

Knowledge Transfer from Multinationals through Labour Mobility: Learning from Export Experience

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Abstract

This paper investigates knowledge spillovers through labour mobility from MNEs to domestic firms. Based on employer-employee level data from Estonia, we find that higher firm and individual level performance associated with mobility of MNE-experienced managers and top specialists reflects primarily in fact the mobility of export-experienced employees. A key channel how these spillovers function is the increase in propensity of export entry by domestic firms. The contribution of external international experience appears to be especially strong in the first stages of internationalisation of a firm and for entry to nearby markets.

JEL Classification: F10, F23

Keywords: multinational enterprise, knowledge spillovers, export entry, labour mobility

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INTRODUCTION

For a long time, empirical investigation of knowledge spillovers of FDI concentrated mostly on the estimation of the production function based on firm level panel data, with sector level proxies of FDI presence included among controls (e.g. Aitken et al. 1997, Javorcik 2004). Given the sometimes rather mixed results about the productivity spillovers from these ‘black box’ type of studies, a natural and more recent development has been increase in attention to some of the particular channels of learning and spillovers, like labour mobility and competition.

A key mechanism proposed in the theoretical models of FDI spillovers and knowledge transfer (Fosfuri et al. 2001, Markusen 2001, Glass and Saggi 2002, Dasgupta, 2012) functions through mobility of employees across-firms, whereby the mobility of employees carries knowledge from their prior (multinational) to new (domestic) employer. The empirical evidence on this channel is by now not limited to survey data and case studies. The availability of employer-employee level panel datasets has enabled the researchers to follow managers’ and employees’ movement across firms and investigate its association with firm or individual level outcomes. The key empirical contributions include investigations of links between labour mobility from MNEs and its consequences on productivity or wages at local firms in Görg and Strobl (2005) on Ghana, Balsvik (2011) on Norway, Poole (2013) on Brazil, and Liu et al. (2014) in China. These prior studies have convincingly showed that hiring managers from MNEs is strongly associated with domestic firms’ productivity and wages.

However, there is still limited econometric and generalizable evidence on the various potential channels how the mobility of employees from MNEs to domestic firms affects firm performance. Hiring of MNE-trained managers and employees can affect productivity through decisions about production and innovation (Liu et al. 2010), application of new technologies, management and work practices, foreign market entry (Fletcher and Harris 2012, Love et al. 2015) and expansion patterns, among others. This paper aims to contribute to the existing literature and, in particular, to the analysis of Balsvik (2011) and Poole (2013) by examining the export related channels of learning through mobility of MNE experienced employees.

Prior related econometric analysis how mobility of export experienced managers is associated with export decisions of firms is provided in Mion and Opromolla (2014), Sala and Yalcin (2015),

Choquette and Meinen (2015), Love et al. (2015) and Masso et al. (2015). We extend their analysis by investigating the contribution of MNE experience. The literature on export spillovers through labour mobility shows the importance of region-specific managerial experience in export market entry and the role of managerial inputs in general in covering export sunk costs. The contribution of trade experience of managers appears to be comparable in terms of magnitude to the role of firm's prior productivity (Mion and Oromolla 2014, Masso et al. 2015).

As a starting point we confirm here whether there is a strong association between hiring of MNE experienced employees or high wage employees and firm productivity and employee's own wages and other employee's wages at the firm. This step is similar to studies by Balsvik (2011) and Poole (2013), and adds to these by instrumental variables based model estimation. We proceed then to the question to what extent these strong relationships reflect learning from export experience of MNEs or transfer of other MNE-specific advantages through mobility. Finally, our analysis focuses on one of the potential key mechanisms of these effects: whether hiring of MNE-experienced managers and top specialists speeds up firm's initial and subsequent export expansion, in terms of entry to export, export intensity, number of export product varieties and foreign markets served by the firm. For example, based on prior analysis in Ganotakis and Love (2012) about the role of commercial and other broad types of experience of the entrepreneurial founding team, we would expect that also the effects of hiring of external export-experienced managers (grafted knowledge) would be especially evident in the early stages of exporting.

Our paper focuses especially on the role of high wage employees, i.e. employees and managers who belong to the upper levels in the wage distribution within a given industry (two-digit NACE level). We use employer-employee level data from Estonia. Estonia is a good example for investigating the effects of FDI, as it has over years attracted a lot of foreign investments, primarily from nearby Sweden and Finland. Also, Estonia's case enables us to use employer-employee level data of all firms and employees (full population) in manufacturing industry matched with detailed trade data of firms. The flexible labour market and study of the Great Recession period ensure that there is substantial movement of employees between firms.

Our employee-level labour mobility data originate from the Estonia's Tax and Customs Office dataset. This dataset is merged with firm-level variables from the Commercial Registry and detailed firm-product-destination market-level export data from Statistics Estonia. This enables us to investigate the association between external experience and firm level export entry and subsequent market (i.e. foreign country) and product level expansion. The analysis focuses on manufacturing industry and the sample of domestic firms. Econometric analysis is performed based on yearly data of the period 2006–2011. We test the robustness of standard fixed effects and probit models by using instrumental variables (IV) approach to address to an extent the endogeneity of MNE experience of employees. Our findings show that managers' prior MNE experience (i.e. acquired at prior workplaces) is strongly associated with firm's productivity and employees' wages, both the wages of the hired MNE experienced employee herself and other employees at the same domestic firm. However, our results additionally suggest that the productivity premium of MNE experience that we find seems to be driven by transfer of export experience. Once the analysis accounts for the mobility of export experienced high-wage employees, then additional MNE experience effect in productivity regressions is not significant anymore. In the case of trade decisions a significant result is that hiring MNE experienced employees has positive association with early export entry and entry to the nearby destination markets by the recipient firm.

LITERATURE REVIEW

Internationalisation and the resulting knowledge transfer from foreign environments is considered to be among central determinants of firm performance (e.g. Keller 2004, Syverson 2011). The key starting point of analysis of spillovers is that MNEs need to have firm specific (knowledge) advantages in order to successfully invest abroad (Dunning 1981). Multinational enterprises (MNEs) may transfer their knowledge from abroad to their subsidiaries in the host economy and this means also potential for spillovers of the knowledge to domestic firms of the host economy (Markusen 1995, Blomström and Kokko 1998, Görg and Greenaway 2004).

