Learning-by-Exporting

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INTRODUCTION

Many economists and policy makers intuitively believe that technology transfer through foreign direct investment is particularly valuable in the context of influencing the growth of the national innovation capacity. Meanwhile, technology diffusion researchers attribute more than half of spillover effects to the trade in goods. Studies of development strategies pursued by East Asian NIEs allow to point to the import of capital goods as an important tool for the upgrading and technological transformation of the economy. Sources of technology diffusion that may occur on the export side, described as learning-by-exporting – being in fact an equivalent of spillover effects on the supply side – are rarely analyzed and as a result of this remain less recognized.

The purpose of the article is to explain the concept of learning-by-exporting. Although the phenomenon is intuitively easy to conceptualize, it is sometimes confused with other types of the potential impact of exporting on innovativeness and productivity. It is also important to distinguish learning-by-exporting from self-selection, according to which an *ex-ante* higher level of productivity is prerequisite for entering any foreign market.

Traditionally, the relationship between productivity and exporting is justified in this way that companies with higher productivity are more likely (self-selecting) to export. For more productive enterprises it is easier to cover the sunk costs associated with entering foreign markets (related to transport, product adaptation, creating a network of customers and other aspects of marketing). This explanation points to a causality – from innovativeness and productivity to exporting. However, empirical observations of the beneficial effects of exporting on growth of firms and economies provide grounds for believing that the link between productivity and exporting is, in fact, bidirectional. Exporting may indeed be a source of technical expertise and, through this channel, affect the increase in productivity. Buyers from abroad, delivering prototypes of exported goods, offering technical assistance, as well as providing knowledge about foreign markets, may stimulate the growth of productivity of domestic exporters. Closer contacts with foreign competitors may result in imitating their marketing techniques or superior management solutions.

The article contains a review of recent empirical studies on learning-by-exporting and summarizes their results in order to clarify and classify the determinants of the mechanism of LBE. It leads to the conclusion that young high-tech firms from technologically less developed economies are particularly prone to learning-by-exporting.

BACKGROUND

The term *learning-by-exporting* (LBE) appeared in literature nearly three decades ago as a consequence of observing the beneficial influence of exports on the growth of newly-industrialized Asian economies. The concept of LBE assumes that engaging in exporting stimulates innovativeness, promotes advantageous organizational changes and improves the communicative competencies of enterprises, all of which translates into the growth of their productivity.

However, it should be noted that not all "export effects" may be attributed to LBE. This is because exporting may affect the improvement of productivity also through other channels – exploiting the economies of scale or the reduction of waste in export production. One may speak of the growth of productivity as a result of learning-by-exporting if, for example, a foreign client imposes higher quality standards on an exporter than domestic clients do and indicates how can these standards be achieved, or if pressure from foreign competition forces advantageous changes in export businesses. It enables a further generation of external benefits on the home market. This is the direction of

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influence of investments focusing on the growth of exports, personnel training or product customization to the requirements of foreign clients. Imitating such activities by home-market-oriented companies, without the necessity of incurring high initial costs, is called the demonstration effect. Export expansion may produce other types of benefits, such as the promotion of domestic entities on export markets, thus opening the way abroad to other exporters by lowering the level of "sunk costs" that accompany the initiation of exporting.

The analysis of LBE as a concept reveals a clear similarity to *learning-by-doing*. The term, as introduced by Arrow (1962), refers to a systematic development of experience among production employees and managerial staff with regard to solving technical or organizational problems. "Learning-by-doing export" is though justified, as companies entering foreign markets often encounter more demanding buyers, face high quality requirements or need to meet faster delivery deadlines. Young and less experienced exporters will probably come across a larger competence gap, so their newly-initiated foreign sales may become a source of relatively greater benefits (Fernandes & Isgut, 2005).

Another term related to the concept of LBE is *learning-to-innovate*. Self-conducted R&D, as well as different forms of technology diffusion improve the innovativeness of enterprises. Contact with technologically advanced suppliers, agents, clients, as well as pressure from competitors may stimulate a company's innovativeness. However, if the innovative impulses come from a foreign market, it is actually *learning-to-innovate-by-exporting* (Salomon & Shaver, 2005; Liu & Buck, 2007; Crespi *et al.*, 2008; Damijan *et al.,* 2010).

In the most general terms, LBE may be described as a change in the stochastic process of generating productivity growths, induced by the behaviour of a company engaging in export (Castellani, 2002). The benefits of the growth of effectiveness may be divided into static and dynamic. The former may be revealed already by exploiting the economies of scale resulting from increasing sales. Such circumstances are not enough to induce learning-by-exporting. LBE is rather a function of an exporter's experience and involvement, the results of which may only be revealed in a dynamic approach. It should be though classified to *post-entry effects* (Serti & Tomasi, 2007) that are the consequence of facing new challenges arising from contacts with clients, or from competitive pressure. Sources of such growth-inducing impulses in export companies may include (Silva *et al.*, 2010):

- Easier access to new products and manufacturing techniques on a foreign market (Greenaway & Kneller, 2007;);
- The possibility of obtaining technical help from buyers or professional service providers abroad (Blalock & Gertler, 2004),
- Contact with competitors and imitating their marketing techniques or managerial solutions (Blalock & Gertler, 2004).

The above statements suggest that the LBE requires time and the gathering of a certain "mass of experience." Taking into account that some companies engage in export temporarily, there arises doubt as to the possibility of the empirical confirmation of the occurrence of learning-by-exporting. On the other hand, if LBE does take place, the hysteresis mechanism should reveal its effects even if exporting is interrupted.

There is a widespread agreement in the literature about the relationship between productivity and exporting. Authors of numerous empirical studies (reviewed below) have proved that more productive companies have a higher export propensity. What is also important are the costs related to entering a foreign market that can only be incurred by more productive entities. Researchers point to the causality running from productivity to exporting. Exporters usually turn out to be more productive, make larger capital expenses, use more advanced production technologies, and the level of wages paid by them is higher than in companies operating on the home market only. Therefore, it may be assumed they have a certain kind of advantage over non-exporters, but importantly the advantage can be seen even before the commencement of exporting activity, which is referred to as the *self-selection* mechanism. However, confirming the causality between productivity and exporting alone is not enough to conclude that exporting reflexively affects productivity. Thus,