CENTER FOR GLOBAL DEVELOPMENT

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Growth Performance of Middle-Income Countries: East Asia vs. Latin America

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Summary

The stellar performance of the four East Asian Tiger economies during the last quarter of the twentieth century is contrasted with that of middle-income countries in Southeast Asia and Latin America over the past two decades. On balance, the SE Asians have done better than Latin American ones by pursuing export led industrial strategies however, unlike the Tigers, neither group has been able to enter the ranks of high-income countries. The paper offers reasons for the shortfall in growth and briefly examines the medium-term prospects of the Asians relative to those of Latin American countries. The evidence suggests that MICs in the two regions have gravitated towards 'regional rates of growth' and that the growth thermostat responds minimally to policy actions.

Introduction

In 2019, 107 economies were classified by the World Bank as belonging to the middle-income category (MICs). Of these 60 were classified as upper middle income (UMIC).[1] Meanwhile, since 2000, the number of high-income countries (HIC) has risen from 52 to 80.[2] Excluding the small island economies such as Antigua, St. Kitts, Nauru, and the Seychelles, seven countries made the transition to the HIC category between 2010 and 2021[3] and a few UMICs are currently aspiring to become members of the high-income club. These include a number from East Asia such as China, Malaysia, and Thailand as well as others from LAC e.g., Argentina, Brazil, and Mexico.[4] Whether they succeed will depend on the efficacy of their development strategies in the face of preexisting and emerging challenges and on the global environment. Among the success stories to date, those from East Asia have acquired a special prominence because several economies from the region industrialized rapidly, have sustained high or moderate rates of growth for decades, and four managed to make the leap from a low to a high-income category in just three decades.[5]

This paper highlights aspects of East Asian growth experience of continuing relevance for middle-income countries (MICs) and draws comparisons with the performance of the Latin American MICs. Sustaining moderate rates of growth may have become harder because of headwinds generated by economic and environmental shocks however, with a dose of luck, a favorable global environment, and the avoidance of policy missteps, several MICs have the potential to scale the income ladder and attain high income status.

Tigers and cubs: Contrasting stories

The East Asian growth story can be divided into two periods: The period before the Asian Crisis of 1997–8; And the period extending from 2001 through 2019. The first period witnessed the rapid growth of both the four Tiger economies[6] and the emerging Southeast (SE) Asian tiger cubs.[7] By the end of the century, the former had crossed the high-income threshold and their growth had slowed. From the turn of the century, it is the development of the East Asian MICs—the tiger cubs and China—which is the focus of attention.

In the aftermath of the Asian Crisis growth of the SE Asian countries also slackened. And because they were expected—quite inexplicably—to replicate the high single digit performance of the Tiger economies, this gave rise to the belief that the Southeast Asians could be caught in a middle-income trap.[8] But the evidence suggests otherwise.

Between 2001 and 2019, the ASEAN tiger cubs managed to expand their domestic products by 5 percent per annum or more on average with China doing better than the rest. The Financial Crisis of 2008–9 caused growth to dip briefly with most of the countries returning to their trend rates by 2010. Recovery from the Covid pandemic shock has also been strong. Based on this evidence, it is difficult to claim that the SE Asian MICs were ever in a growth trap although they may have underperformed relative to earlier expectations and have not achieved high income status (Yusuf 2017).[9] By contrasting the experience of the MICs during 2001–2019 with that of the Tiger economies in the earlier period, one can see why MIC growth weakened in the second period—as did the growth rates of East Asian high-income economies. This can also provide a glimpse—or foretaste—of what the future holds for MICs in East Asia, in Latin America and elsewhere.

The East Asian miracle years[10]

The story of growth in East Asia during the second half of the 20th century has been frequently rehearsed so one can be brief.[11] The fast-growing East Asian economies used the playbook devised by the Japanese and tested during the 1950s and 1960s (Perkins and Tang 2017).[12] They adopted the development state model[13] and systematically implemented industrial, trade, exchange rate, FDI, education, and technology policies to promote investment in tradables

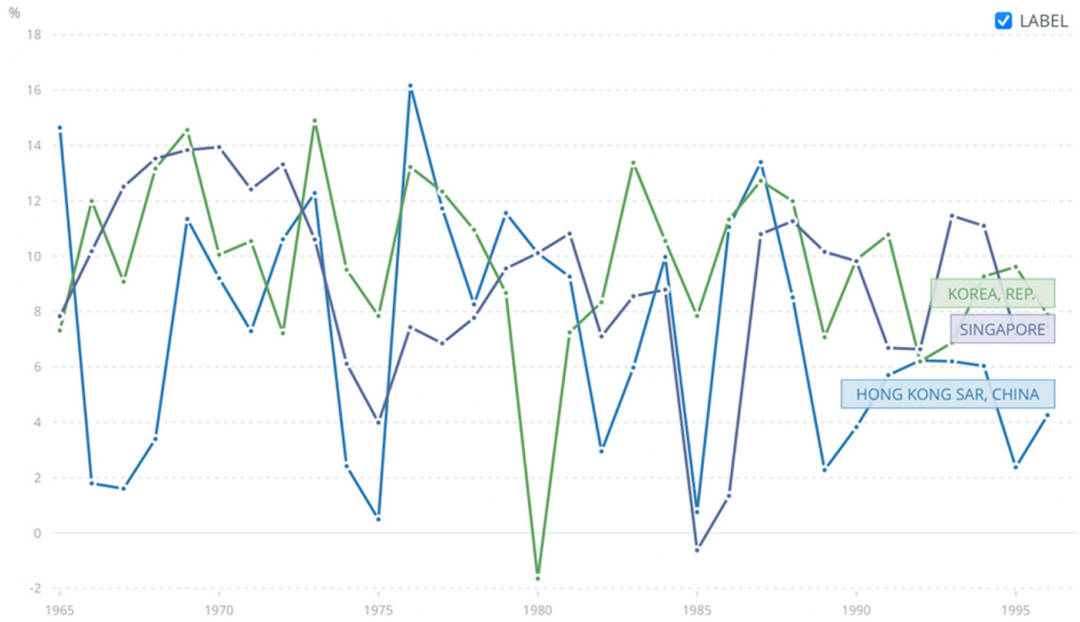
(including resource-based ones)[14] and in infrastructure.[15] These actions were complemented by rising domestic savings and the transfer of labor from rural areas to more productive urban-industrial occupations. The Tigers benefitted from a demographic dividend and over time, from the measures taken to build human capital.[16] Both Korea and Taiwan were advantaged at the outset by the investment in infrastructure, the upgrading of agricultural techniques and the embedding of institutions by the Japanese Administration during several decades of colonial rule improved farm productivity. And the Japanese were also instrumental in establishing an industrial base in Korea, which aided subsequent development (Kohli 1994; Chang and Myers 2011; Aviles 2009).[17] Hanushek and Woessmann (2016) show how the volume and quality of human capital as measured by test scores (alongside sustained high capital investment) was one of the keys to East Asia's success and partially accounts for the lagging performance of Latin American MICs.[18]

Thanks to globalization that gathered momentum in the 1980s resulting in falling barriers to trade[19] and soaring FDI, East Asian industrial and trade promoting policies paid off (IMF staff 2008).[20] Openness and learning through trade contributed to spiraling exports. Countries hooked on to newly emergent global value chains (GVCs) which contributed to technology transfer and increasing labor productivity, and some became key regional hubs (Urata 2022; Pahl et al 2022).[21] Investment, technological catching up, and exports enabled East Asian economies to grow at high single digit or even double-digit rates for two to three decades (Figure 1).

Looking back, the principal driver of growth in all countries was the level of gross investment—in the mid 30 percent range or higher as political survival of the regimes often was dependent on maximizing productive investment—underpinned by rising corporate and household savings (Figures 2 and 3).[22] Next came the increase in labor inputs including the transfer of workers from agriculture. Total factor productivity (TFP) contributed between 1–2+ percent per annum on average, more in the earlier decades of development less from the late 1990s (Perkins 2013. pp.57–60; Collins and Bosworth 1996 ibid.). What differentiated the Tiger economies from the rest was the scale and scope of industrialization. Starting with assembly and processing of light manufactures, they progressed within a couple of decades to the production and export of complex, high value products.[23] It was this feat achieved through the determined application of state guided industrial and technology polices, now matched or even exceeded by China[24]—what Mathews and Cho (2000) label as "industrialization by technology leverage"—that moved them to the head of the pack.[25] Only Hong Kong failed to implement industrial policy relying instead on market signals, openness, and macroeconomic stability (Tuan and Ng 1995). Consequently, its consumer electronics industry that was a leading exporter from the late 1950s through the early 1980s, never managed to progress beyond the assembly of items such as radios, TVs, watches, and toys to the fabrication and assembly of electronic parts and semiconductor chips (Chen 1987). Absent government support and financing, Hong Kong deindustrialized with both the electronics industry and textiles fleeing to the other Tigers, SE Asian countries and after 1980, to China.[26] The share of manufacturing in GDP, which was still 21 percent in 1988—and even higher earlier—fell to 9 percent in 1995 and to 5 percent in 2000.[27]

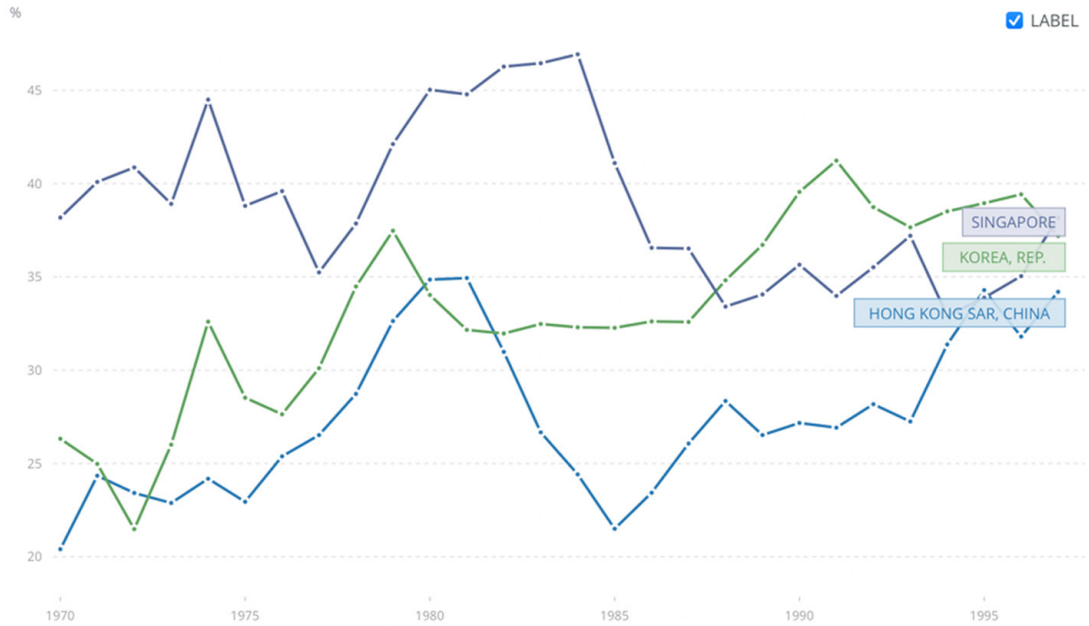
The foundations of Hong Kong's wealth were industry and trade but by the 1990s it was transformed into a major services hub offering a wide range of business services (Berger and Lester 1997; Enright, Scott and Dodwell 1997).

FIGURE 1. GDP growth 1965–1996: Hong Kong, Korea, and Singapore



Source: World Development Indicators (WDI).

FIGURE 2. Korea and Singapore: Gross capital formation % of GDP (1970–2000)



Source: WDI.

FIGURE 3. Gross domestic savings (decadal averages) 1960s–1990s

Country	1960's	1970's	1980's	1993
Hong Kong, China	31	32	34	37
Taipei, China	14	27	31	28
Republic of Korea	9	22	31	35
Singapore	8	35	42	50

Source: Weiss (2005) ibid.

