

**How export-led growth can lead to take-off**

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# How export-led growth can lead to take-off

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Export-led growth has gained considerable prominence as a model for economic development since its use by East Asian newly industrializing countries. Thus, the question of how it can be used by other countries wishing to industrialize and under what circumstances it can lead to the take-off of an economy is highly relevant for development policy. In light of current macroeconomic imbalances on the global stage, the question of sustainability arises: Is take-off by export-led growth possible without permanent balance-of-trade surpluses? The article gives a brief overview and offers thoughts into various ways in which the impetus of export-led growth for the overall economy might work.

How can developing countries and specifically least developed countries (LDCs) initiate economic growth? If one assumes a process of economic development in stages like the Rostow model does (Scholz 2004: 81-85; Kulke 2008: 212-214), there must be a point where it gains a certain dynamic. Notwithstanding justified criticism against the limitations and determinism of this type of theories, it seems plausible that there is some point of departure, or, in the words of Rostow's model, of take-off for economic development. But simply accepting this notion or waiting for take-off to occur would miss a highly relevant question for economic development: Which mechanisms can lead to take-off and, consequently, what kind of policies can be used to provoke it?

Success stories of economic development in East Asia (e.g. Porter 1990; Chang 2001; Chen, Chen and Chu 2001; Chiu and Lui 2001; Chu, Chen and Chen 2001; Hirono 2001; Kang 2001; Wong 2001; Wong and Ng 2001; Benner 2010) point to the idea that export can unleash dynamic growth. Export-led growth has come to be viewed as a promising development policy. But how exactly can it create an impetus for economic growth that may spill over to other sectors (that is, apart from the exporting sector) and thus stimulate economic development in wide parts of the economy? Several possible mechanisms will be suggested in the following sections.

## **Generating revenue from the outside: the export base**

The first mechanism is the one explained by export base theories. In this line of reasoning, the export sector generates balance-of-trade surpluses that induce growth in the domestic sector. Thus, imports used in the export sector and repatriated capital gains must be deducted from export revenues. The remainder can be spent on domestic goods and services. Multiplier effects may set in. In consequence, export revenue can induce growth in the domestic sector (Bathelt and Glückler 2003: 74-76; Schätzl 2003: 149-155; Kulke 2008: 262-267).

Obviously, on the aggregate national level this process can go on just as long as the LDC's economy generates balance-of-trade surpluses. However, in a world awed by the recent and severe financial crises with its global repercussions, one might ask whether such a mechanism of export-led growth is a sustainable strategy. Permanent balance-of-trade surpluses can hardly be considered sustainable over the long term. They may imply creating employment in the nations that runs surpluses at the cost of the nations that run deficits. Thus, it is essentially a zero-sum game where deficits are pushed around from one economy to the next “like hot potatoes” (Stiglitz 2007: 264).

In addition, a development policy that essentially consists of a zero-sum game can not be a satisfying strategy for economic development for a broad spectrum of developing countries. In order to be a promising policy for a broader array of economies, export-led growth would have to provide an impetus for growth even without permanent balance-of-trade surpluses.

## **The classical approach: comparative advantage**

Ricardo's classical theory of comparative advantage is probably the primary approach that comes to mind when discussing trade and its gains. It describes how specialization on sectors in which trading nations enjoy comparative advantages, respectively, leads to growth both of these nations' exporting and importing sectors and in their living standards compared to a situation without trade.<sup>1</sup>

However, it does so only up to the point where all possible gains from trade resulting from comparative advantage are efficiently realized. Compared to a world without trade, exploiting comparative advantage can bolster welfare, but once a new equilibrium is reached, growth from

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<sup>1</sup> For an overview of classical and other trade theories cf. Krugman (1996).

additional trade would stop (unless, of course, exogenous disturbances lead to adjustment towards a new equilibrium). Comparative advantage does not provide an explanation of further growth after this point. Thus, it is essentially a static perspective, not a dynamic one. Furthermore, it does not directly account for growth in purely domestic industries that neither export nor import, and it is questionable whether and to what extent it can account for growth spillovers from the export sector to the domestic sector.<sup>2</sup>

### **From zero-sum to positive-sum: dynamic effects of trade**

In a dynamic perspective, when fully and efficiently using comparative advantage, for permanent growth that includes the domestic sector to occur, enhancing comparative or even absolute advantage becomes the critical issue. This boils down to continually upgrading the competitiveness of the LDC economy's enterprises and their respective industries, as Porter (1990; 1998) argues.

