

Innovation is considered to be one of the key drivers of economic growth, and hence, it is very important to understand the factors that impact the innovative activities in an economy. Poland has undergone a tremendous economic transition in the last two decades, resulting in significant changes in the nature of competition in different industries in the Polish economy. The relationship between competition and innovation is complex. While competition impacts firm strategy, revenues, profitability and hence the rewards to innovation, the competition itself can be affected by the innovative activities in an economy. The main goal of this research project is to understand the nature of the relationship between competition and innovation in the context of the Polish economy and the channels through which this relationship manifests. Through this process, we also hope to understand why some Polish firms innovate much more than other.

Most of the previous research has focused on developed economies and there are vastly divergent empirical results regarding the shape and significance of the relationship and in some case, even the direction of causality between competition and innovation. Traditional economic theory predicted either a negative (e.g. Schumpeter 1942) or a positive (e.g. Arrow 1962) and a monotonic relationship between the intensity of competitive rivalry and intensity of innovation. More recent theoretical approaches point to non-monotonic relationships and in particular of inverted U-shape type (e.g. Aghion et al. 2006). However, while empirical results for some developed economies, such as the UK or Japan support this hypothesis (Aghion et al. 2006, Inui et al. 2012), other studies have rejected it (Hashmi 2013). To our knowledge, there is limited research on emerging and developing economies that are further behind the global technological frontier. Few exceptions being the studies by EBRD (2014) or Friesenbichler & Peneder (2016). An in-depth analysis has not been however conducted yet solely for Polish firms. Our proposed research differs from previous work in our focus exclusively on the Polish economy. The main advantage of our proposed study is that it permits an in-depth analysis of Polish firms by combining primary qualitative data from a detailed innovation and firm characteristics survey with firm-level data on financial performance and regional economic and institutional data. We will develop and undertake the survey with an expanded set of firms as compared to BEEPS and other surveys.

The primary objective of the proposed project is an empirical identification of nature and the shape of the relationship between the intensity of market competition and innovative behavior of firms located in Poland.

We also formulate a number of additional objectives. The 2nd objective of the proposed research project is the verification of the impact of the nature and intensity of competitive rivalry and the nature and intensity of innovation significantly on the overall efficiency of firms in their relative markets of their functioning. The 3rd objective of the proposed research project is the verification of the significance and direction of sectoral and regional variation in the analyzed relationship as well as of the impact of internal and external sources of competition. The 4th objective is the formulation of policy recommendations for central and regional authorities concerning development and growth policy, innovation policy and competition policy.

The proposed research will examine the following main hypothesis: The relationship between the innovativeness of Polish industrial enterprises and the competitive pressure (market structure) is non-linear and takes the shape of an inverted U. We have also formulated six auxiliary hypotheses verification of which should significantly contribute to the development of the science field.

The complexity of the research questions forces us to use both qualitative and quantitative research methodologies. The main dataset will combine firm-level financial data from (InfoCredit/Amadeus) with data from a CATI survey of managers on a representative sample of enterprises (1200 firms) and furthermore data on regional characteristics allowing us to control for variation in regional innovation systems independent of the survey data. Additional data on a final set of companies will be retrieved from the datasets of Polish Patent Office, European Patent Office, and the United States Patent and Trademark Office. The classification of sectors by the difference of the leader from the mean (accounting for technology gap – neck and neck vs. step-by-step sectors) and thus allowing us to identify and classify sectors by the type of competition will be carried out for the largest dataset possible. The sectoral coverage of our study will encompass all possible sectors both from manufacturing as well as market services excluding public services.

From a methodological point of view, we will conduct a critical review of the literature in this area and of existing policies at the national and regional level in the process of developing policy recommendation based on our analysis. In the data collection stage, we will utilize desk research, data gathering techniques as well as basic data transformation techniques. The principal analysis will utilize sophisticated statistical and econometric methods (logit, Poisson, negative binomial, polynomial, panel data and spatial econometrics). The project will last in total 24 months and will consist of 9 separate research tasks.