

As the key factor to economic growth, innovation contributes to catching up. However innovation is a complex phenomenon influenced by many interrelated factors. The basis of innovation is accumulation of different types and elements of knowledge: external and internal to the firms. They constitute innovation resources.

As compared to the European Union (EU) incumbent countries, the level of innovativeness and the share of innovative firms in total number of Polish manufacturing firms is very low. It suggests that a relatively small proportion of Polish firms accumulate knowledge capacity. As Polish firms share characteristics of followers or imitators, it is commonly recognised that their innovations are based on learning coming from external sources. However, the receipt of knowledge, including imitation also requires the prior accumulation of some knowledge by the recipient, i.e. knowledge absorption. When a firm lacks absorption capacity in related areas, it may not benefit from knowledge transfer. Both knowledge receipt and imitative activity is a type of learning activity. It serves accumulation of knowledge.

In the last 20 years Polish firms accumulated different types and elements of knowledge and competence. In respect to types of knowledge and ways in which they are accumulated, Poland's innovating enterprises became heterogeneous. Using different sources (e.g. external, internal), factors (R&D, human capital ...) and types (product, organizational...) of innovations which reflect different types of knowledge, these firms introduce different innovation strategies. Some of them base innovation mainly on external factors (external R&D, cooperation in innovation), while other – on the internal ones.

Innovation activities of firms are sensitive to changes in macroeconomic environment and changes in demand. The lower level of knowledge accumulation, the lower ability to introduce innovation and higher vulnerability of innovation activities to changes in business cycle. It suggests that the innovation activities of Polish firms are more dependent on changes in macroeconomic environment than their incumbent EU counterparts. In 2008-2011 the share of innovation active firms in total number of Polish manufacturing firms dropped from 21,4% to 16,1%. In 2006 this share was 23,2%.

The aim of the research proposal is to analyze and compare differentiation in innovation activities and strategies of the Polish manufacturing companies during economic expansion (2004-2008 and 2013-2014) and slowdown (2009-2013) of Polish economy. We intend to show the relationship between sources (external and internal to firms) and factors (e.g. R&D) of innovation which firms use and their innovation activities during the two periods: economic upswing (2004-2008) and slowdown (2009-2013). As we assume that firms are heterogeneous in innovation resources, they also differ in continuity of innovation activities and strategies they introduce. Some of them (persistent innovators) innovate continuously, while other (occasional innovators) from time to time, only during economic upswing. However, it is also possible that some firms which were not innovators previously started, enter into innovation activities irrespective of slowdown. They are a kind of challengers. We would like to know the share of firms that started innovation during period of slowdown in total number of manufacturing firms in this period and their innovation resources. Basing on continuity of introducing innovation in the long run, and considering changes in business cycle, we would like to introduce typology of innovative firms (persistent, occasional innovators and challenger) and compare their innovation strategies: factors, sources and types of innovation they use in both periods and among them. More importantly, we would intend to know which factors of innovation increase probability to introduce innovation.

The focus of the project is heterogeneity in innovation strategies of Polish manufacturing innovative firms and their changes in two periods of business cycle. It intend to show differences in acquisition and extension of knowledge resources among different groups of innovators that are crucial for continuity or entering into innovation in different stage of business cycle.

Our analysis will be based on both economic and management perspectives which, in our opinion, represent complementary approach. On the one hand, employing strategic management approach we will describe how changes in competitive strategies (e.g. from offensive to defensive, cost to differentiation) which accompany changes in business cycles impact on changes in innovation strategies: innovation resources firms use and create. On the other hand, we also employ evolutionary theories, (research-based theory, resource-advantage theory, knowledge-based view). They posit that differences in accumulation of knowledge sources, factors, forms and their interdependencies among firms impact on differentiation in innovation strategies. In other words, different competences lead firms to pursue different innovation strategies.

The subject of the project has a particular importance in the analysis of the catching-up as well as the evaluation of sources and factors of low innovation activities of Polish firms. We don't know the factors and forms of knowledge that contribute to the continuation of or starting innovation activity different macroeconomic environment. The identification of strengths and weaknesses of the knowledge accumulation process in Polish firms will serve to formulate recommendations for the economic policy as well.