Whereas there have been many empirical studies investigating the direct or spillover effects of FDI, much less is still known about the actual mechanisms through which these learning and spillover

effects occur. Empirical studies about FDI and export spillovers have tended to concentrate on effects on the outcome, productivity of local firms (Aitken et al 1997, Aitken and Harrison 1999, Javorcik 2004, see Görg and Greenaway 2004 for an overview), and have provided a mixed picture in terms of results. Both econometric evidence suggesting positive spillovers of FDI on productivity, but also results suggesting shortage of these effects are commonplace.

A typical econometric investigation on FDI spillovers associated the total factor productivity (TFP) of domestic producers to proxies for FDI share in the industry. Yet, an important question both for the research field and policy makers is how the knowledge from MNEs and foreign markets spreads and affects the local economy: incl. through imitation, innovation, faster expansion to new markets, changes in work practices? What is the importance of different channels of this knowledge transfer?

Only relatively recently has the attention of the international trade literature started to focus more on some of the particular channels of learning and spillovers, like labour mobility and competition. A key mechanism proposed in the theoretical models (Fosfuri et al. 2001, Markusen 2001, Glass and Saggi 2002, Dasgupta 2012) functions through worker mobility across-firms, whereby the mobility of employees carries knowledge from their prior to new employer.

Arguably, the experiential knowledge from working at an MNE is to large extent tacit and embodied in employees. Thus, we can expect that significant proportion of spillovers should function through labour mobility of managers and other employees between firms. We would expect that the mobility of managers and top specialists has significantly stronger effects on performance compared to other employees (Mion and Opromolla 2014).

The limited number of recent empirical contributions that make use of employer-employee datasets investigate links between labour mobility from MNEs and its consequences on productivity or wages at local firms include Görg and Strobl (2005) on Ghana, Balsvik (2011) on Norway, and Poole (2013) using data from Brazil. Whereas Görg and Strobl (2005) and Balsvik (2011) concentrate on data from manufacturing, Poole (2013) includes also services sector in the analysis. Görg and Strobl (2005) find based on data from Ghana that an entrepreneur's experience of working at an MNE of the same industry as his new venture had a significant effects on productivity of the new firm. At the same time, experience from some other unrelated industry had no such effects.

Balsvik (2011) provides important related estimates of labour mobility as a channel of FDI spillovers. She estimates the private returns for employees from having MNE experience and the effects on firm's productivity. The wage premium for workers with a minimum of 3-year experience at some MNE amounts to 5 per cent higher wages of the individual at the hiring firm. This suggests that external experience is significantly valued by domestic firms and we could also expect knowledge transfer effects. Balsvik (2011) shows also that employees with previous MNE experience contribute significantly more (by 20 per cent more) to the productivity of domestic firms compared to employees without such external experience. An important result is that the private returns to MNE experience in terms of higher wages are smaller than the effects on productivity. Hence, the labour mobility from MNEs to domestic firms includes significant externalities, which are not fully appropriated by the moving employees themselves.

A recent study by Poole (2013) extends the analysis by Balsvik (2011). She uses Mincerian wage equations to estimate FDI spillovers through labour mobility. The paper shows the regularity that wages of incumbent employees at domestic firms are positively associated with the presence of MNE-experienced colleagues at the firm. This is a type of spillovers of FDI that had not been explored before. At the aggregate level these wage spillovers would create wage increases of 0.3 per cent of Brazil's GDP. In conclusion, all these studies point to the likely existence of spillovers through labour mobility from mobility of employees from MNEs to domestic firms.

Apart from MNEs, the knowledge transfer effects of labour mobility have been studied in a number of other contexts. For example, this includes the effects of mobility of R&D workers and researchers (Jaffe et al. 1993, Maliranta et al. 2009, Ejsing et al. 2013), foreign specialists and migrants (Markusen and Trofimenko 2009, Hiller 2013), expatriates with experience and networks from working abroad (e.g. based on data from China in Filatotchev et al. 2009 and Liu et al. 2010).

Labour mobility can also transfer export related knowledge between firms, and in this way affect various market and product level decisions about exporting (Mion and Opromolla 2014, Fletcher and Harris 2012, Hiller 2013, Sala and Yalcin 2015, Masso et al. 2015). Recent microdata-based papers suggest a significant positive relationship between various types of labour mobility and export decisions by firms. Previous export experience among workers and managers has been found to be

among the key determinants of export entry decisions, export status and trade intensity for Portuguese firms (Mion and Opromolla 2014) and in recent paper using data from Estonia in Masso et al. (2015). Mion and Opromolla (2014) and Masso et al. (2015) endeavour to account to some extent also for the endogeneity of labour mobility in their econometric analysis, by applying instrumental variables models. Additionally, Sala and Yalcin (2015) show that hiring managers with previous export experience is positively associated with a firm's likelihood of foreign market entry, based on micro data from Denmark and probit models. Mion and Opromolla (2014) results suggest that what matters for export decisions is the movement of managers, not the movement of employees in general.

The present study of MNE spillovers focuses primarily on contributing to study of this research topic in the field of economics. However, our analysis of the effects on exporting is very much related to the abundant international business (IB) literature on the determinants of internationalisation and in particular to the resource based understanding of firm internationalisation within IB. One can distinguish between two broad views in IB on internationalization. The first one is the process or stages literature that originated from Johanson and Vahlne (1977). The second one is the 'born global' view of rapidly internationalising firms (Knight and Cavusgil 2004, Oviatt and McDougall 1994). They both stress the role of knowledge as a key determinant of firm's internationalisation. The process view of internationalisation (Johanson and Vahlne 1977) has traditionally emphasised the role of 'direct' (within firm) experiential knowledge, making a strong implicit assumption that the knowledge needed for success in foreign markets is gained through experience, through gradual organisational learning within the firm from exposure to international context. The initial exposure to international environment of geographically and culturally nearby countries will then enable incremental entry into increasingly further away markets.

The 'born global' or international new venture view of internationalization has focused its attention on broader types of knowledge. It includes also the earlier international experience of the entrepreneur (e.g. Ganotakis and Love 2012), 'grafted' knowledge gained through hiring new employees or acquiring external businesses (Huber 1991, Fletcher and Harris 2012), knowledge obtained through vicarious learning— i.e. through observing and copying the activities of external businesses (incl.

form customers and suppliers, competitors). We concentrate here in the analysis of effects on exporting in particular on the role of acquisition of ‘grafted’ knowledge.

