The paper aims to offer some empirical insights into examining the role of sectoral structure in explaining the variation of aggregated productivity level between the countries. We also consider that the size of an economy and its path-dependence are the possible determinants that may explain the variability of the productivity level of the countries. The analysis of economic structure, which started already in the first half of the 20th century (see Firsher 1935; Clark 1940; Fourastié 1949), is a research topic that continuously attracts researchers from different parts of the world. Sectoral shifts and their effects on productivity have been analysed from different angles and using several methodological approaches (e.g. Baumol 1967; Peneder 2002; Havlik 2004 and 2007; Burda 2006; Breitenfellner and Hildebrandt, 2006, Bachmann and Burda 2008). The research results confirm that the processes of tertialization (movement to service based economic structure) are widening over the world generating new requirements for the development of human capital. Thus, the development of human capital in the rapidly changing global economic and socio-political framework is continuously a topical research issue as well as challenge for the country.

The empirical part of the paper is based on the Eurostat sectoral data of the EU-27 economies, which are examined using the combination of several statistical methods (correlation, regression and factor analysis) in order to elaborate on the aggregated indicators (latent variables) of the economies’ sectoral structure and examine the relationship between the economic structure and productivity. The focus of the study is on the comparative analysis of the Estonian economic structure and productivity within the EU taking into account post-socialist path-dependence and small size of the economy. Estonia together with the other two Baltic States, Latvia and Lithuania, are the only former Soviet Republics that are members of the enlarged EU. Their favourable location between the East and the West, market economy experience they gained during the independence period between the two world wars, and historical and cultural traditions of co-operation with developed countries around the Baltic Sea were important initial conditions affecting the economic development of these states. Therefore, Estonia provides an interesting case for generalizing the post-socialist transition and the European (re)integration processes. The country also serves as an example for analysing how small economy with the post-socialist path-dependence responds to global economic crisis and adjusts to the new challenges.

We estimated factor models both on the basis of cross-section and pooled data of the EU-27 economies checking for robustness of the results. In all cases two aggregated indicators – factors (latent variables) of an economic structure – are extracted which describe around two thirds of the initial indicators’ variance. Factor F1 characterises the development level of the post-industrial service economy and factor F2 the environment for industry-based technological innovation. Based on these latent variables of sectoral structure and taking into account also the size and path-dependence (dummy variable distinguishing the NMS and EU-15) of an economy, the regression models exploring aggregated productivity of the EU-27
countries are estimated. The estimated regression models describe more than 80% of the variability of aggregated productivity in EU-27 countries. The estimators show that both the development level of the post-industrial economy (F1) as well as the environment for technological innovations (F2) is related to the productivity level in the same direction. The productivity of the new member states is below-average. Thus, the hypothesis that post-socialist path-dependence matters got confirmation. The estimation results also proved the validity of the hypothesis that the productivity of small countries of the EU-27 is somewhat higher than average. Evidently, knowledge spillovers are sometimes quicker in small countries inducing innovations and creating conditions for productivity growth.

The path-dependency in sectoral level is expressed by the technological trajectories and knowledge which are cumulative and build upon the earlier technology and learning possibilities and abilities. In addition to the path-dependence in sectors, there is a specific path-dependence for firms and industries in catching up economies like Estonia. The firms of the new EU member states are ordinarily much more constrained by their environment than the firms in the highly developed countries. The firms of the NMS may have an aspiration and even the capability to introduce a new product or process, but the possibilities to do that significantly depend on the capabilities of other firms and the skills of entrepreneurs and workers of the country; there is also often lack of substantial investments. Therefore, we propose that in the case of Estonia as a catching-up new EU member the path-dependency should be first of all examined on the level of the whole system of innovation in order to promote necessary structural change. The linear innovation model should be replaced with the balanced interaction based innovation approach. This means also that innovations should not be equalised with the R&D, but much broader focus on R&D and innovation processes is needed. It should be emphasized that the non-R&D dimensions of innovation are equally important for catching up economies. Our opinion is that the discrimination of low-tech industries by way of allocation of majority of resources into the creation of high-tech sector is not appropriate policy for the catching-up economies.

The catching-up economies like Estonia should be looked in a symbiotic partnership – the continued viability of high-tech sector depends on the vitality of low-tech industries. Much more attention should be given to the development of the system of absorption and diffusion of knowledge produced both, outside and inside of the catching-up economies. On the firms level this approach requires two types of activities: firstly, encouraging the motivation of firms to change; secondly, supporting the process of building absorptive capacities of firms. Sustainability of economic development could not be achieved relying only on the innovation activities of foreign investors and their global networks. Integration of local firms into networks of foreign investors should be heavily supported. All these activities need serious investments in the development of human capital. The investments into education system, and particularly into science and engineering educational institutions, should be coupled with the growth of employment opportunities requesting those skills. The lack of managerial and organisational skills is still an important barrier of innovation (even more than better access to modern technology) and should not be overlooked in the case of the countries with the post-socialist path-dependence. We propose that appropriate technology policy implantation methods for the catching-up countries could be worked out only after a general audit of the technological absorption capacity of firms. Technological path-dependency could be used not as a threat, but as an opportunity. The lock in position in the field of technology could mean that the resistance to change is weak and it also offers an opportunity to skip the whole generation of technology and introduce new solutions.
References


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