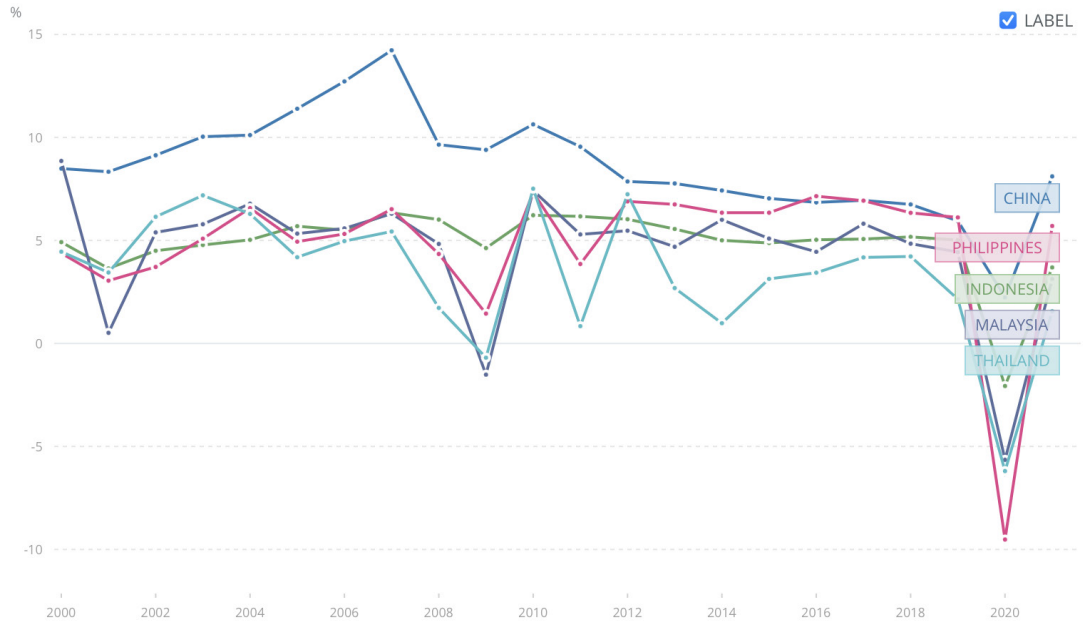
In the aftermath of the Asian financial crisis in 1997–8—growth slowed in much of East Asia. China bucked the trend by investing more than 40 percent of GDP, leveraging productivity gains through technology assimilation, and from rising exports following accession to the WTO. But since 2013, China's growth and productivity have also trended downward even though investment rates have been sustained.[28]

The MIC story in East Asia and Latin America post 2000: Growth succumbs to the pull of gravity

The second stage in the development of East Asia's middle-income countries is now of greater relevance. After recovery began from around 2001, growth in most Southeast Asian countries averaged 5% to 6%—above the global average. The Financial Crisis of 2008–09 caused growth rates to plummet but they rebounded soon after. Between 2010 and 2019, growth was back to where it was prior to the crisis, with China, the Philippines and Vietnam in the upper end—closer to 7%—, Malaysia and Indonesia in the intermediate range and Thailand trailing the rest with growth rates averaging about 4% (Figure 4). The Covid pandemic once again led to a collapse in growth performance. However, recovery has been quick, with Malaysia, Vietnam, Indonesia, and the Philippines are all projected to grow at between 5 and 7 percent in 2023—global economic circumstances permitting. China could also grow at between 4% and 5%,[29] while Thailand may continue to lag the rest. In short, none of these countries appear to be caught in a middle-income trap relative to other MICs or HICs—and their growth rates are high by historical standards.

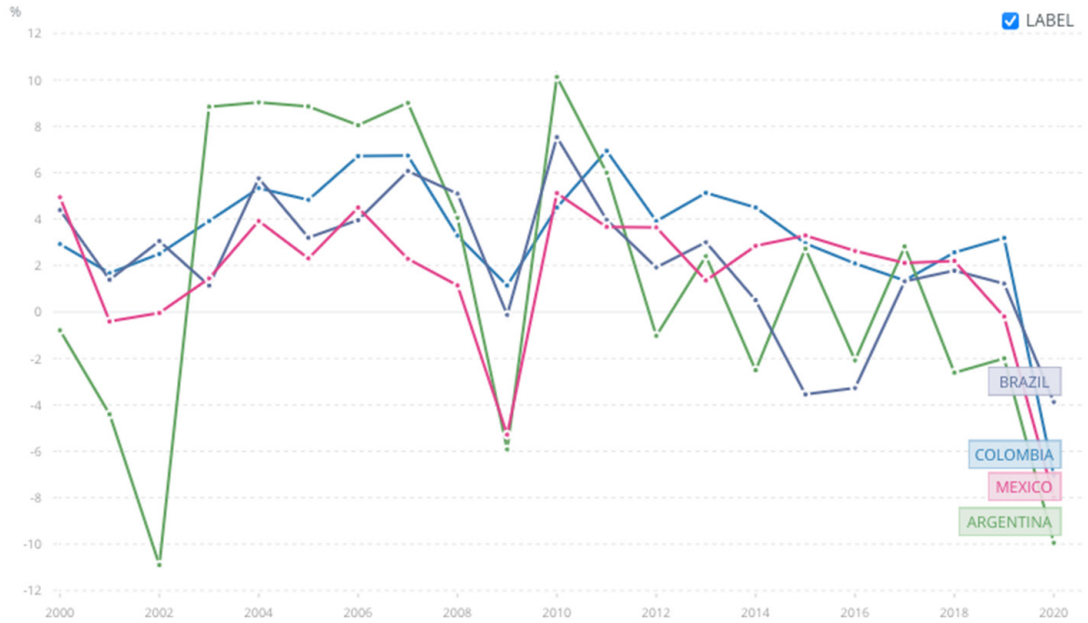
The Southeast Asians and China have demonstrated resilience in the face of recent shocks. Not so the MICs in Latin America. Brazil and Argentina had a few good years between 2000 and 2007 (and Colombia between 2005 and 2007) with growth averaging 9 percent in Argentina and over 4 percent in Brazil. But following recovery from the Financial Crisis, growth in these three and in Mexico slowed to a crawl with that of Brazil and Argentina descending into negative territory in some years (Figure 5).

FIGURE 4. SE Asian GDP growth 2000–2020



Source: WDI.

FIGURE 5. GDP growth of leading Latin American economies 2000–2020



Source: WDI.

After three and in some cases five decades of sound (albeit not spectacular) economic performance, the SE Asian economies have not crossed the high-income threshold[30]—although China ($12,500 per capita in 2021) and Malaysia ($11,370 per capita) are close. While their growth rates trailed the SE Asian and Chinese averages, both Brazil and Argentina briefly enjoyed high income status. Brazil in 2011 and Argentina from 2011 to 2016.[31] Mexico peaked at $11,000 in 2014 and all three are again back in the middle-income category. A case can be made that unlike the East Asian countries, it is the Latin American ones that appear to be in the grip of a middle-income trap i.e., they have stayed in the middle-income range for 50 years.

A comparison with the Tiger economies offers five clues as to why the Southeast Asian economies and the Latin American ones did not match the performance of the Tigers. **First, the Tigers[32] were quick to diversify into and export more complex manufactured products and in Hong Kong's case into tradable business services (Figure 6).** The Tigers made big and expensive bets, and the industrial, technology transfer and structural change policies paid off.[33] Why they succeeded when so many others have failed to achieve comparable results is because strong developmental states marshalled planning, policy making and implementation capabilities, mobilized the volume of capital needed to achieve an economic take-off (from domestic and external sources) and effectively utilized the financial system to allocate resources; equally important were the largely successful industrial outcomes of state and private entrepreneurship with both parties contriving to harness market forces to arrive at developmental goals. The leading role of industrial corporations private and state owned in driving economic change in Korea, Taiwan, China, and Singapore, is especially notable.[34] These companies spearheaded the industrial transformation.[35] SE Asian and Latin American countries have nurtured large indigenous corporations and conglomerates, but most are focused on finance, real estate, telecoms, transport, hospitality, and resource-based activities (e.g., mining, energy, and agri-processing).[36] In SE Asia the substantial manufacturing activities are largely dominated by foreign MNCs and their affiliates. Foreign investment has also served as the driver of industries such as autos and electronics in Latin America with Mexico most closely linked with GVCs.[37] However, the early East Asian focus on export diversification has been absent in Latin America—a significant developmental lacunae (Agosin 2006). Few if any of the indigenous firms have been compelled to export and compete in the international market like Korean and Taiwanese ones had to. And none have come close to matching the industrial capabilities of a Samsung, an LG, a POSCO, a Foxconn (Hon Hai Precision), or a TSMC.[38] China, of course, is the exception. It has groomed a flotilla of large, globally competitive, manufacturing firms (e.g., Haier, Huawei, ZTE, Goldwind, Geely, Trina Solar, Baowu Steel, HikVision, DJI Technology, etc.), which is one reason why it is poised to vault into the HIC category.

Second, the Tigers and China very early saw the need to develop technological capabilities to support their industrial ambitions. Resources were poured into research institutes, into building the skilled workforce and the acquisition of talent and technology from abroad through licensing,

joint ventures, and reverse engineering. These efforts paid off. Korean, Taiwanese, and more recently, Chinese firms were able to leapfrog into higher value manufacturing and compete with foreign firms (Lee and Mathews 2012).

FIGURE 6. Changing mix of Tiger exports towards high tech products

Country 1985	Resource-Based	Low-Tech	Medium-Tech	High-Tech
Republic of Korea	8.6 (3.5)	41.4 (27.2)	37.2	12.8
Taipei, China	9.9 (5.8)	52.9 (29.6)	21.1	16.2
Singapore	43.5 (8.0)	8.6 (4.0)	23.4	24.5
Country 1998	**Resource-Based**	**Low-Tech**	**Medium-Tech**	**High-Tech**
Republic of Korea	10.7 (3.9)	21.0 (11.3)	38.5	29.8
Taipei, China	5.5 (2.6)	30.4 (13.5)	27.5	36.6
Singapore	14.1 (3.4)	7.0 (2.2)	18.7	60.2

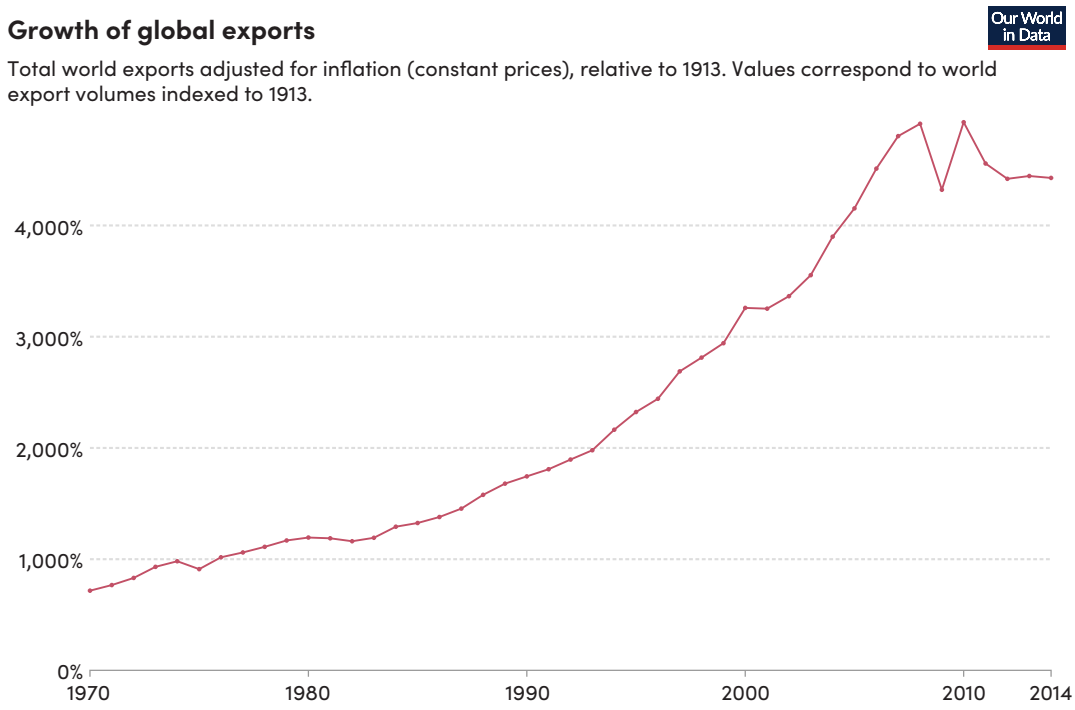
Source: J. Weiss (2005) ibid.

Third was the attention given to physical infrastructure. To ensure that export led industrialization was not hamstrung by energy and transport bottlenecks, the Tigers and China drew on the abundance of investable capital to narrow infrastructure gaps. For example, Korean investment in infrastructure took off in the 1970s (Ko 2014; Kwon 2011).[39] Southeast Asian countries such as Indonesia, the Philippines and Vietnam continue to be constrained by infrastructure bottlenecks.[40] And an infrastructure deficit has persistently dogged Brazil and is responsible for the "Custo Brazil" that has been a brake on growth.[41] Logistics costs account for 12 percent of Brazil's GDP and the quality of its infrastructure is 108th ranked (2016).[42] The infrastructure shortfall is a drag on the performance of other Latin American countries as well—with median investment equal to 3 percent of GDP. Perception of infrastructure quality in East Asia was 4.5 as against 3.8 in Latin America (IDB 2019).

Fourth was the degree of communication and coordination between the government and the private sector, the use of government policy to "govern the market" when needed,[43] and the consistency of business-friendly policies.[44] Credible, long-term commitment by the state made it easier for businesses to engage in lumpy investments. Government procurement further reduced risks.