DATA AND DESCRIPTIVE STATISTICS

Investigation of spill-overs through labour mobility on firm-level performance outcomes requires availability of matched employer-employee data. We use here the merged dataset consisting of the following firm and employee level datasets: i) Statistics Estonia firm-product-destination-market level trade dataset; ii) Estonia’s Commercial Registry dataset of firms’ annual reports; iii) employee-level data of the Tax and Customs Office on the employees’ payroll taxes. The final merged dataset includes yearly data of the period 2006–2011, enables to track the mobility of employees between firms and to investigate its consequences on firm productivity and international trade activities. Given our focus on FDI spillovers, we concentrate hereby on the sub-sample of domestic owned firms only. We concentrate on firms from manufacturing industry

The export data of each firm (legal entity) are available by destination market and detailed product category (based on the combined nomenclature (CN) eight-digit code) and covers period 1995-2011. Using firm’s registry numbers, the trade data have been merged with Estonia’s Commercial Registry information from annual reports (balance sheets, profit and loss statement). These data are available for the full population of Estonia’s firms. During the period 1995–2011 the total number of firms observed with exporting activities in at minimum one year amounted to 29,880. As Estonia is a small open economy, the share of exporters in the manufacturing industry is relatively high, for example 49 per cent in year 2003 (but varying significantly over time).

The average number of markets (i.e. destination countries) of an exporting firm in our dataset is 4.6 (in 2009). The key export markets are neighbouring countries Sweden, Finland, and Latvia. One can observe lots of entry into export activities every year. New exporters, as expected, enter into exporting with a small product and market portfolio (usually one to two markets only on first year of exports) and then only gradually widen their export portfolio. It has been shown that exporting firms that expand quickly to multiple markets and product categories have on average superior performance characteristics compared to others (Masso and Vahter 2015).

The central explanatory variable in our empirical analysis is the knowledge and experience attained in the employee's previous workplaces. We focus on the role of experience of working at a MNE affiliate(s) in Estonia. The relevance of that kind of experiential knowledge could be compared to the relevance of other kinds of knowledge. These other kinds of knowledge include, for example, the work experience attained when working in a high productivity firm or the work experience attained at an exporting firm. All these different kinds of knowledge could boost the performance of the new employer. Experience at high-productivity firms can be due to the superior technologies and managerial practices applied there that enable to reach the high level of productivity. Experience at an exporting firm can in addition concern the product-or market specific export knowledge.

For tracking such knowledge diffusion through labour mobility, it is necessary to track individual employment over time. For that purpose, we employ the Estonian Tax and Customs Office dataset on all employees (the employees' total number varies annually around 600 thousand) and their social contributions (payroll taxes) paid for the years 2006–2012. Social security tax rate is 33 per cent of the gross wage, thus this information enables to identify individual's wages. Most importantly, the dataset enables us also to identify individual's employment status and its change firm.

In addition to payroll taxes, the tax dataset includes only limited information on characteristics of individuals. A shortcoming is that we do not observe the occupation of the employee. This is important as prior research indicates that what matters is the mobility and experience of managers, not blue collar employees (Mion and Opromolla 2014). We proxy in our econometric analysis the group of managers and top specialists using these employees whose wages belong to the top 20 per cent of the wage distribution in a three-digit NACE industry in a given year. In the case there are no such employees in an enterprise, we define the individual with the highest wage at the firm as the 'manager'.

The calculations of the previous MNE experience were conducted as follows. In order to have MNE experience, the employee need to have worked previously in a subsidiary of a MNE in Estonia. We use both dummies of the presence of MNE-experienced employees and their share in total workforce of the firm. In order to have export experience, it is sufficient to have been working in an exporting enterprise in the past. Similarly, to have experience from a high-productivity firm one needs to have

worked in the high-productivity firm in the past. Concerning the latter, we focus at firms belonging to the third or fourth quartile of the productivity distribution in the respective three-digit industry. The experience variables can be calculated from 2007 onwards, as the general individual level information starts from 2006.

In Table 1 we provide descriptive statistics of the domestically owned Estonian manufacturing firms. These cover 2007-2011 and are grouped based on the presence of MNE experienced employees, high-wage employees ('managers') with MNE experience, employees with MNE experience from the same two-digit NACE sector, high wage employees with MNE experience from the same two-digit NACE sector. Comparison with the two latter categories captures the role industry-specific knowledge.

As can be seen from Table 1, average labour productivity is significantly higher in groups with previous MNE experience. There is also a clear ranking of results. Even higher performance is among domestic firms that have managers with prior MNE experience (Column 2). The role of experience is enhanced if it stems from the same two-digit sector (Columns 3 and 4). The ranking of different groups is the same when instead of labour productivity we consider other performance characteristics like total factor productivity (TFP, estimated with GMM, separately for all two-digit NACE sectors), the deviation of the TFP from the two-digit industry average, or wages. Deviation of TFP from industry average is used in order to account for industry specific differences and not to confuse these with the potential role of experience.²

One key channel of effects of experience on productivity can be internationalization of domestic firms through exporting. As evident from Table 1, export propensity and export intensity are the lowest in the 'without experience' group and the highest in case of the presence of industry-specific experience (the difference is also statistically significant at one per cent level). The average number of export markets is again the lowest among firms that do not have high-wage employees with MNE experience, and the highest in firms having managers or top specialists with MNE experience.

² Further statistics: the average age of a firm in our sample is 1.7 years. This short average lifespan shows the high entry-exit among firms. The average firm size amounts to 14 employees. The rather high average share of managers in the estimation sample (as in Table 1) reflects the large share of micro firms. Note that in each firm at least one employee was defined to be a , among micro firms it is defined to be the highest paid employee.

Table 1. Descriptive statistics by group: domestic firms with and without MNE experienced employees

Variable	Firms without MNE experienced employees	MNE experience of any employees	MNE experience of high-wage employees	MNE experience of any employees, from the same industry	MNE experience of high-wage employees, from the same industry
Log labour productivity	9.309	9.694	9.81	9.718	9.833
Log TFP deviation from 2-digit industry mean	-0.248	0.036	0.144	0.124	0.31
Share of employees with experience from MNEs	0	0.203	0.222	0.212	0.24
Share of high-wage employees (managers and top specialists) at firm	0.572	0.36	0.385	0.344	0.374
Number of employees	5.987	45.173	56.696	76.347	85.744
Real wage (EUR per year)	6407	9648	10489	9931	10711
Cash to total assets	0.242	0.154	0.147	0.137	0.129
Exporting firm (dummy)	0.138	0.488	0.545	0.617	0.665
Export value (EUR)	8988438	64770204	82910480	1.07E+08	1.27E+08
New 5-digit product added (dummy)	0.08	0.061	0.06	0.05	0.048
New 8-digit added product (dummy)	0.071	0.047	0.045	0.043	0.04
New market entry (dummy)	0.011	0.034	0.035	0.049	0.05

Notes: firm-level panel data, manufacturing industry. Period: 2007–2011. Sample of domestic owned firms.

