Employment
Estimation method:	OLS	OLS	OLS	OLS
Exporter (1/0)	-	-	-	0.0447 (0.0688)
Log Age (years)	0.0361* (0.0151)	-0.6041 (0.8997)	0.3040** (0.0936)	0.0240 (0.0454)
Foreign owned (1/0)	0.2262*** (0.0321)	25.2586*** (1.9108)	1.7514*** (0.1981)	0.3882*** (0.0969)
State owned (1/0)	0.0052 (0.0520)	-5.0051 (3.0976)	-0.6748* (0.3301)	0.1902 (0.1588)
Quality certificate (1/0)	0.1402*** (0.0257)	0.4844 (1.5309)	0.8840*** (0.1562)	0.2930*** (0.0767)
Medium sized (1/0) (20-99 employees)	0.2237*** (0.0249)	11.6881*** (1.4836)	1.4096*** (0.1526)	-0.1240 (0.0756)
Large sized (1/0) (>=100 employees)	0.3585*** (0.0315)	22.2869*** (1.8741)	3.5185*** (0.1923)	-0.2581** (0.0968)
Lithuania	0.0317 (0.0352)	4.1728* (2.0953)	0.7617*** (0.2049)	0.7761*** (0.0998)
Poland	-0.1193*** (0.0283)	-7.6546*** (1.6870)	-0.0808 (0.1702)	1.2445*** (0.0835)
Slovakia	0.0720 (0.0389)	4.7904* (2.3158)	0.8405*** (0.2367)	0.1459 (0.1153)
2004	-0.0256 (0.0334)	2.3903 (1.9898)	0.2931 (0.2136)	0.5620*** (0.1027)
2007	-0.0880* (0.0368)	1.2685 (2.1894)	0.6568** (0.2308)	2.1670*** (0.1116)
2011	-0.0807* (0.0358)	1.2727 (2.1313)	0.9618*** (0.2272)	2.8512*** (0.1096)
Constant	0.2431*** (0.0485)	10.0482*** (2.8898)	-0.7384* (0.3082)	0.1483 (0.1502)
Sample	Manufacturing	Manufacturing	Manufacturing	Manufacturing
Number of obs.	1,847	1,847	1,492	1,471
R ²	0.24	0.27	0.41	0.51

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 5 – REGRESSION RESULTS, ALL SECTORS WITH 3-DIGIT ISIC DUMMIES

Equation no.:	(3.1.a)	(3.2.a)	(3.3.a)	(3.4.a)
Dep.var.:	Exporter (1/0)	Export %	Exported Value	Sales/ Employment
Method:	OLS	OLS	OLS	OLS
Exporter (1/0)	-	-	-	0.1220* (0.0503)
Log Age (years)	0.0293*** (0.0084)	0.3913 (0.4460)	0.2235*** (0.0518)	0.0452 (0.0289)
Foreign owned (1/0)	0.1574*** (0.0182)	12.3280*** (0.9678)	0.9868*** (0.1129)	0.4189*** (0.0634)
State owned (1/0)	-0.0543* (0.0263)	-3.5235* (1.3978)	-0.5070** (0.1652)	-0.0155 (0.0920)
Quality certificate (1/0)	0.1153*** (0.0155)	1.1185 (0.8256)	0.6659*** (0.0934)	0.2381*** (0.0527)
Medium size (20-99 employees)	0.1265*** (0.0138)	5.6186*** (0.7342)	0.8292*** (0.0843)	-0.0830 (0.0476)
Large size (>=100 employees)	0.2074*** (0.0178)	10.8767*** (0.9441)	2.1211*** (0.1096)	-0.1121 (0.0623)
Lithuania	0.0226 (0.0187)	2.1783* (0.9935)	0.4062*** (0.1085)	1.0126*** (0.0613)
Poland	-0.0775*** (0.0158)	-3.5563*** (0.8388)	-0.1430 (0.0958)	1.4579*** (0.0544)
Slovakia	0.0040 (0.0196)	0.0242 (1.0402)	0.0863 (0.1198)	0.1947** (0.0674)
2004	-0.0168 (0.0162)	0.3689 (0.8579)	0.0961 (0.1023)	0.5157*** (0.0567)
2007	-0.0238 (0.0273)	3.0833* (1.4488)	0.7599*** (0.1709)	2.4028*** (0.0952)
2011	-0.0331 (0.0271)	2.4929 (1.4404)	0.7255*** (0.1707)	2.7471*** (0.0951)
Constant	0.7505** (0.2650)	-2.6292 (14.0730)	2.7290 (1.4226)	0.7141 (0.7893)
Industry/activity codes	3-digit ISIC*	3-digit ISIC*	3-digit ISIC*	3-digit ISIC*
Sample	All	All	All	All
N	4,983	4,983	3,912	3,855
R ²	0.39	0.37	0.49	0.66

