Making a miracle?
A literature review on the economic determinants that shaped East Asia in the 20th century

Beatriz Salvan Gietner Behr

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1 Introduction

In the literature, the scenario in which the four newly-industrialising countries (NICs) – or newly industrialized economies (NIEs) – of South Korea, Taiwan, Singapore, Hong Kong, and Japan experienced unmatched levels of economic growth is known as the East Asian miracle[1]. The first time the expression was used to refer to a broad "Miracle" in East Asia was, at least in the West, in the article "Explaining the East Asian "Miracle"" by McCord, published in 1989. From there, the World Bank published the controverse report "East Asian miracle: Economic growth and public policy" in 1993, which was followed by Krugman's critique on Foreign Affairs entitled "The myth of Asia's miracle"[2] and Kwon's rebuttal "The East Asia challenge to neoclassical orthodoxy"[3], both published in 1994.

Before the 1990s decade, many works were published with the intention of explaining NICs' economic growth (Balassa, 1988; Chu, 1989; Deyo, 1987; Haggard, 1989; Rannis, 1989; White, 1988; White and Wade, 1989), but the literature increased considerably after 1990. In this literature review I will focus on the explanations for the East Asia Miracle presented in the following articles:

- Entrepreneurial state: The Schumpeterian theory of industrial policy and the East Asian "Miracle" (Ebner, 2009);
- Financial markets, public policy, and the East Asian Miracle (Stiglitz and Uy, 1996);
- Explaining the East Asia Miracle: The role of urbanization (Zhang et al., 2019);
- The tyranny of numbers: Confronting the statistical realities of the East Asian growth experience (Young, 1995).

2 Making a miracle

Within the subject of economic growth theory, we can highlight two important approaches that have been on the forefront of much of the existing discussion on economic growth: the neoclassical growth theory and the endogenous growth theory. The former was constructed

[1] This expression was used in the context of the "Miracle on the Han", introduced by South Korea's Prime Minister, Chang Myon, as part of his New Year address in 1961 in which he asked his fellow South Koreans to bear the discomfort that came with change and be optimistic of economic growth. It alluded to the phrase "Miracle on the Rhine," coined in reference to the dramatic economic resurgence of West Germany soon after World-War II.

[2] Krugman argued that the high growth rates in per capita income experienced by East Asian countries was simply the result of Soviet-style high levels of investment.

[3] Kwon argued that, contrary to the World Bank reported, industrial policies used in East Asian economies have been effective, non-neoclassical tools for economic development with government complementing market factors by creating an environment conducive for economic growth.

firstly by Solow and Swan on the basis that physical capital accumulation is an essential driver of economic growth in the short run, while a key determinant of economic growth in the long run is the technological advancement (Solow, 1956; Swan, 1956). It was later included, by Mankiw, Romer, and Weil, the human-capital factor as to supplement physical capital accumulation (Mankiw, Romer, and Weil, 1992). In terms of endogenous growth theory, its major contribution was a model which is based on the inclusion of productivity factors (e.g., learning by doing, RD) (Aghion et al., 1998; Lucas, 1988, Romer, 1994), and a long-run economic growth at a rate determined by forces that are internal to the economic system, particularly those forces governing the opportunities and incentives to create technological knowledge.

The two main focus of both theories have been on the importance of state factors such as human capital development and the accumulation of physical capital (Lucas 1988; Romer, 1986; Solow, 1956). There have also been other important contributions to economic growth literature that focus either on the impact of efficiency factors on economic growth (Barro, 1990; Easterly and Wetzel, 1989) or on the importance of fundamental sources of economic growth, i.e., institutions, legal, demographic, geographic, socioeconomic, and political factors (Barro 1999; Sachs and Warner, 1997).

It is pretty much a consensus that both state factors (human capital stock and physical capital accumulation) and productivity factors (technological growth) are crucial determinants of economic growth. In the context of the five East Asian countries during the almost four decades that followed the end of World-War II, they have experienced a rapid, sustained growth. This in itself is unusual among developing economies; others have grown quickly for periods but not for decades at such high rates. These economies were also characterized by rapid demographic transitions, strong and dynamic agricultural sectors, and unusually rapid export growth (Page, 1994), which can help to explain why the idea that countries, or economies, far away from the productivity frontier should grow faster, and this growth would tend to slow down with time, cannot be fully applied in the context of East Asia. In the five countries we are considering, we have to account for other factors besides productivity levels if we aim to explain their levels of economic development.

