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INSTITUTIONAL ENVIRONMENT, ECONOMIC PERFORMANCE AND INNOVATION IN TURKEY

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OBJECTIVE

This paper analyzes the relations among institutional environment, economic performance and innovation in Turkey. The last decade has witnessed a major policy shift in STI policy making. This study questions the impact of this shift especially on economic performance. Another important issue is the result in terms of the innovative performance. The effectiveness of national system in Turkey can be evaluated in two interrelated dimensions: First is the effectiveness of public support system since the government is still the main player to enhance national research system. Second is the supply of and demand for human resources for research. In the last decade, there are increasing attempts to improve the effectiveness of public support system towards increasing innovative performance. In this study, to assess the efficiency of public support system, an econometric methodology is applied to the Turkish 2008-2010 editions of the Community Innovation Survey for manufacturing firms.

MAIN RESULTS AND POLICY IMPLICATIONS

The ratio of R&D expenditures to is targeted to be 2% by the end of 2013. In the period 2007-2011, the share of BERD increases from 41.3% to 43.2%. In the same period, GERD increased to 11.3% as compared to 10.6% in 2007 whereas HERD falls to 45.5% from 48.2% in 2007. We can describe the effectiveness of public support system through two further axes. First is the extensive impact of the supports in terms of their diffusiveness and second is the contribution of supports in transforming the whole system. In the first axis, we can surely claim that the spectrum of public supports have been seriously enriched with various tools. In the private sector, the supports are provided by numerous public institutions both towards large scale establishments and SMEs. However, not only the quantity but also the quality of the supports is rising. For instance, in terms of the number of project applications to TUBITAK-TEYDEB projects (one of the most popular direct R&D support scheme for the private sector), the percentage of SMEs was 45.8% in 2000 while this figure reached to 81% in 2012. On the other hand, total number of TEYDEB project

applications in the 2000-2012 period increased approximately by 11 times (TEYDEB, 2013). During the period, the geographical coverage of project applications has considerably expanded as well. The similar tendencies are also observed in terms of sectoral distribution and the number of supported projects. But what this example significantly shows is that the diffusiveness of public support system improved in the last decade. This further enhances the effectiveness of the system. Another important attempt is the sectoral prioritization in policy formulation. The National Science, Technology and Innovation Strategy (2011-2016) approved in 22nd meeting of BTYK in December 2010. Automotive, machinery and production technologies, ICT, energy, water, food, security and space were identified as priority sectors under the strategy. Health sector has been also recently added as a new S&T priority sector in 25th meeting of BTYK in January 2013.

National R&D targets of Turkey for 2023 were agreed by the BTYK on 27 December 2011. These are as follows:

- Achieving an R&D intensity of 3% (from 0.84% in 2010)
- Increasing business R&D expenditure as a percentage of GDP to 2% (from 0.36% in 2010)
- Increasing the number of FTE researchers to 300,000 (from 64,341 in 2010)
- Increasing the number of FTE researchers in the private sector to 180,000 (from 25,342 in 2010).

This paper applies an econometric methodology to assess the efficiency of public support system by using Turkish 2008-2010 editions of the Community Innovation Survey for manufacturing firms. Two models were estimated: one following the so called CDM (Crépon, Duguet and Mairesse) model and assessing the role of innovation spendings, but assuming government support exogenous; and another controlling for the endogeneity of support but assuming a simplified version of the innovation performance equation.

The evidence indicates that government support contributes to higher innovation spending by firms (*input additionality*) and this in turn improves their chances to introduce product innovations (*output additionality*). The positive impact remains valid even when a possibly non-random selection of firms for government support programmes is controlled for. Extended analysis for Turkey proved a positive relationship between innovation and firm productivity.

Several recommendations both for policy and for further research can be formulated. In Turkey, while the general assessment of innovation support policy is positive, the puzzling element is the that the EU-related support (mainly from the 7th Framework Programme) was a significant incentive to increase firms' innovation activities – despite constituting less than 2% of the total public support in Turkey. Since in Turkey all the EU supported R&D projects are based on international collaboration, only 1.5 % of R&D and innovation projects that are supported by national programs are collaborative. Therefore, existing mechanisms should be strengthened and new policy instruments should be developed both for universities and private sector. Further research is necessary to investigate the success of EU-funded programmes on one hand – and the apparent failure of the schemes organized on the local (subnational) level, on the other.

For the short and medium term, it is important that innovation is placed at the heart of the development and growth process, and is integrated and embedded in each policy area. It is expected that the new governance system and existing high-level commitment for achieving the new targets set for 2023 will contribute to the enrichment of the policy mix with the design and implementation of new instruments.