However, the share of firms adding new export products to its product portfolio are the highest for the group with no export experience, reflecting the fact that younger and smaller firms are more likely to

add new export products compared to larger and older firms with an existing and already more stable export base.

In general, we can conclude that the presence of MNE experience, and especially experience embodied in managers and originating from the same industry, is positively correlated with various firm performance measures and propensity to export.

EMPIRICAL STRATEGY

MNE experience and productivity

The key relationships that we estimate are the association between prior MNE experience among all employees or high-waged employees and productivity, wages and export performance at their new workplace. As measures of firm productivity we use both the TFP and labour productivity (log of value added per employee) at firm level. TFP is calculated based on production function with value added as the dependent variable. The production function is estimated separately in each 2-digit sector, using sys-GMM approach to account for the likely endogeneity of production inputs. In all the analysis, we concentrate on the sample of domestic firms, i.e. on the contribution of employees with MNE experience on the productivity and export performance of the domestic owned firms.

As a first step we estimate the firm level TFP, based on firm level panel data from 2006-2011 assuming different production function in each two-digit industry within manufacturing. Log of TFP is estimated as a residual from the industry j specific production function that has log of value added as dependent variable ($\ln Y_{ijt}$) and includes log of physical capital ($\ln K_{ijt}$) and log of number of employees ($\ln L_{ijt}$) as inputs:

$$\ln TFP_{ijt} = \ln Y_{ijt} - \alpha_j \ln K_{ijt} - \beta_j \ln L_{ijt}, \quad (1)$$

where subscript i denotes the firm, j the sector and t the year; α and β denote parameters of capital and labour in production function for sector j .

As the next step, we estimate the relationship between firm level performance indicator π_{it} (log of TFP or log of value added per employee) and MNE experience based on the following fixed effects and IV specification:

$$\pi_{it} = \beta_1 MNE_{it} + \beta_2 X_{it} + \lambda_t + \tau_i + \varepsilon_{it} \quad (2)$$

In Equation 2, our main variable of interest is MNE_{it} , which shows the share of high-wage employees with experience from working at an MNE. This variable is calculated as the ratio between the number of high-wage employees with prior MNE experience at firm i and the total number of employees at firm i . In some specifications we also check the results using the dummy variable of presence of any MNE experienced employees instead of the ‘share’ variable. X_{it} is a vector of explanatory variables. The choice of explanatory variables includes standard drivers of firm-level productivity.

The explanatory variables in the TFP specification of Equation (2) include size of the firm (log of employment) and size squared, firm’s age (years) and age squared, export dummy at firm level $exporter_{it}$, cash to assets ratio, (log of capital intensity in the labour productivity specification), share of intangible assets in total assets, and the share of high-wage employees in the total number of employees in firm i (this is also an indirect proxy for skill intensity of the firm). Dummies for different years λ_t and firm fixed effects τ_i are also included in the model. ε_{it} is an error term assumed to be normally distributed with a zero mean and variance σ_1^2 . We expect size of the firm, liquidity, share of high-wage employees and exporter dummy to be positively associated with firm productivity.

We estimate Equation 2 with firm fixed effects (FE) model and two stage least squares (2SLS). We check the robustness of the FE results by application of instrumental variables. As a firm level instrumental variable we use the share of employees whose reason of moving to the particular enterprise was the closure of their previous employer. Firm exit can provide an exogenous reason for labour mobility, less likely to be dependent on employee performance at their prior firm (Dustmann

and Meghir 2005). An increase in the availability of high-wage employees with MNE experience due to firm closure could be considered an exogenous labour supply for a given firm.

MNE experience and wages

In addition to investigating the firm level productivity premium of MNE experience, we provide evidence on individual level wage premium of MNE-experienced employees and managers

Wage premium of MNE-experienced employees above others at the recipient firm would be an evidence suggesting that local firms value experience from MNEs and we could expect positive (spillover) effects on the firm. From Table 1 we observe that there is unconditional large difference between wages at the Estonian manufacturing firms that have employees with MNE experience and that do not have. However, this may simply reflect multitude of other factors correlated with firm performance. Investigation of the conditional wage premium for MNE-experienced employees and employees at firms managed by MNE-experienced managers is performed based on standard Mincerian type wage equation, estimated at employee level, with a log of real monthly wage $\ln W_{ikt}$ in January of each year (as we analyzed mobility from January to January) year as the dependent variable and a set of individual and firm level characteristics included among controls. The corresponding wage equation is as follows:

$$\ln W_{ikt} = \alpha_1 \text{Individual_MNEexperience}_{ikt} + \alpha_2 \text{Firm_MNEexperience}_{kt} + \alpha_3 \text{Age}_{it} + \alpha_4 \text{Age}_{it}^2 + \alpha_5 R_{it} + \alpha_6 Z_{kt} + \lambda_t + v_i + \varepsilon_{2ikt}, \quad (3)$$

where i denotes individual, t year and k firm; $\text{Individual_MNEexperience}_{ikt}$ is a dummy variable denoting whether the individual herself has the experience of working at MNE (either indicating experience of all employees or separately for managers/high-wage specialists); $\text{Firm_MNEexperience}_{kt}$ is a variable denoting the share of employees at the firm that have prior working experience at an MNE, R_{it} is a vector of other individual level controls, Z_{kt} is a vector of firm level controls. Dummies for different years λ_t and individual fixed effects v_i are also included in the model. The last term, ε_{2ikt} , is an error term, which is assumed to be normally distributed with a zero mean and variance σ_2^2 .

MNE experience and exporting

The relationship between MNE-experience of employees and firm productivity or individual level wages has been estimated in some recent papers (incl. Poole 2013, Balsvik 2011). We add to their analysis by investigating the channel of these effects on performance through export activities of the firm. Here, the empirical relationship of interest is the role of prior MNE experience among all employees or high-waged employees (gained from their previous employer) on export performance at their new firm.