These five countries are also unique in the context of having enjoyed much higher per capita income growth while income distribution has been more equal than in other developing economies. In the second half of the twentieth century, East Asian countries have experienced improvements in income and general well-being that were never seen before in human history (Chang, 2006). People in East Asia have seen their per-capita GDP grow by an average of 4.5% annually since 1960, which makes them about nine times as prosperous as two generations ago (Hanushek and Woessmann, 2016). When we compare them to the average person in Latin America, who is only about two and a half times as prosperous, we can infer that their development was, and remains to this day, unique.

Not only in terms of economic and social development per se these economies became a puzzle, but also the processes and frameworks that have allowed their progress to diverge from what many people, including many Easy Asian themselves, once regarded as the "best practice" (Chang, 2006). Going against the Washington Consensus policies of inflation-focused macroeconomic policy, liberalised international trade and investment, deregulation and privatization, all economies except Hong Kong employed interventionist trade and industrial policies (often through a large public-enterprise sector), a strict control on FDI (apart from Japan) and on luxury consumption, a productivity-oriented (as opposed to allocation-oriented) view of competition, and especially an integrated pursuit of infant industry protection and export promotion (Chang, 2006). In summary, as Page points out, the sustained growth of the NICs and Japan for more than thirty years was combination of several factors: favourable public policies that fostered macroeconomic stability (particularly low inflation and small fiscal deficits) and exports growth, institutions that were responsible for creating a business-friendly environment, accumulation of both human and physical capital, efficient allocation of resources and flexible labour markets, openness to foreign technology and the promotion of specific industries (Page, 1994).

2.1 Entrepreneurship and Innovation (Ebner, 2009)

In the economies we are considering, in one form or another, the government intervened - systematically and through multiple channels - to foster development. According to Ebner, Schumpeter's original position on the historical specificity of entrepreneurship involves the temporary exercise of industrial leadership by the state, and he maintains that the state may exercise this entrepreneurial function in two ways: first-order entrepreneurship, which involves the enforcing of rules that promote innovation activities of the private sector, and second-order entrepreneurship, which reflects selective policy interventions and the promotion of innovation in public enterprises (Ebner, 2009). In this setting, the state needs to be perceived as an institutional terrain for the bargaining procedures among political-economic groups and factions, which pursues conflicting strategic interests. The state is then considered a developmental state, and acts as a mediator, a facilitator, and also as a driver for industrialization through entrepreneurship and other means.

Ebner argues that the regulatory function of states in Western economies, which pioneered the historical advent of industrialization, would actually focus on rules governing the economic process, whereas states in late industrializing economies such as Japan would exhibit a developmental function in leading the national drive for industrialization (Ebner, 2009). And industrialization was at the core of East Asian development after the end of the War (and at Japan's core even before). We can divide the countries into two distinct groups: the investment-driven economy of Singapore and the productivity-driven economies of Japan, South Korea, Hong Kong, and Taiwan.

South Korea's economy was back then based primarily on agriculture, and in the 1960s, the young nation began the redistribution of land previously held by the Imperial Japanese government and, with the help of the U.S. military, the government started to privatize properties. After the Korea War, policymakers set upon stimulating economic growth by promoting indigenous industrial firms, which did not quite work out. Starting with the Third Republic in 1961, General Park Chung Hee shifted to a strategy of stimulating growth through export promotion, while maintaining the previously adopted import-substitution industrialization. Policymakers provided various types of favours — low interest loans being the most important — to exporting firms according to their export performance.

Hong Kong's industrialization accelerated after 1945 with the inflow of refugees, entrepreneurs and capital fleeing the civil war on the mainland. Immigrants from Shanghai created the cotton spinning industry in the colony, which cemented Hong Kong's industry in the textile sector, before gradually diversifying into electronics, clothing, plastics, and other labour-intensive production mainly for export.

In 1961 Singapore's Economic Development Board (EDB) was created to lead Singapore's industrialization. It has addressed the industrialization of Singapore as a means to an end, not the end itself. In the 1960s and the 1970s Singapore attracted labour intensive industries and provided ready-built standard factories to facilitate speedy set-up for the companies (Mondeja, 2017). The key elements of this stage of industrialization were to eradicate unemployment and attract foreign investment. Singapore's industrialization was achieved in great measure by attracting massive flows of foreign investment, and the competition for foreign investment in the region has also been fierce (Mondeja, 2017). According to Ebner, Singapore represents a paradigmatic case of an evolving entrepreneurial state due to multinational enterprises having had repeatedly introduced technological and organizational novelty into the local system, at the same time that government linked companies and government boards have been actively promoting innovation-driven economic change (Ebner, 2009).

