

Review on doctoral dissertation*

- The author of the dissertation: *Saša Drezgić*
The title of the Ph.D. dissertation: *The Investment Activity of the Public Sector and its Impact on the Economic Development of the Republic of Croatia*
Committee in charge: *Marjan Senjur chair; Tine Stanovnik mentor; Brian Mikelbank co mentor; Igor Masten*
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The doctoral dissertation consists of 6 chapters (163 pages), a list of references used (11 pages), a list of tables and figures (3 pages) and appendix (31 pages). The dissertation is written in English. An abstract in Slovenian is added at the end of the appendix.

The author of the dissertation starts his research with notion of “infrastructure shortcoming crises” as a phenomenon especially present in developed OECD and EU economies. Decrease in capital stocks was found to be a possible reason for productivity slowdown in these economies. Such possibility presents warning for transition economies. In comparison to the old EU members, all these economies have had many deficiencies, especially in quantity and quality of capital stocks necessary for the production of goods and services. For that reason transition economies need much more investments than EU economies. The fact is that not enough attention has been devoted to the role of public investments and especially to investments that originated at regional and local government levels in pursuing goals of economic development. The author claims that this is not unusual because this kind of research is still rare even in developed economies. In addition, there is no evidence of any comprehensive research on that issue for transition economies.

Analyzing the theoretical and empirical contributions on capital-growth relationship author builds necessary tools for estimation of contribution of capital accumulation on economic growth and development in Croatia. The author describes the institutional context of the investment process in Croatia and argues that long period of low-level equilibrium growth of the Croatian economy demands a proactive investment policy. It is irrelevant whether the government will make that directly or through the private sector. From that point he derives a goal of this doctoral dissertation, which is to determine an optimal system of investment process and an institutional framework for that process in the Republic of Croatia. Such a process would enable investment activities of the government to have optimal impact on economic growth and development. The focus is on analysis of the current system of governance and

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public investment activities in the country. Possible guidelines for a reform process are outlined on the basis of a comparison with the systems of financing, and the volume and structure of the investments in European countries.

In the first chapter of the research, Introduction, author presents description of the research problem, states purpose, goals and hypothesis of dissertation, potential contributions, presents research methods and provides a brief clarification of the dissertation structure. The main hypothesis of the dissertation is that a high level of public investment together with high quality institutional support that enables efficiency in the investment process are necessary for attaining high growth rates of the Croatian economy.

In the second part of the dissertation, focus is on the theoretical features of the capital accumulation process. Contribution of capital to economic growth is analyzed according to most prominent theories of economic growth. The author finds that theories do not diverge much in terms of capital accumulation effects on output growth. Even in the case of neoclassical approach that does not consider capital factor important for long-term growth, without sufficient capital accumulation the level of growth would be far below the potential. In addition, numerous methodological issues are analyzed, such as difficulties in definition of capital stocks, difficulties in separating public from private investment and many others. Special attention is devoted to the role of capital accumulation of the sub-national governments in economic development.

The focus then shifts to the analysis of econometric models and techniques that are used in the literature on the relationship of investments and economic growth. In spite of the fact that the relationship of public investments and economic growth has long period of empirical research and voluminous literature contributions can be found, this area is still far from definite answers. Several reasons for such case are listed. Lack of appropriate datasets is claimed to be one of the most important obstacle. Furthermore, the fact that it is hard to capture the complexity of the investment process featured by numerous factors that channel their effects on growth is stated. In addition, the author argues that the investment activity is highly dependent on particular economy surroundings; therefore it is necessary to devote attention to specific spatial and institutional features of certain area of interest (region, country). Previously mentioned analysis enables the author to use the appropriate model for testing the relationship between investments and GDP growth in the Republic of Croatia.

