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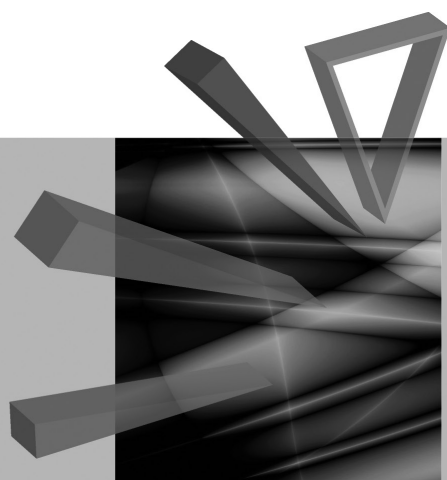
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Innovation Sources of Economies in Eastern Asia



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LEARNING BY EXPORTING AS A SOURCE OF INNOVATION IN ASIAN COMPANIES

Summary: Understanding the high growth experience of East Asian economies has generated a world-wide discussion on growth strategies and policy lessons. The aim of the paper is to review recent empirical findings related to learning by exporting – a still poorly recognised source of technology diffusion – to determine its role in stimulating innovativeness and productivity growth in Asian companies.

Keywords: growth strategy, productivity, learning by exporting.

1. Introduction

In today's economy, a key source of competitiveness of firms, industries and finally entire national economies is the ability to create and profitably implement technological innovations. Their sources are easy to identify in highly-developed economies, equipped with sufficient capital (financial and intellectual) to conduct independent research and development and successfully commercialise their results. For developing economies, with still clear shortcomings in terms of capital accumulation as well as staff qualifications, the ability to absorb innovations from abroad becomes extremely important.

To confirm the effectiveness of measures in this regard, it is enough to glance at productivity statistics – much more evenly distributed at the international level than innovative activities. While research and development is concentrated in a relatively small group of highly-developed countries, their benefits are visible on a global scale.

The strategy of open development practised by East Asian newly industrialised economies (NIEs) stimulates the diffusion of technical knowledge from abroad and rising productivity levels. From the theoretical point of view, there are several important channels of the positive impact of liberalisation on productivity.¹ On the

¹ There are *inter alia*: (a) scale effects with respect to production and R&D activities, being a consequence of market enlargement; E. Helpman, P.R. Krugman, *Market Structure and Foreign Trade*, MIT Press, Cambridge 1985, J. Eaton, S. Kortum, *Innovation, Diffusion and Trade*, NBER Working

basis of empirical studies, two of them seem to be of major importance – the inflow of foreign direct investment (FDI) and foreign trade.

Many economists and policymakers intuitively believe that technology transfer through FDI is particularly valuable in the context of influencing the growth of national innovation capacity. It is widely assumed that thanks to FDI, consisting of the whole package of technology components (such as foreign expertise or modern methods of organisation and management), a host country may reach more advanced technologies. Meanwhile, technology diffusion researchers attribute more than half of spillover effects to the trade in goods.²The studies of development strategies pursued by East Asian NIEs allow pointing to the import of capital goods as an important tool for the upgrading and technological transformation of an 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 analysed and as a result remain less recognised.

The purpose of the first part of the paper is to explain the concept of learning by exporting. Although the phenomenon is intuitively easy to conceptualise, it is sometimes confused with other types of the potential impact of exporting on productivity. It is also important to distinguish learning by exporting from self-selection, according to which an *ex-ante* higher level of productivity is a prerequisite for entering any foreign market. The next two sections contain a review of recent empirical findings on learning by exporting in Asian companies. The reviewed studies have been classified according to a testing method used by their authors. The test results from the fact that both strands of literature (case studies as well as panel data analyses) are not consistent, though as far as East Asian companies are concerned learning mechanisms seem to work more efficiently than in firms outside Asia, regardless of whether they come from developed economies or from other developing countries.

Paper 12385, Cambridge 2006; (b) increased competition, which forces companies to improve cost efficiency; M. Melitz, G. Ottaviano, Market size, trade and productivity, *Review of Economic Studies* 2008, Vol. 75 (1), pp. 295–316; (c) access to foreign technology embodied in imported machinery and intermediate goods; G. Grossman, E. Helpman, *Innovation and Growth in the Global Economy*, MIT Press, Cambridge 1991, R.J. Barro, X. Sala-i-Martin, *Economic Growth*, MIT Press, Cambridge 2004; (d) a shift of the high-tech manufacturing to countries with lower levels of development, while in the developed ones reserves of high-skilled labour focus on manufacturing goods with the highest degree in innovation, resulting in an acceleration of economic growth in both groups of countries; P.R. Krugman, A model of innovation, technology transfer and world distribution of income, *Journal of Political Economy* 1979, Vol. 87 (2), pp. 253–266.