Similar to South Korea, Taiwan, which was also under Japanese rule for a long period of time, started its industrialization first with land reform. Taiwan had a base for agricultural productive capacity before the war, and it was resumed without difficulty in the post-war era. Japan transferred back to the Taiwanese government the management of key enterprises accounting for 90% of the total capital of Taiwan's enterprises, therefore now-public enterprises would then bear the burden of industrialization from the start. The subsequent process of industrialization took the form of private enterprises catching up with and surpassing public

enterprises (Liu, 1969).

As Ebner highlights, the restructuring of government and administration lies at the heart of Japan's reorientation towards a more open, competitive, and entrepreneurial setting that includes a refurbished mode of governing state-society synergies (Ebner, 2009). Japan, which was once referred as the "Prussia of the East", is the country that resembles the West industrialization-path the most – it was already considered fairly industrialized by the beginning of the twentieth century. Japan, especially during the Meiji Restoration, had a centrally organized and efficient government that received vast amounts of support from foreign powers which helped its determined and efficient workforce in creating an advanced and productive industrial economy. After the war, domestic investment in industry and infrastructure was the driving force behind growth in Japanese output, with both private and public sectors investing in infrastructure, while national and local governments served as coordinating agents for infrastructure rebuild-up.

But, as Ebner writes, the role of government was limited, and it went up until a certain point - it is not supposed to be static and immutable. The process of state-guided adaptive technological learning in late industrialization may face stagnation as soon as the technology frontier is approached (Ebner, 2009). When this is about to happen, or ever sooner, the formation of local innovation capabilities becomes crucial, and the rationale of industrial policy shifts emphasis from resource mobilization to the building of innovation infrastructures. Economic development is fundamentally a process of establishing relation-based governance and subsequently making a transition to rule-based governance (Li, 2003). The transitory character of the developmental state thus reflects its relative economic success in moving firms and industries towards the technological frontier (Ebner, 2009).

It is safe to say that all countries aforementioned realized the approaching of the finish line and acted in ways to dimmish the damage it would bring. Today, they rank within the first 30 largest economies in terms of GDP per capita[4], according to the IMF (2021). For a complementary study, see Lau and Park (2003).

2.2 Financial markets (Stiglitz and Uy, 1996)

Another example of interventionism being a key driver in the East Asian miracle – and sometimes also a barrier to it – can be found in public policies affecting financial markets. In an article published at the blink of the Asian financial crisis of 1997, Stiglitz and Uy write that East Asian governments in overall have intervened intensively in the operations of their financial systems: they have helped create financial markets and institutions, regulated them heavily, and directed credit to some industries and away from others. These actions were aimed at fostering savings and at affecting the allocation of investments (Stiglitz and Uy, 1996). By having high national saving rates, achieved largely by voluntary actions, they were able to invest their savings in ways that yielded high returns. Government interventions in the financial market that promoted savings and the efficient allocation of capital were central to these successes.

Government interventions were put in place with the goal of making financial markets and institutions work better. When they do work well, marginal returns are equated in all sectors and firms. Without this type of inter-mediation, firms would have to rely solely on retained earnings for their investments. By spreading and pooling risks more broadly, capital markets lower risk premiums, so firms can undertake investments with greater risks and higher expected returns. But if the marginal private returns from investment are equated in all sectors and firms, capital may not be allocated efficiently if there are systematic deviations between private and social returns. Here enters the second objective of government intervention in financial markets: to correct any resulting misallocation of resources.

Stiglitz and Uy point to five crucial government interventions: promoting savings (the postal saving systems in Japan, Singapore, and Taiwan were the most important of the in-

[4]Singapore in second place, Hong Kong in eightieth, Taiwan in twentieth, South Korea in twenty-fifth, Japan in twenty-seventh.

stitutions governments created to promote savings), regulating banks to fortify their solvency (private monitoring is not sufficient prevent a financial crisis), creating financial institutions and markets (banks offering long-term credit have been among the most common government-created financial institutions), enforcing financial restraint (which enhances the ability of firms to increase their equity, and hence their level of investment and their ability and willingness to take prudent risks), and intervening directly in the allocation of credit (the government directs credit by investing in public enterprises, using its development banks to lend to priority areas – in order to signal to other financial institutions what these areas are -, and compelling commercial banks to lend to designated activities).

