Restructuring and Barriers: Cross-Country Evidence on the Competitiveness of Exporters in Transition

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The behaviour of exporters attracts the attention of researchers and policy makers interested in the competitiveness of their economies. Through participation on the international market, domestic firms can generate foreign exchange needed to pay for imports and learn about new technologies which can be used at home to improve the overall competitiveness of their industries. The paper develops a model in which the ability of firms from transition economies to compete on the international market is defined as a function of their activities, characteristics and features of their environment. The results of our research indicate that sunk costs of entry, technology transfer, innovations and competition play an important role for the decision of firms to export, while once they are on the international market cost advantages become more important.

Key Words: export competitiveness, entry costs, transition economies, restructuring, institutions
JEL *Classification:* D02, D22

Introduction

In a globalised world, the ability of nations to grow and to provide their citizens with a better standard of living is embedded in the ability of their firms to compete on the international market. Through participation on the international market, domestic firms can generate foreign exchange

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needed to pay for imports and learn about new technologies which can be used at home to improve the overall competitiveness of their industries. Also, international trade literature argues that the competitive profile of exporters has an important role in explaining the growth potential of their economies. In that context, a distinction can be made between price competitive firms which enter the international market with low-technology intensive products and simple standardised technologies and those whose competitiveness is based on knowledge and skill intensive products which are known to contain higher value added and to bear higher potential for growth (Lall 2001). The exporting is particularly important for firms whose growth is constrained by the size of the domestic market, as through participation on the international market these firms can more easily achieve economies of scale.

The competition on the international market requires firms to make numerous export-specific adjustments in their behaviour. To be able to compete with other rivals, firms must develop knowledge about the rules of competition and trends on foreign markets. They also need to purchase specific assets and develop routines intended for servicing the international market. Exporting literature labels these adjustments as the sunk costs of entry on the international market and postulates that in order to bear such costs firms must possess some kind of advantages which may arise from their activities, characteristics or features of their environment. A substantial body of empirical evidence supports such reasoning. In their study on the behaviour of us exporters, Bernard and Jensen (1999) have found that exporters have higher productivity and pay higher wages than non-exporters in the years before they started exporting. Their findings are in line with those of Schank, Schnabel, and Wagner (2010) for Germany who have reported the existence of wage premium among exporters in years prior to their entrance on the international market. Several other studies for various countries have reported evidence of a positive relationship between innovation activities of firms and their export competitiveness (Wakelin 1998; Becchetti and Rossi 2000; Basile 2001; Clausen and Pohjola 2009).

Another line of reasoning postulates that the international position of a firm may be affected by its characteristics such as size or age (Wagner 1995; Roberts and Tybout 1997; Basile 2001; Bleaney and Wakelin 2002; Majocchi, Bacchiocchi and Mayrhofer 2005). The logic behind this thinking is that sunk costs of entry on foreign markets can be lowered if the firm has previously accumulated experience or if it is able to reach

economies of scale more easily due to its size. Still, empirical studies have not unanimously supported such a thesis. The evidence of several authors indicates that experience and size may not be important elements in explanations of a firm's export competitiveness (Bonaccorsi 1992; Balabanis and Katsikea 2003). According to Majocchi, Bacchiocchi and Mayrhofer (2005) such divergent findings should be seen in light of variations in technological intensity of the sectors under analysis. In that context, the experience will be more important for firms in low-technology intensive sectors which compete in standardised products. The accumulated knowledge about market relationships may be employed by these firms to penetrate new markets and attract new clients.

Several previous studies have observed the positive impact of inter-enterprise networks on the behaviour of exporters. In general, the co-operation with other rivals, location in agglomerations or industrial districts have been identified as channels that increase the probability of firms to export and also their export intensity (Roberts and Tybout 1997; Becchetti and Rossi 2000; Basile 2001; Clausen and Pohjola 2009). Two explanations for such a finding are commonly put forward. On one hand, it is argued that networking with other firms eases access to information and export-specific assets, thus lowering the previously mentioned entry costs. On the other hand, it has been recognised that the proximity of potential and actual rivals acts as a positive incentive for the firm to improve its efficiency and quality of its products.

Our paper is concerned with the factors and forces that drive competitiveness of exporters in transition economies. In that context, we develop a model in which the ability of firms to compete on the international market is specified as an outcome of their activities, characteristics and features of their environment. The model includes different factors which have been recognised in transition literature as elements of firm behaviour, such as cost efficiency, innovations, investment in human capital or networking. We also investigate whether specific institutional circumstances of particular transition economies have affected the ability of their exporters to compete on the international market and for that reason include variables for several elements of the firm's environment, such as the quality of institutions, access to finance or pressure of competition. Finally, in order to test for the presence of entry costs on the exporting market, we include several firm-specific characteristics such as size, age and particularly ownership, which we believe might be important determinants of behaviour of exporters in transition. In the next

section we develop the theoretical framework of our research, while the third section will discuss the specification of model. The methodology of research will be discussed in the fourth section, while the main characteristics of the dataset will be analysed in the fifth section. The results of investigation will be presented in the sixth section. Finally, conclusion will be given in the seventh section.

Theoretical Framework

The question of why some firms perform better than others has occupied the attention of researchers for a long period of time. Within exporting literature, the answers to this question have been looked for among assumptions of various economic theories, such as institutional economics, evolutionary and Austrian schools or the transaction cost approach and resource-based view. The general message coming from this literature is that the market imperfections provide some firms with the opportunity to seize the market share of their rivals. The failure of markets to optimally perform their function results in an ignorance which increases uncertainty over future outcomes and raises costs of transactions. In such a setting, firms with different information about final markets, different skills, organisational capabilities and technology are likely to exhibit varying degrees of success on the international market (Wagner 1995).