² W. Keller, Geographic localization of international technology diffusion, *American Economic Review* 2002, Vol. 92 (1), pp. 120–142.

2. The concept of learning by exporting (LBE)

The term “learning by exporting” appeared in the literature almost three decades ago as a consequence of the observation of the pro-growth effects of exporting in East Asian NIEs. At the conceptual level, LBE is visibly similar to the phenomenon of learning by doing. The concept, introduced by Arrow in 1962,³ describes a systematic increase in experience among production workers and managerial staff in solving technical or organisational problems. In the concept of learning by exporting, which treats exports as a specific area of business activity, it is assumed that the expansion of trade on the foreign market stimulates innovation, induces positive organisational change and raises communicative competences of managers, which then translates into an increase in the productivity of the enterprises involved.

Traditionally, the relationship between productivity and exporting is justified in the way that companies with higher productivity are more likely (self-selecting) to export. For more productive enterprises, it is easier to cover 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 productivity to exporting. However, empirical observations of the beneficial effects of exporting on the economic growth in East Asian NIEs economies provide grounds for believing that the link between productivity and exporting is, in fact, bidirectional. Exporting may be indeed 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 of foreign markets, may stimulate the growth of innovativeness and productivity of domestic exporters.⁴

Learning by exporting should be, therefore, classified as a so-called “post-entry effect”, resulting from exporters meeting new challenges arising from contact with foreign customers or competitive pressure. The sources of these pro-growth impulses in exporting firms may be:

- improved access to new products and manufacturing techniques on the foreign market;⁵

³ K.J. Arrow, Economic welfare and the allocation of resources for inventions, [in:] R. Nelson (Ed.), *The Rate and Direction of Inventive Activity*, Princeton University Press, 1962.

⁴ It should be noted that not all “export results” can be attributed to the discussed learning by exporting. Exporting may indeed act to improve productivity through other channels – through the exploitation of economies of scale and reducing waste in the production process. In such conditions, one can speak about the static gains in productivity rather than learning by exporting, which cannot be equated with a simple consequence of the presence on the new market. It is rather a function of experience and commitment of the exporter, so its effects may appear only in dynamic terms.

⁵ D. Greenaway, R. Kneller, Firm heterogeneity, exporting and foreign direct investment, *The Economic Journal* 2007, Vol. 117, pp. 134–161.

- possibility of obtaining technical assistance from buyers or professional service providers abroad;
- contact with competitors and imitating their marketing techniques or management solutions.⁶

To run a learning process, the passage of time is required in order to enable a company to collect a certain (critical) mass of experience. Taking into account that some companies export only temporarily, there are doubts as to the possibility of an empirical confirmation of the phenomenon of learning by exporting. On the other hand, if LBE really takes place, according to the mechanism of hysteresis, its effects should be visible even if an exporting activity has been interrupted.

Determining the type and strength of a relationship between exporting and productivity is interesting from the academic point of view and important in terms of innovation policy tools. If the LBE mechanism works, governments supporting the internationalisation of domestic enterprises could expect increases of innovativeness and productivity among the beneficiaries of such support, as well as among third parties benefitting from the external effects of export growth in the economy. Stimulating LBE effects could then become a tool of an innovation policy (alternative to all the other well-known and not always effectively used tools) staying at the disposal of authorities wishing to accelerate growths in aggregate productivity.

3. Learning by exporting in East Asian companies

The empirical studies on learning by exporting in Asia may be classified according to a testing method used by their authors. Research results from two strands of literature (case studies and panel data analyses) are reviewed in further section.

3.1. Case studies

Research on the effects of learning by exporting started after 1980. The first tests were carried out by means of case studies, during which selected exporters were asked whether they had received any form of support or benefited in any other way from contacts with foreign partners. Those studies confirmed that for the exporters from developing countries, information received from foreign customers is a valuable source of knowledge.

