

## **EXPORT COMPETITIVENESS, FIRM BEHAVIOUR AND OBSTACLES FOR DOING BUSINESS<sup>1</sup>**

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### ***Abstract***

The overall economic framework, the amount of foreign direct investments, the regulatory context, firm behaviour and the intensity of competition are among the factors that have an impact on a country's export competitiveness. Due to the ever-increasing engagement of firms in export activities, it seems of particular relevance to examine the relationship between different determinants of a firm behaviour and its export intensity. The objective of this paper is to emphasize the relationship between different factors affecting the export competitiveness. The paper proposes and empirically tests a model for analysing the export intensity of firms from selected transition economies. The sample predominantly consists of medium sized firms established in the course of transition. The results of the Tobit analysis indicate that larger firms participate with higher intensity on the international market.

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Business experience seems to be a less important determinant of export success. Price based competitiveness has an important role in the ability of firms from the sample to compete. In addition, firms which have discontinued some of their product lines have higher export intensity. Outsourcing of activities, technology transfer, the use of the Internet and quality certificates have a positive impact on firm's export intensity. Competition and customs and trade regulations seem to be the most important obstacles for doing business.

**Keywords:** export competitiveness, firm behaviour, transition economies, external environment, Tobit estimation.

## 1. INTRODUCTION

In explaining a country's export competitiveness, an important role belongs to the amount of foreign direct investments, the regulatory environment, firm behaviour and the intensity of competition. In addition, there are a number of factors that are crucial to firm's export success such as size, experience, sunk costs of entry on international markets, incentives and obstacles for doing business and innovation. Although many of these relationships have been extensively discussed in international business literature, the empirical findings have been ambiguous, thus calling for further research. Due to the ever-increasing engagement of firms in export activities, it seems particularly relevant to examine the relationship between different determinants of a firm behaviour and its export intensity.

The objective of this paper is to assess the role of the factors that influence the export intensity of firms. In order to investigate the elements that are vital to firm's export success, we have developed a model which defines export intensity as a function of three groups of factors and forces. The first group refers to firm characteristics, the second to its behaviour and the third to other elements from its environment, mainly observed as obstacles for doing business. In that context, the model analyses the export intensity of firms from selected transition economies. The Tobit model is estimated using the data from the fourth Business Environment and Enterprise Performance Survey conducted jointly by EBRD and World Bank in 2009.

The paper is structured as follows. The next section provides a literature review on the relationship among different factors affecting export intensity. In Section 3, model specification is detailed and explained. Dataset and methodology are presented in Section 4 while the Section 5 discusses the results obtained. Finally, certain conclusions emerging from the previous sections are outlined and some proposals for the improvement of future research are indicated.

## 2. LITERATURE REVIEW

International business literature covers a number of issues and relations between the factors which may influence export performance. In that sense, the relationship between firm size and export intensity has provoked a great deal of interest among researchers. However, empirical findings appear to be ambiguous. On the one hand, the evidence of several authors (Moini, 1995; Wagner, 1995; Majocchi, 2005; Jauhari, 2009) suggests positive relationship between firm size and export intensity and, on the other hand some researchers (Bonaccorsi, 1992; Moen, 1999) don't support this hypothesis.

In addition to firm size, another important aspect is firm's experience. Several authors (Davidson, 1980; Erramilli, 1991) pointed out the importance of experience to firm's ability to export. According to Majocchi et al. (2005, p. 719) it is not business experience per se which is important, but it is the relative change in experience that truly impacts upon export performance. In relation to firm's size and age, an important role belongs to sunk costs which are another important determinant of firm behaviour. The existence of sunk costs necessary to enter foreign markets may induce firms to stay in foreign markets, even at the cost of reducing profit margins (Castellani, 2004). Empirical results by Aitken et al. (1997, p. 103) suggest that firms that penetrate foreign markets reduce entry costs for other potential exporters, either through learning effects or establishing commercial linkages.