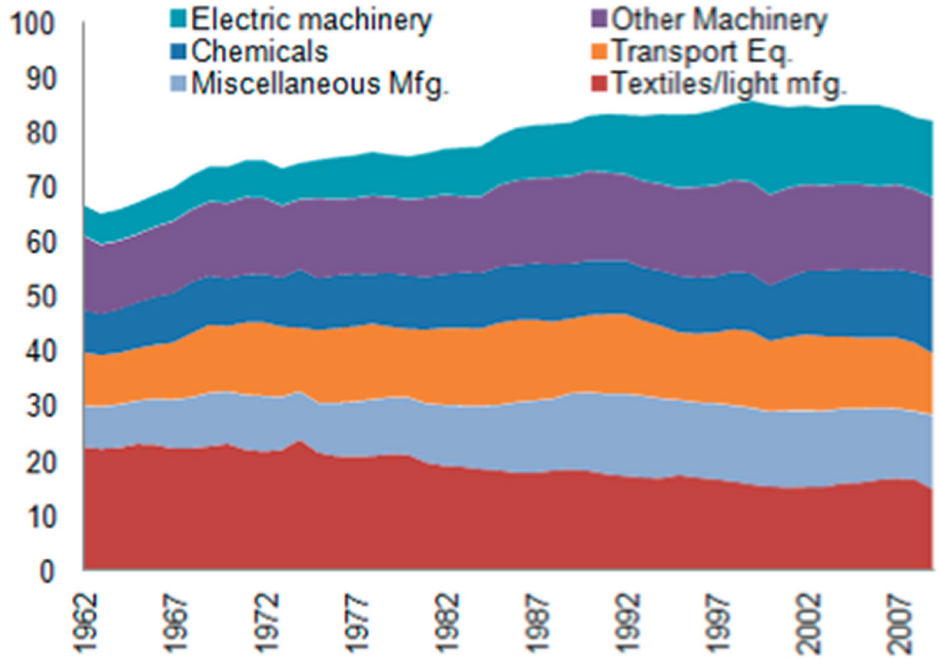
Finally, for much of the last quarter of the 20th century, stable, macro and trade policies, crafted an enabling environment for growth in East Asia. That said, domestic policy efforts would have been to no avail were it not for the rapid expansion of global trade especially of the more complex manufactures (Figures 7 and 8).

FIGURE 7. Exports soared from the 1980s through 2009



Source: https://ourworldindata.org/trade-and-globalization

FIGURE 8. Shares of complex manufactures rose



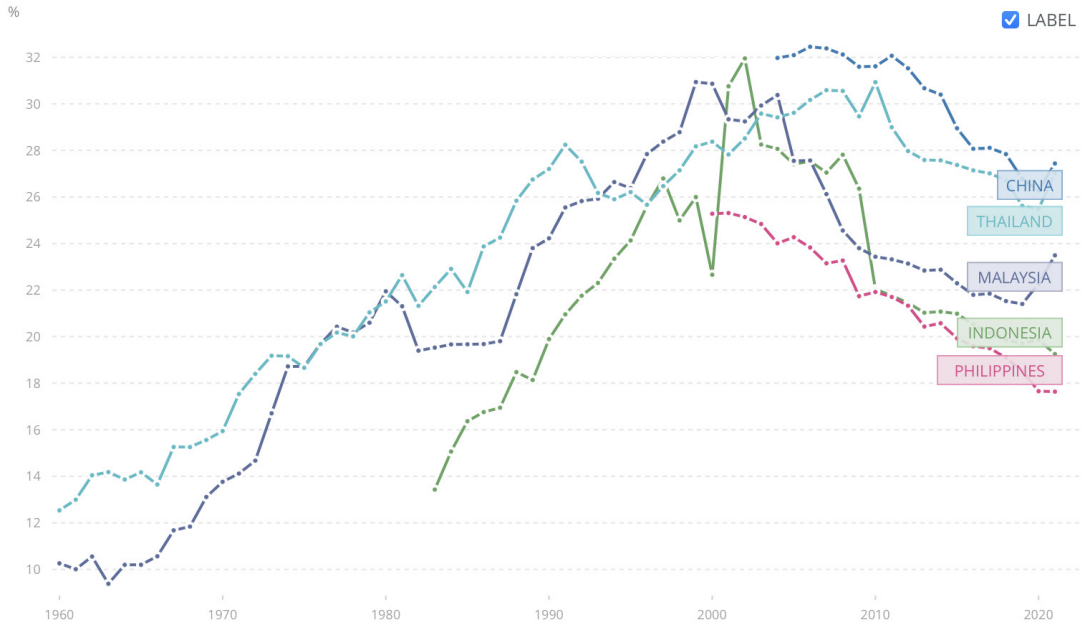
Source: IMF (2011) Changing patterns of global trade. https://www.imf.org/external/np/pp/eng/2011/061511.pdf

A few UMICs catching up but slowly

SE Asian economies attempted to replicate the Tiger model but as is apparent, they have been less than fully successful. Export-led growth was not a priority for Latin American countries and although Mexico has incentivized exports and both the manufacturing sector and agriculture benefitted from NAFTA, these have not delivered the needed boost to growth (Kose, Meredith, and Towe 2004).[45] Going forward, industrialization of the kind and on the scale pursued by Korea, Taiwan, Singapore, and China is not really in the cards for Asian MICs or any of the countries in LAC. Growth of global trade slowed after 2010, averaging 3.8 percent per annum between 2011 and 2020 about half the rate registered during the preceding thirty years.[46] Decades of near double-digit growth is something for the history books.

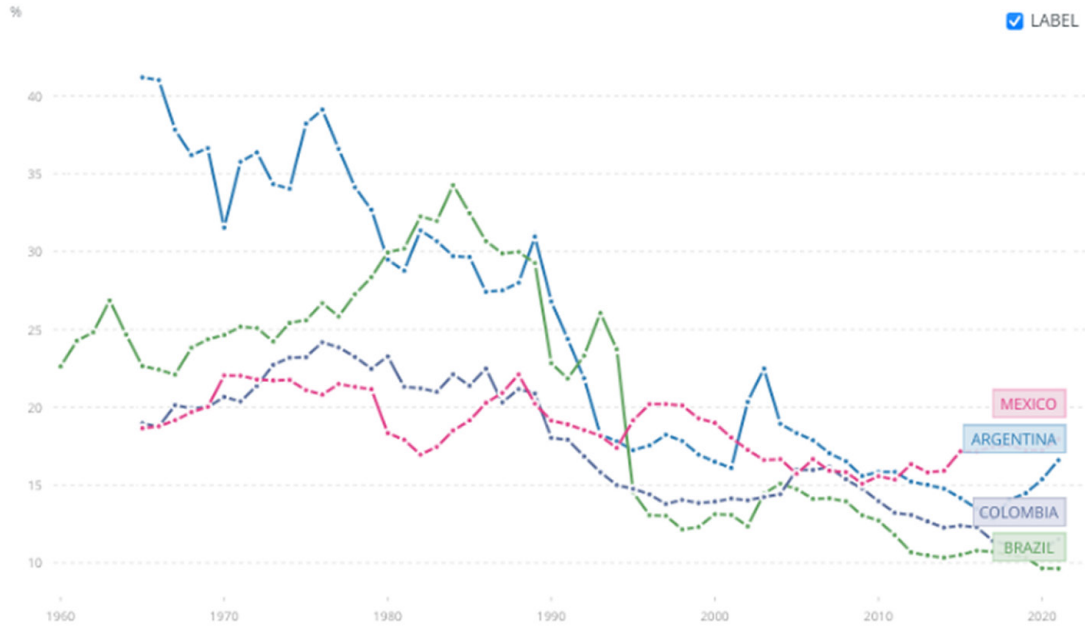
Several reasons come to mind. **First is the declining share of manufacturing in most of the MICs**—in SE Asia, LAC and even in China (Figures 9 and 10). Vietnam is the exception (Yusuf 2021).[47] Nevertheless, manufacturing still accounts for close to a fifth or more of GDP in SE Asian economies far above the 10 percent in Brazil, 12 percent in Colombia, and 9 percent in Chile. The economic center of gravity has shifted to services, which for a variety of reasons have thus far not achieved the gains in productivity registered by manufacturing (Figure 11). If services are to deliver moderately high growth rates, countries will have to come up with technology and other policies that will generate innovation and productivity gains. And the consumption/export of the most productive services will have to increase relative to less productive ones to evade Baumol's cost disease (Maiello 2017).[48] Figure 12 shows that the total factor productivity of Southeast Asian economies falls below what their per capita GDP would predict. Furthermore, The Tiger economies have failed to deliver a new recipe—nor, so far, have the advanced countries. Services have turned in a lackluster performance in OECD countries (Figure 13) and performed poorly in Korea and Taiwan (OECD 2020). Singapore also has not posted the productivity growth one would expect of a country with its reputation for efficiency. Europe and the US were not spared. Economywide labor productivity and total factor productivity nosedived after 2008 (Corrado et al 2022, Figure 14).[49]

FIGURE 9. Share of manufacturing in GDP: China and ASEAN countries (1960–2020)



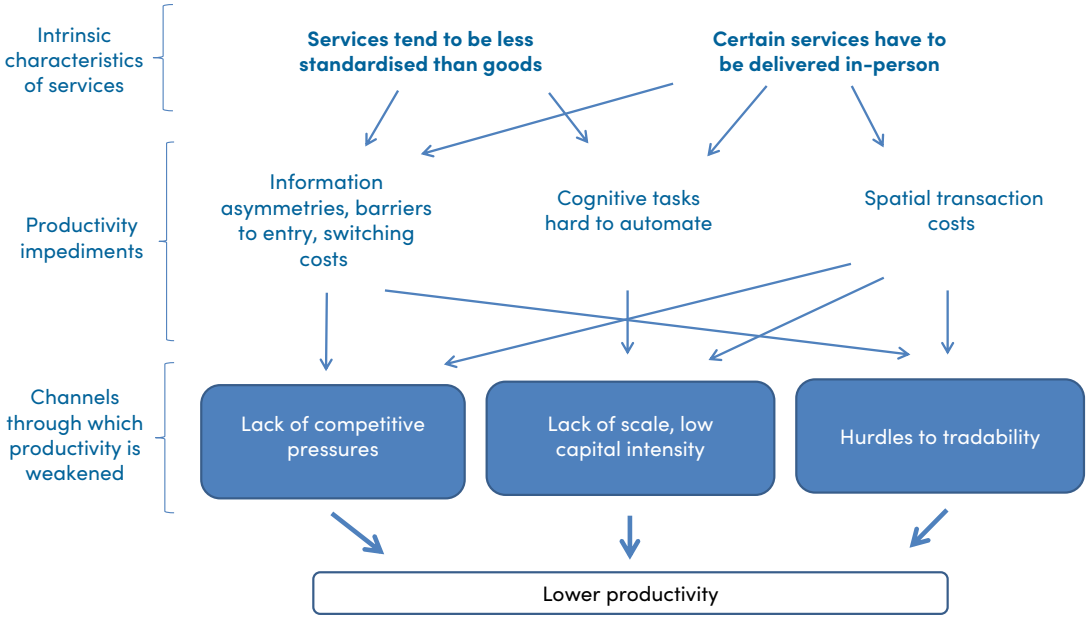
Source: WDI.

FIGURE 10. Share of manufacturing in GDP in LAC MICs (1960–2020)



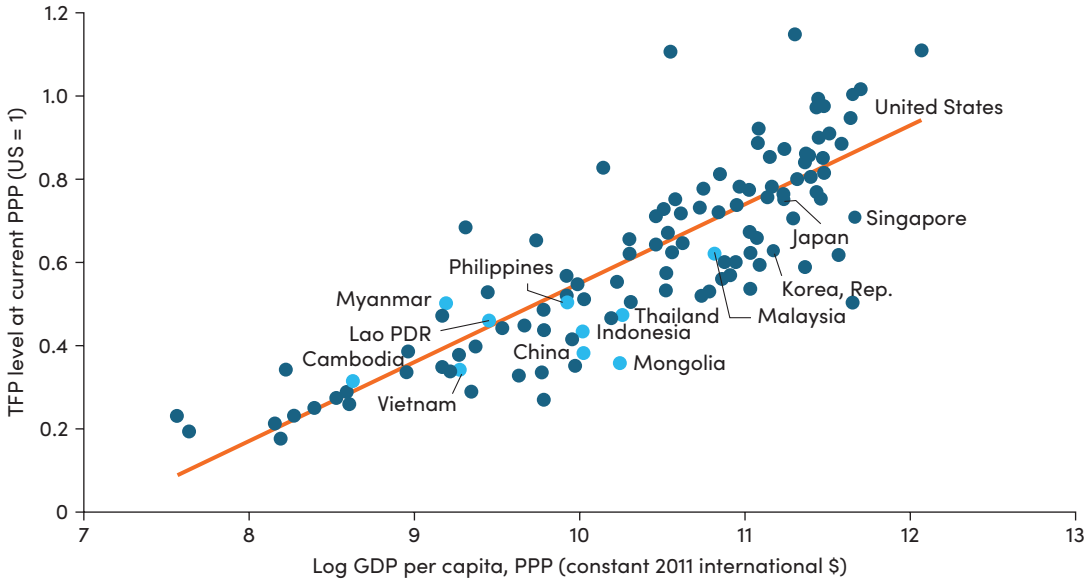
Source: WDI.

