ANALYSIS OF INNOVATIVE PROCESSES – SCHUMPETERIAN APPROACH

According to Joseph Schumpeter, innovations and innovative processes are the driving force for the development of the economy. To extend and, simultaneously, to justify the above Schumpeter's statement, the current research project aims at the analysis of features of innovative processes modelled in the Arrow and Debreu mathematical apparatus. The core of the project is the pure theoretical analysis, but the empirical verification of its main results will be also presented.

The exploration of nature of innovative process will be deepened in the following research areas: the analysis of the role of innovative competition in the economic development, the study on the influence of financial markets on innovative processes on the real and financial markets, the analysis of economic mechanisms appearing during innovative processes as well as the statistical research on some innovative processes in Poland with respect to the Schumpeter's theorizing.

Competition is an essential element of the coordination mechanism required for economic changes to be successfully brought about. Moreover, the relationship between the competition and innovations has been discussed for many years. One of the main aims of the project is to prove that innovation competition among producers is a prerequisite for innovative evolution.

Financial markets are an integral part of the market economy. They are an important factor in the efficient financing of productive activities. Interdependence of costs and advantages implies that each production plan must be accompanied by a proper financing method, which in turn depends on the ownership structure of the firms. We will analyse the impact of opportunities created by financial markets on the selection and realization of innovative investment plans by firms.

In the current research, some economic mechanisms appearing within innovative processes will be also studied. Incentives, cooperation of economic agents in partial or full access to information, the way of sending messages, innovativeness, the possibility of improvement of some agents' position described formally will be the basis for the examination structures of the given mechanisms. Moreover, relationships between different states of equilibrium in the economy under study will be analyzed.

The aim of the statistical direction of the research is to verify empirically some of the results obtained within the research program on modelling Schumpeter's theory initiated by A. Malawski in 1990's. Similarly, the statistical analysis of the innovative competition will be confronted with theoretical results on competitiveness obtained within the current project.

To analyse the objects and processes under study, the axiomatic methods in economies, methods of mathematical analysis, the functional analysis, the difference equations as well as modern methods of multivariate statistical analysis, among others, will be used in this project. As a result we obtain a coherent study on some innovative processes and comparison of the results of the theoretical analysis with the outcomes of the statistical analysis of innovative processes in Poland.

The proposed analysis is interdisciplinary in its nature and it links the areas of the Schumpeter's evolutionary theory, the theory of financial markets, the mechanism design theory as well as the general equilibrium theory with the statistical methods of data analysis.