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

TABLE 6 – REGRESSION RESULTS, TABLE 5 WITH MAHALANOBIS DISTANCE FIRM MATCHING^a

To be edited – the ‘raw’ output tables are available at <https://github.com/cjens/XRS>.

Notes

a/ The particular matching routine applied in this instance focused on matching Polish firms with the 3 best possible matches in the whole sample (polish sub-sample excepted), within data segments that are exactly matched in terms of exporter status, firm size and year of observation. Within these segments the best possible match from the three other countries is looked for on the following variables: employment, exported value, age of firm, ownership of firm and 3-digit industry code belonging. (stata code: mahapick var_employment var_expval var_foreign var_age var_isic var_state, idvar(var_idpanel) genfile (maha_poland) nummatches(3) treated(var_poland) matchon(var_exporter var_size_cat var_year) sliceby(var_export var_size_cat var_year)

APPENDIX EXHIBITS

DESCRIPTIVE STATISTICS LITHUANIA

TABLE A1.1 – THE EXTENSIVE AND INTENSIVE MARGINS, LITHUANIA

	Sample	Exporter (% of sample)	Exports in % of sales	Exported value (th.Euros)
2001	200	28	34	567
2004	205	32	37	502
2007	276	33	47	4,174
2011	270	29	49	4,010
Equality of means test F-test	N=951	0.70	2.15*	4.53***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A1.2 – EXPORTER CHARACTERISTICS, LITHUANIA

	Year	Employment (persons)	Sales (th. Euros)	Sales growth (%)	Manufacturers (%)	Domestic (private, %)	Quality cert. (%)
Non-exporters	2001	72	281	4	14	53	7
	2004	63	672	8	15	82	12
	2007	59	2,818	159	25	95	17
	2011	27	1,808	50	27	95	13
Exporters	2001	161	977	33	43	64	24
	2004	116	1,616	17	42	63	22
	2007	232	14,239	86	63	83	35
	2011	86	6,738	78	69	90	37
Equality of means F-test		4.20***	4.61***	7.16**	23.30***	24.12***	8.30***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A1.3 – FINANCIAL CRISIS SURVEY RESULTS, LITHUANIA

	Exporters (%) N=55	Non-exporters (%) N=163
Don't know	2	1
Increased debts	4	7
Increased costs	6	7
Reduced access to credit	7	7
Drop in demand	69	71
Other	13	7

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A1.4 – FINANCIAL CRISIS SURVEY RESULTS, LITHUANIA

	Year	Employment (persons)	Sales (th. Litas)	Sales growth (%)†	Capacity utilization (%)	Indebtedness (debt in % of sales)
Non-exporters	2009	55	18,823	-37	53	11
	2010	57	12,396	-29	47	66
Exporters	2009	104	25,393	-27	61	26
	2010	276	71,849	-3	61	16
Equality of means F-test		5.58***	3.53**	10.56***	4.73***	0.64

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

DESCRIPTIVE STATISTICS SLOVAKIA

TABLE A2.1 – THE EXTENSIVE AND INTENSIVE MARGINS, SLOVAKIA

	Sample	Exporter (% of sample)	Exports in % of sales	Exported value (th. Euros)
2001	167	40	26	81
2004	215	34	32	109
2007	272	31	45	7,614
2011	267	28	38	3,315
Equality of means test F-test	N=933	2.45*	4.57***	5.38***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A2.2 – EXPORTER CHARACTERISTICS, SLOVAKIA