The fourth part of the dissertation presents the core material of the dissertation. In this part an econometric analysis of the impact of public investments on the economic growth of Croatia is conducted. Several econometric models are used in order to obtain the robustness of the results. In utilization of particular econometric technique both the aggregate and sector-specific effects of public investment are

analyzed. Both static and dynamic cross-section time-series approach was used. Such variety of models enabled unique conclusions on econometric issues applied in this area of research. This is primarily related to the revelation of possibility of mixing the short-term and long-term growth effects in econometric estimation. However, robust, positive and significant positive results of capital accumulation in construction sector are determined. In addition the spillover effects of investments are also determined.

In the fifth part, the author describes the institutional framework important for the efficiency of the investment process in Croatia. The results of the econometric analysis of the effects of public capital accumulation on the growth rate of the economy from the previous part were used in order to present proposals and recommendations for the improvement of the system of public financing and the policy of public investment in the Republic Croatia.

The conclusion of this study consists of the synthesis of the research and possible scientific contributions. In addition, the limitations of the study and perspectives for further research are pointed out. The main contribution of the dissertation is the estimation of the positive contribution of the public capital accumulation to the economic growth of the Republic of Croatia. Especially robust positive effects on economic growth are confirmed in sector of construction. In fact, this is the first such research among the transition economies. In addition, some of the most important other contributions are listed:

- A summary of the role of capital accumulation within relevant theoretical foundations and a survey of empirical contributions is presented;
- The reduction of public capital formation in European countries is confirmed by empirical analysis. This reduction is caused due to regulative constraints imposed by EU fiscal rules. However, impacts on economic growth of EU economies are still ambiguous.
- Panel regression approach is utilized and tested showing that this econometric technique has numerous advantages in comparison with other approaches;
- Institutional environments of the investment process in Croatia are comprehensively analyzed and it is shown that increasing the quality of that factor would substantially raise the efficiency of public investments;
- In estimating the effects of capital accumulation classical regression techniques can be problematic due to mixing of short-term and long-term impacts on economic growth;

The author lists limitations of the research as well. There are numerous limitations to this research that stem from several sources. Research of the effects of capital accumulation was difficult due to the fact that official datasets on the time-series of regional GDP and net-capital stocks still do not exist. Therefore, the data had to be

derived and during that process certain bias and measurement errors occurred. There are limitations regarding the methodology used for the estimation of the public capital effects on economic growth. There are many limitations on the utilization of the Cobb-Douglas function as well. An additional limitation of this research is that the focus was on the estimation of the public capital exclusively in terms of physical capital. Not much attention was devoted to the role of human capital. Although to a certain extent the institutional setup of the investment process was described and numerous possibilities for improvements are stated, within the research, the effects of such a setup were not estimated. There are special possibilities in determining the effects of financial market development and financial regulations on the costs of financing investments.

The further research agenda follows largely from certain shortcomings of this research. There are several important tracks of the research orientation stated. First, development of the database of the government institutions will provide additional datasets for more reliable estimates and reveal the long-term relationships among the national economic indicators. A longer time period could provide an opportunity for testing various econometric approaches such as VAR, nonlinear regression, or spatial econometric techniques. In terms of panel regressions it would be useful to give more emphasis on the dynamic effects of the capital accumulation by utilization of various dynamic panel regression models. Further research should be oriented to determining the forces of institutional design of an economy that would enable optimal results in terms of efficiency. Contemporary research emphasizes the importance of the human capital factor. In addition, there is much more interest in estimation of the impact of broader terms of social capital.

The contribution of this doctoral dissertation is not just in fact that it adds important empirical proof of positive role of government investments. The fact is that this research opens numerous other theoretical, empirical and methodological issues. This dissertation provides basis for new econometric approaches and presents a starting point in examining the capital-growth relation among transition economies. Finally, it opens up broad research issues related with complex processes of capital accumulation effects on economic development of Republic of Croatia. There are numerous important research that has to be conducted on the case of Croatian economy— effects of financing public investments, spatial factors effects, role of subnational sector investments, role of human capital in economic development and many other.

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Reviewer:
Helena Blažić, PhD
University of Rijeka, Faculty of Economics,
Rijeka, Croatia