The results of selected case studies are reported in Table 1. Most of the cited studies covered companies from East Asian NIEs, characterised by high growth rates of exports. In all the cases the authors managed to confirm that foreign customers had provided relevant information on process and product technologies. Thanks to them, exporters increased the quality of products sold abroad, which allowed

⁶G. Blalock, P. Gertler, Learning from exporting revisited in a less developed setting, *Journal of Development Economics* 2004, Vol. 75, pp. 397–416.

concluding that contacts with foreign markets stimulate productivity growth in selected developing countries.

Table 1. Learning by exporting – findings of selected case studies

Origin of enterprises covered by the study	Authors of the study	Findings
South Korea, Hong Kong, Thailand, The Philippines, Taiwan, Argentina, Brazil, Colombia, Peru and Uruguay	Keesing [1983]	Foreign customers as a source of information about products, materials, labelling, packaging and delivery
South Korea	Wesphal et al. [1979, 1984]	Foreign customers as a source of information on products, quality control incentives and support in terms of reducing costs and improving efficiency
Taiwan	Aw and Batra [1998]	Foreign customers as a source of ideas in the field of design and product innovation
South Korea, Hong Kong, Taiwan, Thailand, The Philippines	Wotzel and Wortzel [1981]	Foreign customers as a source of information on products (design and packaging) and quality control
South Korea, Taiwan, Hong Kong, Singapore	Hobday [1995]	Foreign recipients helpful in organising the machine park and introducing a controlling and quality improvement process

Source: inspired by R.A. Lopez, Trade and growth: Reconciling the macroeconomic and microeconomic evidence, *Journal of Economic Surveys* 2005, Vol. 19 (4), p. 630.

Findings on the basis of case studies should, however, be treated with caution. First, a relatively small sample does not allow generalising over the whole population. Second, the exporters chosen for the case studies usually performed better than other enterprises. Third, in the cited studies no attempts were made to quantify the impact of exporting on productivity.

3.2. Panel data analyses

Since the late nineties, because of the lack of sufficient precision of research based on case studies, researchers began to conduct tests of LBE effects using detailed data from large samples of firms (units) of production and different econometric techniques (see Table 2). The very first study did not allow confirming the hypothesis that export activity induces increases in productivity. Clerides et al. in a study on Colombian, Mexican and Moroccan companies,⁷ and Bernard and Jensen in a study on US enterprises,⁸ managed to confirm solely the relationship between the initial level of

⁷ S.K. Clerides, S. Lach, J.R. Tybout, Is learning by exporting important? Micro-dynamic evidence from Colombia, Mexico, and Morocco, *The Quarterly Journal of Economics* 1998, Vol. 113, pp. 903–947.

⁸ A.B. Bernard, J.B. Jensen, *Exporting and Productivity*, NBER Working Paper 7135, Cambridge 1999.

productivity and the propensity to export. The cost and productivity levels of the surveyed companies almost did not change after entering the foreign market, and the slight increases in productivity in the US enterprises were only temporary. Lawrence and Weinstein, conducting similar research on Japanese enterprises, contrary to the popular belief about the “Japanese miracle”, failed to confirm the importance of exporting for productivity growth.⁹

Table 2. Learning by exporting – findings of selected panel data research

Origin of enterprises	Authors of the study	Evidence on LBE
Taiwan, South Korea	Aw et al. [2000]	only in Taiwan
South Korea, Indonesia, Malaysia, The Philippines, Thailand	Hallward-Driemeier et al.[2002]	yes
South Korea	Hahn [2004]	yes
	Ahn [2005]	yes
	Shin and Bogin [2011]	yes
Indonesia	Blalock and Gertler [2004]	yes
Taiwan	Awet al. [2007]	yes
Singapore	Chongvilaivan [2012]	yes
Japan	Lawrence and Weinstein[1999]	no
	Yashiro and Hirano [2010]	yes
	Ito [2011]	yes
India	Chatterjee [2008]	yes
	Mukim [2011]	yes
	Tabrizy and Trofimenko [2010]	no
China	Wang and Xu [2010]	very weak
	Ma and Zhang [2008]	yes
	Ma, Tang and Zhang [2011]	yes
	Du et al. [2011]	yes
	Luong [2011]	no
	Wang [2011]	yes

Source: author’s own summary.

