to be able to export themselves. This implies that with regard to their own export activity tacit trade barriers still exist for East German firms.

We also find large effects for the – instrumented – degree of preparation for the euro. The better firms are prepared for the euro, the more likely it is that they expect to be able to enter new markets. The same is true for the expectation of developing new products. This shows that with increasing information and adaptation to the new European Market, firms realize individual opportunities to export and to develop new products. No significant effect of the degree of preparation is present for the expectation of being faced with new foreign competitors. For this category the variables for the degree of preparation are not even jointly significant.33

Altogether we find considerable effects on firms' expectations of the changes taking place in markets with the start of EMU. Both firms' strategic decisions and firms' expectations of being faced with new foreign competitors have been affected.

33 A Wald test for joint significance was conducted here.

Bettina Burger*

How Important is Foreign Direct Investment for Late Industrialising Countries?

While it has long been recognised that the process of development is necessarily linked to technology, the question of the efficiency of technological spillovers from foreign direct investment remains controversial. The following paper examines the theoretical background and then focuses on the case of Mexico, analysing the technological performance of multinational enterprises in that country.

According to both historic trade patterns and theoretical insights, industrialised countries are specialised in the production of capital intensive and research and development (R&D) intensive goods while industrial latecomers export labour intensive goods and raw materials. Today, reality looks different: Asian countries especially not only challenge the industrialised world with their cost advantage but even compete through quality and innovation. One reason for this development is said to be imitation. With access to modern technologies in industrialised countries as well as access to service and information networks, industrial latecomers could catch up technologically with fewer resources than those needed for the original production and application of knowledge capital.

The real challenge for developing countries is to build up their domestic technological capabilities. In this sense, multinational enterprises (MNEs) are presumed to have a positive effect on the local economy because it is in their own interest to provide their foreign affiliates with advanced technology, to adapt it to local conditions and to make it operational. As some of the knowledge diffuses into the local economy, MNEs can powerfully affect the development of markets and economic agents in host countries. The efficiency of these technological spillovers through foreign direct investment (FDI) is still discussed controversially. The intention of this paper is to give reference to significant contributions in this field and to bring out some issues that are still underrepresented in the literature.

The paper is divided into four parts:

☐ an introduction into the concept of technological latecomer industrialisation and a briefing on what theory does and does not explain in this context;

☐ a sketching of those technological capabilities needed for local development and an explanation as to why FDI-based technological spillovers seem appropriate;

☐ a structural approach to the incentives of technology transfer and learning activities; and

☐ the results of an analysis of the technological performance of multinational enterprises (MNEs) in

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Mexico on the basis of proxies for firm-specific technological capabilities. The efficiency of technological spillovers is looked at for two industries where the role of foreign firms is particularly important (automobiles and electronics).

Latecomer Industrialisation: the Concept

It has long been recognised that the process of development is necessarily linked to technology and that technology must not only be viewed in its embodied form as product or process technology but also in its unembodied form of know-how or organisational practice. Because technological progress plays a large role in determining competitiveness, industrial latecomers are eager to accelerate learning processes to catch up technologically.

Industrial latecomers like South Korea, Taiwan or Mexico typically entered the twentieth century in an economically backward state based on raw materials. By selectively investing in industry these countries were then able to stimulate growth and raise their national income per capita significantly. The way they chose was not to develop technologies indigenously because a ‘go-it-alone’ strategy involves high risks of misallocating scarce resources and leading to relatively obsolete technology. The focus was on optimising technology transfer, exploiting the borrowed technology and penetrating world markets on the basis of low wages rather than a technological edge. In this sense the latecomer industrialisation differs from the early industrialisation that took place in the United States, Great Britain or Germany.

The technological gap between developed countries and industrial latecomers has given its name to a whole branch of literature within the theory of international trade, the so-called technology gap theory, which was originally based on the argumentation of Posner, Vernon and Hirsch. Promising formal approaches are continuous models where technological know-how is unevenly distributed between two countries named ‘North’ and ‘South’. While the North is innovative and in the technological lead position, the South tries to catch up via technology transfer from the North to the South. The North specialises in the production of goods where its productivity advantage is greater than its wage cost disadvantage. The South concentrates on the production of goods where its wage cost advantage outpaces its productivity disadvantage. The production of so-called marginal products which can be produced at the same costs in both countries shifts from the North to the South or vice versa depending on the relative technological progress made in one of the countries.

Model variations range from product to process innovation and from costless and exogenous technology transfer to one which has to be paid for and – integrating growth theory – can be influenced endogenously.

The models show that under certain conditions the latecomer can gain from the technological progress that is transferred to the South. The microeconomic calculus on technology transfer, however, remains a ‘black box’ phenomenon as the models focus on country level characteristics rather than on industry or firm level characteristics. And with firms staying inside their national boundaries there is not much room for multinational activities. Thus, decisive questions are only given an unsatisfactory answer: why do firms go multinational by producing abroad? and what makes them support technological development in their host countries, if at all?

The Microeconomic Background

Foreign technology enters late industrialising countries through various channels such as licensing or imports. The crux is to make the foreign technology and the local development of technological capabilities compatible in order to reduce external dependence. This has raised the importance of technology transfer through FDI. FDI is defined as an investment in a host country where the investor acquires substantial power to control a company’s entrepreneurial activities. In the extreme case the company is a totally owned subsidiary. Thus, in contrast to portfolio investment FDI means a long-term relationship. But what is even more important for host countries, MNEs are the most important actors in the generation, application and international transfer of modern technology.

According to patent statistics, the 700 biggest industrial companies – most of them MNEs – account for about half of all commercial innovations. R&D is mostly performed at the companies’ headquarters in industrialised countries like Japan, the USA, Germany or other European countries and is concentrated in

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