FIGURE 11. Factors hampering productivity growth of services



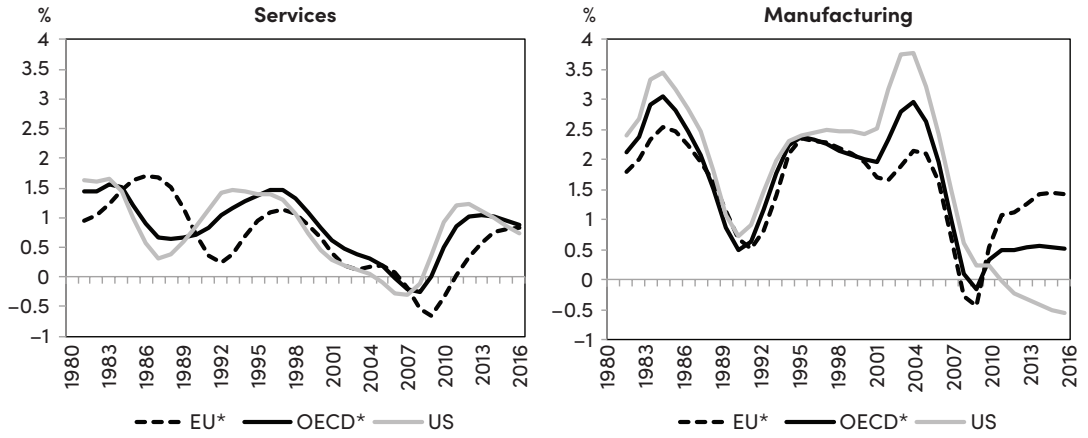
Source: S. Sorbe, P. Gal and V. Millot OECD Economics Dept Working Paper No. 1531. https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP(2018)79&docLanguage=En

FIGURE 12. TFP of East Asian economies falls short of GDP per capita prediction



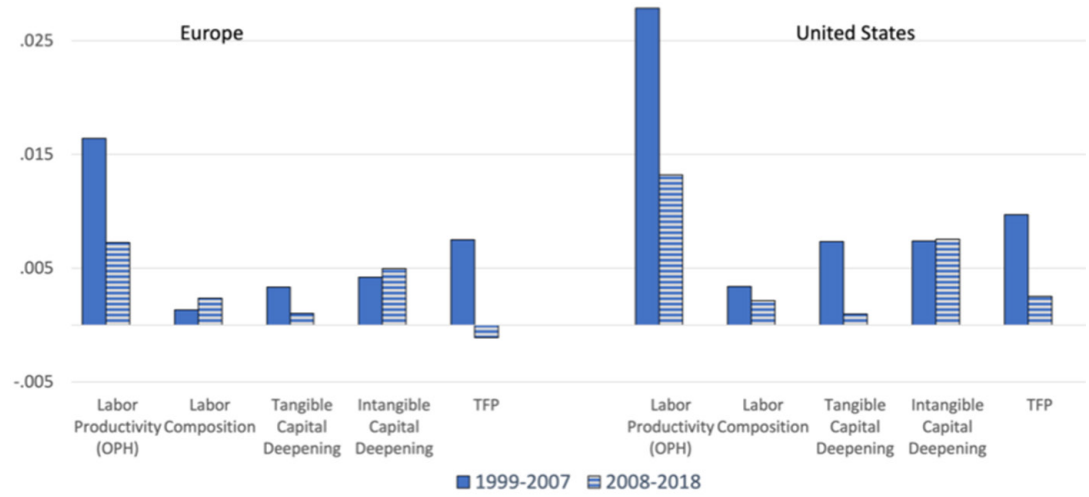
Source: World Bank (2021). 'The innovation imperative for developing Asia.' https://openknowledge.worldbank.org/bitstream/handle/10986/35139/211606ov.pdf

FIGURE 13. TFP annual growth (HP filtered)



Notes: *EU aggregate is based on 20 countries in 1995–2015, 8 countries before 1995, and 14 countries in 2016 (due to data limitations). OECD aggregate is based on 28 countries in 1995–2014, 12 countries before 1995, 27 countries in 2015, and 18 countries in 2016.
Source: Sorbe, P. Gal and V. Millot (2018).

FIGURE 14. Determinants of growth of output per hour in Europe and the United States 1999–2018

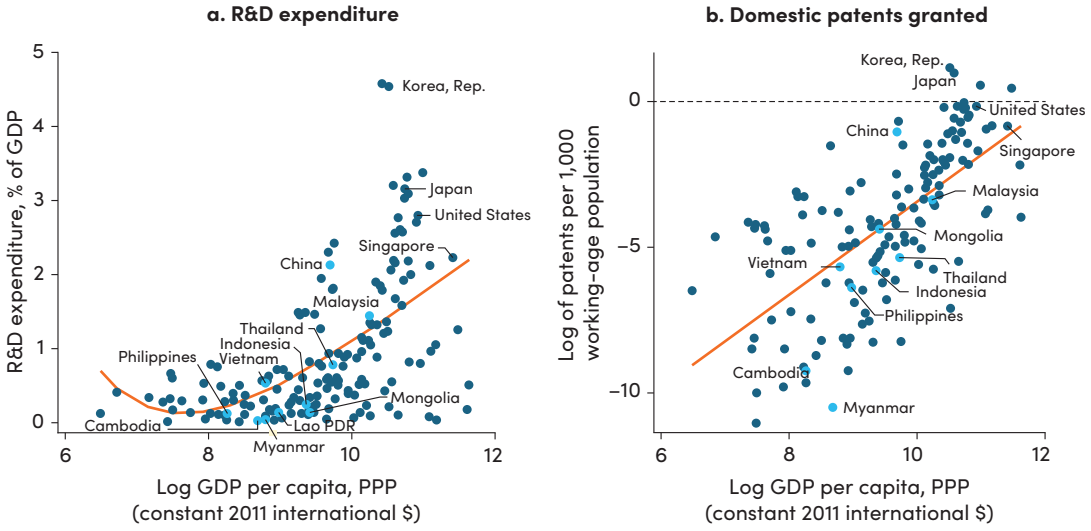


Source: Corrado et al (2022).

Second, the MICs by neglecting to invest adequately in R&D and to improve the quality of human capital,[50] have been slow to develop domestic technological capacity. Only China is giving due attention to the building of innovation capabilities and is pouring resources into research and tertiary level STEM training. Among the SE Asian countries, Malaysia and Thailand are investing a little over 1 percent of GDP and Brazil 1.2 percent but the rest—in East Asia and Latin America—are spending far too little (0.5 percent or less) on the research infrastructure they need to structurally transform their economies. Malaysia and China excepted, the others in SE Asia are punching below their GDP per capita weight in research and in patenting. (Figure 15).[51] The Latin American countries are no better off with a much smaller stock of innovation capital (13 percent of GDP) compared to

the OECD average (30 percent, ECLAC 2015). This makes it harder to assimilate and profit from new technologies. The declining productivity of research worldwide compounds the problem. It takes many more research hours and resources to double the number of transistors on a microchip or improve agricultural yields.[52] Some worry that demographic trends in advanced countries could slow the pace of innovation and its quality, which could affect technology transfer to middle income economies.[53]

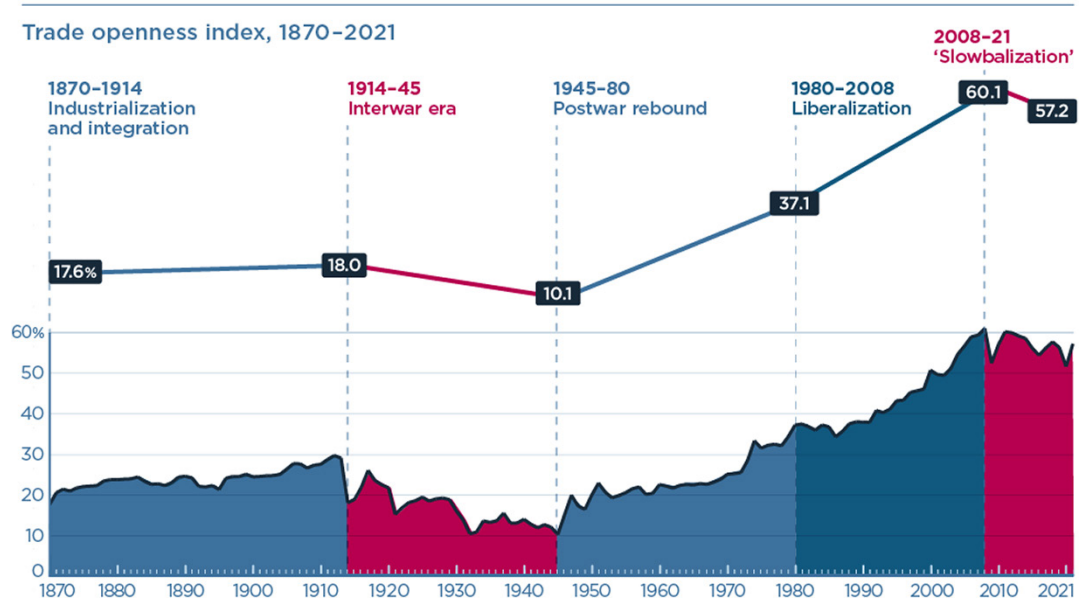
FIGURE 15. R&D spending and patenting by most Southeast Asian economies falls below per capita GDP prediction



Source: World Bank (2021). The innovation imperative for developing Asia. https://openknowledge.worldbank.org/bitstream/handle/10986/35139/211606ov.pdf

Third, globalization appears to have peaked and could recede if geopolitical tensions persist, which seems likely (Figure 16).[54] Worse, global economic activity has been adversely affected by the Covid pandemic, the Ukraine-Russia conflict, the 2022 energy price crunch, the economic buffeting inflicted by climate change, and China's Zero-Covid policies (World Bank 2022a; T. Gudmundsson 2022). Some geographical dispersion of key value chains sparked by geopolitical tensions and industrial disruptions in China caused by the zero Covid policies, will help the Asian economies, perhaps even Central American ones (e.g., Mexico[55]), but exports of goods or services are unlikely to deliver the kind of growth they once did.[56]

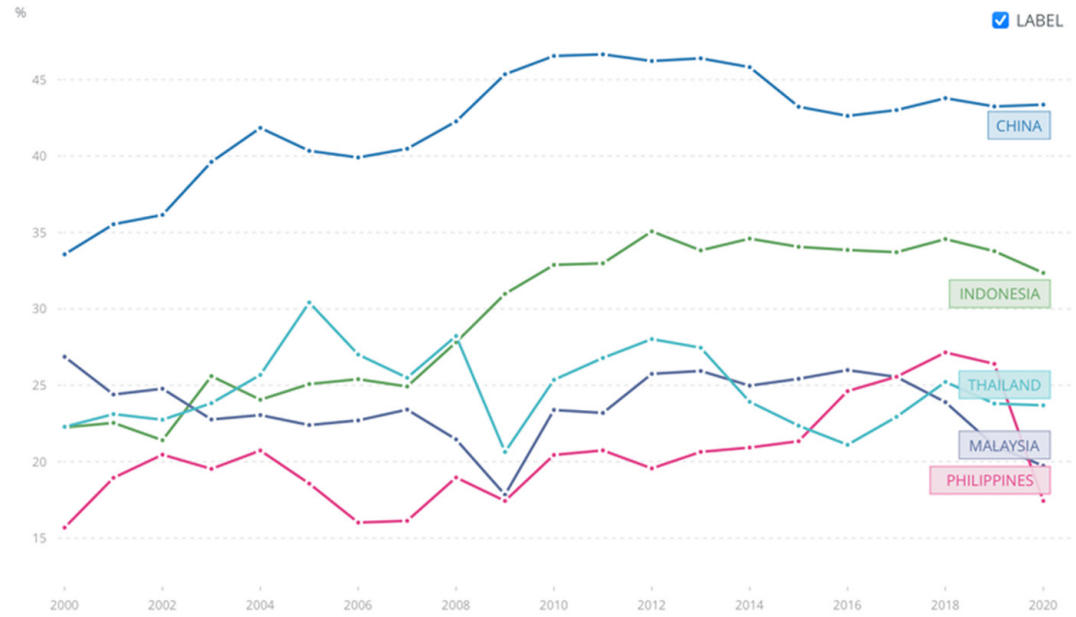
FIGURE 16. Globalization faltering



Source: Irwin (2022).