Subsequent studies were undertaken based on the panel data from East Asian NIEs. Following the method used in the above cited tests, Aw et al. conducted a study on companies from Taiwan and South Korea.¹⁰ For Taiwan, it turned out (as in the previously reported cases) that enterprises with ex ante higher levels of productivity are more likely to export, while companies that have experienced a

⁹ R.Z. Lawrence, D.E. Weinstein, *Trade and Growth: Import-led or Export-led? Evidence from Japan and Korea*, NBER Working Paper 7264, Cambridge 1999.

¹⁰ B.Y. Aw, S. Chung, M.J. Roberts, Productivity and the decision to export: Micro Evidence from Taiwan and South Korea, *World Bank Economic Review* 2000, Vol. 14 (1), pp. 65–90.

decline in productivity ceased exporting. Statistically significant LBE effects were reported in three out of the five examined branches. In South Korea Aw et al. found no LBE effects.

In the study on enterprises from Singapore, Chongvilaivan points out that at the macro level, the external effects of learning by exporting might not necessarily be positive.¹¹ Negative results may arise at the (level of the) intra-industrial resource market. Exporters gain access to foreign resources as well as reduce their purchasing of materials as they introduce new technologies obtained from abroad.

Hallward-Driemeier et al. in a comparative study on companies from five East Asian countries – Indonesia, Thailand, the Philippines, Malaysia and South Korea – proved that the differences in productivity levels between exporters and non-exporters are less pronounced in the economies relatively more developed and strongly integrated with the global market (as Malaysia and South Korea).¹² This might be the reason why it was more difficult to detect LBE effects in South Korea taking differences in productivity levels as a measure. In turn, in the countries that opened up their economies later on, less productive agents are still operating on the market.

In the study on Indonesian exporters alone, Blalock and Gertler reported increases in productivity of about 2 to 5% and considered them as an explicit learning by exporting outcome.¹³ In the next study on Taiwanese enterprises, Aw et al. also confirmed the correlation between an involvement in exporting activities in previous periods and current levels of productivity.¹⁴ They found out that the productivity increases are particularly significant when a company conducted its own R&D. Interestingly, R&D activities alone, without an export commitment, did not guarantee productivity increases. It can therefore be concluded that Taiwanese companies actually learned by exporting, but the transfer of technology from foreign customers was more effective when accompanied by companies' own research and development. Yashiro and Hirano came to the same results in the recent study on Japanese companies.¹⁵ Ito also confirmed the existence of learning by exporting in Japan, but it was determined by the export direction.¹⁶ LBE was detected only in

¹¹ A. Chongvilaivan, Learning by exporting and high tech capital deepening in Singapore manufacturing industries 1974–2006, *Applied Economics* 2012, Vol. 44 (20), pp. 2551–2568.

¹² M. Hallward-Driemeier, G. Iarossi, G. Sokoloff, *Exports and Manufacturing Productivity in East Asia: A Comparative Analysis with Firm-Level Data*, NBER Working Paper 8894, Cambridge 2002.

¹³ G. Blalock, P. Gertler, *op. cit.*

¹⁴ B.Y. Aw, M.J. Roberts, T. Winston, The complementary role of exports and R&D investments as sources of productivity growth, *The World Economy* 2007, Vol. 30 (1), pp. 83–104.

¹⁵ N. Yashiro, D. Hirano, *Anatomy of Learning-from-Exporting: Role of Foreign Knowledge Acquisition*, RIETI Discussion Paper Series 01-E-053, October 2010, <http://www.rieti.go.jp/en/publications/summary/10100009.html>;

¹⁶ Ito K., *Sources of Learning-by-Exporting Effects: Does Exporting Promote Innovation?*, FREIT Working Paper No. 295, Forum for Research in Empirical International Trade 2011, <http://www.freit.org/WorkingPapers>;

companies that exported to the US or Europe. No LBE effects arose from exporting to other Asian markets.

The evidence of LBE in India and China is slightly mixed. Tabrizy and Trofimenko proved only the self-selection of Indian exporters and failed to prove learning effects after entering foreign markets.¹⁷ Chatterjee examined exporters from the pharmaceutical industry and found evidence of LBE only among the companies using less advanced technologies.¹⁸ Mukim proved LBE effects in the first year after entering the foreign market.¹⁹ For China, Wang and Xu found statistically insignificant LBE effects.²⁰ Ma and Zhang,²¹ Ma et al.²² and Du et al.²³ managed to prove LBE among Chinese exporters but not among foreign affiliates, explaining that intra-firm trade did not induce learning effects, which appeared only as a cause of arm's length transactions. Luong²⁴ found no LBE effects among companies from the automotive industry. In the light of previously cited Ito's results, one can assume that the cause was the direction of exports to less developed Asian markets. Wang proved the existence of LBE, defined as quality improvements instead of TFP growth.²⁵