Pure export and import figures might not be the all-important facts to judge the conditions for upgrading competitiveness. What exactly is being imported might prove to be much more important. In a certain sense, this is the opposite perspective from export-base theories. In these, the central feature is the part of revenue that remains in the domestic economy, while imports are considered as the price of exporting, but essentially a waste in regard to their effects on living-standard growth in the LDC's economy.

In the dynamic perspective developed here, in contrast, imports can act as a vehicle for upgrading the LDC's economy (both the exporting and domestic sectors) and thus to further living-standard growth. Export revenue generates foreign exchange that can be used, for example, for imports of capital-intensive goods that hitherto could not be produced in the LDC itself, e.g. due to a lack of capital or know-how. Considering the tacit knowledge embodied in them, importing machinery can lead to technology transfer. Apart from imports, the LDC's economy can also gain external know-how if its trans-national corporations (or sovereign wealth funds) use foreign exchange generated by the export sector to invest abroad in foreign enterprises and to attract foreign direct investment by them. This is an avenue that Gulf states like Abu Dhabi are pursuing (Abdelal, Khan and Khanna 2008: 125-126; Hermann 2009; Benner 2011a). Another possibility to achieve technology transfer is

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2 Similarly, a model of heterogeneous enterprises with varying productivity levels might lead to higher productivity through selection and hence to welfare gains (e.g. Melitz 2008). Similar to the comparative advantage model, in such a model the export sector might increase up to a certain point. However, as in the comparative advantage paradigm, here too it is questionable whether any growth spillovers into the domestic sector occur.

attracting human capital from abroad (e.g. by promoting immigration of qualified workers), or by acquiring licences of intellectual property held by foreign innovators.

Basically, this argument means that exports do not only contribute to growth in the export sector alone, but can induce growth effects in the economy as a whole by enabling a more productive use of its resources, either through more capital-intensive equipment imported from abroad, or through various means of technology transfer.

Note that this mechanism does not necessarily presuppose a balance-of-trade surplus. Admittedly, the use of foreign exchange reserves that are to be invested in foreign companies does, at least in the short term. But using imports as a means of acquiring productivity-enhancing equipment and know-how does work even if export revenues equal import expenses. In the end, it seems to be important that something is being exported and that exporting industries are competitive in global markets and stay so, but not that in the end more is being exported than being imported.

In this perspective, export-led growth is not a zero-sum game. Rather, it reveals its positive-sum character. In theory, every economy can export some goods and services and import others, and use both exports and imports for upgrading and thus for productivity growth. Then, it is not a matter of surpluses and resulting imbalances, but rather of specialization. This zero-sum game works if and when every economy finds niches in which it is or can become competitive and stay so.

Being competitive is a matter of static efficiency that might, for example, be based on the resource endowment of an economy. Following the line of reasoning proposed by Porter (1990; 1998), becoming and/or staying competitive, in contrast, depends on dynamic efficiency and depends on developing new or upgrading existing competitive advantages through creativity and innovativeness. Continually upgrading industries' competitiveness can be induced through competitive pressure. While this can work on a domestic scale, international competitive pressure can contribute to a permanent innovative improvement process, too. Especially if the most competitive players in an industry are foreign companies, export-led growth can strengthen the prospects for upgrading an exporting industry's competitiveness through competitive pressure in highly competitive global markets. In this way it can create absolute advantage that can secure the position of exporting industries of the respective economy in its niches and thus the economy's export revenues. These in turn enable imports and technology transfer that may improve the whole economy's productivity (Porter 1990; 1998).

Finally, export opens possibilities of doing business with sophisticated customers in highly developed global markets. This might lead to learning through interacting (Lundvall 1988; 1992).

