

Research program «Policy and Regional Growth»

Determinants of Productivity Growth



Executive Summary 2004/2005

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Complete Research Report:

For the full version of the Research Report (BAK Report 2006 / 1) and further information on the research program:

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Determinants of Productivity Growth – Executive Summary

This study measures the influence of a set of regional location factors (or attractiveness factors) on the long term economic development of a region. The study selected productivity growth as the dependent variable and chose indicators from the innovation, taxation, regulation and accessibility policy areas plus a number of other indicators such as industrial structure, geography and historical growth rates to explain different growth patterns.

Globalisation and decentralisation are challenging regions' capacities to adapt and improve their economic competitiveness. It is at the regional level that the pressure to maintain economic growth and social development is felt most. Policy makers, especially at the regional level, are challenged to develop strategies to foster regional growth. To support decision makers and to contribute in an empirically sound way to the ongoing discussion about (location) factors influencing regional growth, BAK Basel Economics, in 2003, started an ongoing research program on «Policy and Regional Growth» within the «IBC BAK International Benchmark Club»[®]. This study summarises the results from the research program in the phase 2004/2005.

The study used data from around 120 European regions with a certain geographical focus on Western Continental Europe, Great Britain and Scandinavia. The data was taken from the IBC database which currently covers up to 400 regions with 64 business sectors per region and annual data from 1980 to 2004 as well as a variety of location factors. The IBC database is regularly updated and extended. The empirical analysis followed a «state-of-the-art» approach in panel data econometrics, which contains a series of test procedures to assure an accurate model specification. The resulting Random Effects model including country dummies was estimated for 1990 to 2003 with Generalized Least Squares. Finally, a sensitivity analysis was performed to guarantee the stability of the results.

The findings can be summarised as follows:

- i) Almost all regression coefficients show the signs expected from theory: higher taxes reduce productivity growth, more innovation resources increase productivity growth, and better intercontinental accessibility leads to higher productivity growth. For inter-regional accessibility, the negative effect prevails over the positive effect although both are theoretically possible. Product market regulation does not show the expected negative signs.
- ii) Comparing the individual politically influenced location factors, income taxation of highly qualified employees plays the most important role in explaining productivity growth differentials between the regions in our sample. It is followed by regulation of the labour market, interregional accessibility, company taxation, intercontinental accessibility and innovation indicators such as research and development expenditures and educational attainment.
- iii) Productivity growth is also influenced by the global trend in productivity growth, the industrial structure of a region and spatial spillover effects. Large national effects remain as well.
- iv) The reported results are statistically significant (at usual levels) and the explanatory power of the econometric model is quite good.

The results, conclusions and policy implications for the four policy areas included are discussed below individually and in more detail:

Innovation:

Regionally available innovation resources positively influence productivity growth. All three available indicators (the research and development expenditures as a share of the GDP, the share of the labour force with a secondary and the share with a tertiary degree) do have positive, significant and stable coefficients. But, somewhat surprisingly, the impact the innovation indicators exhibit on productivity growth is low. One reason for this might be that the available innovation indicators do not reflect the more important kinds of innovation resources, e.g. less formally acquired know-how. The results clearly point out that fostering innovation is not the quick and easy policy solution to solve all growth problems, especially if the policy concentrates on the broader and less focused areas of innovation resources which are covered by the indicators available here. Although innovation does have a positive impact on productivity growth, the road there might be longer than expected. It might thus be necessary to rethink policy with respect to innovation. Quality and efficiency controls should be an integral part of all innovation policies. Rather than drowning in the micromanagement of innovative firms, clusters and R&D expenditures, innovation policy should again put more weight on general framework conditions such as the regulatory burden and its impact on the ability of an economy to innovate.

Taxation:

The two indicators for taxation, the tax burden on investments and the tax burden on highly qualified employees, both influence productivity growth negatively. It is noteworthy that the impact shows a considerable time lag and that the relative position with regard to other regions turns out to be more important than the absolute level of taxation. The indicator «taxation of highly qualified employees» has by far the strongest impact on productivity growth of all the indicators included in the estimations. The impact is much stronger than the impact of company taxation. These findings have two policy implications. First, fiscal policy is indeed an important attractiveness factor. Individuals and the firms that hire them have a strong tendency to choose low-tax locations. Second, the tax burden on individuals has a much stronger impact on productivity growth than the tax burden on firms. Strong theoretical arguments support this empirical result for internationally mobile, highly qualified labour in an increasingly knowledge based economy. After tax reforms that mainly concerned company taxation, regions should now presumably turn their attention to the taxation of individuals, especially of those with high skills.