	Year	Employment (persons)	Sales (th. Euros)	Sales growth (%)	Manufacturers (%)	Domestic (private, %)	Quality cert. (%)
Non-exporters	2001	76	36	10	9	66	10
	2004	54	70	2	7	81	5
	2007	83	3,741	76	15	90	29
	2011	38	7,766	81	23	88	42
Exporters	2001	297	170	20	31	39	31
	2004	292	472	13	38	64	19
	2007	187	12,404	23	48	78	65
	2011	79	8,795	29	69	84	56
Equality of means F-test		5.84***	7.04***	1.03**	26.67***	24.12***	24.84***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

DESCRIPTIVE STATISTICS, CZECH REPUBLIC

TABLE A3.1 – THE EXTENSIVE AND INTENSIVE MARGINS, CZECH REPUBLIC

	Sample	Exporter (% of sample)	Exports in % of sales	Exported value (th. Euros)
2001	266	30	35	147
2004	343	22	35	76
2007	248	38	41	5,294
2011	248	41	41	5,188
Equality of means test F-test	N=1105	9.78***	1.22	4.10***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A3.2 – EXPORTER CHARACTERISTICS, CZECH REPUBLIC

	Year	Employment (persons)	Sales (th. Euros)	Sales growth (%)	Manufacturers (%)	Domestic (private, %)	Quality cert. (%)
Non-exporters	2001	140	95	7	17	78	9
	2004	83	138	2	18	86	7
	2007	60	3,979	3,759	28	93	35
	2011	146	12,863	6	38	90	32
Exporters	2001	240	346	13	52	59	22
	2004	271	188	6	50	66	32
	2007	172	9,489	1,177	68	74	80
	2011	91	10,090	1,528	68	84	55
Equality of means F-test		1.51	6.97***	1.01	30.27***	10.00***	47.99***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A3.3 – FINANCIAL CRISIS SURVEY, CZECH REPUBLIC

	Exporters (%) N=55	Non-exporters (%) N=163
Don't know		
Increased debts		
Increased costs		
Reduced access to credit		
Drop in demand		
Other		

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A3.4 – FINANCIAL CRISIS SURVEY, CZECH REPUBLIC

	Year	Employment (persons)	Sales (th. Litás)	Sales growth (%)†	Capacity utilization (%)	Indebtedness (debt in % of sales)
Non-exporters						
Exporters						
Equality of means F-test						

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

DESCRIPTIVE STATISTICS, POLAND

TABLE A4.1 – THE EXTENSIVE AND INTENSIVE MARGINS, POLAND

	Sample	Exporter (% of sample)	Exports in % of sales	Exported value (th. Euros)
2001	500	25	32	499
2004	975	25	32	445
2007	455	23	31	3,038
2011	533 (532)	22 (22)	31 (31)	4,317,146 (2,132)
Equality of means test F-test	N=2472 (2471)	1.01 (1.07)	0.06	1.33 (7.83***)
Equality of variance test F-test		1.03 (1.10)	0.06 (0.05)	5.15*** (5.96***)

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A4.2 – EXPORTER CHARACTERISTICS, POLAND

	Year	Employment (persons)	Sales (th. Euros)	Sales growth (%)	Manufacturers (%)	Domestic (private, %)	Quality cert. (%)
Non-exporters	2001	60	703	1	15	74	4
	2004	42	434	0	48	89	10
	2007	64	9974	91	26	90	22
	2011	52	5003	11	39	95	26
Exporters	2001	213	2087	7	45	49	27
	2004	145	1262	8	72	77	25
	2007	110	9049	1003	64	80	50
	2011	105	7596	43	70	86	55
Equality of means F-test		14.26***	11.35***	3.34***	49.99***	32.52***	43.74***
Equality of variance F-test		9.33***	12.86***	7.19***	61.26***	24.47***	45.23***

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A4.3 – FINANCIAL CRISIS SURVEY, POLAND

	Exporters (%) N=55	Non-exporters (%) N=163
Don't know		
Increased debts		
Increased costs		
Reduced access to credit		
Drop in demand		
Other		

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org

TABLE A4.4 – FINANCIAL CRISIS SURVEY, POLAND

	Year	Employment (persons)	Sales (th. Litas)	Sales growth (%) [†]	Capacity utilization (%)	Indebtedness (debt in % of sales)
Non-exporters						
Exporters						
Equality of means F-test						

Source: World Bank Enterprise Surveys, www.enterprisesurveys.org