As measures of exports, we use both a dummy indicating exporting, number of export products or markets, dummy for adding new export products, dummy for adding new export markets, export dummies for nearby or more distant destination markets. We endeavour to check the robustness of the results and to account to an extent for the endogeneity of MNE experience by application of instrumental variables.

The general model of exporting is as follows:

$$\text{exporter}_{it}^* = \delta_0 + \delta_1 \text{MNE experience}_{it} + \delta_2 H_{it} + \lambda_t + \gamma_j + \varepsilon_{3it} \quad (4)$$

In Equation 4, subscript i denotes firm, t year and j industry. The dependent variable exporter_{it}^* is a firm's latent (unobserved) propensity to export. The observed variable exporter_{it} equals 1 when firm i is an exporter and 0 otherwise. A firm is going to export to foreign market if the latent variable is above c ($\text{exp}_{it}^* > c$), while c is a constant threshold level. The latent variable reflects the firm's decision criterion: to engage or not in exports, considering the related costs and expected returns.

The key variable of interest is again the $\text{MNE experience}_{it}$. H_{it} is a vector of explanatory variables and the choice of explanatory variables is based on previous papers about various drivers of firm-level exporting, as in Bernard and Jensen (2004) or Hiller (2013), among many. The key variable addressed in heterogeneous producer trade theory that enables to cover sunk costs of export entry is firm's prior productivity (Melitz 2003). The vector of explanatory variables consists of firm size (log of employment), firm age (years), a dummy indicating foreign ownership, cash to assets ratio, log of labour productivity (value added per employee) lagged by one year, log of capital intensity lagged by one year, log of wage per employee lagged by one year, and the share of high-wage employees in the

total number of employees in firm i . Dummies for different years λ_t and sectors γ_j are also included in the model. The last term, ε_{3it} , is an error term, which is assumed to be normally distributed with a zero mean and variance σ_3^2 . We expect firm size, foreign ownership, liquidity, capital intensity, share of high-wage employees and average wage rate to be positively associated with exporting. An especially clear and strong relationship is expected in the case of prior productivity, as implied by heterogeneous producer models from trade theory.

We apply probit and IV-probit models to estimate the role of MNE experience in export entry, or in adding products or new markets by the existing exporters, as in Equation 4. To investigate the ‘effects’ on ‘breadth’ of exporting, we estimate a version of the model in Equation 4, using the instrumental variable approach (2SLS) with firm-level fixed effects included. In this case the dependent variable is the number of export markets or products of the firm. The explanatory variables are the same as before.

RESULTS

The following Tables 2-5 describe the relationship between the presence of MNE experienced employees or high-wage employees at the firm and firm’s TFP or labour productivity. Table 2 estimates a version of Equation 2 with MNE experience measured with dummies indicating whether the domestic owned firm has employees (columns 1 and 3) and managers or other high-wage employees (columns 2 and 4) with experience of working previously at a MNE. The specifications in Table 2 include firm fixed effects, to account for other time invariant firm specific drivers of productivity.

We find positive correlation of the presence of any employees with MNE experience in the case of value added per employee, but no such significant correlation in the case of TFP. However, if we concentrate specifically on the role of hiring new high-wage employees with MNE presence, then there is indeed a significant correlation with both higher labour productivity and TFP at the recipient firm. The conditional TFP premium of having MNE experienced high-wage employees is about 6-7 per cent higher TFP and labour productivity. As expected, it is clear from our results that hiring MNE

experienced managers and high-wage employees has stronger positive outcomes on firm performance than hiring lower ranked employees (compare estimates in columns 1 and 2 or 3 and 4 in Table 2).

The control variables show mostly the expected results. Exporters among domestic owned firms have significantly higher productivity. Higher cash to assets ratio, share of intangible assets, share of high-wage employees among the workforce are correlated with higher productivity of the firm. Share of high wage employees is included here as an indirect proxy for skill intensity. It is a vital control in estimating the productivity equations. Without accounting for the general high share of high-wage employees at the firm, we could overestimate the gains from having managers' and top specialists with MNE experience.

In Table 3 we show specifications with a different MNE experience proxy than the dummy variable in Table 2, i.e. the share of employees or high-wage employees that have MNE experience in total workforce of the firm. This variable takes values between zero and one. Firstly, this enables us to observe whether the potential effects of MNE experience go beyond simply having or not having MNE-experienced workers: whether adding new experienced workers to the existing others has additional effects. Secondly, using this variable instead of a dummy enables us in next tables to apply the 2SLS/IV models, in order to try to address the endogeneity of labour mobility.

From the parameter estimates of our key explanatory variables in Tables 2 and 3 we observe that there are additional gains of having a higher share of employees with MNE experience, beyond simply having one employee with such experience. The results in Table 3 in columns 3 and 4 again point out that the role of managers' and other high wage employees' experience is more important than that of lower ranked employees.

An obvious extension of the analysis is to investigate whether the effects of mobility of MNE experienced workers are stronger if they originate from the same industry as the recipient firm. We check here whether these 'effects' of experience are stronger if the experienced employees stem from the same two-digit NACE manufacturing sector. Indeed, the magnitude of the sector-specific experience effect is in Table 4 of IV results about 2-3 times higher compared to the more 'general' MNE experience. Especially strong difference is evident in the case of managers and top specialists from the same industry (Table 4). The context of prior experience appears to matters a lot in sourcing

in external competences through hiring. This result is in accordance also with recent findings by Masso et al. (2015) that product and technology proximity between firms and originating from the same sector enhance the effects of mobility of export-experienced managers on exporting by the recipient firm of this movement of workforce. This is also in accordance with the standard idea of importance of absorptive capacity (Cohen and Levinthal 1990, Lane and Lubatkin 1998) of the recipient firm in benefitting from spillovers.