### **Growing into competitiveness: economies of scale**

Another explanation for achieving rising living standards with exports but without balance-of-trade surpluses is based on economies of scale. Following the new trade theory developed, for instance, by Krugman (1979; 1981), economies of scale leading to increasing returns to scale can be used when an economy specializes in certain goods and services (Schätzl 2003: 209). Exporting them in return for imports of goods and services other economies have specialized in (and in which they enjoy economies of scale themselves), can increase living standards in both economies.

Essentially, this is a dynamic perspective of classical absolute- or comparative-advantage gains from trade. For example, increasing returns to scale may be present because of indivisibilities in the production process. In this case, growth might just occur until all production technology is being efficiently used. Alternatively, increasing returns might appear when knowledge is being created and used. Thus, Porter's upgrading argument comes into play again, either in view of a cost-leadership strategy or a differentiation strategy (Porter 1980). If specialization enables specialized learning, returns might even increase continually. In any case, enhancing efficiency by using increasing returns through specialization can increase export revenue and thus the possibilities to transfer knowledge. At this point, the mechanisms discussed above come into play again.<sup>3</sup>

### **Importing confidence: a prisoner's dilemma approach**

Can export-led growth lead to a sustainable growth path in living standards in all sectors of the economy even if the above-mentioned dynamic effects do not occur? That is in particular if no productivity-enhancing capital-intensive machinery is being imported in turn, if technology transfer is absent, and if the exporting industries do not to a considerable degree experience specialized learning effects or substantially increasing returns to scale due to other causes.

An example that comes close to having these characteristics might be the garment industry (e.g.

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<sup>3</sup> This line of reasoning does not only apply to intra-industry trade, which Krugman (1979; 1981) mainly tries to explain, but also (and in the present context maybe even more so) to inter-industry trade.

Dicken 2007: 249-277) that can be seen as the first world-market oriented industry to be typically targeted in a strategy of export-led growth. In the “flying geese” pattern (e.g. Widodo 2008), they would be the industry picked up by late-starter economies, and the one abandoned by the ones already in an advanced position. Sure, following Ricardo's argument of comparative advantage and drawing on the Heckscher-Ohlin theorem (e.g. Bathelt und Glückler 2003: 68-69; Schätzl 2003: 125-134), for LDCs with abundant labour supply, it makes sense to specialise in this labour-intensive industry and to export garments in return for other goods which they import from economies that enjoy comparative advantages in these other industries. This may include capital-intensive goods, but does it include imports of capital-intensive goods that enhance productivity in other sectors of the LDC's economy? Maybe it does, which leads back to the growth pattern described above. If, however, it does not, where could growth in other sectors of the economy come from?

A growing exporting garment industry could be a goal in itself because it creates employment opportunities. But absent balance-of-trade surpluses, if its growth does not spill over to other sectors of the economy, it will not lead to a general take-off of the whole economy. Apart from multiplier effects as described by export-base theories, the effects of the garment industry's growth are then limited to the industry itself. If it is concentrated spatially, like in export-processing zones, it might be limited regionally, too. But even if its growth does not spill over to other sectors of the economy, the industry's growth might still lead to overall growth of the aggregate economy if its absolute size in revenues and (considering its high labour intensity) employment grow.

But can the garment industry in an LDC really continue growing in the long term? If all comparative advantage is being efficiently used and there are no substantially increasing returns, further high growth rates of the export-oriented garment industry in an LDC's economy might be achievable by lowering prices, which might offset the increase in output quantity. Certainly it does not provide for an improvement in living standards for staff employed in the industry. Considering low pay levels of workers in this industry, this does not prove a convincing growth prospect.

Sustainable growth in living standards presupposes a path that creates more employment with at least equally or even higher-paid jobs. This is only possible through increasing productivity. Yet, substantial learning effects are not characteristic for the garment industry. So (assuming other factors described above are absent) using the garment industry as a point of entry into a sustainable path of export-led growth is constrained by two barriers. If living standards (and thus, wages) do not

rise, the garment industry might provide stable levels of employment, or even some growth, that does not, however, provide sufficient spillovers to the rest of the economy to help it take off as a whole. Or, if living standards do rise, the garment industry might move on to other economies with lower wages, according to the “flying geese” pattern. With no growth spillovers to the rest of the economy, in this case the LDC might lose just about everything it gained so far.