Under the assumptions of institutional economics, the key to the ability of firms to compete lies in the quality of their environment. This line of thinking emphasises the role of institutions as factors that can reduce information and transaction costs within society, thus reducing the overall level of uncertainty. The impact of institutions on the behaviour of firms is defined along three dimensions: regulative, normative and cognitive. Through the regulative framework, institutions signal to individuals how they can maximise their objectives (North 1990). The normative function of institutions signals to individuals what are the appropriate rules of behaviour in society (Brinton and Nee 2001). Finally, the cognitive view of institutions argues that individuals respond to institutions because of their conceptions, i.e. the inability to conceive of other ways of doing things (Hall and Taylor 1996). The institutional perspective on the behaviour of exporters has been mainly used in literature on national competitiveness (Fagerberg 1988; Lall 2001). These studies tend to emphasise the role of government, infrastructure, business climate and macroeconomic performance as factors

that shape the ability of firms to compete with their rivals from other countries.

While acknowledging the importance of institutions for the ability of firms to compete, other economic schools have placed more emphasis on their characteristics and behaviour. The Austrian school emphasises the role of discoveries which help firms to reduce uncertainty and seize the market share of their rivals by offering products at lower prices or of better quality (Kirzner 1997). In addition to discoveries, the learning is identified as the key to the ability of firms to compete in the long run. It has been argued that knowledge accumulated through learning about the past outcomes of one's own and the actions of rivals can be used by firms to predict future outcomes of their actions. The view of evolutionary economics is that innovations present decisive cost or quality advantages for firms as well as being the force that moves the economic system from one state of equilibrium to another (Schumpeter 1942). This line of reasoning argues that the transitory nature of the firm's environment makes past outcomes weak predictors of the future ability of firms to compete. Hence, in a changing environment, firms can survive either through imitation of actions of other more successful rivals or by developing new and better ways of doing things (Nelson and Winter 1982; Nelson 1993). Although the latter pattern of behaviour bears a higher risk of failure, it is also associated with higher returns.

In the context of international trade, the above mentioned assumptions have served as the foundation for several theories such as technology gap or product life-cycle theory. Technology-gap theory argues that the international position of firms, industries and nations depends on the interaction between the complexity of their production processes and the level of technological development (Posner 1961; Castellacci 2002). The higher these are the more easily the firm will be able to differentiate itself from its rivals. Under view of product-life cycle theory, during their life on the international market competitiveness of products goes through several stages starting from innovation-based, the competitiveness and ending with a cost-based one (Vernon 1966). These models point out that by improving cost efficiency the competitiveness can be improved only until a certain point. In adherence, when the possibilities for further improvements in cost efficiency have been exploited, an economic entity that wishes to stay dominant must introduce radical change in the technology.

The resource-based literature argues that the competitiveness of firms

can be maintained either through differentiation from other rivals or by offering products of the same quality as those of rivals but at lower prices. The competitive advantage of the firm is defined as its ability to exploit the physical, human and organisational capital at its disposal (Barney 1991). In that context, three features of the firm's resources are put forward as decisive factors in the building of its competitiveness. These resources need to be rare, imperfectly imitable and without substitutes. It is also argued that changes in the firm's environment may cause its resources to stop having any of these features, in which case the firm needs to engage in innovations if it wishes to maintain its distinctiveness over other rivals. Finally, transaction costs literature argues that through creation of specific governance structures firms can reduce the level of ignorance and these costs of transactions. According to Majocchi, Bacchiocchi and Mayrhofer (2005), participation of firms on the international market requires investment in specific assets and increases the level of uncertainty with which firm is confronted. As creation of specific governance structures entails high fixed costs, it is likely that larger firms and those with more business and international experience will be more likely to export, as they have more ability to spread these costs across their activities.

Specification of the Model

Putting together the pieces of our previous discussion indicates that the ability of firms to compete on the international market depends on interaction between their environment, characteristics and features of their behaviour. In the simplest form such a model can be written as

$$\text{CI}_i = f(A_i, C_i, E_i), \tag{1}$$

where CI stands for international competitiveness of firm i, and letters in brackets denote firm's activities, characteristics and features of its environment respectively. Previous studies on the behaviour of exporters have focused either on their decision to export or on the export intensity defined as the ratio of export and sales revenues (Bonaccorsi 1992; Roberts and Tybout 1997; Bleaney and Wakelin 2002; Clausen and Pohjola 2009). Our paper encompasses both of these measures. In choosing elements of our model we combine propositions from our theoretical framework with insights from exporting literature and the literature on behaviour of firms in transition. Table 1 presents a list of variables with their brief explanations.

TABLE 1   Description of variables

DEPENDENT VARIABLES	
Decision to export	Dummy = 1 if firm reported positive level of export
Export intensity	Total exports/Total sales × 100

EXPLANATORY VARIABLES	
Restructuring	
Unit labour costs (Ulc)	Costs of employees/Total sales × 100
Unit material costs (Umc)	Costs of material/Total sales × 100
Innovations (NewProd)	Dummy = 1 if firm introduced new products in 3 years prior to survey
Product line discontinuation (Discontinue)	Dummy = 1 if firm discontinued any of its product lines in 3 years prior to survey
Product line upgrading (Upgrade)	Dummy = 1 if any of product lines have been upgraded in 3 years prior to survey
Outsourcing of activities (Outsource)	Dummy = 1 if firm outsourced any of its activities in 3 years prior to survey
Licensing of foreign technology (Licensing)	Dummy = 1 if firm purchased licence to use foreign technology
Education of staff (univ_staff)	No. of employees with university degree/Total no. of employees × 100
Wage premium (WPrem)	Dummy = 1 if firm pays wage above average in its 4-digit industry
Training of employees (Training)	Dummy = 1 if firm invests in training of its employees
Skill intensity (skill_int)	No. of skilled employees in production/Total no. of employees in production × 100

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The ability of firms from transition economies to compete has been severely constrained by problems such as inefficiency or outdated technology inherited from the pre-transition period. For this reason, transition literature emphasises the enterprise restructuring as a process through which these firms could improve their international position (Grosfeld and Roland 1996; Djankov and Murell 2002). In our model we introduce several variables which are intended to act as control for the role of enterprise restructuring. As the substantial body of evidence points out that the competitiveness of firms from transition economies was driven by cost advantages (Havlik 2000; Wziatek-Kubiak and Winek

