Learning from abroad: Export versus foreign ownership

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Abstract
Companies engaged in innovation and research and development (R&D) are often engaged in business on an international scale and their success is critically dependent on international R&D networking and the ability to absorb new knowledge. Foreign ownership, joint ventures and trade are among the channels that enable companies to learn from abroad. This brief analysis aims to describe these learning patterns and look for associations between R&D engagement and foreign interactions. Using data from eleven Central and Eastern European countries for the years 2007-2009 and 2012-2014 reveals that exporting is the only foreign channel that has a clear positive relationship with R&D engagement.

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Learning from abroad: Export versus foreign ownership

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Introduction

The competitive advantage that arises from knowledge accumulation and innovation has become crucial for sustained business success. Companies from newer European Union (EU) member states need to build up their knowledge capital to stay competitive in the high-value-added business of the common market. R&D and knowledge spillovers are a critical factor for success¹, and the channels for learning from abroad might have a significant role to play in determining whether and how companies accommodate knowledge and engage in R&D. One possible learning channel is exporting. Aw et al. (2008) propose and empirically test a theoretical model showing a strong link between export market participation and R&D engagement. Moreover they suggest that a firm’s decision to export is one of the components of its broader investment strategy.² Fabling and Sanderson (2013) stress the learning benefits that can accrue from exporting to more advanced markets relative to those from selling in the home market. More recently, Männasoo and Ruubel (2017) find a positive relationship between the export participation of manufacturing companies from Central and Eastern Europe and innovation.

Another possible channel for learning from abroad is foreign direct investment (FDI). Javorcik (2004) investigates the FDI channel for knowledge spillovers and shows that although there is no evidence for intrasectoral knowledge spillovers from FDI, there are positive learning effects that stem from the interaction of foreign firms with their local suppliers through backward linkages. Helpman et al. (2004) provide theoretical predictions and empirical evidence for the crowding out effect of FDI, where exports are replaced by FDI sales. Männasoo and Meriküll (2015) investigate the

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¹ See Männasoo et al. (2016) for evidence on total factor productivity gains via spatial productivity spillovers.
² See Maripuu and Männasoo (2014) and Männasoo and Maripuu (2015) for empirical evidence on companies’ investment strategies and financial performance in Central and Eastern Europe.
financial constraints of R&D engagement in Central and Eastern European firms and show that while foreign ownership reduces credit constraints and thus has an indirect positive effect upon R&D engagement, there was no direct effect on companies’ R&D participation and there was even a negative sign for it.

The current simple, descriptive exercise aims to give further non-formal evidence for the possible channels that can enable learning from abroad, and which can encourage companies to commit to R&D and innovation. Consequently, the following sequence of argument assumes that foreign interactions promote learning and make companies more likely to invest in R&D.

Data and analysis
The data used in this study are taken from the Business Environment and Enterprise Performance survey (BEEPS) rounds IV (covering the years 2007-2009) and V (2012-2014). The analysis looks at more than 2200 manufacturing companies from eleven newer Central and Eastern European EU member states:\(^3\). A company is classified as being engaged in R&D if it had spent money on R&D in the past three years. The share of R&D firms in BEEPS round IV was 31.6% and in round V it was 19.6%. Table 1 outlines the other variables used in the subsequent analysis.

Table 1: Variable definitions

<table>
<thead>
<tr>
<th>Variable</th>
<th>Variable definition (survey question – except for FDI)</th>
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<tbody>
<tr>
<td>MajorityOwned</td>
<td>1 if more than 50% of the firm is owned by private foreign individuals, companies or organisations; 0 otherwise.</td>
</tr>
<tr>
<td>MinorityOwned</td>
<td>1 if between 0 and 50% of the firm is owned by private foreign individuals, companies or organisations; 0 otherwise.</td>
</tr>
<tr>
<td>JointVenture</td>
<td>1 if the firm was established as a joint venture with a foreign partner or partners; 0 otherwise</td>
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<tr>
<td>Export</td>
<td>1 if the firm was exporting directly or indirectly (selling domestically to a third party that exports the products); 0 otherwise</td>
</tr>
<tr>
<td>ExSale</td>
<td>The percentage of firm sales that were direct exports or indirect exports (sold domestically to a third party that exports the products)</td>
</tr>
<tr>
<td>Technology*</td>
<td>1 if the firm uses technology licensed from a foreign-owned company, excluding office software; 0 otherwise</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign direct investment net inflows as a percentage of GDP</td>
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*Variable available for BEEPS round V only

