

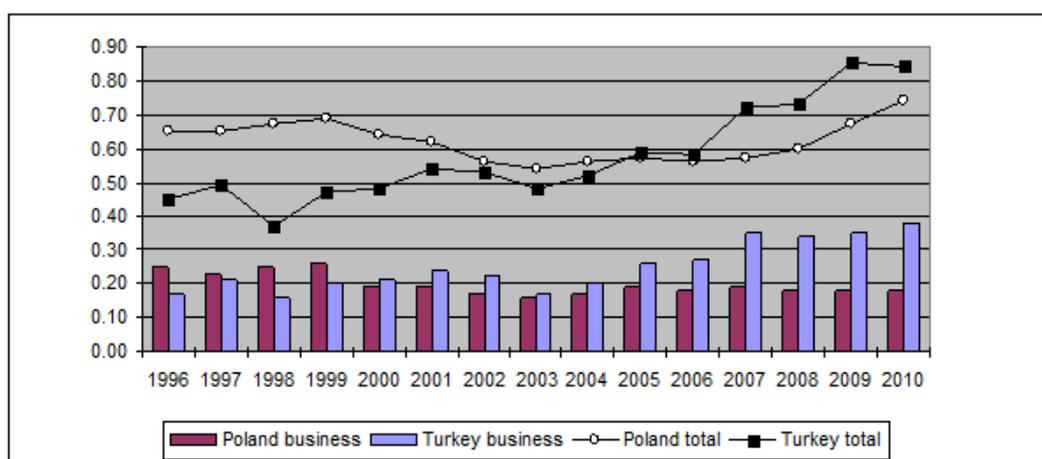
Does Government Support for Private Innovation Matter? Firm Level Evidence from Turkey and Poland

by Wojciech Grabowski, M. Teoman Pamukçu,
Krzysztof Szczygielski and Sinan Tandogan

Mediterranean and EU member countries consider enhancing innovation and R&D an important policy objective. In order to improve economic competitiveness and increase their citizens' welfare, these countries have been formulating and implementing innovation policies. In recent years, the volume of resources allocated to such policies has considerably increased and the number of instruments used in this framework has widened. Nevertheless, a relatively limited number of studies have been conducted to assess the effectiveness of innovation policies in these countries and formulate proposals for those aspects of policies that are in contradiction with the aims.

Turkey, a Mediterranean country that has been conducting membership negotiations with the EU since 2005, and Poland, a country that became an EU member in 2004, have been implementing innovation policies for at least two decades. They are similar in size and level of economic development, and both have been in the process of liberalizing their economies for the last twenty years. While Poland seems to have more human resources for R&D and relatively more output in terms of patents and scientific articles, Turkish R&D expenditure as a percentage of GDP is higher than Poland's. Turkey's R&D expenditure has been on the rise for at least 15 years, while the Polish GERD only recently recovered to 1996 levels. The difference in business R&D expenditure between the two countries is even more profound (cf. Figure 1).

Figure 1- Gross expenditure on R&D (GERD) and Business expenditure on R&D (BERD) as % of GDP in Poland and Turkey: 1996-2010 Source: OECD



We conducted a comparative analysis of government support for innovation in these two countries by examining existing instruments of financial support for innovation and then assessing their effectiveness by applying recent econometric techniques to firm-level data from the Community Innovation Survey (CIS).

In Turkey, generous public support has been provided to industrial R&D and innovation, and more recently, to technological entrepreneurship and the commercialization of research output. Since 2004, major changes have occurred, leading to: (i) significant increases in public support to business R&D, (ii) a diversification of direct support programmes for private R&D and innovation tailored to the needs of potential innovators, (iii) a widening of the scope of existing fiscal incentives for private R&D activities and the implementation of new

ones, and (iv) the implementation of new call-based grant programmes targeted at technology areas and industries based on national priorities. Considering the significant amount of resources allocated for government intervention, there is a growing and urgent need for the systematic monitoring and evaluation of R&D and innovation policies in Turkey.

In Poland, science, technology and innovation (STI) policies were not a priority on the policy agenda during the economic transition as the government was preoccupied with other reforms (macroeconomic stability, privatization, pensions, and the implementation of EU law). As a result, STI policies have lacked funding, co-ordination and vision. The institutional architecture has evolved with a lack of continuity and a short institutional memory. A major breakthrough occurred after 2004, when considerable funds for innovation were released from EU structural funds. The three main types of support are the creation of technologies, technology absorption, and indirect support. However, with respect to public programmes targeting firms, government support for technology absorption (i.e. the purchase of new equipment and machinery) dominates all other instruments. Unlike in Turkey, where the innovation support policy is oriented strictly at R&D and the development of truly new products and processes, in Poland it is legitimate to ask whether EU funds are indeed contributing to the enhanced innovation performance of the Polish economy.

