Increasing the productivity of an economy means improving the efficiency of its constituent units, but it is not obvious how public policy can promote this goal. What factors determine productivity, and what effects do these have on the environment? With the support of the Anglo-German Foundation, researchers led by Professor Tobias Kretschmer have looked into this question – and come up with some surprising answers.

How can we ensure sustained economic growth without jeopardizing the environmental bases of our society? This question was at the center of a three-year research project entitled “Creating Sustainable Growth in Europe” that began in 2006. The study was financed by a grant of 4 million pounds sterling from the Anglo-German Foundation for the Study of Industrial Society. In the past 35 years, the Foundation has supported innovative comparative studies on economic, environmental and social policy in two of the leading European economies, the British and the German. One of the Foundation’s major aims is to stimulate exchange of knowledge and insight between academic research and economic practice. In fostering such exchanges, the Foundation provides valuable pointers for political action designed to boost economic development. The study of Europe’s prospects actually consisted of four related research programs designed to explore interdependencies between economic growth and environmental and social developments. One of these, entitled “Productivity Growth in Europe, America and Asia”, set out to identify and compare the factors that determine the pace of growth in different regions of the world, and was directed by Professor Tobias Kretschmer of the Institute for Communication Economics at LMU Munich. Among the participants were researchers from the Center for Economic Performance at the London School of Economics (LSE), the Center for European Economic Research (ZEW) in Mannheim and the LMU. “Our research was targeted at defining the conditions that make economic growth possible and delineating their consequences for other areas of society”, explains Professor Kretschmer. A cursory glance at recent economic history suffices to show that these issues are of fundamental importance not only for economic actors, governments and policy-makers, but also for societies as a whole. In the
years following the Second World War, the average annual rate of labor productivity growth in Europe was consistently higher than that in the US by approximately 1%. This difference remained consistent for over 50 years, and most experts expected it to persist at least until European labor productivity was on par with US labor productivity. The experts turned out to be wrong. – Beginning in the mid-1990s, economists and politicians discovered that levels of productivity growth in the American economy had overtaken, and then continued to exceed, those attained in Europe. This turnaround was so unexpected that observers referred to it as the “American productivity miracle”.

A CHANGE IN PERSPECTIVE DELIVERS NEW INSIGHTS

As Tobias Kretschmer explains, in their search for explanations for the slowdown in productivity growth in Europe, his research team first turned its attention to the structures and characteristics of individual firms. Based on the findings for individual firms, they proposed new models of macroeconomic interrelationships. The analysis began with the construction of a comprehensive international database that included information on styles of management and environmental and technological practices in individual enterprises, industrial sectors and national economies. To obtain the necessary data, the researchers surveyed more than 5000 firms located in Europe, Asia and North America, using an interview-based evaluation procedure. They then combined their results with relevant information from other sources available in existing databases.

The team ultimately identified four factors as major forces that increase productivity: management quality, ability to innovate, use of information and communication technologies, and attitude to globalization. That these factors should play a central role is perhaps not terribly surprising, but the results for individual firms did give the researchers much to ponder. In their investigation of management practices, for instance, they found very striking differences not just between national economies as a whole, but also between individual firms. The data also revealed that the quality of management was crucial for the performance of a national economy. The effectiveness of management, in turn, depends on a variety of factors. “Our study demonstrated, for instance, that improved business education has a positive impact on the overall quality of management practices”, emphasizes Tobias Kretschmer, “but this is a topic to which politicians have paid little attention.” The reason for this is that politics and economic research have always tended to focus on macroeconomic parameters. Differences in management practices between individual firms have never figured highly on the agendas of economic analysts or policy-makers. But the new study clearly shows that variations in business practices have significant effects on economic performance. Basic elements of modern management, such as process monitoring, definition of realistic targets and design of performance-related incentives, clearly have a direct influence on productivity growth. Moreover, they indirectly stimulate growth by acting positively on the other major driving forces. This “knock-on” effect is what makes the analysis of management practices so significant for macroeconomic outcomes.
Innovation, globalization and management practices all count, but it is the interaction between them that determines the productivity of the individual enterprise and the growth rate of an economy. The validity of this thesis is demonstrated clearly by the results of the study on information and communications technologies (ICT). As Head of the Institute for Communication Economics at LMU, this sector is at the center of Tobias Kretschmer’s interest. “In the course of our study, for example, we looked at the effects of a two-fold increase in investment in ICT inventory on the productivity of particular firms”. Such a step was found to enhance the productivity of American firms by 5%. For all other economies considered, the corresponding figure was only 4%. In fact this difference is greater than any difference in the returns on capital investment in other areas. This striking result is particularly interesting when one looks at the origins of the higher levels of return on investment in ICT in the American economy. These are actually restricted to precisely those sectors that account for most of the American productivity miracle – wholesale and retailing and, to a certain extent, the financial industry.