Regulation:

Labour market regulation has a strong positive impact on productivity growth. Tighter regulation can indeed increase the productivity of the working population, but at the price of reducing the participation of the population in the working process. Many regulations like minimum wages affect only the less qualified labour. Well-educated employees (with high productivity) participate in the labour market regardless of regulation, while low-skilled people (with low productivity) do not get jobs. In the long run, labour market regulations often hurt most those whom they pretend to protect. Of course, one should not conclude that a tightening of labour market regulation is a promising strategy for growth, because its impact on productivity is only half of the story. The overall effect of regulation on GDP growth is expected to be negative. Given that all parts of the population should participate in social well-being, easy access to the labour market is probably the best policy strategy to enable long term growth.

No conclusion can be drawn for product market regulation. Contrary to the hypotheses as well as to empirical studies with country data, product market regulation shows a positive influence on productivity growth. We have reasons to believe that this is a statistical artefact related to the problem that information on regulation is only available on the national level.

Accessibility:

The two indicators for intercontinental and interregional accessibility yield opposite results. While intercontinental accessibility has a positive impact on productivity growth, interregional accessibility (European level) has a negative effect. This might be a statistical effect: accessibility in rural and remote areas increased, with the help of EU Structural Funds, much more than in metropolitan areas although the economic growth of the latter was higher. But there is a “real” economic effect as well. Specialists in transport economics have often pointed out that improving infrastructure between remote and metropolitan areas may benefit the latter more than the former. The reason for this could be a delocalisation effect, i.e. the out migration of highly productive industries toward the economic centres, serving customers in the centre as well as in the periphery from the centre. Better accessibility is a double-edged sword. On the one hand, it enhances business activity and boosts the attractiveness of a region. On the other hand, it allows high value activities to be delivered from a central region. For productivity growth, the latter effect predominates.

The empirical results from evaluating the influence of various location factors on productivity growth in a sample of European regions lead us to a few clear-cut policy conclusions:

- i) Fiscal policy should be a key element in a regions’ growth strategy. After tax reforms that mainly concerned company taxation, regions should not forget to turn their attention to the taxation of highly qualified individuals as well.
- ii) Innovation policy supports growth, but not just any kind of innovation policy is the quick and easy policy solution to solve growth problems. Quality and efficiency controls are important.
- iii) The attractiveness of a region for highly qualified labour is becoming an ever more important part of fostering growth in highly developed knowledge economies. Taxation of individuals is one issue, but there are various other policy areas to increase the regional attractiveness for such individuals.
- iv) Policy takes time. The lag structure of the variables suggests that the effect of a specific policy exceeds the election period of politicians. Especially in cases where policy decisions are unpopular, the future positive effects will have to be clearly explained and communicated to stakeholders and to the population.
- v) Regions are not self-contained. The economic development of a region might be influenced by political decisions in other regions. “Policy competition” is a realistic setting. It is often the relative position of the region with respect to the rest of the world which is – exclusively or additionally – important for economic development.
- vi) It is worth stressing that the attractiveness of a region is a combination of many factors. It is the optimal combination of all policy instruments -- taking geography, history, initial endowment in capital and labour and the initial state of development into account -- which will make a regional policy successful or not.

Although global and structural factors play an important role, long term growth and development are not destiny, but can be influenced by political framework conditions and wise policy decisions. Put in other words: policy matters for regional growth, a regions’ policy as well as the national one.

This study is part of the research program «Policy and Regional Growth» of BAK Basel Economics. We will continue this research program and extend the analysis further in several directions. The most important extensions will be the inclusion of the labour market side in the next research step. Furthermore, the database will be expanded substantially, covering additional regions as well as indicators for location factors. Results can be expected in the summer or autumn of 2006.