As far as firm characteristics are concerned, another important determinant is its location. A firm's location decision depends on the interaction between production costs and ease to access the markets (Venables, 1996, p. 341). According to Koeing (2009, p. 187), agglomeration is likely to have both positive and negative effects on export behaviour. On the one hand it refers to the increasing congestion in export infrastructure and on the other hand to greater competition regarding the exported good.

The relationship between innovation and export intensity has been the subject of much research in the international business literature in the past (Pla-Barber and Joaquín, 2007). Innovation is becoming more and more relevant as a source of competitive advantages. Generally, besides several exceptions (Becchetti and Rossi, 2000; Lefebvre et al., 1998), innovation has been proven to encourage export success. Using comparable plant-level surveys Roper and Love (2002, p. 1087) argue that product innovation has a strong effect on the probability and intensity of export among the UK and German manufacturing plants. Basile (2001, p. 1185) finds the export intensity of innovating firms to be higher than that of non-innovating firms. Wakelin (2001, p. 1079) also confirms a positive and significant

role for the firm's own R&D expenditure in influencing productivity growth. Moreover, Sterlacchini (1999, p. 830) finds that the innovative efforts of small firms belonging to non-R&D intensive industries do matter, even though they focus on activities different from R&D.

Outsourcing activities are an important feature of a firm's business and may be a way to access new markets. Mol et al. (2005, p. 599) argue that international outsourcing is a consequence of a firm's ability to search and evaluate foreign suppliers. Javalgi et al. (2009) consider outsourcing to be a source of competitive advantage for firms whose competitive profiles are based on significant cost reductions, availability of resources and resource complementarities or dependence on resources of the host country. In addition, by analyzing manufacturing firms in Japan, Tomiura (2009, p. 219) finds that firms tend to prefer domestic outsourcing to foreign outsourcing when they are R&D-intensive.

Transport costs are another major factor which may influence export performance, and moreover, the ability of a firm to compete in the international markets. Bougheas et al. (1999, p. 170) emphasize that the differences in the volume and quality of infrastructure across countries may be responsible for the differences in transport costs which in turn, may be able to account for the differences in competitiveness.

### **3. MODEL SPECIFICATION**

Drawing on insights from previous section we have developed a model in which export competitiveness of a firm, measured as a ratio of its export revenue and overall sales revenue, is defined as a function of its characteristics, activities and factors and forces from its environment which are perceived as obstacles for doing business. Hence, in order to control for sunk costs of export we have introduced two variables for firm size and its experience, which are measured by number of employees and number of years since foundation respectively. As we mentioned previously, the exporting literature often emphasises the costs of entry as a decisive factor for the ability of firms to compete on the international market. In this context, we expect that larger firms would participate with higher intensity on the international market due to their ability to achieve economies of scale more easily. In similar manner, we expect that international competitiveness of firms should improve with their age since older firms would be more likely to benefit from the established relationships with clients and suppliers but also they would be able to use the accumulated knowledge about behaviour on the market in general and on the international market in particular, in order to make optimal choices. Table 1 brings the description of the main variables.

Our model controls for the location of a firm with categorical variable that takes the value of one if the firm is located in the capital city or a city with more than 250 000 inhabitants. As we mentioned previously, depending on competitive profile of a firm, agglomerations can provide it with several positive or negative externalities in terms of costs, infrastructure or knowledge spill-overs. Hence, the positive sign on this variable could be taken as evidence that firms in our sample are benefiting from lower costs of transport and better access to infrastructure, lower costs due to mass production and from sharing information with other firms from its industry located nearby. However, as mentioned previously, higher concentration of firms at one location increases prices of inputs and deteriorates price competitiveness of firms, in which case we would expect to find a negative sign on this variable.