Generally, there are some methodological concerns as far as panel data studies are concerned. Although they allow for a quantification of LBE effects, and in this sense appear "better" than case study research, giving hope for more accurate results, they are not free from burdens. Panel data do not allow observing significant determinants of export decisions – such as a strategy of company development, managers'

¹⁷ S.S. Tabrizy, N. Trofimenko, *Scope for Export-Led Growth in a Large Emerging Economy: Is India Learning By Exporting?*, Kiel Institute for World Economics Working Paper No. 1633/2010, http://www.ifw-kiel.de/publications/kap_e?selectedYear=2010.

¹⁸ Ch. Chatterjee, *No Such Thing as a Free Lunch: Investment, Technological Upgrading, and Exports in Indian Pharmaceuticals*, Heinz School, 2nd Paper, Carnegie Mellon 2008, <http://repository.cmu.edu/heinzworks/90/>.

¹⁹ M. Mukim, *Does Exporting Increase Productivity? Evidence from India*, 2011, http://personal.lse.ac.uk/mukim/mukim_jmp.pdf.

²⁰ F. Wang, Z. Xu, *Learning by Exporting under International Schumpeterian Competition: Evidence from Chinese Firms*, 2010, mimeo, http://www.gredeg.cnrs.fr/Colloques/DIME-ISGEP-2010/Papers/Wang_Xu.PDF.

²¹ Y. Ma, Y. Zhang, *What's Different about New Exporters? Evidence from Chinese Manufacturing Firms*, 2008, <http://wise.xmu.edu.cn/Master/News/NewsPic/200841592650197.pdf>.

²² Y. Ma, H. Tang, Y. Zhang, *Factor Intensity, Product Switching, and Productivity: Evidence from Chinese Exporters*, World Bank Internal Training Materials, 2011, http://siteresources.worldbank.org/INTRANETTRADE/Resources/Internal-Training/287823-1256848879189/6526508-1312911329405/Heiwai_Tang.pdf.

²³ J. Du, Y. Lu, Z. Tao, L. Yu, *Do domestic and foreign exporters differ in learning by exporting? Evidence from China*, *China Economic Review* 2011, <http://dx.doi.org/10.1016/j.chieco.2011.12.003>.

²⁴ T.A. Luong, *Is There Learning by Exporting? Evidence from the Automobile Industry in China*, China Trade Research Group Working Paper 2011/006, <http://doc.mbalib.com/view/6df4d5bef45807b81f8f35a10aa59e19.html>.

²⁵ L. Wang, *Quality Differentiation, Input Choices and Learning by Exporting: Evidence from Chinese Exports*, FREIT Working Paper No. 419, Forum for Research in Empirical International Trade, 2011, <http://www.freit.org/WorkingPapers>.

willingness to take risks arising from internationalisation or occasions on the foreign market, or making a company start exporting spontaneously. Different determinants of export decisions can make beneficial effects of contacts with foreign customers arise much earlier than the first export transaction recorded in the panel data. In this regard, case studies, during which exporters are asked whether or not contacts with foreign market were a driver of any changes to organisational matters or their technical nature, without a need to clarify exactly when they arose, provide a more complete picture of LBE, though they do not allow for a precise measurement.

Another issue is diverse methods of estimating the effects of LBE. Research studies are divided into two groups – with productivity (TFP) at the company level or with quality (innovativeness) measures being a dependent variable. Regardless of the approach and econometric technique used in a study, there is a problem of selecting a proper variable for timing the moment of becoming an exporter. A decision to start exporting in most cases is a result of a long decision process, thus identifying the “right” moment when a company becomes an exporter might be difficult, while, as discussed earlier, it does not necessarily coincide with the emergence of data on export values in the panel.