The authors conclude by pointing out to what is remarkable regarding East Asian governments: they undertook actions (such as prudential regulation) similar to those taken by more industrial countries, and that they did so at an earlier stage of development. Something exceptional about these regulatory initiatives is that they succeeded without the abuses that often follow them elsewhere. East Asian governments sought not to replace markets and market forces, but to use and direct them. Government lending programs simply complemented private lending: they did not replace or displace it.

Many of the specific institutions, programs, and practices that contributed to East Asia's success can be replicated elsewhere with the goal of achieving similar results. But the main concern when implementing such practices is to give too much power to the state: activist policies often entail giving governments discretionary capacity that can be easily abused, which can contribute to the failure of these same policies. Several East Asian institutions were imbued with the tools to reduce their own vulnerability, and these arrangements can and should be pursued in other places.

2.3 Urbanization (Zhang et al., 2019)

Zhang et al.'s study focuses on developing a model to explain the East Asian miracle by bringing in urbanization (or structural transformation), which generates demand for capital and helps moderate the K/L ratio, so the law is postponed until urbanization is approaching the end, when diminishing returns set in. Because urbanization provides opportunities for investment and helps moderate the K/L ratio - as it means a transfer of labour to the urban sector where most investment occurs – it can help explain why Japan and the East Asian NICs had a prolonged high rate of investment which has been accompanied by high returns to capital. Urbanization, here, is hypothesized to be one such force that could drive the growth of TFP by allowing knowledge accumulation through "learning by doing". Their two-sector model is verified by empirical evidence from China, where rapid urbanization made it possible to empirically identify and estimate the relationship between regional capital returns, capital deepening and urbanization (Zhang et al., 2019).

The authors' two-sector general equilibrium model shows that, in the presence of urbanization, as long as the "learning by doing" effect is sufficiently large, capital return will depict an inverse U-shape. Thus, the prevailing practice of most developing countries to slow down urbanization should be avoided if one wants to increase structural transformation and industrial upgrading. They also write that their theoretical framework can be extended to incorporate human capital accumulation of migrants, which is expected to reinforce their results.

2.4 Factor accumulation (Young, 1995)

In this paper Young attempts to explain the high levels of productivity growth, particularly in manufacturing sectors, in the four East Asian NICs. He ends up finding opposite results to those he expected to find: while the growth of output and manufacturing exports in the newly industrializing economies of East Asia was virtually unprecedented, the growth of TFP in these economies was not. From 1960 to 1995 productivity growth in the aggregate non-agricultural economy of the NICs ranges from a low of -0.3% in Singapore to a high of 2.3% in Hong Kong, whereas in manufacturing productivity growth ranges from a low of -1.0 % in Singapore to a high of 2.9% in South Korea. According to him, neo-classical growth theory's emphasis on level

changes in income and its well-articulated quantitative framework can explain most, if not all, of the difference between the performance of the NICs and that of other post-war economies (Young, 1995).

Young argues, with data, that although the growth of manufacturing output has been unusually rapid in the NICs economies, so has the growth of manufacturing employment. Therefore, once we account for the transfer of labour into manufacturing, we can see that manufacturing in both Singapore and Taiwan actually under-performed the aggregate economy, for example. Human capital accumulation in the East Asian NICs has been quite rapid: from 1960 to 1995, the proportion of the working population with a secondary education or more doubled in Hong Kong and Taiwan, tripled in Korea and quadrupled in Singapore. By 1990-1991, between 18 and 20% of the working population in each economy had some tertiary education, and the improvement of educational attainment of the workforce contributed to about 1% per annum additional growth in labour input in each of these economies.

Regarding the -0.3% productivity growth for Singapore, Young's rationale is that, although the late 1960s appear to have been a period of rapid productivity growth, these gains were partially lost during the 1970s and 1980s. With weighted capital input growing an average of 3.0% p.a. faster than output, and output per unit of effective labour input growing only 2.8% p.a., the TFP residual for the aggregate economy averaged -0.3% p.a. over a twenty-four-year period, which was virtually an unprecedented record of productivity regress. He also finds that the changing role of physical and human capital accumulation in sustaining growth was reflected in the decline in the growth of output per effective worker, which went from 9.2% in the late 1960s, to 2.7% in the 1970s, to 0.2% in the 1980s.