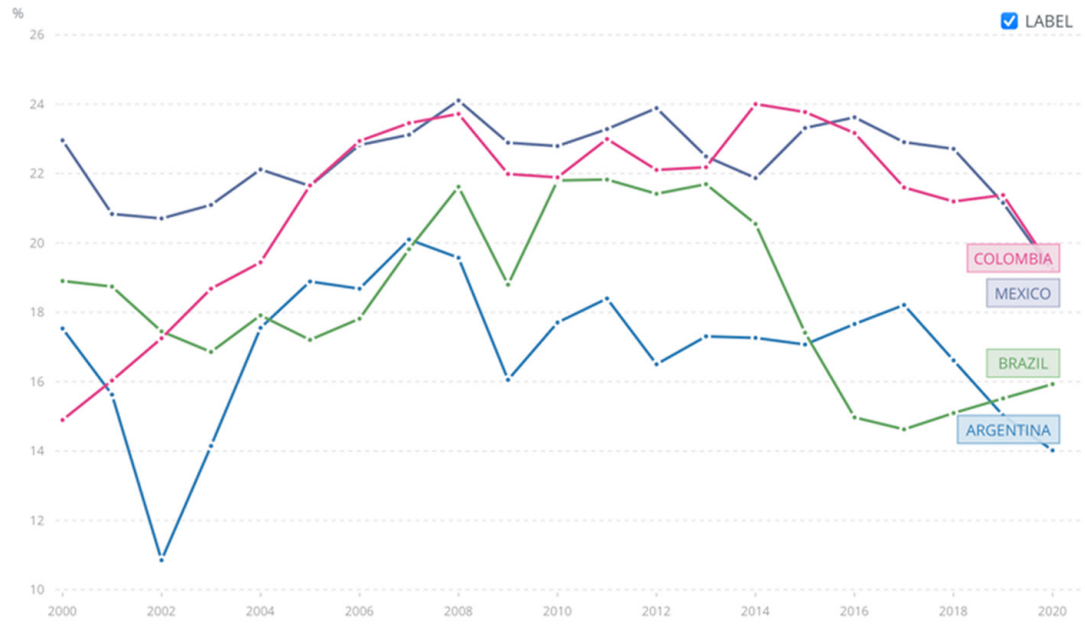
There are other headwinds that will eat into growth.[57] There is the exposure to severe weather such as warming, which will continue to erode labor and land productivity.[58] Furthermore, every year major shocks inflicted by pandemics, droughts and floods will take a bite out of GDP and impose fiscal burdens.[59] The World Bank (2022b) estimates that because of extreme weather events the Philippines could lose almost 14 percent of GDP by 2040. There is the need to enhance the resilience of infrastructures and build additional safeguards to protect urban centers especially those along the coast such as Jakarta, which is sinking by 25cm per annum and is constructing a $40 billion seawall to defend against rising sea levels and storms .[60] Ho Chi Minh City, the Mekong Delta and large parts of Vietnam's coastal areas are also imperiled (ADB 2010).[61] Latin America's predicament is almost as dire with rising temperatures, droughts, shrinking Andean glaciers, and rising sea levels along the Atlantic coast (UNCC 2022).[62] Climate change will raise incremental capital output ratios [ICORs] and depress growth from each unit of capital. Absent an increase in gross investment, potential growth rates could be headed downward. Currently, domestic investment is stable in the low 30% range in Indonesia and in the mid to high 20% range in all the others—China excluded (Figure 17, the trend is not upward). The average for MICs and LMICs in LAC in 2020 was 17 percent with the larger economies in the 17–22 percent range (Figure 18). Because investment will remain the driver of growth over the medium term and barring a significant increase in TFP, the East Asian MICs may have to settle for recent (or lower) trend growth rates of between 5 to 6 percent. MICS in LAC may struggle to grow by much more than 2–3 percent. In fact, the challenge will be to sustain even these rates for a decade or more.

FIGURE 17. China and ASEAN countries gross capital formation (% of GDP) 2000–2020



Source: WDI.

FIGURE 18. Latin America gross capital formation (% of GDP) 2000–2020

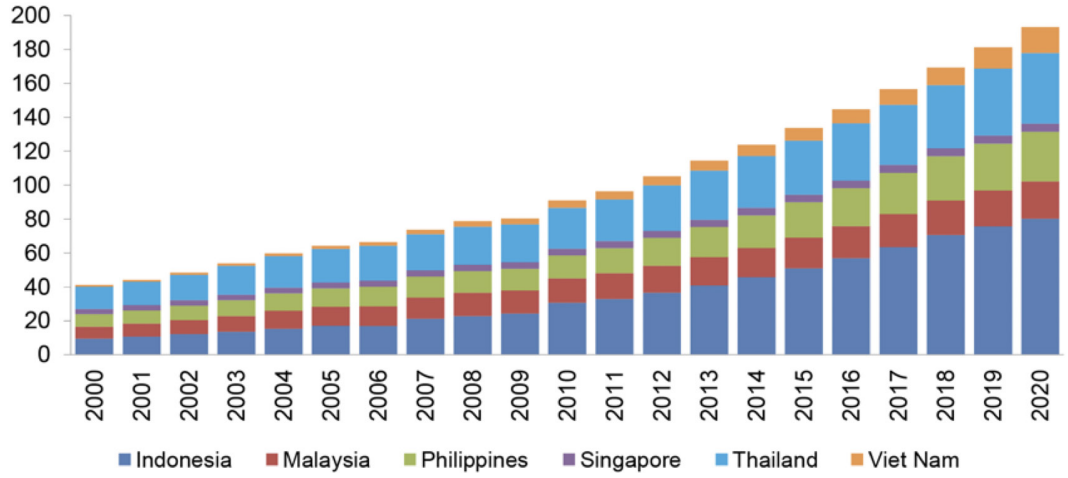


Source: WDI.

There are tailwinds but economies are weighed down by legacy political economy baggage

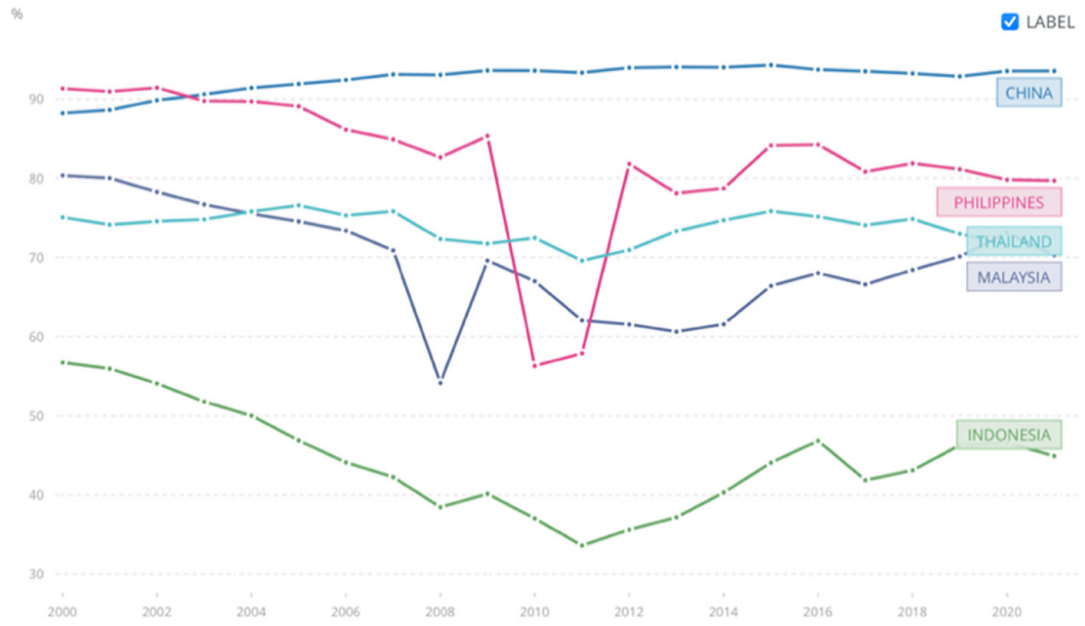
East Asian MICS unlike their LAC counterparts will benefit from four assets. The combined GDP of ASEAN countries adds up to $3.2 trillion. Population size is 656 million with the middle class numbering 190 million (Figure 19). So, the potential market is large. Proximity to China could compound that advantage. The recently concluded Regional Comprehensive Economic Partnership (RCEP) has created the world's largest free trade area (30% of the world's population). Furthermore, the share of manufactures in merchandize exports is in the—70–90% range (Figure 20)—[Indonesia, which has a comparative advantage in resource-based products[63]—like Chile—is the exception at 45%]. This is unlike the Latin countries where it is 25% for Brazil, 22 percent for Colombia, as low as 14% for Argentina and 11 percent for Chile (Figure 21). The latest DHL trade growth atlas (Figure 22) singles out the ASEAN countries as ones with the best export prospects (5.5% p. through 2026). Latin America is in the middling range with exports projected to grow by 3.8 percent. In addition, Southeast Asian countries are building a base of tradeable services (business, finance IT, hospitality), which could be a source of growth going forward and contribute to gains in productivity.

FIGURE 19. ASEAN's middle class (2000–2020)



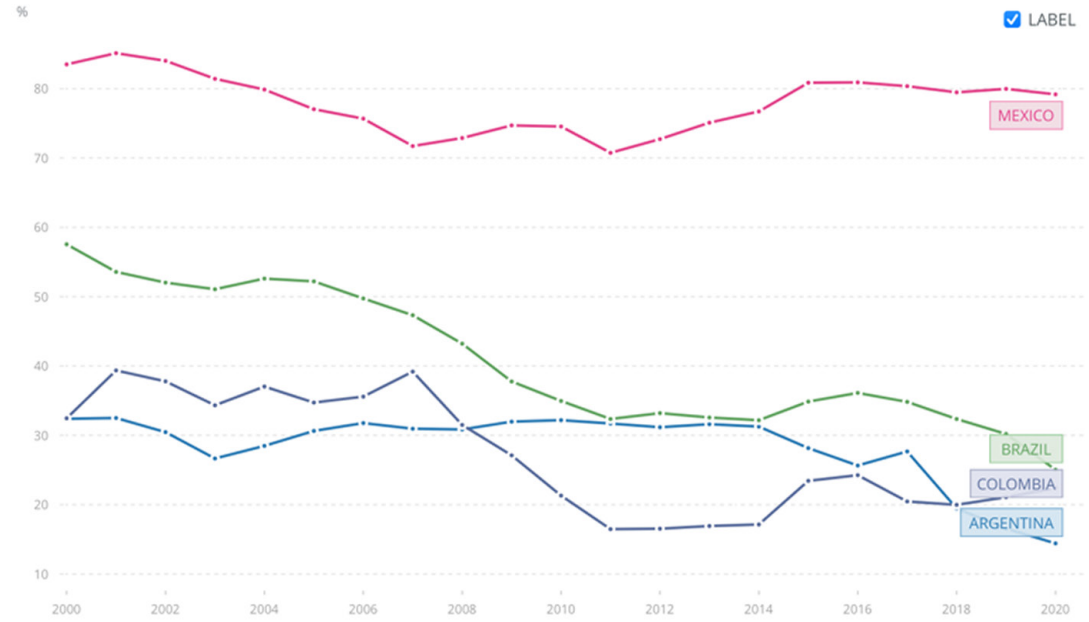
Source: Park and Yeung (2021).

FIGURE 20. China and ASEAN share of manufactures in exports (2000–2021)



Source: WDI.

FIGURE 21. Latin America share of manufactures in exports (%) (2000–2020)



Source: WDI.

FIGURE 22. Projected rates of regional trade growth

Source: https://www.dhl.com/global-en/delivered/globalization/dhl-trade-growth-atlas.html

Tailwinds notwithstanding, the political economy of both SE Asian and the Latin American countries is a hurdle, which could hamstring economic performance. SE Asian countries have a lengthening history of state collusion with businesses based on political linkages, crony capitalism, and of endemic corruption. This has eroded trust in government and in the region's democratic institutions (Mauk 2021). Governance has suffered and this has weakened the capacity of the state to pursue longer term development objectives. This should be viewed against the region's colonial backdrop. Economic development and industrialization were never a priority for British, Dutch, Spanish, or French colonial authorities. The institutions created were primarily extractive—as in Indonesia and Malaysia—and what little manufacturing activities emerged were for the processing of raw materials or for the purposes of mass consumption (Edwards and Jomo 1999). Despite this unpromising start, the Southeast Asians managed to industrialize and grow at a fairly rapid clip. Now they risk running out of steam. Corruption is ingrained and widespread.[64] In some countries, religious and ethnic divisions[65] are making it harder to arrive at a political consensus that can underpin policies needed to sustain growth in challenging times.[66] Politics and ideology are also coming in the way of the privatization of SOEs in Vietnam, which are a drag on the economy. The good news is that the near-term growth prospects still look relatively rosy. There remains scope for "catching up". The priority for policymakers will be to ensure that the momentum does not flag.