The findings of the econometric analysis based on comparable firm-level data for both countries indicate that government support contributes to higher firm-level innovation expenditure, which in turn improves their chances of introducing product innovations. The positive impact persists even when a possibly non-random selection of firms for government support is controlled for. However, the impact varies depending on the type and source of public aid. In particular, support from local governments has proved inefficient or less efficient than support from the central government or the European Union.

In the case of Turkey, the positive impact of innovation support can mainly be credited to support from the central government while that provided by local authorities has proved to be ineffective. However, it turns out that innovation support from the EU, which represents less than 2% of the total public support in Turkey over the 2008-2010 period, has been a significant incentive for firms' innovation activities. While the EU-supported R&D projects are all based on international collaboration, only 1.5 % of R&D and innovation projects supported by

national programmes are of a collaborative nature. Therefore, existing mechanisms should be strengthened and new policy instruments should be developed both for universities and the private sector in order to increase the number of collaborative R&D and innovation projects and to encourage the participation of EU support programmes. The ineffectiveness of local support for innovation, on the other hand, needs to be further investigated. In addition, the effectiveness of the recent increase in fiscal incentives for private R&D and innovation should be investigated separately. This requires the collection of more details by the funding agencies and local authorities in order to observe the individual effects of various national programs.

While public support for innovation seems to be generally effective in Poland, our findings indicate that this policy could be designed more efficiently. In particular, we found that grants for investment in new machinery and equipment and human resources upgrading contribute significantly less to innovation performance than support for R&D activities in firms. Therefore, a revision of this part of Polish STI policy is recommended, especially in light of the new Financial Perspective of the European Union. The experience of the more R&D-oriented programmes funded from the national budget could be useful in the design of new EU-supported schemes. Moreover, just as in the case of Turkey, support provided by local governments proved inefficient, suggesting a need for a more in-depth assessment and possible policy change.

This E-brief has been formulated within a project entitled "Does Government Support for Innovation Matter? The Effectiveness of Public Support for Private Innovation" funded by FEMISE Association. The views and opinions expressed here reflect the authors point of view and not necessarily those of FEMISE association.

For further information on the project or related publications please see: <http://www.case-research.eu/en/node/57595>

The Authors:

Wojciech Grabowski graduated from the Warsaw School of Economics and obtained his PhD in economics from the University of Lodz. He is a lecturer at the University of Lodz and at the Lazarski University in Warsaw. He published more than 20 papers in Polish and international journals and conference proceedings. His research interests include cointegration analysis, stationarity testing, financial crises modeling and limited-dependent variables models.

M. Teoman Pamukçu Associate Professor of Science and Technology Policy Studies, Middle East Technical University (METU), Ankara, Turkey. He holds doctoral degree from Université Libre de Bruxelles. His research areas are economics of innovation and technological change with a focus on economic development, foreign direct investment, knowledge spillovers and technology transfer, as well as on the impact assessment of RTDI support programs. He is a member of the board of management of the International Joseph A. Schumpeter Society and a research associate at the Economic Research Forum. He published in *World Development*, *Brussels Economic Review*, *Economie et Prévision*, *Small Business Economics* and *International Journal of Manpower*, among others.

Krzysztof Szczygielski obtained his PhD in economics from the Warsaw School of Economics. He has been with CASE since 2001 working on projects on international economics, European integration and innovations. His current research interests include problems of public policy, in particular science, technology and innovation policy. In 2009-2010 he was a guest researcher at the TIK Institute at the University of Oslo. In 2010 he was awarded the Ministry of Science and Higher Education scholarship for outstanding young researchers.

Sinan Tandogan is the Head of Strategic Programs in the Scientific and Technological Research Council of Turkey, TÜBİTAK, where he works on developing and deploying public policy instruments including seed and venture capital grants, direct R&D support programs and mentoring networks to support innovation and technological entrepreneurship in Turkey. Dr. Tandogan holds BS and MS in Electronic Engineering and PhD in Science and Technology Policy Studies. His current research fields include innovation economics, impact assessment methodologies and evaluation of public policies. He also teaches graduate courses on public R&D policies and evaluation methods in Middle East technical University of Ankara.