But is it also possible that nations successfully use the garment industry as a point of entry for a strategy of export-led growth and enjoy growth impulses in other sectors, even if the mechanisms for growth spillovers mentioned above are not evident?

In theory, the domestic economy could suddenly start to grow any time (provided, of course, an institutional environment that does not impede growth, including, for instance, the rule of law, political or macroeconomic stability, and clearly-defined property rights). All that is needed for this to occur is entrepreneurs who perceive a business opportunity and start new ventures and investors who put in their capital. Even if there were no substantial amount of capital held by domestic investors, monetary policy would provide capital in the first place. Employment would be created and lead to demand that would ensure that investors (who are in the end refinanced by the central bank) who provide capital for the entrepreneurs receive their return. This, in a nutshell, is the rationale of Say's law stipulating that supply creates its own demand (on aggregate, that is). Schumpeter's (1976) entrepreneur is the one who kicks off this process (Bathelt und Glückler 2003: 202-203).

The problem is that in order to occur, this wondrous process needs confidence in the economy's potential to grow sustainably and substantially. If every (or at least many) entrepreneurs chose to start their business at the same time because they share this confidence, the wheels can be set in motion. But if confidence is not widespread enough to induce a number of entrepreneurs large enough to indirectly create demand, the sparks of growth might vanish soon.

The business opportunity an individual entrepreneur perceives might be used by competing better in an existing market, expanding an existing market, or building a new market. All of this will be more likely to succeed in fast-growing economies, but absent high growth it poses high risks to first-mover entrepreneurs. If there are too few of them to achieve systemic growth, there is a high danger for them to end up going bankrupt. This risk would diminish considerably for most of them if a higher number of entrepreneurs would move simultaneously, thereby creating growth in an

extensive part of the economy (even without any exports).

In the end, this comes down to a case of coordination failure similar to the well-known prisoner's dilemma as explained by game theory.<sup>4</sup> If most entrepreneurs moved, it would be most beneficial for them and the economy as a whole by inducing a self-supporting growth process. But if each of them is not sure whether the other ones will move and does not want to be among the few ones who try, almost no one will, and growth will not set in.

However, compared to the conventional prisoner's dilemma situation, this dilemma is a very complex kind of coordination failure. It comprises not two but many actors, that is, potentially tens of thousands of entrepreneurs or even far more. The dilemma cannot be broken by one single entrepreneur who acts first. Rather, in order to overcome the dilemma, a sizeable group of entrepreneurs would need to move simultaneously. Government might try to find ways to induce them to do so, but whether such a government intervention can generate sufficient confidence not just to effectively induce this group to invest, but also to induce other sizeable groups to follow suit is rather questionable. It might just work, but if it does not – that is, if government does not succeed to break the widespread lack of confidence in the economy's ability to grow – exports might be one of the few ways out – or maybe even the only one.

Succeeding in exports might be less risky for potential entrepreneurs than building a domestic market in a low-growth economy because international markets already exist. By competing in these existing international markets, exporting entrepreneurs might inject a sufficient level of confidence for other entrepreneurs to seize business opportunities in the domestic economy. Even if all export revenue is offset by imports and no balance-of-trade surpluses emerge, this confidence spillovers might help overcome the prisoner's dilemma.

Tourism is an exporting industry that is in some ways comparable to garments. Like the garment industry, it is highly labour-intensive and substantial productivity gains due to specialized learning are rare. In addition to garments and similar industries like leather or shoes, tourism could be used as a starter industry in the initial stages of a strategy of export-led growth if confidence spillovers are to be achieved (or if foreign exchange is required to pay for necessary imports). For an LDC with regions that can be developed into tourism destinations, it might be worth considering a dual approach that rests on tourism in these regions and other exporting industries in others. Thus, the

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4 For a similar argument in a stabilization-policy perspective, cf. Wagner (2008: 78-81).

uneven spatial distribution of growth that tourism tends to provoke could be offset. Growth effects including confidence spillovers (assuming they might be – at least to a certain extent – spatially bounded within the LDC) could be spread more equally throughout the country (Benner 2011b).