THE SIGNIFICANCE OF INTERACTIONS BETWEEN DRIVERS OF PRODUCTIVITY GROWTH

Why are the returns on ICT investment in American firms so much higher than in other economies? Previous studies had proposed various explanations, based on the impact of ostensibly better software or putatively greater familiarity with ICT among the workforce.

“Based on the data we have analyzed, neither of these factors plays a decisive role. Instead, the difference can be attributed largely to more effective management practices and ICT-compatible organizational structures,” Tobias Kretschmer explains. The quality of management, therefore, has a measurable impact on the production factor ICT, underlining the importance of synergistic effects between different productivity drivers. The recognition that productivity growth results from a network of interactions must form the basis for effective political measures. Obviously there is little point in subsidizing the application of ICT in a nation’s economy, if adequately trained personnel are not available and appropriate organizational
structures are not in place. Only if they incorporate the manifold cross-connections between productivity drivers into their thinking, can political decision-makers take effective action to stimulate economic growth. In the case of ICT, appropriate measures might entail legislative initiatives, the creation of novel educational and vocational training programs, or the introduction of new subject matter into school curricula. Here too, the findings of the research program initiated by the Anglo-German Foundation provide politicians with much food for thought and many incentives to act.

IS PRODUCTIVITY GROWTH COMPATIBLE WITH DESIRABLE ENVIRONMENTAL GOALS?

One apparent connection between productivity growth and the environment emerged clearly from the analyses of the empirical data. After all, the American economy not only leads the world in productivity, it is also the world’s largest emitter of carbon dioxide. But the picture is more complicated than this correlation suggests: the link between the two observations is not a simple cause-and-effect relationship. Indeed, productivity growth does not equate with increased energy consumption. On the contrary. As Tobias Kretschmer points out, “The data we have gathered show that more productive companies, which are more effectively managed, actually consume less energy than their less efficient competitors. What’s more, this is true for firms in the US and the UK, and for American firms operating in Britain. This suggests that the connection between the productivity levels typical of American firms and overall energy consumption in the US economy is not a matter of technology. It is much more likely that differences in energy consumption between national economies are due to differences in the price of energy. On average, energy costs in the US are 36% lower than in Britain. Despite recent incentives to reduce energy consumption in order to protect the climate, this cost factor will remain the more persuasive argument for most firms. On the other hand, if measures designed to protect environmental quality also save energy and facilitate productivity growth, everyone wins. Hence, environmental policies will be most successful when they take diverse productivity factors into account, so that the measures taken are of mutual benefit. That is one precondition for attaining long-term productivity growth that is sustainable both for society and the natural environment.
The studies carried out within the framework of the program “Creating Sustainable Growth in Europe” have produced a plethora of new insights. The main findings made by the team led by Tobias Kretschmer can be summarized under three headings. First, growth in productivity is not necessarily incompatible with desirable environmental and societal goals. Secondly, as a rule, productivity growth is not the result of change in one overriding parameter, it emerges from the interaction of several factors. Thirdly, from a global perspective, in assessing differences in productivity levels one has to consider both the average productivity of the “typical” firm (the mean), and the difference in performance between the best and the worst enterprises in a given economy (the spread). All three of these conclusions contain important lessons for economic and political decision-makers, which explains why the study has aroused such interest internationally. The published research papers reflect the current state of economic research on productivity, and provide impulses for future work in the field. Tobias Kretschmer’s team at the Institute for Communication Economics at LMU is hard at work on follow-up projects. These studies, some funded by the European Union, are designed to further understanding of the impact of ICT on the wider economy.

Translated by Paul Hardy