TABLE 1 *Continued from the previous page*

Firm characteristics	
Size	Number of employees
Age	No. of years since foundation
Managerial expertise	No. of years of manager working in firm's sector
State ownership (State-Own)	Dummy = 1 if more than 50% of ownership rights are controlled by the state
Domestic private ownership (DomOwn)	Dummy = 1 if more than 50% of ownership rights vested to domestic private entities
Environment	
Agglomerations (Location)	Dummy = 1 if firm is located in a city with more than 250 000 inhabitants
Competition1 (Comp)	Dummy = 1 if firm perceives actions of rivals as obstacle to its operations
Competition2 (Comp_Prod)	Dummy = 1 if pressure of competition motivates firm to introduce new product
Competition3 (Comp_Cost)	Dummy = 1 if pressure of competition motivates firm to reduce costs
Medium-low technology intensive industry (Mlow)	Dummy = 1 if firm operates in a medium-low technology intensive industry
Medium-high technology intensive industry (Mhigh)	Dummy = 1 if firm operates in a medium-high technology intensive industry
High-technology intensive industry (High)	Dummy = 1 if firm operates in a high-technology intensive industry

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2004), we include unit labour and unit material costs in order to investigate whether firms with lower costs are more successful on the international market. Hence, we expect a negative sign for these variables in the case of price-competitive firms. The responsiveness of firms to changes in market trends is captured with two dummy variables which take a value of one if the firm in three years prior to the survey had discontinued or upgraded any of its product lines. In addition, we include a dummy variable for firms which have outsourced some of their activities in three years prior to survey and for firms which have purchased a license for use of foreign technology in the same period. As these features of firm behaviour are recognised in transition literature as elements of strategic

TABLE 1 *Continued from the previous page*

SEEC	Dummy = 1 if firm operates in a South East European country
CIS	Dummy = 1 if firm operates in Commonwealth of Independent States or East European country
Provision of subsidies (Subs)	Dummy = 1 if firm receives governmental subsidies
Access to finance (ObstFin)	Dummy = 1 if firm perceives access to finance as obstacle to its operations
Tax regulations (ObstTax)	Dummy = 1 if firm perceives tax regulations as obstacle to its operations
Legal system (ObstCourt)	Dummy = 1 if firm perceives functioning of courts as obstacle to its operations
Political instability (ObstInstb)	Dummy = 1 if firm perceives political instability as obstacle to its operations
Corruption (ObstCorr)	Dummy = 1 if firm perceives corruption as obstacle to its operations
Obtaining of licenses and permits (ObstLic)	Dummy = 1 if firm perceives obtaining of licenses and permits as obstacle to its operations

restructuring which creates the foundations for development of competitiveness in the long run, we expect a positive sign for them as well. an Our theoretical framework implies that the innovations may be important factor for explanation of international competitiveness of firms. Previous exporting literature had experimented with different proxies for innovation activities ranging from decision to innovate over R&D expenditure or number of patents to measures of product or process innovations (Wakelin 1998; Becchetti and Rossi 2000; Basile 2001; Clausen and Pohjola 2009). Our study uses the dummy variable which takes a value of one if the firm in three years prior to the survey introduced new products. In that respect, we follow recent advancements in innovation literature which postulate that the improvements in performance and competitiveness of firms should result from outputs of the innovation process rather than from its inputs (Kemp et al. 2003). For this variable we expect also a positive sign.

Another thesis put forward in our theoretical framework is that the ability of firms to compete on the international market may be related to the quality of their human capital. The line of reasoning behind such a thesis is that educated and skilled employees increase the productiv-

ity of the firm as they may have a higher ability to acquire and decode information about costs or to adapt to technological changes in their environment. Following Becker's (1962) distinction between general human capital (formal education) and specific human capital (on-the-job training), we introduce several variables intended to capture this effect. General human capital is modelled as the percentage of staff with a university degree within the firm and with the dummy variable, which takes a value of one if the firm offers above-average wages in order to attract educated and skilled workers, while the effect of specific human capital is controlled for by dummy variable taking a value of one if the firm invests in training of its employees and with the firm's skill intensity measured as a ratio between the number of skilled production workers and the total number of production workers in the firm. We expect that the stronger quality of human capital enables firms to more easily offer products at both lower prices and of higher quality, for which reason we expect a positive sign for these variables.

In order to test for the presence of sunk costs of entry on the international market, we also control for size, age and different types of ownership. We expect that in a turbulent environment such as transition, the costs of obtaining information or some specific assets, bargaining and monitoring would be higher than usual. Hence, size and experience would have a positive impact on the international competitiveness of firms, as larger firms and those with more experience could more easily bear the costs of entry on foreign markets. In addition to these characteristics, several studies have pointed to differences in ownership of firms as an important determinant of their exporting activity (Buck al. 2000; Filatotchev et al. 2001). To control for these characteristics we introduce the number of employees as proxy for size, and the age since incorporation and years of manager's experience in the sector as proxies for experience. In general, we expect that accumulation of experience leads to higher export competitiveness and thus expect to find for it a positive sign.

Transition literature has in general recognised the superiority of foreign owners over other types of ownership. Firms owned by foreigners have demonstrated higher restructuring efforts and they were able to benefit from knowledge and technology spillovers and easier access to finance (Djankov and Murell 2002). With respect to ownership we introduce two dummy variables for firms predominantly owned by state and domestic private entities, thus taking predominantly foreign owned firms as the base category. In line with transition literature we also

expect that foreign owned firms will be more competitive than their domestically-owned counterparts and thus expect to find a negative sign on both dummy variables in our regression.