### **Towards sustainable export-led growth**

In the short term, surpluses might even contribute to export proceeds being spent in the domestic economy. This might further enhance growth, as argued by export-base theories. This is true for all of the mechanisms of export-led growth described above. However, this might lead the currency to appreciate and thus endanger the sales prospects of the exporting sector. Consequently, unless an economy's export sector competes with high-quality products with highly price-inelastic demand, a policy aiming at surpluses should be used with caution. Additionally, it is only a short-term option, as surpluses are not sustainable in the long term – although trade history shows that they can in certain instances be kept over many years, thus allowing for much leeway in defining the “short term”.

In sum, there are various ways in which export-led growth can lead to the take-off of an LDC economy. Maintaining balance-of-trade surpluses is not a necessary requirement. If export-led growth is to be used as a part of development policy for a wide number of LDCs, running surpluses is not an option, considering their zero-sum character. In view of existing or potential macroeconomic imbalances on the global level, it does not qualify as a sustainable strategy either. Thus, the possibility of pursuing a strategy of export-led growth without necessarily having to capitalize on the zero-sum game of balance-of-trade surpluses in the long term is good news that should be further elaborated in future research.

## References

- Abdelal, R., Khan, A., Khanna, T. (2008): Where Oil-Rich Nations Are Placing Their Bets: Gulf countries are investing staggering sums in reshaping the world's financial systems and industries – and themselves. In: Harvard Business Review 86 (9): 119-128.
- Bathelt, H., Glückler, J. (2003): Wirtschaftsgeographie: Ökonomische Beziehungen in räumlicher Perspektive (Economic geography: Economic Relations in Spatial Perspective). 2<sup>nd</sup> edition. Stuttgart: Ulmer.
- Benner, M. (2010): Exportinduziertes Wachstum als Chance für die „nächsten Tiger“? (Export-led growth as a chance for the “next tigers”?). Working Paper, [http://www.maximilian-benner.de/100611\\_paper\\_exportinduziertes\\_wachstum.pdf](http://www.maximilian-benner.de/100611_paper_exportinduziertes_wachstum.pdf) (01.05.2011).
- Benner, M. (2011a): Abu Dhabi und Dubai: Wirtschaftliche Entwicklung wie aus 1001 Nacht? (Abu Dhabi and Dubai: Economic development like in Arabian Nights?). Working Paper, [http://www.maximilian-benner.de/110326\\_paper\\_entwicklungsstrategie\\_emirate.pdf](http://www.maximilian-benner.de/110326_paper_entwicklungsstrategie_emirate.pdf) (29.05.2011).
- Benner, M. (2011b): Tourismuspolitik in Marokko: ein großer Wurf für wirtschaftliche Entwicklung? (Tourism policy in Morocco: a great effort for economic development?). Working Paper, [http://www.maximilian-benner.de/110506\\_paper\\_tourismuspolitik\\_marokko.pdf](http://www.maximilian-benner.de/110506_paper_tourismuspolitik_marokko.pdf) (29.05.2011).
- Chang, H.-J. (2001): Rethinking East Asian Industrial Policy – Past Records and Future Prospects. In: Wong, P.-K., Ng, C.-Y. (eds): Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs. Singapore: Singapore University Press: 55-84.
- Chen, T.-J., Chen, B.-L., Chu, Y.-P. (2001): The Development of Taiwan's Electronics Industry. In: Wong, P.-K., Ng, C.-Y. (eds): Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs. Singapore: Singapore University Press: 245-282.
- Chiu: W. K., Lui, T.-L. (2001): The Hong Kong Model of Development Revisited. In: Wong, P.-K., Ng, C.-Y. (eds): Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs. Singapore: Singapore University Press: 431-459.
- Chu, Y.-P., Chen, T.-J., Chen, B.-L. (2001): Rethinking the Development Paradigm: Lessons from Taiwan – The Optimal Degree of State Intervention. In: Wong, P.-K., Ng, C.-Y. (eds): Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs. Singapore: Singapore University Press: 197-244.
- Dicken, P. (2007): Global Shift: Mapping the Changing Contours of the World Economy. London, Thousand Oaks, New Delhi: Sage.
- Hermann, R. (2009): Einstieg bei Daimler: Die ehrgeizigen Anlagestrategen aus Abu Dhabi (Investment in Daimler: The ambitious investment strategists from Abu Dhabi), <http://www.faz.net/s/RubD16E1F55D21144C4AE3F9DDF52B6E1D9/Doc~EE7485A007350412C81A0B5F169E7690E~ATpl~Ecommon~Scontent.html> (29.05.2011).
- Hirono, R. (2001): Economic Growth and Restructuring in Post-war Japan – Contributions of