Bearing in mind all doubts as to testing methods, attention should be paid to the fact that in any study on companies from developed countries LBE was not confirmed without formulating additional conditions or reservations.²⁶ Such results could be explained by an argument that developed countries are more integrated with the global economy and introduce new technologies thanks to independently conducted R&D. Developing economies in turn are oriented at the acquisition of technology from abroad. It should be noted, however, that studies on LBE in the enterprises in Colombia,²⁷ Chile,²⁸ Mexico and Morocco²⁹ failed to confirm LBE effects. The evidence for productivity growths in exporting companies from Sub-Saharan Africa

²⁶ J. Wagner, *The Casual Effects of Exports on Firm Size and Labor Productivity: First Evidence from a Matching Approach*, HWWA Discussion Paper 155, Hamburg 2001; M. Delgado, J. Farinas, S. Ruano, Firm productivity and export markets: a non-parametric approach, *Journal of International Economics* 2002, Vol. 57, pp. 397–422; D. Castellani, Export behavior and productivity growth: evidence from Italian manufacturing firms, *Weltwirtschaftliches Archiv* 2002, Vol. 138, pp. 605–628; S. Girma, D. Greenaway, R. Kneller, *Entry to Export Markets and Productivity: A Microeconomic Analysis of Matched Firms*, University of Nottingham, 2002, www.nottingham.ac.uk/economics/staff/details/papers/; J.M. Arnold, K. Hussinger, Export behavior and firm productivity in German manufacturing: A firm level analysis, *Review of World Economics* 2005, Vol. 141 (2), pp. 219–243; Ch. Crisculo, J.E. Haskel, M. Slaughter, *Global Engagement and the Global Innovation Activities of Firms*, NBER Working Paper 11479, Cambridge 2005.

²⁷ A.E. Isgut, What’s different about exporters? Evidence from Colombian manufacturing, *Journal of Development Studies* 2001, Vol. 37, pp. 57–82.

²⁸ R. Alvarez, R.A. Lopez, Exporting and performance: Evidence from Chilean plants, *Canadian Journal of Economics* 2005, Vol. 38 (4), pp. 1384–1400.

²⁹ S.K. Clerides et al., *op. cit.*

(found by Van Biesebroeck³⁰) was rather a consequence of market enlargement than LBE. Exporters were mainly large companies that had exploited economies of scale at the level of the local market. Entering foreign markets was a way to overcome barriers of demand and a source of a dynamic growth of productivity. A more decisive confirmation of the phenomenon of learning by exporting was achieved only in the studies on Asian companies.

4. Concluding remarks

An important goal for economic policy is to reduce the technological gap between developing and developed countries. The implementation of policy tools arising from such an approach have already begun in East Asian countries in the last decades of the twentieth century. Because of the absence of sufficient resources, both in terms of financial and intellectual capital, policy incentives have focused on intensifying the cooperation with companies from developed countries. Originally this was treated as a source of capital accumulation, which allowed stimulating the growth of an economy. Skeptics, commenting on the concept of an open development strategy, indicate that the source of accelerated growth is not productivity but investment increases, not always profitably allocated. The fact that the majority of empirical studies have managed to confirm the existence of LBE mechanisms not only undermines the above statement, but also demonstrates that economic policies aimed at deepening the integration of domestic firms with the global market may stimulate further gains in innovation and productivity.

Taking into account the absence of a convincing confirmation of LBE on other continents, it can be concluded that it is Asian companies that are particularly prone to learning by exporting.

References

- Ahn S., *Does Exporting Raise Productivity? Evidence from Korean Microdata*, Asian Development Bank Institute Research Paper No. 67, 2005.
- Alvarez R., Lopez R.A., Exporting and performance: Evidence from Chilean plants, *Canadian Journal of Economics* 2005, Vol. 38 (4), pp. 1384–1400.
- Arnold J.M., Hussinger K., Export behavior and firm productivity in German manufacturing: A firm level analysis, *Review of World Economics* 2005, Vol. 141 (2), pp. 219–243.
- Arrow K.J., Economic welfare and the allocation of resources for inventions, [in:] R. Nelson (Ed.), *The Rate and Direction of Inventive Activity*, Princeton University Press, 1962.
- Aw B.Y., Batra G., Technological capability and firm efficiency in Taiwan (China), *World Bank Economic Review* 1998, Vol. 12, pp. 59–79.

³⁰ J. van Biesebroeck, Exporting raises productivity in Sub-Saharan African manufacturing plants, *Journal of International Economics* 2005, Vol. 67 (2), pp. 373–391.