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\(^3\) Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia
Figure 1 provides aggregate country-level evidence for the linkages between R&D engagement and different aspects of foreign interactions, while Figure 2 compares R&D and non-R&D firms by using company-level data. Additionally, Figure 2 indicates whether the differences between the two company groups are statistically significant. Both aggregated country-level evidence and firm-level evidence exhibit a positive association between exporting and R&D engagement. Moreover, at the company level the binary variable for export participation (Export) and the export intensity variable (ExSale) measured as the share of direct or indirect exports\(^4\) in total sales are positive discriminating variables between R&D and non-R&D companies.

Figure 1: Share of R&D companies relative to different aspects of foreign interaction (country averages over BEEPS rounds IV and V)

\[^4\text{The difference between direct and non-direct exporting relative to R&D was not statistically significant. The average share of direct exports in total exports was 79\% for R&D companies and 77\% for non-R&D companies.}\]
Figure 2: Different aspects of foreign interaction of R&D and non-R&D companies for BEEPS rounds IV and V

Note: ***, **, * show significance at the 1%, 5% and 10% levels according to the Two-sample Wilcoxon rank-sum (Mann-Whitney) test, indicating if the difference in the means of the two samples is statistically significant.
The patterns for the foreign ownership variables (dummies for MajorityOwned, MinorityOwned and JointVenture) are mixed. Majority foreign ownership was not a differentiating variable for R&D and non-R&D companies for survey round IV (2007-2009), but it became a more common feature of R&D companies during the post-crisis period (see Figure 2). The prevalence of joint ventures is very low and the variable shows no statistically significant association with R&D engagement. At the aggregate country level neither foreign ownership nor joint ventures show any visual association with R&D (see Figure 1). FDI even displays a negative association with R&D, but this is largely driven by the outliers Hungary and Bulgaria, which have exceptionally high FDI inflows relative to GDP.

Finally, the dummy variable for acquisition of foreign technology licences has a significant positive connection with R&D participation in the company-level data for BEEPS round V (2012-2014). Unfortunately, the same variable is unavailable for earlier survey rounds.

Conclusions

It is believed that foreign interactions encourage learning and make companies more likely to spend on R&D and innovation. The purpose of this simple non-formal study was to provide further evidence on the possible channels that may support learning from abroad and thus prompt investment in R&D. The analysis revealed a clear positive association between R&D engagement and the export channel, for which variables included exporting as a binary variable and exports as a percentage of total sales, while there were mixed results for the ownership channel, where variables included both majority and minority foreign ownership, joint ventures, and FDI.

The findings are in accordance with Aw et al. (2008), who show that the only foreign channel that has a strong positive connection to companies’ R&D commitment is exporting, and they are to some extent in agreement with Fabling and Sanderson (2013), who demonstrate that the learning benefits from exporting to more advanced markets are greater than the benefits from selling at home. The results also corroborate the evidence found by Männasoo and Ruubel (2017), who uncover a positive relationship between export participation and innovation in Central and Eastern European companies.
An intuitive explanation can be provided for these patterns. Exporting companies need to develop and improve their products and processes constantly to enter foreign markets successfully and remain competitive. This is particularly true for companies from newer EU member states from Central and Eastern Europe that wish to gain from the EU common market and export to more advanced economies. Subsequently, there is constant motivation for self-improvement and innovation. The incentives that arise from foreign ownership are different. When companies from abroad invest in Central and Eastern Europe, which is a relatively less-developed region than the highly-advanced markets in Western Europe and North America, their main aim might be to find cheaper resources or new markets. In this case the incentive of foreign owners to invest locally in R&D and create high-technology products might be low or altogether absent.

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References

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