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Doctoral dissertation abstract

Institutional conditions in the national system of innovations in Germany and Poland –
implications for Poland

Frankfurt am Main 2012

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Topic choice justification

At the end of 20th century the value of innovations and technologies in the processes of economic growth and development rose. The growing internationalization of economies influenced the ability and adoption of innovations to be determined not only by external conditions, being the result of nationally owned resources and abilities to use them (such as funds for expanding knowledge and human resources) but also by external conditions connected with the intensity and directions of economic relationships with foreign countries. The overall institutionally and structurally comprised components, having influence on generating, selecting and adopting innovations, being at the same time a framework within which government formulates and realizes the innovative policy is called National Innovation Systems (NIS).

The primary goal of this thesis will be to conduct a comparative analysis of Polish and German NIS, with special regard to institutional components. The aim of the analysis is to draw conclusions applicable in transforming the national system of innovations in Poland. Furthermore, the thesis will aim at examining the efficiency of NIS functioning, with special regard to institutional conditions in order to determine their implications for the improvement of Polish NIS development.

The primary goal of the thesis

The primary goal of the thesis will be to compare German and Polish NIS and state the determinants of their efficient functioning, with special regard to institutional conditioning.

Despite the primary goal, a number of detailed complementary goals will be specified. These will be:

- a. Presenting German and Polish NIS core concepts and their evaluation with special regard to institutional factors (chapters 3,4).
- b. Determining the criteria allowing the evaluation of institutional factors' influence on German and Polish NIS functioning (chapter 5).
- c. Comparing the role of different institutional components which constitute NIS in Germany and Poland (chapter 5).

- d. Hierarchical ordering of particular elements of NIS in Germany and Poland with specifying the importance of their particular components (that is science, business and administration) in composing the national innovation system (chapter 5).
- e. Identifying the innovative policy instruments in Germany and Poland and the evaluation of their effectiveness in both countries (chapter 5).
- f. Formulating recommendations for the improvement of institutional components which influence the functioning of NIS in Poland (chapter 6).

Dissertation thesis

The main thesis of the dissertation is:

The German economy is more innovative than the economy of Poland, which is primarily the effect of differences in the area of institutional conditioning of national innovation systems in both countries. Despite various factors influencing the forming of NIS, such as historical background, the system of values, culture, social capital, legal institutions – to enumerate just a few, there are possibilities to adopt the patterns of German innovation systems in Polish ones.

The analysis of bibliography concerning innovation and technology allows to make detailed hypothesis, as follows:

- a) Institutional conditioning of national innovation systems occurring both in Poland and Germany stimulate innovative activity of enterprises in insufficient degree.
- b) Institutional barriers have more negative effects on national system in Poland than in Germany.
- c) The participation of particular bodies in forming the system of innovation in terms of NIS is similar in Poland and Germany due to their related functions and interactions between them.

The form of thesis

The thesis will be composed of an introduction, six chapters and a final conclusion which will summarize the findings and overall dissertation. The first chapter will be devoted to the subject of the theory of innovation and economic

growth. Discussion on the subjects will begin with the presentation of classical theories and concludes with the theory of new institutional economics.

In the third part the focus will be turned to an analytical scheme applicable in the analysis of national innovation systems in Poland and Germany, based on bibliography review from chapter two. The goal of this chapter will be to assess the functioning of the system in Germany with main focus on core functions of institutions and interactions between them. Additionally, the findings of research and development activity, as well as selected conditions of innovative activities in Poland and Germany in international context will be considered.

The fourth part will aim at evaluating the system of innovations in Poland according to the same analytical scheme and in the same time as in the case of German innovative system evaluation. In chapter five, apart from a short bibliographic review, the attention will turn to outlining the analytical scheme in order to determine and hierarchize the criteria of the efficiency of NIS components. The scheme lays the foundation to conduct an empirical research, whose aim is to evaluate the institutional conditioning from the point of view of enterprises. The chapter will include the presentation of the dissertation author's findings. Presented conclusions allow to assume an attitude to the research hypothesis. In the last chapter the recommendations for Polish NIS framing will be proposed. They will be based on conclusions drawn from the analysis of solutions implemented and proven to be efficient in the development of German innovation systems. Finally, the final conclusions drawn from the dissertation hypothesis, which summarize the overall discussion will be presented.