- Aw B.Y., Chung S., Roberts, M.J., Productivity and the decision to export: Micro evidence from Taiwan and South Korea, *World Bank Economic Review* 2000, Vol. 14 (1), pp. 65–90.
- Aw B.Y., Roberts M.J., Winston T., The complementary role of exports and R&D investments as sources of productivity growth, *The World Economy* 2007, Vol. 30 (1), pp. 83–104.
- Barro R.J., Sala-i-Martin X., *Economic Growth*, MIT Press, Cambridge 2004.
- Bernard A.B., Jensen J.B., *Exporting and Productivity*, NBER Working Paper 7135, Cambridge 1999.
- Blalock G., Gertler P, Learning from exporting revisited in a less developed setting, *Journal of Development Economics* 2004, Vol. 75, pp. 397–416.
- Castellani D., Export behavior and productivity growth: Evidence from Italian manufacturing firms, *Weltwirtschaftliches Archiv* 2002, Vol. 138, pp. 605–628.
- Chatterjee Ch., *No Such Thing as a Free Lunch: Investment, Technological Upgrading, and Exports in Indian Pharmaceuticals*, Heinz School, 2nd Paper, Carnegie Mellon 2008, from: <http://repository.cmu.edu/heinzworks/90/>.
- Chongvilaivan A., Learning by exporting and high tech capital deepening in Singapore manufacturing industries 1974–2006, *Applied Economics* 2012, Vol. 44 (20), pp. 2551–2568.
- Clerides S.K., Lach S., Tybout J.R., Is learning by exporting important? Micro-dynamic evidence from Colombia, Mexico, and Morocco, *The Quarterly Journal of Economics* 1998, Vol. 113, pp. 903–947.
- Crisculo Ch., Haskel J.E., Slaughter M., *Global Engagement and the Global Innovation Activities of Firms*, NBER Working Paper 11479, Cambridge 2005.
- Delgado M., Farinas J., Ruano S., Firm productivity and export markets: A non-parametric approach, *Journal of International Economics* 2002, Vol. 57, pp. 397–422.
- Du J., Lu Y., Tao Z., Yu L., Do domestic and foreign exporters differ in learning by exporting? Evidence from China, *China Economic Review* 2011, <http://dx.doi.org/10.1016/j.chieco.2011.12.003>.
- Eaton J., Kortum S., *Innovation, Diffusion and Trade*, NBER Working Paper 12385, Cambridge 2006.
- Girma S., Greenaway D., Kneller R., *Entry to Export Markets and Productivity: A Microeconomic Analysis of Matched Firms*, University of Nottingham, 2002, www.nottingham.ac.uk/economics/staff/details/papers/.
- Greenaway D., Kneller R., Firm heterogeneity, exporting and foreign direct investment, *The Economic Journal* 2007, Vol. 117, pp. 134–161.
- Grossman G., Helpman E., *Innovation and Growth in the Global Economy*, MIT Press, Cambridge 1991.
- Hahn C.H., *Exporting and Performance of Plants: Evidence from Korean Manufacturing*, NBER Working Paper 10208, Cambridge 2004.
- Hallward-Driemeier M., Iarossi L., Sokoloff G., *Exports and Manufacturing Productivity in East Asia: A Comparative Analysis with Firm-Level Data*, NBER Working Paper 8894, Cambridge 2002.
- Hobday M., East Asian latecomer firms: Learning the technology of electronics, *World Development* 1995, Vol. 23, pp. 1171–1193.
- Helpman E., Krugman P.R., *Market Structure and Foreign Trade*, MIT Press, Cambridge 1985.
- Isgut A.E., What's different about exporters? Evidence from Colombian manufacturing, *Journal of Development Studies* 2001, Vol. 37, pp. 57–82.
- Ito K., *Sources of Learning-by-Exporting Effects: Does Exporting Promote Innovation?*, FREIT Working Paper No. 295, Forum for Research in Empirical International Trade 2011, <http://www.freit.org/WorkingPapers>.
- Keller W., Geographic localization of international technology diffusion, *American Economic Review* 2002, Vol. 92 (1), pp. 120–142.
- Keesing D.B., Linking-up to distant markets: South to north exports of manufactured consumer goods, *American Economic Review* 1983, Vol. 73, pp. 338–342.