In modelling of the firm's environment we make a distinction between agglomerations, technological intensity of firm's industry, the extent of competition in the industry and its institutional environment. The impact of agglomeration economies is captured by the dummy variable which takes a value of one if the firm is located in a city with more than 250 000 inhabitants. We do not have an a priori expectation on the direction of this relationship. On one hand, technology-intensive and innovative firms are more likely to be located in large urban zones which provide benefits such as lower costs of transport and access to upstream firms, a better pool of skills and expertise and also a better flow of information between firms (Krugman 1993; Venables 1996). On the other hand, low technology intensive firms which compete in standardised products and place more emphasis on costs in building up their competitiveness are more likely to be located in smaller urban areas (Lall 2001).

The industry-specific effects are controlled for by the dummy variables for effect of competition on the firm's actions and by dummy variables for technological intensity of their industry. The effect of competition is approached with three variables. We include a dummy variable for firms which consider the actions of rivals as an obstacle to their operations, and two dummy variables for firms which were motivated by pressure of competition to introduce new products or to reduce costs. For the first variable we expect to find a negative sign, while for latter two the expected sign of variable is positive. Also, the technological intensity of the firm's industry has been recognised as the source of heterogeneity among exporters (Wagner 1995; Bleaney and Wakelin 2002). Following the OECD (2007) classification of industries we distinguish between firms in low, medium-low, medium-high and high technology intensive industries, taking low-technology intensive firms as the base category. We expect that factors such as minimum efficient scale, which are more important in high technology intensive industries, will exert pressure on firms to penetrate foreign markets.

Finally, several variables are introduced as controls for features of the firm's institutional environment. We acknowledge the specific nature of transition in different countries and follow the distinction between Central and East European and Baltic Sea countries (CEECs), the South East

European Countries (SEECs) and the Commonwealth of Independent States and East European countries as proposed by EBRD (2010).[1] We expect to find evidence of stronger international competitiveness among firms in CEECs, bearing in mind the fact that the extent of restructuring was much stronger in this group of countries. We also include the dummy variable for firms which have received government subsidies and the group of dummy variables for features of institutional framework, which are perceived by firms as obstacles to their operations. This group includes access of firms to finances, tax regulations, quality of judicial system, political instability, corruption and obstacles in obtaining licenses and permits. On one hand, we expect that access to subsidies facilitates ability of firms to participate on the international market. On the other hand, the obstacles to activities of firms are likely to exercise a negative impact on their export competitiveness as well.

While the above discussion has mainly concentrated on the impact of explanatory variables on the export competitiveness of firms, we must also take into consideration the possibility of reverse impact. This is particularly true for the relationship between firm behaviour and dependent variables. While features of firm behaviour may have a positive impact on the ability of firms to compete, it is also possible that the accumulation of experience through participation on the international market leads to improvements in the way firms perform their activities. This process is usually labelled as learning-by-exporting and it is an important feature of firm behaviour when observed in a dynamic context. However, as will be explained below, our dataset is cross-sectional, which prevents us from controlling for the impact of previously accumulated experience on the behaviour of firms. Having said this we next turn to the methodology of our research.

Methodology

The specific nature of our dependent variables prevents us from using the classical linear regression method. The decision to export is modelled as a discrete variable which takes a value of one if the firm has reported a positive level of export. From there it follows that the probability that the firm is an exporter can be expressed as

$$P(y = 1|x) = f(\alpha + \beta x), \tag{2}$$

where y is a dependent variable taking values strictly between zero and one, x and β stand for explanatory variables and their corresponding co-

efficients, while the α is a constant term. The application of linear estimation techniques on models with such a dependent variable has several disadvantages, such as the fact that fitted values may lie outside of the interval of the dependent variable, or the fact that the partial effect of any explanatory variable is treated as constant (Wooldridge 2006).

Another dependent variable, export intensity, is by construction bounded between 0 and 100. Furthermore, for a substantial part of the population which does not participate in exporting, this variable is unobserved, which means that we are dealing with a non-random sample. When this is the case, the coefficients obtained by classical linear regression are likely to be inconsistent and biased. Finally, we must also take into account the possibility that the international position of firms is influenced by some other characteristics for which we cannot control. A substantial body of exporting literature argues that this unobserved heterogeneity is likely to influence both the decision of firms to participate in export and their export intensity.

To overcome the above mentioned problems we employ the method of generalised tobit which is part of a large family of limited dependent variable models (Wooldridge 2002). Let us suppose that the decision to export z_i serves as an indicator of some unobserved variable $z_i{}^*$ and the y_i represent the observable part of the unobserved export intensity of firm $y_i{}^*$. The decision of the firm to export and its export intensity can then be expressed as

$$z_i = \beta_0 x_i^0 + u_i 0, \, u_i 0 \sim N(0, 1), \tag{3}$$

$$z_i = \begin{cases} 1 & \text{if } z_i^* > 0 \\ 0 & \text{if } z_i^* \leq 0 \end{cases} \tag{4}$$

and

$$y_i = \begin{cases} \beta_1 x_i^1 + u_i^1 & \text{if } z_i^* > 0 \\ - & \text{if } z_i^* \leq 0 \end{cases}, \, u_i^1 \sim N(0, \sigma^2), \tag{5}$$

$$corr(u_i^0, u_i^1) = \rho. \tag{6}$$

In these expressions $x_i^0, x_i^1, \beta_0, \beta_1$ are vectors of independent variables and their corresponding unknown parameters which reflect the impact of certain determinants on the firm's decision to export and its export intensity. The u_i^0 and u_i^1 are random error terms with zero mean, con-

TABLE 2   Number of firms in sample and exporting activity

Sample	Number of firms	Number of exporters	Mean export intensity
CEEC	556	333	30.62
SEEC	300	187	25.91
CIS	1196	320	11.27
Total sample	2052	840	18.65

Source: EBRD 2010.

stant variances and not correlated with any of the explanatory variables. However, it is assumed that the two error terms are correlated with each other on the basis of unobservable characteristics of firms. The generalised tobit estimates these two stages jointly with a maximum likelihood estimation method, where the first stage is estimated on the entire population of firms and the second stage is estimated only on the population of exporters.