**Table 1.** Description of variables

<b>Dependent variables</b>	
Export intensity	Total exports/Total sales
<b>Explanatory variables</b>	
<i>Firm Characteristics</i>	
Size	Number of employees
Experience	Number of years since foundation
Location	Dummy=1 if firm is located in the capital city or city with more than 250 000 inhabitants
<i>Firm Behaviour</i>	
Innovations	Dummy=1 if firm introduced new products in 3 years prior to survey
Price policy	Dummy=1 if price of firm's main product increased in one year prior to survey
Product line discontinuation	Dummy=1 if firm discontinued any of its product lines in 3 years prior to survey
Product line upgrading	Dummy=1 if any of product lines have been upgraded in 3 years prior to survey
Outsourcing of activities	Dummy=1 if firm outsourced any of its activities in 3 years prior to survey
Licensing of foreign technology	Dummy=1 if firm purchased licence to use foreign technology
Quality Certificate	Dummy=1 if firm possesses internationally recognised quality certificate
Use of Internet	Dummy=1 if firm uses the Internet to communicate with main clients and suppliers
<i>Obstacles for doing business</i>	
Transport Costs	Dummy=1 if firm perceives transport costs as obstacle to its operations
Customs regulations	Dummy=1 if firm perceives customs regulations as obstacles to its operations
Access to land and	Dummy=1 if firm perceives access to land and buildings as obstacle to

buildings	its operations
Electricity	Dummy=1 if firm perceives access to electricity as obstacle to its operations
Competition	Dummy=1 if firm perceives actions of rivals as obstacle to its operations
Access to finance	Dummy=1 if firm perceives access to finance as obstacle to its operations
Tax rates	Dummy=1 if firm perceives tax rates as obstacle to its operations
Tax administration	Dummy=1 if firm perceives tax administration as obstacle to its operations
Legal system	Dummy=1 if firm perceives functioning of courts as obstacle to its operations
Obtaining of licenses and permits	Dummy=1 if firm perceives obtaining of licenses and permits as obstacle to its operations

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Behaviour of firms is approached with several variables which are intended to capture the price and quality competitiveness, the technology transfer and networking as well as the adjustment of a firm to market trends. Accordingly, the price competitiveness of a firm is modelled with categorical variable which takes the value of one if the firm increased the price of its products in one year prior to survey. Under hypothesis of price-based competitiveness we would expect the negative sign on this variable. However, we must also take into account that an increase in price may emanate from the improvements in the quality of products in which case a higher price should translate itself into higher export competitiveness of a firm. Therefore, we do not have a priori expectation about the direction of this relationship. This, however, is not the case with our proxy for innovation activities of a firm which we have measured with the indicator variable for introduction of new products. We would expect that the introduction of new products enables a firm to differentiate itself from its rivals more easily and thus seize their market share. Therefore, we expect a positive sign on this variable.

The model also includes several variables which are intended to reflect the ability of a firm to adjust itself to the market trends, as well as to implement modern technological standards and to absorb technology through networking with other firms. Following propositions from the transition literature, we have introduced two variables for firms which upgraded or discontinued any of their product lines as proxies for their adjustment to the market trends. In a way, these variables should reflect the quality of managerial decision-making since their ability to recognise the changes in the market trends and, in line with that, to make necessary adjustments in product mix should positively influence the international competitiveness of their firms.

Another aspect of firm behaviour which could affect its competitiveness is the ability to absorb new technologies and quality standards. To control for these effects we have introduced three variables. First variable controls for the technology transfer from abroad by taking the value of one if a firm obtained a license to use foreign technology. The second variable takes the value of one if the firm possesses international quality certificate while the third variable controls for firms which use the Internet in their communication with suppliers and customers. It is our belief that these three variables should exert positive influence on the ability of a firm to compete with its rivals on the international market. Finally, we have also included categorical variable for firms which have outsourced some of their activities in one year prior to survey. In general, we expect that contracting-out of non-core activities should have positive influence on the efficiency of a firm and thus on its international competitiveness.

To control for impact of firm's environment on its international competitiveness we have included several variables for factors which have been recognised by firms in our sample as obstacles for their business operations. Primarily, we are interested in the role of transport costs and customs regulations. While the former may erode price competitiveness of firm, the latter are interesting as they may impede the entrance of domestic firms on some international markets. As by construction our variables reflect firms which consider the above groups of factors to be obstacles for doing business we expected to find a negative coefficient on them. We have also investigated the impact of several factors of institutional and physical infrastructure on firm's export competitiveness. The latter is captured with categorical variables which take the value of one if a firm perceives access to land and buildings, as well as to the electricity, as obstacle for doing business. We would expect that disruptions in production power outages and related processes exert negative effect on competitiveness of firms in our sample just as the impeded access to land and buildings would act as an obstacle for a firm in the expansion of its capacities. This is the reason why we expected to find a negative coefficient on these variables as well.