Hong Kong sustained a TFP growth rates of 2% or more in each of the five-year periods, averaging 2.3% over the 1966-1991 period as a whole. As for South Korea, productivity growth in its economy appears to have improved over time, with the average 2.5% growth of the 1980s well above the .8% and 1% growth experienced during the 1960s and 1970s, respectively, with manufacturing having had the highest average level of productivity growth (with averages of 2% to 3% per decade). Taiwan had an average rate of productivity growth comparable to that of Hong Kong, but its sectoral productivity growth had a different pattern from South Korea's.

Young points out that despite his study producing results which were smaller than the ones produced by other authors, there is soundness in the others' reasoning. Even so, one must not let himself be taken away by a discourse that paints incredibly high productivity growth levels, especially in their manufacturing sectors, in the NICs considered. His results suggest that such premise is largely incorrect. In a paper published in 1996 by Collins and Bosworth, they reach similar conclusions to Young's: much of the East Asian growth occurred after 1973, when TFP gains were smaller throughout the industrial economies. But given the magnitude of the technology gap, it is difficult to see why developments at the frontier were of relevance to East Asia (Collins and Bosworth, 1996). They argue that to varying degrees, the East Asian economies followed Japan in pursuing a development strategy that involved sequenced promotion of low, middle, and high technology industries, but, unlike Japan in the 1960s, their increases in TFP have been modest. As the East Asian NICs have been becoming more like Japan, and Japan has been becoming more like the non-Asian developed economies, in terms of the sources of their economic growth (Lau and Park, 2003).

It is likely that while technological progress enabled the engine of long-run growth, accumulation would be the one playing an independent role during a (perhaps prolonged) transitional phase (Collins and Bosworth, 1996). The authors remember that Krugman, among others, has suggested that East Asia's growth must slow in the future because of what he characterizes as an excessive reliance on capital formation. But this was back in the 1990s, therefore would be interesting to see a follow up research on how capital formation in the East Asian NICs and Japan evolved after the 1997 crisis.

3 Conclusion

What most economists in the West fail to see is the fact that the East Asian form of economic development had already made its debut long before the Keynesian revolution and neoclassical counter revolution, the prototype of the East Asian model can be traced all the way back to Meiji Japan (Kwon, 1994). The East Asian NICs and Japan might have draw inspiration, borrowed technology and scientific knowledge from the West, but the way in which they had initially imagined, organized, and executed their development was specific to that region, with the government playing a key role in almost every aspect of the venture, in some economies more than others (Kwon, 1994). Governments, in summary, created an environment where markets could thrive. No single policy ensured success, nor did the absence of any single ingredient ensured failure, thus the real miracle of East Asia may be political more than economic (Stiglitz, 1996).

Whether we decide to call it a miracle or not, the increases in income and reductions in poverty in East Asia were real and impressive. We might disagree at the extent to which one or more economic growth determinants were responsible for improving the lives of at least 20% of the world population, but we cannot ignore the roles they played. It is tricky to advocate for the replication of a lot of policies that were put in place in the three decades that East Asia transformed itself, nor do we have the controlled experiments that would allow us to assess what would have happened had they not been executed (Stiglitz, 1996). Japan, South Korea, Taiwan, Hong Kong, and Singapore, all faced its own individual challenges. Today we can attest that diminishing returns eventually set in - not only to capital but to investments in knowledge as well, and that comparative advantage does not last forever. There needs to be a constant desire to innovate, and to remain competitive in an ever-growing globalized world.

As argued by Kowalski and Ossella (2000), many were the economists who have tried to – unsuccessfully - determine what factors have contributed to Japan and East Asian NICs growth in an attempt to mimic it in other developing countries. Theory suggests that private markets along with increased human and physical capital can account for most of the growth in East Asia, but reality is more diverse, reminding us to also account for government intervention. Maybe the explanation lies in the middle: a market friendly policy put in place by governments, one that has been structured in the best way to encourage privatization and strong labour markets. We might never fully understand what happened in those three decades, and it is fine. We will just keep on trying.

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4 Appendix

Suggested readings

- Growth theories in light of the East Asian experience (Takashi and Kruger, 2019).
- Rethinking the East Asian Miracle (Stiglitz and Yusuf, 2001).
- Making a miracle (Lucas, 1993).
- The East Asian Miracle and Development Policy: A Twenty-Year Retrospective (Page, 2016).
- Economic Growth in East Asia: Accumulation versus Assimilation (Collins et al., 1996).
- The Total Factor Productivity Debate: Determinants of Economic Growth in East Asia (Chen, 1997).