Descriptive Statistics

The investigation is based on the dataset from the fourth round of Business Environment and Enterprise Performance Survey (BEEPS) conducted by EBRD and World Bank in 2009. The dataset covers firms from the manufacturing sector in 29 transition countries. Table 2 shows the number of firms in our sample and their characteristics with respect to exporting behaviour. In total, we are dealing with 2052 firms, of which more than a half come from the group of CIS countries, about one fourth are from CEEC and the rest are from group of the SEEC. Exporters form about 40% of our sample. However, the percentage of exporters in CEEC and SEEC is substantially higher, as about 60% of firms from these regions have reported that they have been involved in export. There are also notable differences in export intensity of firms in the sample. Firms from CIS countries have substantially lower export intensity (10%) than their counterparts in SEEC (26%) and CEEC (30%) countries. The number of firms and information about export behaviour of firms in individual countries are presented in table 3.

Descriptive statistics in table 4 provide some information about the profile of firms in our sample. Judging by the average size of firms, our sample is mainly populated with medium-sized firms. Furthermore, the average age of firms and the number of years of manager's work in the firm's sector indicate that we are mainly dealing with firms founded in

TABLE 3   Descriptive statistics of dataset by country

Country	Number of firms	Number of exporters	Mean export intensity
Bulgaria	48	15	18.67
Croatia	47	22	23.59
Czech Republic	39	28	34.31
Estonia	55	44	47.29
Hungary	81	42	24.22
Latvia	60	35	32.40
Lithuania	57	36	36.07
Poland	65	38	17.62
Romania	67	20	23.24
Slovak Republic	32	17	20.84
Slovenia	72	67	48.28
Albania	45	20	23.13
Bosnia and Herzegovina	81	57	36.41

Continued on the next page

first years of transition. Such a conclusion, however, needs to be taken with precaution as it is likely that many of the firms in our sample have been created through spin-offs and privatisation of former socialist enterprises.

Restructuring variables indicate that there are substantial differences in cost efficiency among three groups of transition countries. This difference is particularly pronounced between the advanced group of transition economies (CEECs) and the group of CIS countries where average unit costs of labour are nearly three times higher than in the former group. With respect to innovations, there appear to be no great variations among the three sub-samples, as about 60% of firms have reported that they have introduced new products in the three years prior to survey. Of other restructuring variables it is worth mentioning that about 80% of firms have upgraded some of their product lines, while about half of them have offered their employees on-the-job training. Licensing, outsourcing and discontinuation of product lines have been considerably less represented forms of enterprise restructuring among firms in our sample.

Nearly all firms in our sample are predominantly owned by private owners, as the share of state-owned firms in any sub-sample does not

TABLE 3   *Continued from the previous page*

Country	Number of firms	Number of exporters	Mean export intensity
Kosovo	30	6	5.78
FYR Macedonia	90	65	46.20
Montenegro	12	4	23.42
Serbia	99	66	14.52
Armenia	82	23	12.55
Azerbaijan	52	10	7.08
Belarus	42	14	10.64
Georgia	18	3	10.39
Kyrgyz Republic	83	22	16.00
Kazakhstan	100	12	4.50
Moldova	74	25	21.04
Mongolia	115	33	15.65
Russia	394	101	5.29
Ukraine	240	72	15.16
Uzbekistan	108	30	10.06
Tajikistan	88	16	9.49
CEEC	623	364	30.09
SEEC	357	218	28.12
CIS	1396	361	10.61
Total sample	2376	943	

Source: EBRD 2010.

cross 4%. Among privately owned firms, domestic owned firms account for more than 80% of all firms, while the share of foreign owned ones is considerably lower. Taking the whole sample, about half of our firms are located in large urban areas. However, the proportion of firms located in these areas varies across subsamples, being lowest in CEEC (26%) and highest in CIS (62%). The proportion of firms that receive subsidies is fairly low, about 15% with the exception of CEECs, where about 28% of firms have declared that they receive government subsidies. Finally, more than 80% of our firms come from low and medium-low technology intensive industries. The proportion of firms from high technology intensive industries is particularly low, ranging between 2% and 3% among our groups of transition economies.

Among features of their environment most of the firms in our sam-

TABLE 4 Descriptive statistics of sample

Item	(1)	(2)	(3)	(4)
Size*	124	112	97	136
Age*	18	18	21	17
Managerial expertise*	16	17	17	15
NewProd**	65	66	64	65
Ulc*	0.54	0.26	0.31	0.73
Umc*	0.43	0.44	0.44	0.43
Licensing**	22	19	31	22
Outsourcing**	28	34	27	26
Discontinue**	30	35	22	29
Upgrade**	80	83	81	78
Training**	43	47	44	40
Pressure of competition (products)**	39	37	55	35
Pressure of competition (costs)**	38	41	53	33
Location**	49	26	42	62
Domestic private ownership**	87	81	86	89
Foreign private ownership**	10	15	10	8
State ownership **	3	4	4	3
Subsidies	14	28	16	6
Low tech. intensive industry**	59	53	61	61
Medium low tech. intensive industry**	22	31	26	17
Medium high tech. intensive industry**	17	13	11	20
High tech. intensive industry**	2	3	2	3

Column headings are as follows: (1) total sample, (2) CEEC, (3) SEEC, (4) CIS. Notes:
* mean value, ** percentage of firms. Source: EBRD 2010.

ple perceive tax regulations, corruption and political instability as main
obstacles to their operations (table 5). Interestingly, only a small propor-
tion of firms perceives actions of their rivals (18%) and access to finance
(13%) as factors that may impede their activities. However, there are sub-
stantial differences among the three groups of transition economies with
respect to perceptions of firms about the quality of their institutional
framework. A substantially larger proportion of firms in SEEC and CIS
perceive the quality of their legal system, actions of other rivals, corrup-
tion and political instability as obstacles to their activities than is the case
with firms in CEEC.

TABLE 5   Obstacles to doing business (percentage of firms)

Item	(1)	(2)	(3)	(4)
Access to finance	13	6	11	17
Tax regulations	73	72	67	76
Legal system	37	31	46	37
Obtaining of licences and permits	35	29	29	39
Corruption	51	35	54	58
Actions of other rivals	18	11	19	21
Political instability	57	52	67	56

Column headings are as follows: (1) total sample, (2) CEEC, (3) SEEC, (4) CIS. Source: EBRD 2010.