Colonial era extractive political and economic institutions, which concentrated power in the hands of an elite[67] and entrenched inequality (after 1870[68]), weighed upon the economic performance of Latin American countries to a greater degree than in SE Asia (Acemoglu and Robinson 2012).[69] The violence and political instability, which came on the heels of independence (in the latter part of the nineteenth century), undermined legal and other institutions bolstering the rule of law and protecting property rights (de la Escosura 2007; Acemoglu and Robinson 2012). Furthermore, the persistent weakness of state institutions[70] was exacerbated by centralized decision-making paired with inefficient and overly bureaucratized systems (Edwards 2009; Cardenas 2010).[71] From the 1930s, Latin American economies like many others, pursued protectionist policies with exchange and capital controls that supported import substituting industrialization (ISI). These appeared to deliver positive growth outcomes for several countries through the 1960s, but by the late 1970s and 1980s,[72] these had dwindled, and Latin American economies fell prey to macroeconomic instability, inflation, and financial and debt crises that took a heavy toll on growth.[73] Edwards (2006) estimates that the BOP crises cost Latin America up to 12 percent of GDP. In response, the Latin Americans veered towards the Washington Consensus and adopted neo-liberal policies with countries easing or reversing the inward-looking strategies of the past, privatizing SOEs, cutting top tax rates, curbing fiscal deficits, and making exchange rates more flexible.[74] Although growth performance improved relative to the 1980s, except for a brief spell of rapid growth during 2004–2006 thanks to favorable international circumstances, economic sluggishness once again surfaced following the Financial Crisis in 2009.[75]

One key factor that weighs on the Latin American MICs is low productivity growth arising from a misallocation of resources to less productive firms and the shrinking share of manufacturing, from the quality of the workforce (noted above), infrastructure gaps, dysfunctional labor laws, the degree of informality, and reduced labor productivity resulting from the high incidence of crime and violence for example in Mexico and Colombia (OECD 2019; Levy and Lopez-Calva 2020; McKinsey 2014; Cabral, Mollick and Saucedo 2016; Saborowski 2018).[76] Other factors include inadequate market competition, the fewness of mid-sized firms—the missing middle—and burdensome regulations that impede entry and exit. Given the institutional impediments and the fractious nature of politics in these countries, decisive policy actions that could move these countries to a higher growth path may require that very rare commodity—inspired, honest, and far-sighted leadership plus measures that build state capacity and competence.

Concluding observations

In sum, the lessons we drew from the experience of the Tiger economies through the 1990s provided a manufacturing centric template for late starters in the last quarter of the 20th century. East Asian MICs adopted variants of the strategies pursued by the Tigers and grew their economies strongly through the early 2000s. But the merchandize export-led model is losing its relevance in a world where trade is slowing, and globalization has peaked. Over the fifteen plus years since, the MICs have

registered moderate growth rates mainly on the strength of industrial capabilities accumulated over the past three decades supplemented by resource-based exports and more recently, by tradeable services. Going forward, more of the growth (including in China) is likely to be sourced from domestic consumption.

What we see happening over the since the turn of the century—whether in East Asia or in LAC (and one could include Eastern Europe)—does not provide the building blocks of a fresh developmental template in which export-oriented manufacturing is assigned a lesser role with services, many non-tradable, in the lead. For an economy to grow rapidly on the back of services alone is extremely rare.[77] Singapore and Ireland[78] both built manufacturing capabilities (mainly with the help of FDI) first and supplemented these with services.[79] And both have successfully sustained a high-tech manufacturing base unlike Hong Kong, which embraced services and has seen its growth and employment potential erode now that Shenzhen and other cities in the Pearl River Delta have developed competing services.[80]

Digital technology (fueled with AI) could be the game changer if as Robert Baldwin (2022)[81] asserts, it exposes services that were previously non-tradeable to the opportunities and challenges of globalization.[82] Undoubtedly, digitally delivered services have been growing faster than global merchandize trade (Figure 23). But trade in digital services amounted to $3.7 trillion in 2021 whereas merchandize trade was valued at $21.7 trillion. Moreover, digitization has still to prove its worth in the realm of factor productivity. India may yet show that it is possible. However, after 30 years, its IT industry only accounts for 8% of GDP[83] and employs 4.5 million workers.[84] This sector must grow a lot before it can significantly affect macroeconomic aggregates.

If the future of growth depends on services that leverage digital technologies,[85]—with services trade increasing robustly in recent years (Figures 24 and 25)[86]—a focus on the quality of human capital would seem to be one priority. A corporate sector that is entrepreneurial and invests heavily in intangibles is a second (rapidly accumulating data capital comprising a significant share).[87] A global environment conducive to growth is a third. And one could list other standard items. Policy actions could speed growth up a little on the margin, but the gains in productivity determining prosperity over the long run,[88] will be a function of other factors: technological, managerial, demographic,[89] environmental, and geo-political—over which the MICs have limited control.

China, the economic star of the three decades and the principal driver of global growth in recent years, is also foundering, having exhausted the growth potential of exports[90] and of massive investment in industry, infrastructure, housing, and real estate (which has saddled local governments, corporations, and developers with excess debt).[91] China's response to Covid outbreaks and the eventual retreat from draconian lockdowns, disrupted industrial production and supply chains. And the controls and regulatory checks imposed by the government on leading private conglomerates could weaken entrepreneurial dynamism with consequences for economic performance.[92]

Figure 26 shows that economic performance slackened after 2010 more so in Latin America than in East Asia. To improve their performance over the past decade, countries in both regions need to aim for TFP growth in the 2–3 percent per annum range well in excess of recent rates (Figure 27).[93] This will entail a lot of learning by experimenting because there are no tested models to guide policymakers who must now factor in the upfront cost of greening the economy[94] and of the losses inflicted by warming. It could prove to be an uphill battle because neither the Southeast Asian MICs nor the ones in Latin America have developmental states that have forged the political consensus required to pursue and successfully implement long term goals. The MICs in both regions are just muddling along with politicians focused on short term policy fixes and rent sharing to stay in power. None has a coherent long-term strategy in place although there is much talk of green and sustainable growth, of digitization and of the 4th industrial revolution.

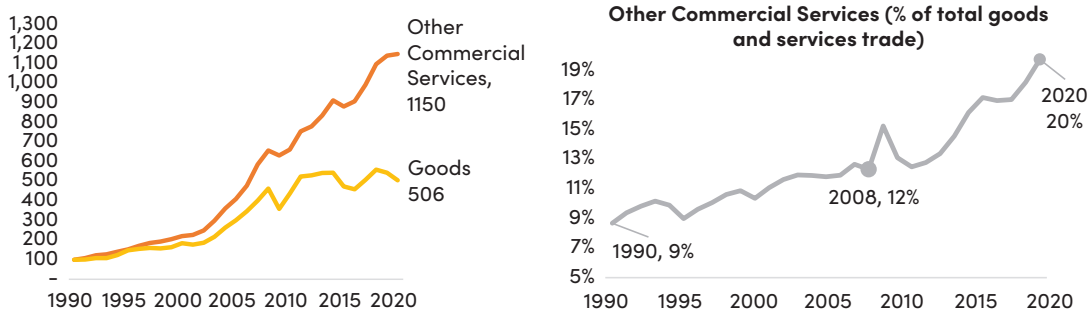
If China's extensive and massively financed industrial and technology policies incentivizing R&D and innovation have thus far failed to enhance the productivity, patenting, innovativeness, and profitability of targeted firms or to accelerate the upgrading of industrial equipment, this suspends a question over the efficacy of widely touted RD&I policies.[95] If a Philippines that invests a mere 21 percent of GDP and where factor productivity is increasing by 0.5 percent or less can grow steadily at over 6 percent per annum, virtually the same rate as a Vietnam, which invests 32 percent of GDP, has a relatively strong state and benefits from a near 2 percent annual productivity growth, then one begins to wonder whether economic fundamentals, the political economy or policies really matter. The MICs appear to have gravitated towards 'region specific rates of growth'[96] and except when subjected to shocks (negative or positive) and egregious policy errors, regress towards this rate.[97] We seem to be slouching[98] towards a post-policy world.

FIGURE 23. Growth of global trade in digitally delivered services and merchandize (2008–2021)

Source: WTO (2022) World trade statistical review.

FIGURE 24. Trends in world trade in goods and services: 1990–2020

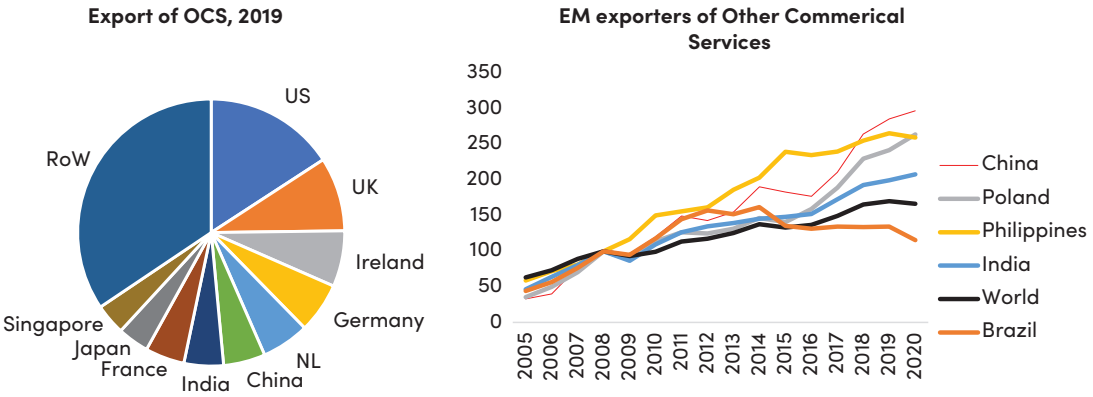
(left panel, 1990 = 100, right panel, shares)



Source: R. Baldwin (2022).
From stats.wto.org

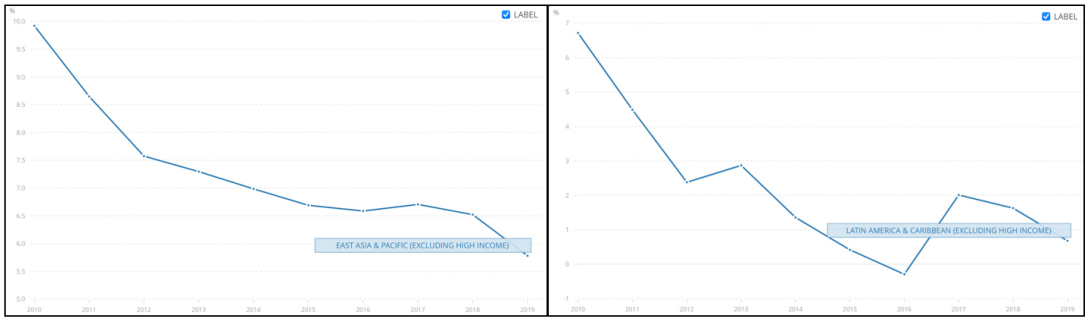
FIGURE 25. Top ten exporters of services and trends in exports of emerging markets

(left panel, shares; right panel, 2008 = 100)



Source: R. Baldwin (2022).

FIGURE 26. GDP growth of East Asian MICs 2010–2019 GDP growth Latin American MICs



Source: WDI.

FIGURE 27. Average annual TFP growth in percent (2011–2021)

Country	2011–2019	2020–2021
Korea	0.6	0.45
Taiwan	0.8	2.2
Malaysia	0.2	–2.8
Indonesia	0.3	–1.65
Thailand	1.2	–3.0
Philippines	0.6	–4.9
Vietnam	1.7	0.4
Brazil	–1.7	–1.8
Colombia	–0.1	0.8
Chile	–0.5	2.1
Argentina	–1.1	–1.6

Source: Conference Board: Total Economic Database (2022). https://www.conference-board.org/data/economydatabase

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Endnotes

1. Upper middle-income countries were those with GNIs in the $4,096–$12,695 range. These thresholds have been adjusted upwards over time. As of 2021, MICs accounted for a third of global GDP and three quarters of the world's population. https://www.worldbank.org/en/country/mic/overview
2. A few countries briefly entered the high-income category only to fall back into UMIC category because of commodity price shocks, exchange rate movements and changes in the income levels used to classify economies. Argentina, Russia, Mauritius, and Venezuela are among the ones that were HICs for a brief period. https://datatopics.worldbank.org/world-development-indicators/stories/the-classification-of-countries-by-income.html; https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2021-2022
3. This group was a mixed bag, including Chile, Uruguay, and Panama from LAC and Croatia, Latvia, Romania, and Lithuania from Europe. Again, excluding small island economies (Antilles, American Samoa, Palau), five countries moved in the reverse direction from HIC to UMIC. https://en.wikipedia.org/wiki/World_Bank_high-income_economy
4. https://en.wikipedia.org/wiki/List_of_countries_by_GNI_(nominal)_per_capita
5. China is likely to repeat this achievement in a little over four decades. However, China's per capita GDP growth (PPP adjusted) has lagged that of Japan, Korea, and Taiwan. And 40 years after the start of reforms in each of these economies, China's per capita GDP is less than Taiwan's at T+40 and well below that of Korea and Japan—also at T+40. Chimits et al (2022, November). Nominal per capita GDP in current dollars in 1965 was: Korea $108; Singapore $516; Hong Kong $677; China (1980) $195. https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?locations=CN-KR-SG-HK
6. Hong Kong, Korea, Singapore, and Taiwan.