The elements of institutional environment which we control for include legal system, tax rates, administration over taxes and the obtaining of licenses and permits. In the competitiveness literature, the quality of institutional framework is recognised as an important factor behind the ability of firms to compete. Generally, it is argued that the behaviour of firm arises as a response to the incentives coming from its environment. In that context, the ability of firms to compete on the international market could be improved through changes in the quality of their institutional framework. For this reason we anticipated to find a negative coefficient on these variables. Finally, our model includes two variables which reflect firms'



access to finance and actions of their rivals. The obstacles in access to finance can prevent a firm to finance its current activities and lead it to liquidity problems. More importantly, they can act as obstacle for a firm to engage in many costly activities whose outcome should be improved competitiveness in the long run, such as the expansion of capacities, innovation activities, and investment in human capital etc. For that reason we expected that impeded access to finance should have a negative impact on export competitiveness of firms. However, when it comes to the effect of competition, we do not have a priori expectation about the direction of relationship. On the one hand, the actions of other rivals may result in the loss of incumbent firm's market share and even drive it completely from the market, in which case the competition should have negative effect on a firm's competitiveness. On the other hand, competition may exert a pressure on a firm to improve its cost efficiency or to develop new products, in which case we would expect to find evidence of positive relationship between the two. Therefore, we do not have a priori expectation about the direction of this relationship.

#### **4. DATASET AND METHODOLOGY**

The above described model has been applied to the data from the fourth Business Environment and Enterprise Performance Survey (BEEPS) conducted jointly by EBRD and World Bank in 2009. The dataset provides the information on firms from 29 transition economies of which we have focused on the group of advanced transition economies which include the Baltic Sea countries (Estonia, Latvia, Lithuania), a group of Central and East European Countries (the Czech Republic, Poland, Slovakia, Slovenia, Hungary) and the most recent candidate for the EU membership Croatia. In total we are dealing with 707 firms of which more than half are exporters in all nine economies. Furthermore, there are notable differences in the export intensity of firms in our sample, being lowest in Poland (18%) and highest in Slovenia (42%). The detailed statistics are provided in Table 2.



**Table 2.** Number of firms in sample and exporting activity

Sample	Number of firms	Number of exporters	Mean export intensity
Croatia	54	30	0.27
Czech Republic	65	43	0.35
Estonia	77	45	0.34
Hungary	92	46	0.23
Latvia	76	41	0.28
Lithuania	82	44	0.32
Poland	111	54	0.18
Slovak Republic	64	37	0.31
Slovenia	86	74	0.42
Total sample	707	414	0.29

Source: BEEPS, 2009

The classification of firms by various criteria in Table 3 allows us to draw some inference about the characteristics of our dataset. The average age of firms in our sample suggests that we are mainly dealing with firms established in the course of transition. Of course, this does not relate to Croatia and Slovenia where the average age of firms is several times higher than in other countries. However, we must interpret the findings with respect to the age of firms with caution, as some firms may be products of spin-offs and privatisation of parts of former socialist enterprises thus having even longer tradition. Judging by the average number of employees, we are dealing with the sample of medium sized firms, the largest firms being in the Czech Republic and Slovenia and the smallest in Poland and Estonia. Furthermore, with the exception of Latvia, in all the countries the number of firms located in large cities is fairly low suggesting that firms in our sample are not exploiting the positive externalities of agglomerations, but rather prefer small urban areas. Finally, the transport costs and customs regulations present an obstacle for only a small proportion of firms.

