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### **PARTICIPATION IN DOMESTIC AND FOREIGN NETWORKS AS A FACTOR DRIVING INNOVATIONS: AN EMPIRICAL ANALYSIS OF RUSSIAN MANUFACTURING FIRMS**

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#### **OBJECTIVE**

In this paper, we explore empirically the impact of network participation on the technological upgrading and innovation activities of Russian manufacturing firms before the global financial crisis of 2008-2010 and Russia's accession to WTO. The aim of this research is to analyze both the prerequisites for establishing an international/domestic partnership based on companies' past experience and the impact of such participation on the behaviors and innovation strategies of a firm.

#### **MAIN RESULTS**

The econometric analysis based on the system of bivariate probit models proved that both foreign and domestic partnerships positively influence innovation activities in terms of R&D, new products and new technologies. Thus, the results for Russian manufacturing firms are, in general, in line with previous studies. We found, first, that

innovations in manufacturing in Russia during the survey period were more strongly associated with domestic partnerships than with foreign partnership (the coefficients are significant at a higher level). This result may seem counterintuitive, but it supports some of previous research (Rosenkoph and Almeida, 2003; Patel et al, 2013). The results may indicate that first, new foreign and domestic partners play different roles. Foreign partnerships may be more often used for entry into new markets than for new technology or the development of new products. Second, foreign partnerships are more demanding in terms of skills and competences and thus may be available only for firms that are closer to the technological frontier.

Second, we found that foreign and state ownership has different mechanisms of influence on innovations. Foreign co-ownership seems to not influence innovations directly. However, the presence of foreign owner among the stockholders strongly increased a chance of acquiring new foreign partner(s), which, in turn, is a positive factor for innovations. However, the presence of state owners directly, positively influences R&D expenditures and the implementation of new technologies (though not new products), but has virtually no impact on formation of partnerships. One possible explanation is the fact that many state-owned firms or firms in which the state has a significant stake specialize in producing goods for public procurement, which (at least in Russia) does not stimulate product innovations.

Third, we found the high level of concentration of sales of a firm in the region in which the firm is located is strongly and negatively associated with the probability of acquiring new partners (both foreign and domestic). Regionally oriented enterprises may have fewer opportunities (due to limited choice) and fewer incentives to form new partnerships (low level of trust of outsiders). Thus, these firms can't strengthen their innovativeness and increase competitiveness exploiting new knowledge from partnerships.

## **POLICY IMPLICATIONS**

Our empirical analysis demonstrates that networks and partnerships seem to have a positive effect on innovation activity of Russian manufacturing firms. Strengthening innovations is one the challenges of Russian economy and learning effects of partnerships play a significant role in catching up to the technological frontier. This implies that it is important to make trade and innovation policy

interrelated and consistent with the broader economic objectives. The state agencies and local governments should create opportunities for face-to-face dialogs and collaboration between both foreign and domestic companies. To facilitate the international networking of firms the state should, first of all, create legal prerequisites for long-term cooperation schemes that create trust between actors. The lack of trust between private firms is one of the main obstacles for establishing such links and the state can do a lot to overcome it. The possible policy measures should include improvements in Russian juridical system for better property rights protection, in particular in the field of intellectual property rights, contract enforcement, etc. Also the state should be less prejudiced against strategic partnerships between Russian firms and foreign partners and balance the antitrust policy.

It should be stressed that inside Russia the regions differ a lot in their policies towards FDI and collaboration of local and foreign firms. It would be useful if the best practices in this field are disseminated among other regions. Interregional horizontal networking between authorities, regional business-associations, chambers of commerce, etc. should become a priority task for all the participants. More active interregional communications will also contribute to networking between Russian domestic firms. As our analysis indicates, this type of partnerships before the financial crisis of 2008-2010 and Russia's accession to WTO had even more significant impact on innovations than cross-border cooperation.