Sources of information and research methods.

The dissertation will be comprised of two parts: theoretical and empirical. In the theoretical part Polish and foreign literature concerning the area of research will be used, as well as available results of German and Polish NIS research.

Main research tools of empirical part will be comprised of the results of questionnaire directed to particular enterprises in Poland and Germany. The aim of the questionnaire is to indicate and evaluate the determinants of effective functioning of NIS's institutional conditioning both in Germany and Poland. The questionnaire is composed of 5 parts and comprises of the following issues: 1/presentation of an enterprise, 2/evaluation of selected

institutional conditions of innovative activity, 3/improvement of the institutionally conditioned innovative activity conditions, 4/infrastructure of research and development area, 5/national support of international cooperation. The results of author's personal findings will be confronted with other findings conducted in the area.

Findings and cognitive results

Contemporary understanding of innovation policy is abandoning the 'linear model', whose prime role was attributed to research and development, for the benefit of scattered (comprehensive) model, comprised of cooperation and correlation between the paramount components of NIS (e.g. national and international enterprises, scientific institutions, governmental bodies, country, etc.)

In national innovation systems the innovative activity is the consequence of 'national character', developmental mechanisms characteristic for a particular nation and relations between given components of economy. So far, a detailed analysis of Polish NIS, whose aim would focus on the core elements of NIS, has not been conducted. What is more, despite the fact that empirical researches on national innovation systems have been conducted widely, the bibliography on the subject shows the lack of comparative studies on Polish and German NIS. Due to a diverse character and aims of empirical research, two different analytical perspectives and descriptive models can be distinguished. Therefore, the author of the dissertation has tried to choose the adequate analytical scheme, which would allow a detailed analysis of NIS in Poland and Germany, with particular attention paid to the functions of institutions and interactions between them.

On the basis of bibliography concerning given area of research, it can be concluded that there is no homogenous scheme, which would help analyze the institutional conditioning. What is more, it is uncertain which bodies or institutions precisely should belong to such a scheme and in what hierarchy. With reference to these findings the author of the dissertation has tried to determine such a scheme and determine the influence of institutional components on the functionality of NIS in Poland and Germany respectively.

In the thesis the institutional barriers have been shown from the perspective of particular enterprises, selected over empirical analysis and confronted with the bibliographic data. The main goal was to compare the opinions of Polish and German companies on selected institutional aspects. The emphasis was especially put on patent, innovative and research and

development policies, as well as cultural and social problems. Furthermore, various bodies of particular countries whose aim is to support innovations were examined.

Owing to the results of the questionnaires conducted it was possible to take a position on the hypothesis stated in the dissertation. As a result of the researches the equity of the research thesis was proven. The institutional conditioning of Polish and German NIS does not sufficiently stimulate the innovative activity in both Germany and Poland, where in Poland, as predicted, the enterprises evaluated it in a more negative manner than in Germany. The researches conducted proved that institutional obstacles have a more negative effect on national system of innovations in Poland than in the one in Germany and they supported the complementary thesis of the dissertation.

It was also proven that due to similar functioning and interactions between particular bodies, their participation in the process of innovation systems formulation both in Poland and Germany are similar. Both Polish and German enterprises cooperate with comparable bodies, which support the innovations of enterprises. The difference in opinions of target groups lies in frequency and scope of the improvement of cooperation with a particular body.

The empirical research laid a foundation to determine the recommendations concerning the Polish system of innovations. The conclusions were primarily based on particular domains which were analyzed in the empirical part of the actual work. What is more, the author of the dissertation determined additional recommendations for the improvement of Polish system of innovations concerning not only institutional conditioning but also other areas of given research, such as infrastructure, financing the development and research activity, cooperation between enterprises and education, creation of pro-innovative culture and strengthening the management of innovation systems.