- Krugman P.R., A model of innovation, technology transfer and world distribution of income, *Journal of Political Economy* 1979, Vol. 87 (2), pp. 253–266.
- Lawrence R.Z., Weinstein D.E., *Trade and Growth: Import-led or Export-led? Evidence from Japan and Korea*, NBER Working Paper 7264, Cambridge 1999.
- Lopez R.A., Trade and growth: Reconciling the macroeconomic and microeconomic evidence, *Journal of Economic Surveys* 2005, Vol. 19 (4), pp. 623–648.
- Luong T.A., *Is There Learning by Exporting? Evidence from the Automobile Industry in China*, China Trade Research Group Working Paper 2011/006, <http://doc.mbalib.com/view/6df4d5bef45807b81f8f35a10aa59e19.html>.
- Ma Y., Zhang Y., *What's Different about New Exporters? Evidence from Chinese Manufacturing Firms*, 2008, <http://wise.xmu.edu.cn/Master/News/NewsPic/200841592650197.pdf>.
- Ma Y., Tang H., Zhang Y., *Factor Intensity, Product Switching, and Productivity: Evidence from Chinese Exporters*, World Bank Internal Training Materials, 2011, http://siteresources.worldbank.org/INTRANETTRADE/Resources/Internal-Training/287823-1256848879189/6526508-1312911329405/Heiwai_Tang.pdf.
- Melitz M., Ottaviano G., Market size, trade and productivity, *Review of Economic Studies* 2008, Vol. 75 (1), pp. 295–316.
- Mukim M., *Does Exporting Increase Productivity? Evidence from India*, 2011, http://personal.lse.ac.uk/mukim/mukim_jmp.pdf.
- Shin J., Bogin J., *Learning-by-Exporting: Evidence from Korea*, 2011, <http://anbogin.mysite.syr.edu/Research.html>.
- Tabrizy S.S., Trofimenko N., *Scope for Export-Led Growth in a Large Emerging Economy: Is India Learning By Exporting?*, Kiel Institute for World Economics Working Paper No. 1633, 2010, http://www.ifw-kiel.de/publications/kap_e?selectedYear=2010.
- Van Biesebroeck J., Exporting raises productivity in Sub-Saharan African manufacturing plants, *Journal of International Economics* 2005, Vol. 67 (2), pp. 373–391.
- Wagner J. *The Casual Effects of Exports on Firm Size and Labor Productivity: First Evidence from a Matching Approach*, HWWA Discussion Paper 155, Hamburg 2001.
- Wang L., *Quality Differentiation, Input Choices and Learning by Exporting: Evidence from Chinese Exports*, FREIT Working Paper No. 419, Forum for Research in Empirical International Trade 2011, <http://www.freit.org/WorkingPapers>.
- Wang F., Xu Z., *Learning by Exporting under International Schumpeterian Competition: Evidence from Chinese Firms*, 2010, mimeo, http://www.gredeg.cnrs.fr/Colloques/DIME-ISGEP-2010/Papers/Wang_Xu.PDF.
- Westphal L., Rhee Y, Pursell G., Foreign influences on Korean industrial development, *Oxford Bulletin of Economics and Statistics* 1979, Vol. 41, pp. 359–388.
- Westphal L., Rhee Y, Pursell G., Sources of technological capability in South Korea, [in:] M. Franman, K. King (Eds.), *Technological Capability in the Third World*, MacMillan, London 1984.
- Wortzel L.H., Wortzel H.V., Export marketing strategies for NIC and LDC-based firms, *Columbia Journal of World Business* 1981, Vol. 16, pp. 51–60.
- Yashiro N., Hirano D., *Anatomy of Learning-from-Exporting: Role of Foreign Knowledge Acquisition*, RIETI Discussion Paper Series 01-E-053, October 2010, <http://www.rieti.go.jp/en/publications/summary/10100009.html>.

UCZENIE SIĘ PRZEZ EKSPORT JAKO ŹRÓDŁO INNOWACJI W PRZEDSIĘBIORSTWACH AZJATYCKICH

Streszczenie: Sukcesy państw wschodnioazjatyckich w zakresie stymulowania dynamiki wzrostu gospodarczego wywołały światową dyskusję na temat polityki i strategii pro wzrostowych. Celem artykułu jest przegląd najnowszych badań empirycznych dotyczących uczenia się przez eksport – wciąż słabo rozpoznanego źródła pozyskiwania technologii z zagranicy – w celu określenia jego roli w stymulowaniu innowacyjności i przyrostów produktywności firm azjatyckich.

Słowa kluczowe: strategia wzrostu gospodarczego, produktywność, uczenie się przez eksport.