**Table 3.** Descriptive statistics of sample

	Age*	Size*	Location**	Transport Obstacles**	Customs Obstacles**
Croatia	32	104	26	7	4
Czech Republic	14	185	22	28	11
Estonia	17	95	32	14	4
Hungary	12	155	17	10	3
Latvia	12	109	46	22	8
Lithuania	13	98	15	13	7
Poland	22	85	2	19	11
Slovak Republic	20	132	5	23	6
Slovenia	25	158	9	8	4
Total sample	18	123	18	16	7

\* mean value

\*\* % of firms

Source: BEEPS, 2009

In the estimation of the model we must take into account the specific nature of our dependent variable and the heterogeneous nature of firm behaviour. By construction, export intensity is bounded between 0 and 1. Furthermore, for non-trivial proportion of population this variable takes the value of 0. The application of classical regression methods on such sample would yield biased and inefficient estimates. For that reason we have used Tobit maximum-likelihood methodology which is capable to control for the above mentioned problem of censoring. Another problem that we need to take into account is the fact that there might be some country and industry specific characteristics which may be correlated with the explanatory variables. To control for this potential source of heterogeneity our model includes dummy variables for industries which are classified by their technological intensity as low, medium-low, medium-high and high technology intensive industries (OECD, 2007), as well as the country dummy variables to control for the specific nature of institutional environment in particular transition economies.

## 5. DISCUSSION OF FINDINGS

The results of our estimation are presented in Table 4. Starting with the firms' size and experience, the model provides only partial support to the thesis about sunk

costs of exporting. The coefficient on size is statistically significant and positive while the one on experience is statistically insignificant. This finding may be taken as evidence that factors such as economies of scale or the ability to undertake costly investment in export-specific assets are important for the international competitiveness of firms in our sample, while the factors from their business experience such as the established networks of clients and suppliers or the accumulated knowledge about proper actions in particular situations on the market are less important. Furthermore, the magnitude of coefficient on the size variable is very small, suggesting that even this factor has only incremental contribution to the international competitiveness of firms in our sample.

**Table 4.** Results of Tobit estimation

<i>Firm Characteristics</i>	
Size	0.0003(0.009)***
Experience	-0.0001(0.906)
Location	-0.148(0.005)***
<i>Firm Behaviour</i>	
Innovations	0.025(0.649)
Price policy	-0.473(0.000)***
Product line discontinuation	0.087(0.051)**
Product line upgrading	0.035(0.656)
Outsourcing of activities	0.141(0.001)***
Licensing of foreign technology	0.106(0.042)**
Quality Certificate	0.157(0.001)***
Use of Internet	0.514(0.019)**
<i>Obstacles for doing business</i>	
Transport Costs	0.059(0.334)
Customs regulations	-0.139(0.089)*
Access to land and buildings	0.007(0.876)
Electricity	-0.011(0.810)
Competition	-0.182(0.000)***
Access to finance	-0.006(0.894)
Tax rates	-0.037(0.504)
Tax administration	0.029(0.570)
Legal system	0.022(0.641)
Obtaining of licenses and permits	-0.027(0.601)

<sup>a</sup> \*, \*\* and \*\*\* denote statistical significance of variables at 1%, 5% and 10% respectively. White-Huber robust standard errors in parentheses

<sup>b</sup> The coefficients in table are marginal effects. For continuous variables they give change of dependent variable if independent changes for one unit. For categorical variables they reflect change in dependent variable if independent changes from 0 to 1. Country and industry dummy variables are included.

The export intensity of firms increases if they are located outside of dense urban areas. This implies that firms in our sample consider externalities of agglomerations as competitive disadvantage. Such behaviour fits the profile of firms from low technology intensive industries. Accordingly, the externalities of agglomerations such as sharing knowledge with other firms or cooperation with universities and research institutions may be more important for firms which compete in the quality segment of their industries. However, firms from low technology intensive industries would place more emphasis on the price aspect of their competitiveness. As higher concentration of firms may exert upward pressure on costs of inputs, we would expect that the latter group locates itself outside large agglomerations. Our findings support such reasoning.