We have checked the robustness of our productivity related findings based on a 2SLS IV model (Table 4). The instrumental variable is based on the share of employees that originate from closed firms, an arguably exogenous source of workforce from the viewpoint of the hiring firm. The endogeneity problem can reflect here firstly the reverse causality, as more successful firms with high productivity are more likely to attract for MNE-experienced managers and employees (who can command a wage premium for their experience). Secondly, there might be also other time varying factors that affect both productivity and mobility of employees to the firm; accounting for firm fixed effects is unlikely to fully solve this issue. Therefore the standard OLS with firm fixed effects is likely to provide biased estimates of the effects of labour mobility in general, and also in the case of hiring/mobility of MNE experienced employees. Previous related studies by Balsvik (2011) and Poole (2013) include unit level (plant or individual level) fixed effects, with Balsvik (2011) also using the lagged share of newly hired MNE experienced employees.³

Table 4 shows the first and second stage of 2SLS model used in our productivity analysis. The model includes also firm fixed effects. The instrumental variable, share of employees that moved to their current employer because of exit of their prior firms, has clear positive and statistically significant correlation with the key endogenous variable in the model, hiring of employees with MNE experience. The instrument appears to be not a weak one, the F-statistic of the instrument and the general F-statistic of first stage are sufficiently high, above the Stock-Yogo critical values and above ten in all

³ Balsvik (2011) additionally reports trying the GMM approach to account for endogeneity of MNE experience. The system GMM estimator uses lags of inputs and dependent variable as instruments. However, in her analysis the validity of these (internal) instruments was rejected, leaving potential endogeneity issues still in the estimated relationships. Therefore the GMM results were not reported.

cases. The Hausman test between our OLS with FE and 2SLS specification suggests that we should reject the H_0 of exogeneity of MNE experience indicator.

We observe from Table 4 that there is a positive relationship between share of MNE experienced employees or high-wage employees and firm's TFP (columns 1 and 2), even after our attempt to account for the endogeneity of the key explanatory variable. The estimated 'effect' is much larger than in OLS with fixed effects (see Table 3). This urges caution in interpretation of the IV findings. The magnitude of estimates of effects is the following: a ten percentage point increase in the share of employees from MNEs is associated with 10 per cent higher TFP of the domestic owned firm. The estimated effect is significantly larger in the case of mobility of high-wage employees. Here, a ten percentage point increase in their share in workforce of the domestic firm would increase TFP of the recipient firm by 24 per cent.

A rather important issue to check is what type of knowledge spills over from MNEs to local firms. For that purpose we add further controls about the labour mobility into the recipient firm into Equation 2. We account now (in the specifications shown in Table 5) for the share of newly hired high-wage employees from high-productivity producers (belonging to the upper 50 per cent in the productivity distribution) and from exporters. This way we can try to disentangle whether there is any additional remaining MNE-related effect left, once we account for labour mobility from firms with high productivity and trade orientation. Clear result from Table 5 is that the multinationality related mobility effect seems to be fully accounted for by the higher trade orientation of MNE subsidiaries. If we account for the share of employees that move to the domestic firm from exporters, then the additional MNE effect disappears.

In general, we can conclude that the evidence is in accordance with correlation between hiring MNE experienced employees and higher firm performance. This result is robust also to the IV-based estimation, thus may be likely to point also to the effects of mobility on performance. However, these effects seem to appear due to stronger export orientation of MNE subsidiaries. Consequently, we could expect the effects of MNEs (i.e. largely export related experience effects) on performance to function especially through transfer of trade related knowledge.

Table 2. MNE experience of employees: relationship with firm productivity, FE models

	(1)	(2)	(3)	(4)
Dependent variable:	log of TFP	log of TFP	log of labour productivity	log of labour productivity
Employees with experience from MNEs (dummy)	0.041 (0.027)		0.055 (0.014)***	
Managers and high-wage employees with experience from MNEs (dummy)		0.071 (0.031)**		0.062 (0.016)***
Exporting firm (dummy)	0.180 (0.036)***	0.179 (0.036)***	0.106 (0.018)***	0.105 (0.018)***
Firm size	-0.934 (0.049)***	-0.933 (0.049)***	-0.269 (0.024)***	-0.266 (0.024)***
Firm size squared	0.079 (0.013)***	0.079 (0.013)***	0.003 (0.006)	0.003 (0.006)
Age	0.026 (0.223)	0.019 (0.223)	-0.211 (0.107)**	-0.216 (0.107)**
Age squared	0.067 (0.120)	0.071 (0.120)	0.131 (0.058)**	0.133 (0.058)**
Share of managers at firm	0.145 (0.044)***	0.144 (0.044)***	0.055 (0.022)**	0.052 (0.022)**
Cash to total assets	0.665 (0.064)***	0.664 (0.064)***	0.412 (0.031)***	0.412 (0.031)***
Intangible fixed assets to fixed assets	0.010 (0.072)	0.010 (0.072)	0.102 (0.036)***	0.103 (0.036)***
Constant	2.424 (0.174)***	2.422 (0.174)***	9.635 (0.084)***	9.637 (0.084)***
Number of observations	13378	13378	14333	14333
R-squared	0.122	0.122	0.122	0.122

Notes: *significant at 10%; ** significant at 5%; *** significant at 1%. Fixed effects (FE) model. Robust standard errors in parentheses. Panel data of domestic owned firms from the manufacturing industry. Period: 2007–2011. Labour productivity is measured as value added per employee.

Table 3. Share of MNE experienced employees and firm level TFP, FE models

Dependent variable:	(1) log of TFP	(2) log of TFP	(3) log of TFP	(4) log of TFP
Share of all employees with experience from MNEs	0.157 (0.070)**			
Share of managers and high-wage employees with experience from MNEs		0.163 (0.089)*		
Share of all employees with experience from MNEs from the same industry			0.363 (0.118)***	
Share of managers and high-wage employees with experience from MNEs from the same industry				0.485 (0.324)
Exporting firm (dummy)	0.163 (0.031)***	0.164 (0.031)***	0.166 (0.040)***	0.167 (0.040)***
Firm size	-0.902 (0.042)***	-0.904 (0.042)***	-0.924 (0.054)***	-0.930 (0.054)***
Firm size squared	0.085 (0.011)***	0.085 (0.011)***	0.085 (0.014)***	0.085 (0.014)***
Age	-0.126 (0.186)	-0.129 (0.186)	0.304 (0.259)	0.301 (0.260)
Age squared	0.136 (0.100)	0.137 (0.100)	-0.088 (0.144)	-0.089 (0.144)
Share of managers at firm	0.101 (0.039)***	0.097 (0.039)**	0.169 (0.049)***	0.155 (0.049)***
Cash to total assets	0.624 (0.056)***	0.623 (0.056)***	0.714 (0.072)***	0.714 (0.072)***
Ratio of intangible fixed assets to fixed assets	0.022 (0.069)	0.021 (0.069)	0.028 (0.072)	0.025 (0.073)
Constant	2.194 (14.31)*** (0.153)***	2.196 (13.51)*** (0.163)***	2.444 (10.88)*** (0.225)***	2.483 (11.07)*** (0.224)***

Number of observations	15821	15821	11176	11176
R-squared	0.117	0.117	0.122	0.121

Notes: *significant at 10%; ** significant at 5%; *** significant at 1%. Fixed effects (FE) model. Robust standard errors in parentheses. Panel data of domestic owned firms from the manufacturing industry. Period: 2007–2011. Labour productivity is measured as value added per employee.