7. Malaysia, Thailand, Indonesia, and the Philippines were joined from the 1990s by Vietnam. China, also a middle-income economy was (and is) in a class of its own—arguably too large and unique to be classified as a 'tiger cub'.
8. Gill and H. Kharas (2007); Gill and Kharas (2017) tempered their views on the likelihood that MICs would be entrapped in a retrospective paper published on the 10th anniversary of their original piece. In their more recent offering, they contended that their intention was to underline "ignorance about the nature of growth in MICs.... convey an empirical regularity that past growth was no guarantee of future success....and spark discussion of policy choices [i.e., including political and institutional ones that would enable a country to make a transition to productivity led growth]." 'The middle-income trap turns ten.'; Kharas and Kohli (2011); But as noted by the Economist (2017) the evidence supporting the existence of a trap is scanty.
9. There are absolute (growth slowdown) and relative (failure to catch up) definitions of the trap, which are spelled out by Glawe and Wagner (2016), with copious references to the large literature on the topic.
10. Jagdish Bhagwati (1996) scorns the notion of an economic miracle. "I have often thought that ours must be a dismal science indeed if anytime a country does remarkably well, we call it a miracle!"
11. The development state has received intense analytic scrutiny and interpretations differ however, most researchers agree that authoritarianism was not necessarily a key to success. The developmentalism that evolved in East Asia "was a multi-level, multi-stakeholder commitment to economic development coordinated by the state." Wong (2020) succinctly summarizes the several different definitions and attributes of the development state; See also World Bank (1993); Quibria (2002); Stiglitz (1996); Stiglitz and Yusuf eds. (2001). Contributors to this volume examine the East Asian growth performance more broadly factoring in political economy issues, the experience of China and the impact of the East Asian crisis (1997–8).
12. Koyama and Rubin (2022) observe that Korea and Taiwan were helped by geographical proximity to Japan and arguably, the colonial heritage may have contributed to the effective harnessing of the Japanese model. Others such as Kohli (1999), Kim (2009) and Doner et al (2005) have also maintained that the origins of the developmental state in Korea and Taiwan can be traced back to their Japanese colonial heritage. Koyama and Rubin (2022, p.209) remark that "Had Taiwan been located off the coast of West Africa, it is hard to imagine it being as successful." Doner, Ritchie and Slater. (2005); Kohli (1994); and Kim (2009).
13. Albeit not in Hong Kong. Whether development focused autocratic government contributed to the efficacy of industrial polices in the other three tigers has been debated ad nauseam. On the role of state interventionism, see Chang (1993).
14. The smallness of the Tiger economies compelled them to seek global markets to grow and achieve scale economies.
15. Robert Wade's (1992) review of major publications on the East Asian miracle by Alice Amsden, Stephan Haggard and Helen Hughes provides an interesting perspective filtered through the views of several other highly informed observers.
16. The importance given to education in these societies and the readiness of parents to spend on schooling facilitated the buildup of a skilled workforce. https://andrewpaulsen.org/2018/03/30/education-culture-in-taiwan/; Collins and Bosworth (1996).
17. Aviles (2009) writes that "the Japanese created a central state with a modern bureaucracy in Korea and Taiwan, which included a strong central government (with ministries, merit-based technocracy, and modern education systems), as well as a new political economy. This was very much akin to what was found in Japan itself: strong government-corporate bonds, Meiji-style incentivized modernization, the Chaebol (equivalent of the Japanese zaibatsu), and even the strikingly unique style of diffusion in corporate ownership." A transfer of the Japanese industrial assets to Koreans following the end of the WW2 and the establishing of Syngman Rhee's government (in 1948) served to seed some of the chaebol that took shape in the 1960s.
18. The skills deficit continues to hobble Latin American economies. Gust, Hanushek and Woessmann (2022) find that two thirds of the youth lack PISA Level 1 basic skills. In East Asia and the Pacific region only a quarter are skill challenged.
19. Increased access to the vast US market was especially helpful.
20. The article notes, for example that "The value of trade (goods and services) as a percentage of world GDP increased from 42.1 percent in 1980 to 62.1 percent in 2007. Foreign direct investment increased from 6.5 percent of world GDP in 1980 to 31.8 percent in 2006." IMF Staff (2008).
21. The GVC phenomenon took off in the 1990s. Gurria (2012); The rise and spread of GVCs particularly to East Asia is examined by contributors to Elms and Low eds. (2013).
22. Savings responded to the acceleration of growth. Weiss (2005); Bhagwati (1996 ibid) is dismissive of other sources of growth e.g., authoritarianism, Confucian values, and of Alice Amsden's claim that "getting prices wrong" alongside market control and protection from foreign competition, enabled Korea to forge ahead with industrialization [Amsden (1989), Ch 6]. He also doubts that industrial policy was decisive. "I do think that there is a beneficial role to be assigned to governmental interventions in the East Asian miracle, in the early takeoff period of the 1950s when these economies (as also India) were being kicked up into a bastardized, Rosenstein-Rodan-Vishny-Shleifer superior equilibrium ... However, the notion that interventions, especially in the nature of industrial policy, played a systematically beneficial role for decades thereafter (and furthermore that outward orientation played a passive, not an active, role in explaining export and economic performance) is not persuasive to me, though it has gained my colleague Dani Rodrik as a convert or, perhaps I should say, as a victim. He is referring to articles published by Dani Rodrik (2004); Rodrik writes. "It is increasingly recognized that developing societies need to embed private initiative in a framework of public action that encourages restructuring, diversification, and technological dynamism beyond what market forces on their own would generate."

23. J. Weiss (2005) ibid. presents information on the composition of exports showing how items such as food and textiles that bulked large in the 1960s were gradually superseded by electrical machinery, computers, and chemicals. Industrialization and export competitiveness was part and parcel of the successful East Asian industrial policies. After suffering condemnation by neoclassicists for decades, variants of industrial policy are back in vogue (although they remained in the policy toolkit and in use in developed and developing countries alike). The US CHIPS Act is signals in the shift in the heartland of neoliberalism. Hufbauer and Hogan (2022). Meanwhile, a substantial literature has accumulated. See Harrison and Rodriguez-Clare (2009); Cherif and Hasanov (2019); Terzi, Singh, and Sherwood (2022); Chang and Andreoni (2020).
24. According to DiPippo and Mazzocco (2022), industrial policy absorbed 1.73 percent of China's GDP—or $248 billion in current dollars—in 2019 alone and almost twice that of Korea. China's industrial policy supporting the shipbuilding industry is examined in detail by Barwick, Kalouptsidi and Bin Zahur (2019). The National Integrated Circuits Industry Development Investment Fund (Big Fund) created in 2014 provided $21 billion in financing for the industry. An additional $35 billion was added to the Fund in 2019. This is supplemented by $25 billion from local government sources. (Semiconductor Industry Association 2021). Although it is the Central Government that sets the broad goals, the implementation is conducted by local governments. "Local leaders have a number of tools at their disposal to attract investments and could select which policies to pursue based on the comparative advantages of the local region. Such practices could increase local employment and tax revenue and speed up the transition from rural to industrial and post-industrial economies, and this motivates local governments to integrate economic activities into their governance. In addition to the conventional strategies like providing subsidies, local governments have applied a variety of more sophisticated incentives to attract business investment, such as land use policies and tax holidays." Zhu (2022).
25. By effectively harnessing technology, the East Asian latecomers rapidly ascended the industrial ladder and built up a commanding lead over other developing economies. Mathews and Cho (2000).
26. The Hong Kong government was unwilling to shoulder the subsidies and other incentives needed to make the transition to semiconductor fabs (as Korea, Singapore and Taiwan did). Free market ideology, fiscal conservatism, and the likelihood of a handover of the territory to China in 1997, were some of the factors that discouraged the use of industrial policy. Land scarcity and high prices also made Hong Kong a costly manufacturing base. Government policy contributed to high land prices. And this mattered to the authorities because a sizable part of fiscal revenue was derived from the leasing of land. Local governments in China also currently generate close to 40 percent of their annual revenues from the sale and leasing of land. Tuan and Tuan (1995); https://asia.nikkei.com/Spotlight/Caixin/China-s-plunging-land-sales-threaten-local-governments; https://www.lincolninst.edu/publications/articles/chinas-property-tax-reform
27. https://www.imf.org/external/pubs/nft/op152/chap1.htm
28. With infrastructure and real estate absorbing half or more of the investment, the incremental capital output ratio (ICOR) has risen.
29. The projected growth rate for 2022 is 2.7%, the lowest China has recorded over fifty years. https://www.worldbank.org/en/country/china/publication/china-economic-update-december-2022; Observing China's policies during 2022, some observers are of the view that growth could tend towards a 3 percent rate by 2030 and to an even lower rate thereafter. Rajah and Leng (2022).
30. The convergence process has been sluggish at best. Johnson and Papageorgiou (2020).
31. Both are resource rich countries and the rise in per capita GDP was linked to commodity prices and exchange rate movements.
32. Hong Kong did not. Instead, after peaking in 1992, manufacturing began migrating elsewhere (to the Pearl River Delta and Mauritius for example) in search of cheaper labor and land and Hong Kong diversified into financial, logistics, marketing, business services, and tourism/hospitality. This hollowing out of the manufacturing sector also contributed to the long-term increase in income and wealth inequality among the highest in the world. Piketty and Yang (2022); Huang (2019); Screnk (2008).
33. According to Stefan Dercon (2022), the ruling elites in these economies entered development bargains, took a long-term view, and gambled on the likely success of their growth strategies.
34. In Taiwan, small and medium enterprises contributed significantly especially through their export prowess.
35. "There are currently around 40 chaebols in South Korea, with a handful making up the lion's share of the country's economic output. The publicly traded shares of the four largest—Samsung, LG, Hyundai, and SK—amount to one-half of the domestic stock market value. Samsung alone accounts for one-fifth of Korean exports. Even though nine out of ten South Korean employees work for small to medium-sized enterprises (SMEs), three-quarters of market capitalization is held by chaebols." Song-Pehamberger (2022); Manyika et al (2018).
36. Top Glove, SilTerra (the 16th largest semiconductor fab), Inari Amertron, Unisem, and ViTrox of Malaysia (the latter three engaged in OSAT), CP, and Siam Cement of Thailand, JBS in Brazil, CEMEX and Gruma in Mexico are some exceptions but not comparable to the Samsungs, Hyundais and Foxconns.
37. More of the FDI in the major Latin American countries has flowed into mining, energy, agribusinesseses, communications and services, although a quarter of Chinese investment is in manufacturing. https://unctad.org/news/foreign-direct-investment-latin-america-rebounded-56-2021; https://blogs.iadb.org/integration-trade/en/foreign-direct-investment-in-latin-america-and-the-new-global-outlook/; Ching (2021).
38. Freund and Pierola (2020) make the case that a few superstar firms are a major source of exports and GDP growth from export diversification. Other leading Taiwanese companies include ASE Tech Holdings, UMC, Pegatron, MediaTek, Formosa Petrochemical, ASUS, and Quanta. Half the exports are integrated circuits, office machine parts, computers, media, and broadcasting equipment. 2020- $374 b. https://oec.world/en/profile/country/twn;