Among the factors of firm behaviour, several variables are significant with expected sign. The coefficient of highest magnitude is found on the price variable. Accordingly, firms which increase the price of their products have a lower export intensity by 47 percentage points than firms which reduced or did not change their prices. As coefficient for introduction of new products is statistically insignificant, we may conclude that price based competitiveness has a more important role in the ability of firms from our sample to compete on the international market. Among the variables for adjustment to the market trends, only product line discontinuation is statistically significant. Hence, firms which have discontinued some of their product lines have higher export intensity. A likely explanation is that the abandonment of some product lines enables firms to focus their efforts and allocate financial means in products with the highest market potential. Same reasoning can be applied for our finding with respect to outsourcing of activities. Accordingly, firms which have outsourced some of their activities have higher export intensity than those which prefer in-house performing of activities. Finally, with respect to the ability of firms to absorb new technologies and maintain quality standards in doing their activities, we find statistically significant and positive coefficients on variables controlling for technology transfer, use of the Internet and internationally-recognised quality certificate.

Among the obstacles for doing business, we have obtained statistically significant coefficient only on variables for competition and for customs and trade regulations. Both variables have negative signs. In former case this can be interpreted as evidence that actions of other rivals prevent firms from developing specific assets which are needed for exporting. Also, it may reflect the lack of competitiveness, i.e.

the inability of firms in our sample to resist the competitive pressure. Another finding is, however, more interesting. It implies that customs procedures and trade regulations impede access of firms in our sample to the international markets. Having in mind that we are dealing with the sample of firms from transition economies which are members of the EU or have preferential trade agreements with it, such as Croatia, such finding is somewhat surprising. A likely explanation is that firms from our sample are oriented on third markets where they may not benefit from customs and trade standards such exist on the integrated market of EU. Of other variables, we have also obtained negative sign on coefficients for access to electricity, access to finance, tax rates and obstacles in obtaining licenses and permits. However, these coefficients are highly insignificant.

## **6. CONCLUSION**

By focusing on firm characteristics, its behaviour and obstacles for doing business, this paper examines some of the factors that encourage and impede firms from transition economies to compete on the international market. In this context, a model of export intensity is proposed and tested empirically.

As regards the average age and size of firms, our sample predominantly consists of medium sized firms established in the course of transition. With regard to firm characteristics, the thesis about firm's size has been confirmed. The results indicate that larger firms participate with higher intensity on the international market due to their ability to achieve economies of scale more easily. Although business experience increases considerably the probability of firms to export, it appears that business experience such as the established networks and the knowledge of export markets are less important determinants of export success for firms in our sample. However, a negative sign on location variable identifies firms from low technology intensive industries. These firms consider externalities of agglomerations as competitive disadvantage.

As far as factors of firm behaviour are concerned, the negative coefficient on price policy as well as insignificance of innovations confirms the hypothesis of price-based competitiveness. With regard to firm's adjustment to the market trends, product line discontinuation plays an important role for export behaviour of a firm. In order to achieve higher export competitiveness, firms from the sample focus their activities on products with high export potential. In addition, the results confirm that outsourcing some of firm's activities has a positive impact on its export intensity. The same applies to the variables referring to technology transfer, use of the Internet and possessing quality certificates, all having significantly positive coefficients.

Finally, competition and customs and trade regulations seem to be the most important obstacles for doing business. These findings suggest that the actions of competitors strongly affect firm's ability to compete on the international market. With respect to customs procedures and trade regulation, the results indicate that firms from our sample are oriented on third markets where they may not benefit from customs and trade standards such exist on the integrated market of EU.

This paper aims at contributing to a better understanding of factors affecting export performance. The main findings of this paper primarily refer to selected features of export firms from transition economies. In that context, these findings have important implications for those subjects involved in international business in general and interested in export competitiveness of these countries in particular.

Finally, the empirical analysis has some limitations that should be mentioned. Given the cross-sectional nature of our dataset which includes only the year 2009, we were unable to control for the longitudinal dimension of the ability of firms to compete on international market. Furthermore, the issue of geographical diversification in the context of export intensity has not been taken into consideration. These issues could be the subject of future research.

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