Table 4. Share of MNE experienced employees and high-wage employees, effects on TFP, 2SLS model

Dependent variable:	(1)	(2)	(3)	(4)
	log of TFP	log of TFP	log of TFP	log of TFP
Share of all employees with experience from MNEs	1.030 (0.421)**			
Share of managers and high-wage employees with experience from MNEs		2.481 (1.023)***		
Share of all employees with experience from MNEs from the same industry			1.190 (0.487)***	
Share of managers and high-wage employees with experience from MNEs from the same industry				5.886 (2.449)***
Other controls (as in Table 3)	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Number of observations	15821	15821	11176	11176
R-squared	0.117	0.117	0.122	0.121
1st stage of 2SLS				
Instrumental variable:				
Share of current employees that moved because of closure of their prior employer (i.e. exogenous source of movement)	0.3285*** (0.016)	0.136*** (0.010)	0.284*** (0.013)	0.057*** (0.005)
F-test of IV	21.03	13.22	22.36	11.36
p-value	0.000	0.000	0.000	0.000

Notes: *significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. Method: 2SLS. Panel data of domestic owned firms from the manufacturing industry. Period: 2007–2011.

Table 5. Effect of MNE experience: is it accounted for by the effects of experience from high performance firms and experience from export oriented firms?

	(1)	(2)	(3)	(4)
	Dependent variable: Labour productivity	Dependent variable: TFP	Dependent variable: Labour productivity	Dependent variable: TFP
Share of managers and high-wage employees with experience from MNEs			-0.095 (0.060)	0.023 (0.122)
New managers and high-wage employees from foreign firms (dummy)	0.026 (0.017)	0.031 (0.035)		
New managers from firms in the 4th quartile of productivity (dummy)	0.026 (0.016)*	0.047 (0.031)		
New managers from firms in the 3rd quartile of productivity (dummy)	0.038 (0.016)**	0.009 (0.031)		
New managers from exporting firms (dummy)	0.044 (0.016)***	0.055 (0.032)*		
Share of managers and high-wage employees with experience from firms in the 3rd quartile of productivity			0.023 (0.046)	-0.203 (0.092)**
Share of managers and high-wage employees with experience from firms in the 4th quartile of productivity			0.050 (0.048)	0.099 (0.095)

Share of managers with external export experience			0.080 (0.046)*	0.223 (0.092)**
Other controls (as in Table 3)	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Number of observations	14333	13378	16980	15821
R-squared	0.124	0.123	0.106	0.118

Notes: *significant at 10%; ** significant at 5%; *** significant at 1%. Fixed effects model. Robust standard errors in parentheses. Panel data of domestic owned firms from the manufacturing industry. Period: 2007–2011. Labour productivity is measured as value added per employee.

MNE experience and wage premium

Further evidence in accordance with potential for spillovers is presented here below in Table 6. It shows the key results from estimating the Mincerian wage equations with individual and firm level (i.e. experience of colleagues) prior working experience at MNEs included among other drivers of individual level wages. Note that we include individual level fixed effects into the analysis, the period covered is again 2007-2011, and we concentrate on employees in the manufacturing sector. Positive wage premium of individuals with career history from MNEs indicates that recipient firms value this superior experience. If the individual's own MNE working experience is positively associated with his wages at the recipient firm, then arguably there could be reason to expect also knowledge spillovers as well. Obviously, these estimates, despite taking into account the individual fixed effects, do not necessarily show the causal effects.

Table 6. MNE experience of employees and conditional individual wage premium. Individual-level FE models.

	(1) OLS with sector dummies	(2) Individual fixed effects model	(3) Individual fixed effects model	(4) Individual fixed effects model (incumbent employees' sample only)
Individual's own MNE working experience (dummy)	0.114 (0.005)***	0.042 (0.005)***		
Individual's own MNE working experience, among the sample of white-collar employees (dummy)			0.094 (0.029)***	
Share of employees with MNE experience at the firm (a proxy for wage related MNE spillovers)				0.344 (0.024)***
Other individual and firm level controls in Mincerian wage equation and year dummies	Yes	Yes	Yes	Yes
Observations	245,755	245,755	113,605	191,584

Notes: dependent variable is log of average monthly wage in a year. *significant at 10%; ** significant at 5%; *** significant at 1%. OLS with individual level fixed effects in columns 2, 3 and 4. Panel data of employees at domestic owned firms in the manufacturing industry. Period: 2007–2011. Sector dummies are defined at NACE 2-digit level. Note that Column 4 concentrates on incumbent employees that do not have own MNE experience from prior workplace.

Both the employee-level wage premium from having own experience with working at an MNE and the premium from having a larger share of colleagues at the firm with such MNE experience are presented in Table 6. The Mincerian wage equation includes other individual and firm level controls: incl. gender dummy and its interaction terms with other variables, individual's age, age squared, region of employment, firm size and size squared and exporting dummy of the firm, firm age and age squared, share of high-wage employees at the firm, an indicator of recent change of employment at employee level, and depending on specification either sector level (two-digit) dummies or individual level fixed effects. Once we account for individual level fixed effects, the wage premium for an employee who has previous working experience at an MNE amounts to about four per cent higher wages (see column 2 in Table 6). The conditional wage premium of MNE experience is even higher among the sample of white-collar employees (classified based on ISCO), it amounts to more than 9 per cent compared to other white collar employees.

Poole (2013) shows in her study from Brazil that mobility of employees with MNE experience can affect incumbent employees' wages at the domestic firm (a little studied channel of FDI spillovers). Also in Estonia's dataset similar correlations are present, as evident from Column 4 in Table 6. There we limit the sample to incumbent employees without MNE experience. The hiring of MNE experienced new employees is associated with an increase also in incumbents' wage level. A ten percentage point increase in the share of MNE experienced employees in total workforce is associated with about 3-4 per cent higher wages also for other incumbent employees at the recipient firm. These correlations are consistent with the view that MNE experienced employees will not appropriate all the gains from their knowledge in the form of their own wage premium once they move to a domestic firm.