Results

In order to control for heteroscedasticity we estimate our model with robust standard errors. Also, as our methodology requires that the selection equation includes at least one variable which is not in the outcome equation in order for the latter to be identified, we include three dummy variables for pressure of competition in the first but not in the second equation. It is our reasoning that pressure of competition on the domestic market may motivate firms to engage in exporting, but their position on the international market would have to be determined by their competitive advantages. In continuation of the section we discuss our main findings.

The test-statistics for independence of our two equations in table 6 indicate that there are some unobserved factors which affect both the decision of firms to export and their export intensity, thus supporting our decision to estimate them jointly. Furthermore, the hypothesis that the independent variables jointly have no explanatory power is rejected with very high probability. As an additional check for validity of our model we investigate the proportion of correctly predicted outcomes from the selection equation and do the Hosmer-Lemeshow test of goodness-of-fit. Our model has a relatively high rate of correctly predicted outcomes (76%) and we do not have sufficient evidence to reject the null hypothesis that our model fits the data well.

In order to interpret the effect of individual variables on the behaviour of exporters we compute marginal effects for both of our equations. In the case of categorical variables these effects give the change of probability that the firm will export or that its export intensity will be higher if the

TABLE 6 Marginal effects from selection and outcome equation

Item	(1)	(2)
Restructuring		
Unit labour costs (Ulc)	−0.039(0.193)	0.055(0.063)*
Unit material costs (Umc)	−0.018(0.531)	−0.054(0.054)*
Innovations (NewProd)	0.317(0.000)***	−0.364(0.000)***
Product line discontinuation (Discontinue)	0.111(0.156)	0.023(0.813)
Product line upgrading (Upgrade)	0.048(0.645)	−0.113(0.326)
Outsourcing of activities (Outsource)	0.236(0.003)***	0.041(0.645)
Licensing of foreign technology (Licensing)	0.278(0.000)***	0.042(0.666)
Education of staff (univ_staff)	0.050(0.195)	−0.168(0.000)***
Wage premium (WPrem)	0.318(0.664)	−0.024(0.777)
Training of employees (Training)	−0.011(0.878)	−0.121(0.162)
Skill intensity (skill_int)	0.048(0.449)	−0.042(0.548)
Firm characteristics		
Size	0.377(0.000)***	0.113(0.007)***
Age	0.087(0.061)*	−0.076(0.182)
Managerial expertise	−0.012(0.797)	0.008(0.884)
State ownership (StateOwn)	−0.356(0.167)	−0.422(0.243)
Domestic private ownership (DomOwn)	−0.43(0.000)***	−0.379(0.001)***

Continued on the next page

independent variable shifts from 0 to 1, while for continuous variables the coefficients reflect change of probability if the independent variable changes by 1%. Among restructuring variables we find that the probability of firms to export increases if they have introduced new products in the three years prior to the survey, as well as if they have obtained a licence to use foreign technology or if they have outsourced any of their activities. These results highlight the role of networking and technology transfer as a motive for firms to engage in export, but also imply that firms from transition economies expect that their new products will have higher returns on foreign markets.

The evidences from the export intensity equation suggest that innovative firms export less of their output than do their non-innovative counterparts. This finding indicates the inability of firms from transition economies to differentiate themselves from rivals in technology intensive branches. Also, the export intensity of firms tends to be negatively associ-

TABLE 6   *Continued from the previous page*

Item	(1)	(2)
Environment		
Agglomerations (Location)	−0.149(0.053)*	−0.264(0.004)***
Provision of subsidies (Subs)	0.190(0.070)*	0.289(0.003)***
Access to finance (ObstFin)	−0.012(0.911)	0.091(0.507)
Tax regulations (ObstTax)	−0.002(0.978)	−0.307(0.002)***
Legal system (ObstCourt)	0.113(0.197)	−0.024(0.812)
Political instability (ObstInstb)	0.051(0.532)	0.118(0.209)
Corruption (ObstCorr)	−0.004(0.963)	−0.062(0.561)
Obtaining of licenses and permits (ObstLic)	−0.143(0.071)*	−0.163(0.108)*
Medium-low technology intensive ind. (Mlow)	−0.061(0.477)	0.024(0.823)
Medium-high technology intensive ind. (Mhigh)	0.518(0.000)***	0.098(0.355)
High-technology intensive industry (High)	−0.101(0.621)	0.182(0.377)
SEEC	0.121(0.308)	−0.169(0.126)
CIS	−1.04(0.000)***	−0.068(0.595)
Competition1 (Comp)	−0.193(0.060)*	–
Competition2 (Comp_Prod)	−0.118(0.204)	–
Competition3 (Comp_Cost)	0.202(0.035)**	–
Wald test of independent equations ($\rho = 0$)	$\chi^2(1) = 7.22$ Prob>$\chi^2 = 0.0072$	
Wald test for joint expl. power of variables	$\chi^2(29) = 188.38$	Prob>$\chi^2 = 0.0000$
% of correctly predicted outcomes	76.67	
Hosmer-Lemeshow goodness of fit test	$\chi^2(8) = 12.02$ Prob>$\chi^2 = 0.1502$	

Column headings are as follows: (1) decision to export, (2) export intensity. Notes: *, ** and *** denote statistical significance of variables at 1, 5 and 10% respectively.

ated with unit costs of material and proportion of staff with a university degree, but positively with their unit labour costs. Together with findings for the role of innovations, these insights offer a picture typical for firms from low and medium low technology intensive industries, where the ability of firms to compete is based on standardised technology and cost efficiency and any action that increases firm's costs – such as investment in human capital or innovations – deters its competitive advantage. Interestingly, we do not find evidence of association between other forms of investment in human capital and the ability of firms to compete on the international market.