- Industrial and Technological Policies. In: Wong, P.-K., Ng, C.-Y. (eds): *Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs*. Singapore: Singapore University Press: 85-172.
- Kang, H. (2001): *The Development Experience of South Korea – The Role of Public Policy*. In: Wong, P.-K., Ng, C.-Y. (eds): *Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs*. Singapore: Singapore University Press: 323-396.
- Krugman, P. R. (1979): Increasing returns, monopolistic competition, and international trade. In: *Journal of International Economics* 9 (4): 469-479.
- Krugman, P. R. (1981): Intraindustry Specialization and the Gains from Trade. In: *Journal of Political Economy* 89 (5): 959-973.
- Krugman, P. R. (1996): Making sense of the competitiveness debate. In: *Oxford Review of Economic Policy* 12 (3): 17-25.
- Kulke, E. (2008): *Wirtschaftsgeographie (Economic geography)*. 3<sup>rd</sup> edition. Paderborn, Munich, Vienna, Zürich: Schöningh.
- Lundvall, B.-Å. (1988): Innovation as an interactive process: from user-producer interaction to the national system of innovation. In: Dosi, G., Freeman, C., Silverberg, G., Soete, L. (eds): *Technical Change and Economic Theory*. London: Pinter: 349-369.
- Lundvall, B.-Å. (1992): User-producer relationships, national systems of innovation and internationalisation. In: Lundvall, B.-Å. (eds): *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter: 45-67.
- Melitz, M. (2008): International Trade and Heterogeneous Firms. In: Durlauf, S., Blume, L. (eds): *New Palgrave Dictionary of Economics*. 2<sup>nd</sup> Edition. Basingstoke and New York: Palgrave Macmillan, <http://www.economics.harvard.edu/faculty/melitz/files/palgrave.pdf> (07.12.2011).
- Porter, M. E. (1980): *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. Reprint 1998. New York: Free Press.
- Porter, M. E. (1990): *The Competitive Advantage of Nations*. Reprint 1998. New York: Free Press.
- Porter, M. E. (1998): *The Competitive Advantage of Nations*. In: Porter, M. E. (ed): *On Competition*. Boston: Harvard Business School Press: 155-195.
- Schätzl, L. (2003): *Wirtschaftsgeographie 1: Theorie (Economic geography 1: Theory)*. 9<sup>th</sup> edition. Paderborn, München, Wien, Zürich: Schöningh.
- Scholz, F. (2004): *Geographische Entwicklungsforschung: Methoden und Theorien (Development Geography: Methods and Theories)*. Stuttgart: Gebrüder Bornträger Verlagsbuchhandlung.
- Schumpeter, J. A. (1976): *Capitalism, Socialism, and Democracy*. Reprint of the 5<sup>th</sup> edition. London: Allen & Unwin.
- Stiglitz, J. E. (2007): *Making Globalization Work*. London: Penguin.

- Wagner, H. (2008): *Stabilitätspolitik: Theoretische Grundlagen und institutionelle Alternativen* (Stabilization policy: theoretical basics and institutional alternatives). 8<sup>th</sup> edition. München: Oldenbourg.
- Widodo, T. (2008): Dynamic changes in comparative advantage: Japan “flying geese” model and its implications for China. In: *Journal of Chinese Economic and Foreign Trade Studies* 1 (3): 200-213.
- Wong, P.-K. (2001): The Role of the State in Singapore's Industrial Development. In: Wong, P.-K., Ng, C.-Y. (eds): *Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs*. Singapore: Singapore University Press: 503-579.
- Wong, P.-K., Ng, C.-Y. (2001): Rethinking the Development Paradigm: Lessons from Japan and the Four Asian NIEs. In: Wong, P.-K., Ng, C.-Y. (eds): *Industrial Policy, Innovation and Economic Growth: The Experience of Japan and the Asian NIEs*. Singapore: Singapore University Press: 1-54.

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