MNE experience and exporting

One of the key channels of the effects of MNE experience is likely to work through facilitating easier entry and expansion to export markets. This is similar to the role of firm's prior productivity in enabling to cover the sunk costs of exporting. Columns 1 and 2 in Table 7 show the relationship of presence of MNE experienced employees (column 1) or managers and other high wage employees (column 2) with propensity of exporting by domestic owned firms. We observe from the table that firm size, age, share of high-wage (skilled) employees at the firm and productivity are all positively correlated with exporting. Productivity has a strong correlation, as always, with export status.

The marginal effects at sample means of our two key explanatory variables are positive. In the case of IV-probit model the increase in the share of MNE experienced employees by ten percentage points is associated with about five per cent higher propensity of the firm to export. The marginal effect of similar increase in export-experienced managers is substantially higher (a ten percentage points increase is associated with about seven per cent higher propensity to start exporting), again pointing out the importance of managerial experience in shaping export decisions and success. To give further indication about the magnitude of these correlations: a one standard deviation increase in the share of MNE-experienced managers in the workforce of a firm is associated with about 34-35 per cent higher propensity of the firm to start exporting.

Table 7. Share of MNE experienced employees: estimated relationship with exporting

	(1)	(2)	(3)	(4)
Method:	Probit	Probit	FE	FE
Dependent variable	Export dummy	Export dummy	Number of export products	Number of export markets
Firm size	0.656 (0.014)***	0.657 (0.014)***	2.666 (0.336)***	1.082 (0.120)***
Age	0.123 (0.023)***	0.122 (0.023)***	-2.431 (1.019)**	0.234 (0.364)
Cash to total assets	-0.506 (0.064)***	-0.505 (0.064)***	-0.260 (1.014)	-0.375 (0.362)
Share of managers at firm	0.103 (0.052)**	0.099 (0.052)*	0.725 (0.611)	0.222 (0.218)
Log labour productivity (t-1)	0.401 (0.019)***	0.401 (0.019)***	0.253 (0.242)	0.107 (0.086)
Share of all employees with experience from MNEs	0.205 (0.110)*			
Share of managers and high wage employees with experience from MNEs		0.308	2.237	0.111

Constant	-6.342 (0.211)***	(0.134)** -6.442 (0.223)***	(1.457) -1.251 (3.395)	(0.520) -1.564 (1.213)
Number of observations	15760	15760	3901	3901
R-squared			0.032	0.070
Marginal effects of key explanatory variables:				
Share of all employees with experience from MNEs	0.0448 (0.024)*			
Share of managers and high wage employees with experience from MNEs		0.0673 (0.0291)**		
Marginal effects from IV-probit:				
Share of all employees with experience from MNEs	0.553 (0.105)***			
Share of managers and high wage employees with experience from MNEs		0.965 (0.178)***		

Notes: parameter estimates and marginal effects from IV probit model in columns 1 and 2. * significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors in parentheses. Panel data of domestic owned firms from the manufacturing industry. Period: 2007–2011. FE- fixed effects model. Sector dummies defined at NACE 2-digit level are included in the probit models.

Our further investigation into the propensity to export to different destination regions points to the finding that among existing exporters, the MNE experience is correlated with entry to nearby foreign markets and not to the more distant ones. The corresponding marginal effect of variable ‘share of MNE-experienced employees’ in a probit model with a similar specification as these in Table 7, but with a dummy variable for exporting to nearby foreign destination markets as dependent variable, is 0.128 (significant at one per cent level). The category of nearby markets, the 1st markets of entry, consists of Finland, Sweden, and Latvia. Of these, Sweden and Finland are key foreign investors in Estonia. We do not see similar significant correlation of MNE experience with entry to CIS countries, rest of the EU or rest of the world destinations. So, it appears, based on these findings and columns 1 and 2 in Table 7 that MNE experience is important for export status in general and in the early internationalisation stages of the firm, when firms expand to their first and nearby foreign destinations. If we focus on the existing exporters, then their further expansion in terms of number of markets or products is not significantly related to the presence of MNE experienced workforce (see Columns 3 and 4). This result persists if we estimate these relationships with an IV model. The parameter estimate of ‘share of managers and high-wage employees’ from the 2SLS estimation (with firm exit based

instrumental variable) of the otherwise similar model as in column (3) in Table is not significant (2.683, with a standard error of 6.927).

CONCLUSIONS

In general, the results in this paper are consistent with the view that mobility of high-wage and other employees from MNEs to domestic firms is a significant channel of spillovers of FDI in its host economy and that the effects of this mobility may function through export related decisions of firms. Our empirical findings underline the importance of managerial inputs and experience in covering the sunk costs of exporting, in addition to the role of general firm productivity.

We confirm based on Estonia's matched employer-employee data that hiring high-wage employees (managers and top specialists) with prior working experience at MNEs is associated with increased performance of their new domestically owned employer. These results are also robust to application of an IV-model with firm exit based instrumental variable. As expected, the estimated contribution of managers' and top specialists' experience is larger than that of all employees with MNE experience. MNE experience has a stronger correlation with increase in domestic firm productivity if it originates from the same industry. Additionally, there exists a wage premium for MNE-experienced employees and their presence at the domestic firm is correlated with higher wages of firm's other employees as well, suggesting potential wage spillovers.

Importantly, our empirical results suggest that the estimated relationship between MNE experience and firm performance in Estonia's manufacturing sector is likely to reflect largely the mobility of export-experienced employees. Hence, the transferred knowledge may concern especially trade related information. The mobility of MNE-experienced managers and other employees is positively associated with the propensity of export entry by domestic firms. A one standard deviation increase in the share of MNE-experienced managers in the workforce of a firm is associated with about 34-35 per cent higher propensity of the firm to start exporting. Our results point to the fact that the role of MNE (trade) experience for firm level exporting is stronger: i) in the 1st stages of the internationalisation of a firm and ii) in the case of export entry to the nearby markets (that are also key sources of FDI in Estonia). We find no evidence suggesting strong additional contribution of MNE experience on

subsequent introduction of new export products or firm's later expansion in terms of number of markets.

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