Our findings with respect to the firm characteristics seem to support the thesis about sunk costs of entry on the international market. The probability of firm exporting is positively associated with its size and age, while larger firms also have higher export intensity. The ability of firms to reach economies of scale and their general business experience play an important role for their position on the international market. However, we do not find any evidence of a relationship between the experience of managers and the export behaviour of their firms. There is, however, strong evidence in favour of the thesis about the superior behaviour of firms owned by foreign owners. Firms owned dominantly by domestic private owners are less likely to engage in exporting and have lower export intensity than those owned by foreigners. The coefficient on state owned firms in both equations has a negative sign but it is statistically insignificant, most likely reflecting the small proportion of these firms in our sample. On one hand, these findings may be interpreted as evidence of the risk-aversion of domestic owners towards foreign markets, while on the other they provide support to the thesis often mentioned in transition literature that firms owned by foreigners have better knowledge, access to finance and other specific assets needed for exporting.

The ability of firms to export is negatively correlated with their location in large urban areas. As we explained earlier, firms from low and medium technology intensive industries tend to be located in smaller urban areas which provide them with cost-based competitive advantages. Another argument in favour of cost-based competitiveness of exporters from transition economies is the positive relationship between access to subsidies and their behaviour. Firms which have stated that they receive government subsidies have a higher probability to export and also higher export intensity. Most of our variables for obstacles to doing business are statistically insignificant. Tax regulations have a negative impact on export intensity of firms, while problems with obtaining licenses and permits reduce both the probability of firms to export and their export intensity. With respect to differences between the three groups of transition economies, there appears to be no statistical difference in terms of export intensity, but our findings indicate that firms from the cis group are less likely to participate on the international market than firms from ceec. Having in mind that the most important international markets for transition economies have been countries of the eu, this finding can be explained with benefits which the latter group accrues from stronger integration in the family of eu countries. However, we

are unable to control for the market orientation of firms in our sample.

As a last group of variables, we address industry specific characteristics of firms. Among variables for technological intensity we find a significant coefficient only in the participation equation for firms from medium-high technology intensive industries. The positive sign of this coefficient suggests that these firms have a higher probability of exporting than those from low technology intensive industries. The findings about the effects of competition are more interesting. It appears that impediments in the operations of firms caused by actions of their rivals reduce their probability of exporting. Also, the probability of exporting is higher among firms which have reduced their costs under pressure of their rivals, which may be taken as another evidence of cost-based competitiveness of firms in transition.

Conclusion

The ability of firms to compete on the international market has important implications for the growth potential of their economies. Bringing together elements of firm behaviour, their characteristics and features of their environment, we have attempted to investigate what factors and forces motivate firms from transition economies to export and determine their export intensity. Our findings point out that innovations, technology transfer and cooperation among firms play an important role in explaining the decision of firms to participate on the international market. However, once they are on the international market, the cost efficiency becomes a more important element of their competitive advantage. These results can be interpreted as evidence in favour of the product-life cycle thesis. The transfer of technology from developed countries into transition ones and the development of new products motivate firms from transition economies to enter on the international market, but in competition with rivals from other countries they compete as producers of standardised products with prices being their main competitive advantage.

The results of our research confirm that entry costs play an important role in the decision of firms to engage in exporting. Our data show that size and general business experience increase the probability of firms' exporting and their export intensity. These results suggest that in order to export, firms need to establish networks and gather knowledge about foreign market trends. As these processes are costly and take time, larger and older firms have a higher probability to compete on the international

market. Also, we are able to confirm the thesis about the positive impact of foreign ownership on the international position of firms. It appears that channels identified in transition literature as key for the survival of firms – such as foreign knowledge and expertise as well as access to financial means – play an important role in explaining the behaviour of exporters.

When taken together, these findings suggest that in order to reduce costs of entry on the international market, managers of firms in transition economies should consider organisational structures that are more conducive to cooperation between firms and their environment. Primarily, this refers to the agglomeration externalities of cooperation with scientific and professional institutions. Equally important are interactions with other firms on the market through horizontal or vertical cooperation. Finally, the openness of firms towards knowledge gathered through spillovers from other competitors may be considered as a means towards reduction of the costs of entry on the international market.

The features of institutional environment do not seem to be a major determinant of behaviour of firms in our sample. In general, it appears that firms in transition economies consider as important only factors of their environment which enable them to compete in terms of prices. We find some support for the negative impact of tax regulations and obstacles in obtaining licenses on the ability of firms to compete on the international market and positive effect of government subsidies. These findings indicate that cost advantages play an important role in building competitiveness of firms in transition economies. There is also strong evidence which suggests that agglomerations and actions of other rivals do determine the ability of firms to compete on the international market. Also, there does not appear to be any major difference between firms from specific groups of transition countries or by technological intensity of their industries.

The main results emerging from this paper, however, concern the competitive profile of exporters from transition economies. International trade literature makes a distinction between international competitiveness of nations based on the technological intensity of their products and postulates that the competitive advantage of producers from particular industries will be based on a different set of factors. Our findings indicate that characteristics of exporters from transition economies are closest to characteristics of firms from low and medium-low technology intensive industries. This finding may be an indicator for policy

makers interested in the competitiveness of these economies. Finally, it is worth mentioning some potential limitations of our work. The size of our dataset prevents us from undertaking analysis for behaviour of exporters at the level of individual countries or even groups of countries. Another potential limitation is the lack of longitudinal data. As we are constrained to data for single year, we are unable to control for the learning-by-exporting effect or to distinguish between short and long run effects of individual variables on the international position of firms. These issues remain open for further research.

Notes

1 According to EBRD, the group of CEECs encompasses Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovak Republic and Slovenia; the group of SEECs includes Albania, Bosnia and Herzegovina, Kosovo, FYR Macedonia, Montenegro and Serbia; while the CIS group includes Azerbaijan, Armenia, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Mongolia, Russia, Tajikistan, Ukraine and Uzbekistan.

References

Balabanis, G. I., and E. S. Katsikea. 2003. 'Being an Entrepreneurial Exporter: Does it pay?' *International Business Review* 12 (2): 233–52.

Barney, J. 1991. 'Firm Resources and Sustained Competitive Advantage.' *Journal of Management* 17 (1): 99–120.

Basile, R. 2001. 'Export Behaviour of Italian Manufacturing Firms over the Nineties: The Role of Innovation.' *Research Policy* 30 (8): 1185–201.

Becchetti, L., and S. P. Rossi. 2000. 'The Positive Effect of Industrial District on the Export Performance of Italian Firms.' *Review of Industrial Organisation* 16 (1). 53–68.

Becker, G. 1962. 'Investments in Human Capital: A Theoretical Analysis.' *Journal of Political Economy* 70 (5): 9–49.

Bernard, A. B., and B. J. Jensen. 1999. 'Exceptional Exporter Performance: Cause, Effect, or Both?' *Journal of International Economics* 47 (1): 1–25.

Bleaney, M., and K. Wakelin. 2002. 'Efficiency, Innovation and Exports.' *Oxford Bulletin of Economics and Statistics* 64 (1): 3–15.

Bonaccorsi, A. 1992. 'On the Relationship between Firm Size and Export Intensity.' *Journal of International Business* 23 (4): 605–36.

Brinton, M. C., and V. Nee. 2001. *The New Institutionalism in Sociology.* Stanford, CA: Stanford University Press.

Buck, T., I. Filatotchev, N. Dyomina and M. Wright. 2000. 'Exporting Activity in Transitional Economies: An Enterprise-Level Study.' *Journal of Development Studies* 37 (2): 44–66.

Castellacci, F. 2002. 'Technology Gap and Cumulative Growth: Models and outcomes.' *International Review of Applied Economics* 16 (3): 333–46.

Clausen, T. H., and M. Pohjola. 2009. 'International Competitiveness: Internal Capabilities and Open Innovation as Sources of Export Performance.' Micro-Dyn Working Paper 05/09.

Djankov, S., and P. Murrell. 2002. 'Enterprise Restructuring in Transition: A Quantitative Survey.' *Journal of Economic Literature* 40 (3): 739–92.

EBRD. 2010. *Transition Report 2010: Recovery and Reform.* London: EBRD.

Fagerberg, J. 1988. 'International Competitiveness.' *The Economic Journal* 98 (3): 355–74

Filatotchev, I., N. Dyomina, M. Wright and T. Buck. 2001. 'Effects of Post-Privatization Governance and Strategies on Export Intensity in the Former Soviet Union.' *Journal of International Business Studies* 32 (4): 853–71.

Grosfeld, I., and G. Roland. 1996. 'Defensive and Strategic Restructuring in Central European Enterprises.' *Emergo, Journal of Transforming Economies and Societies* 3 (4): 21–46.

Hall, P. A., and R. C. Taylor. 1996. 'Political Science and the Three New Institutionalisms.' *Political Studies* 44:936–57.

Havlik, P. 2000. Trade and Cost Competitiveness in the Czech Republic, Hungary, Poland and Slovenia. 2000. World Bank Technical Paper 482, World Bank, Washington, DC.

Kemp, R. G. M, M. Folkeringa, J. P. J. de Jong and E. F. M. Wubben. 2003. *Innovation and Firm Performance.* Zoetermeer: EIM.

Kirzner, I. 1997. 'Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach.' *Journal of Economic Literature* 35 (1): 60–85.

Krugman, P. 1993. 'First Nature, Second Nature and Metropolitan Location.' *Journal of Regional Science* 33 (2): 129–44.

Lall, S. 2001. 'Competitiveness Indices and Developing Countries: An Evaluation of the Global Competitiveness Report.' *World Development* 29 (9): 1501–25.

Majocchi, A., E. Bacchiocchi, and U. Mayrhofer. 2005. 'Firm Size, Business Experience and Export Intensity in SMES: A Longitudinal Approach to Complex Relationship.' *International Business Review* 14 (6): 719–38.

Nelson, R., and S. Winter. 1982. *An Evolutionary Theory of Economic Change.* Cambridge: Belknap Press.

Nelson, R. 1993. *National Systems of Innovation: A Comparative Study.* Oxford: Oxford University Press.

North, D. C. 1990. *Institutions, Institutional Change and Economic Performance.* Cambridge: Cambridge University Press.

OECD. 2007. OECD *Science, Technology and Industry Scoreboard.* Paris: OECD.

Posner, M. V. 1961. 'International Trade and Technical Change.' *Oxford Economic Papers* 13 (3): 323–41.

Roberts, M. J., and J. R. Tybout. 1997. 'The Decision to Export in Colombia: An Empirical Model of Entry with Sunk Costs.' *The American Economic Review* 87 (4): 545–64.

Schank, T., C. Schnabel, and J. Wagner. 2010. 'Higher Wages in Exporting Firms: Self-Selection, Export Effect, or Both? First Evidence from German Linked Employer-Employee Data.' *Review of World Economics* 146 (2): 303–22.

Schumpeter, J. A. 1942. *Capitalism, Socialism and Democracy.* New York: Harper and Row.

Venables, A. 1996. 'Equilibrium Locations of Vertically Linked Industries.' *International Economic Review* 37 (2): 341–59.

Vernon, R. 1966. 'International Investment and International Trade in the Product Cycle.' *Quarterly Journal of Economics* 80 (2): 190–207.

Wagner, J. 1995. 'Exports, Firm Size and Firm Dynamics.' *Small Business Economics* 7 (1): 29–39.

Wakelin, K. 1998. 'Innovation and Export Behaviour at the Firm Level.' *Research Policy* 26 (7–8): 829–41.

Wooldridge, J. M. 2002. *Econometric Analysis of Cross-Section and Panel Data.* Cambridge, MA: MIT.

———. 2006. *Introductory Econometrics 3.* Mason, OH: Thomson South-Western.

Wziatek-Kubiak, A., and D. Winek. 2004. 'Are Changes in Market Shares a Relevant Indicator of Changes in Competitiveness: A Case of Poland.' *Opere et Studio pro Economia* 2 (1): 3–24.