39. Taiwan capitalized and built upon the infrastructure stock created during the colonial period, when Taiwan was a breadbasket for Japan. "By the 1970s, Premier Chiang Ching-Kuo's Ten Major Construction Projects had built infrastructure across Taiwan, increased electricity production, and boosted steel production, critical components of the infrastructure-fueled boom. Costing over $10 billion in costs, the completion of Premier Ching-Kuo's projects signaled Taiwan's entry into the modern era." Berkeley Economic Review (2020).
40. WEO (2015) How can SE Asia close its infrastructure gap? https://www.weforum.org/agenda/2015/04/how-can-south-east-asia-close-its-infrastructure-gap/; ADB estimates that ASEAN countries need to invest $210 billion annually through 2030 to meet climate change adjusted infrastructure needs. https://www.pwc.com/sg/en/publications/assets/cpi-mas-1-infrastructure-opporuntities-in-asean-201709.pdf; N. Smith (2022).
41. https://bernersconsulting.com/newsletter-en/newsletter-q2-2013/the-custo-brasil-president-rousseff-tear-down-this-wall.html
42. https://idbinvest.org/en/blog/brazil-infrastructure-challenges-and-opportunities
43. Market governing as applied by Taiwan and Korea is discussed at length by Wade (1990) who draws a few lessons on how a mix of state guidance and market signals can deliver superior results under certain conditions.
44. In Taiwan's case, the business-friendly policies fiscal incentives, export financing and the establishing of industrial parks helped to create a dynamic SME sector from which emerged several of Taiwan's world class export-oriented firms. Hu and Schive (1998); T-J Cheng (2001); Hong Kong's industrial sector was also dominated by SMEs. Schenk (2008).
45. https://www.investopedia.com/articles/economics/08/north-american-free-trade-agreement.asp; https://www.tecma.com/effects-of-nafta-on-mexico/
46. https://www.wto.org/english/news_e/pres19_e/pr837_e.htm
47. https://www.vietnam-briefing.com/news/why-manufacturing-is-driving-vietnams-growth.html/; Yusuf (2021).
48. However, of late, there are some promising findings regarding the productivity of services in LMICs reported by the G. Nayyar et al (2021); Moreover, productivity of services in China appears to be rising faster than of manufacturing, which is grounds for hope. X. Chen et al (2022).
49. FRED and the Conference Board provide supporting data on TFP https://fred.stlouisfed.org/series/RTFPNASGA632NRUG; https://www.conference-board.org/topics/global-economic-outlook/global-productivity-brief-2021
50. See findings of Hanushek and Woessmann (2016, 2022) noted earlier. Pritchett and Viarengo (2009) pointed to the shortage of highly skilled workers in Mexico. They estimated using PISA test scores that between 3,500 and 6,000 Mexican students were above the "high international benchmark" from a cohort of 2 million, whereas they numbered 125,000 for the same period and 250,000 in the US. Pritchett and Viarengo (2009).
51. The importance of augmenting innovation capabilities has been underscored by the World Bank (2021). In addition to an increase in R&D, design and implementation capabilities and the capacity to learn from experimentation can help promote innovation. Together these can minimize the risk of countries succumbing to a "middle innovation trap" (Lee et al 2019). Vietnam is a typical case. R&D absorbs 0.54 percent of GDP and gross tertiary school enrollment was only 28 percent. World Bank (2022).
52. Bloom et al (2020); Quality of Nobel Prizes discoveries less pathbreaking. Collison and Nielsen (2018); Gordon (2000) has maintained that technological innovations introduced during the past quarter century do not measure up to the ones that were mainstreamed from the last quarter of the nineteenth century and through the early decades of the twentieth. Hence the faltering rate of TFP growth since the 1980s with digital technology providing only a brief spurt (in the United States) from the early 1990s through 2005; Research is now done largely by teams—interdisciplinary and international. Single authored papers fewer. "Any issue of *Nature* today has nearly the same number of Articles and Letters as one from 1950, but about four times as many authors. The lone author has all but disappeared. In most fields outside mathematics, fewer and fewer people know enough to work and write alone. If they could and could spare the time and effort to do so, their funding agencies and home institutions would not permit it". https://www.nature.com/articles/4501165a; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3652225/; https://www.nature.com/articles/d41586-021-01581-z. This trend most apparent in the Chinese case where the dominance of large teams with a less diverse composition of researchers has risen steeply. Smaller teams are losing out because grants from China's Science Foundation favor the big battalions. Liu et al (2020).
53. Ageing reduces the demand for innovation, and it can also undermine the human capacity to supply it. Nobel Prizes are being awarded for less impressive achievements.
54. An unraveling of economic and trade ties could affect East Asian prospects. Cerdeiro, Kothari and Redl (2022).
55. Mexico stands to benefit from a nearshoring of production, but thus far there are few signs that it is luring firms away from China and other Asian countries. Schott and Goodman (2021).
56. Nevertheless, greater openness will remain advantageous and could reduce the income losses inflicted by climate change, possibly curb climate induced migration and it may even speed up decarbonization via technology transfer and by permitting firms to realize scale economies. Xu and Monteiro (2022).
57. Increased regulation does not explain why growth is down by more than 1% p.a.
58. Romanello et al (2022); Labor productivity is impaired as temperatures rise beyond a point. Yusuf (2021a); Climate change affects conflicts and productivity. NBER. https://www.nber.org/digest/apr15/exploring-how-climate-change-affects-conflict-and-productivity; Somanathan et al (2021); A Stanford study found that climate change diminished the productivity of global farming by 21 percent equivalent to losing 7 years of gains in productivity since the 1960s. Ortiz-Bobea et al (2021).

59. South Asian countries are among the most exposed to the punishment inflicted by climate change but MICs in East Asia and some in LAC are also vulnerable. For example, Costa Rica is losing about one-half percent of GDP each year to climate related disasters. And the floods that ravaged the southern part of Pakistan in 2022 destroyed assets equal to almost 9 percent of GDP ($30 billion). https://www.imf.org/en/News/Articles/2022/11/14/cf-costa-rica-to-tackle-climate-change-with-new-resilience-and-sustainability-facility; WEF (2022). The estimates of annual climate related damages that developing countries might have to absorb by 2030 are of the order $580 billion rising to $1 trillion by 2050. *Financial Times* (2022, Supplement, November 8th). 'Loss and damage stalemate is at breaking point.'
60. https://www.theguardian.com/cities/2016/nov/22/jakarta-great-garuda-seawall-sinking; https://www.wired.com/story/jakarta-giant-sea-wall/; https://www.indonesia-investments.com/projects/public-private-partnerships/giant-sea-wall-jakarta-national-capital-integrated-coastal-development-ncicd/item2307
61. The impact of climate change may have cost Vietnam as much as 3.2 percent of GDP in 2020. World Bank (2022c).
62. https://unfccc.int/news/new-report-details-dire-climate-impacts-in-latin-america-and-the-caribbean
63. So also does Malaysia and Vietnam. Agricultural exports are major earners of forex for both countries as are petroleum exports for Malaysia.
64. https://news.gallup.com/poll/157073/corruption-continues-plague-indonesia.aspx; https://tradingeconomics.com/philippines/corruption-rank; https://www.channelnewsasia.com/asia/malaysia-politics-navy-littoral-combatant-ships-corruption-1mdb-najib-razak-general-election-ge15-3075971
65. These are sharpening in Malaysia and have smoldered in Indonesia for decades. Chew (2022); Brooks (2019); Arman (2022).
66. *The Economist* (2022, November 12th p.33) observed that at the Malaysian election in November 2022, voters were faced "with a grim choice between inept parties and an appalling one."
67. "The Spanish empire was run by a privileged and utterly out of touch letarodos" Falconi and Robinson (2021).
68. Williamson (2009).
69. Falconi and Robinson (2021) ibid. add clientelism and a weak state to the other ills rooted in the colonial past.
70. Falconi and Robinson (2021) ibid. remark. "Though the political economy roots of Latin American under-development are historical, the most important ways that this history manifests itself today is in the twin syndromes of state weakness and clientelism. These together constitute the "weak state trap" and they lead to generic under-provision of public goods and a failure of accountability."
71. Cardenas (2010) ascribes some of Latin America's economic shortfall to weak state capacity, which he measures and compares with other countries.
72. The 1980s is remembered as a lost decade. https://www.federalreservehistory.org/essays/latin-american-debt-crisis
73. Latin America's economic travails from the turn of the 20th century onwards are examined at length by contributors to Edwards, Esquivel, and Marquez eds. (2007).
74. Mexico for example bit the bullet, opened its economy to trade and FDI, privatized SOEs and engaged in fiscal reforms. Hanson (2010).
75. According to Goldfajn et al (2021), "It is fair to conclude that Latin American economic performance has been disappointing over the last 30 years, both compared with other regions and emerging economies and relative to expectations at the beginning of the 1990s. Even success cases, like Chile, are currently under scrutiny."
76. Crime discourages investment, constrains labor supply and the costs of prevention weigh heavily on the economy. According to one estimate for Mexico, losses from crime amounted to $134 billion in 2015 (13 percent of GDP). https://www.weforum.org/agenda/2016/05/this-is-how-much-violence-costs-mexicos-economy/; https://voxdev.org/topic/labour-markets-migration/effects-crime-labour-market-evidence-mexico; Riascos and Vargas (2011) review the empirical estimates for crime related losses in Colombia. In 2017, they may have equaled a third of the GDP. https://colombiareports.com/violence-cost-colombia-a-third-of-its-gdp-last-year-report/; An earlier paper by Cardenas and Rozo (2008), concluded that Colombia was losing as much as 2 percent per annum of growth largely because of reduced productivity resulting from violence and drug related activities. And violence has worsened in both Mexico and Colombia with most of the population in Colombia believing that the security situation is deteriorating. https://colombiareports.com/duque-subjects-colombia-to-worst-levels-of-violence-in-decades/; https://www.usip.org/publications/2022/06/mounting-security-challenges-await-colombias-next-president; https://www.asisonline.org/security-management-magazine/latest-news/today-in-security/2022/september/Extreme-Violence-in-Mexico-Continues-to-Increase/; https://theglobalamericans.org/2022/08/organized-crime-in-mexico-and-the-evolving-government-response/; https://www.americasquarterly.org/article/how-to-avoid-a-caudillo-in-colombia-and-elsewhere/ Violence on this scale has not affected any East Asian country. Only the Philippines comes anywhere close. https://blogs.worldbank.org/eastasiapacific/impact-of-conflict-and-violence-in-the-philippines-2000-2010-survey-results-i; https://www.hrw.org/tag/philippines-war-drugs; https://asiafoundation.org/wp-content/uploads/2017/10/Philippines-StateofConflictandViolence.pdf
77. Panama and Dubai are the rare exceptions and special cases, where growth has been bolstered by an influx of money seeking anonymity and a safer harbor. See Yusuf (2021b); Panama Papers https://www.icij.org/investigations/panama-papers/; Pandora Papers (2021) https://www.icij.org/investigations/pandora-papers/global-investigation-tax-havens-offshore/; Yusuf and Nabeshima (2013).
78. Dubai and Panama are outliers with few if any lessons for other emerging economies.
79. Current share of manufacturing in Singapore's GDP is 21% that of Ireland is 37%—thanks to the relocation of manufacturing by MNCs. https://enterprise.gov.ie/en/publications/publication-files/forfás/making-it-in-ireland-manufacturing-2020.pdf; However, Ireland's growth rate and GDP numbers are muddied by MNC activities. https://www.politico.eu/article/ireland-gdp-growth-multinationals-misleading/

80. Hong Kong's declining fortunes have been hastened by recent political developments and the Covid lockdown. https://www.washingtonpost.com/opinions/2022/10/24/hong-kong-economy-recession-recovery/
81. Baldwin visualizes a growing population of "White-collar robots…[or] automating algorithms—things like Robotic Process Automation (RPA), virtual assistants, chatbots, and sophisticated AI packages like IBM's Watson. These robots are automating service-sectors tasks at digitech's eruptive pace—driven by machine-learning on one hand, and, on the other hand, by the falling cost of gathering, transmitting, storing, and processing the massive datasets needed to train the algorithms." Baldwin (2022).
82. Digitization is the new mantra for the IFIs. In the absence of alternative silver bullets, it is now offered as the all-purpose cure for slow growth. For example, the IMF is urging Thailand to revive economic growth by "leverag[ing] and digitalization [and] mov[ing] towards more sophisticated manufacturing and innovative services' exports." Thailand 2022 IMF Article 4 Consultation (p.22); Similar advice is extended by the World Bank (2022) to the Philippines. "Only a transformative solution will catapult the economy into reaching its *AmBisyon Natin* aspiration of a prosperous middle-class society by 2040. Part of the solution lies in harnessing the digital economy. The benefits brought by the digital economy are extensive and can be shared by all sectors of society. Digitalization can enhance productivity by reducing firms' operational costs and delivering economies of scale. It can empower firms of all sizes to access markets beyond traditional boundaries." Philippines Economic Update, June: 'Strengthening the Digital Economy to Boost Domestic Recovery.' It is also argued that Digital Trade Facilitation (DTF) could increase the resilience of merchandize supply chains through data gathering and cross-border sharing that would provide advance warning of impending problems, enable rapid response to shocks and allow supply chain participants to craft longer term strategies. Wirjo and Calizo (2022).
83. https://economictimes.indiatimes.com/tech/information-tech/nasscom-pegs-indian-it-industry-revenue-at-194-billion-for-fy21/articleshow/80923715.cms?from=mdr; The digital economy was valued at 9 percent of US GDP in 2018—less than the share of manufacturing (11.3 percent) but more than finance and insurance (7.6 percent). https://www.bea.gov/system/files/2020-08/New-Digital-Economy-Estimates-August-2020.pdf
84. https://economictimes.indiatimes.com/tech/technology/exports-of-software-services-from-india-increased-to-88-8-during-2021-22-fiscal-rbi/articleshow/94101979.cms?from=mdr; IT export $157 billion. [NASSCOM] Total exports $335b in 2021-22. Services exports in 2021 were $254 billion. Main exports are refined petroleum, generic medicines, diamonds, rice, and jewelry. US, China, UAE are the principal destinations. It should be noted that direct employment in the IT sector has a multiplier effect thereby creating other indirect job opportunities which can be greater.
85. The adoption of such technologies was given a big push by the Covid pandemic with those firms that that already had the technology in their sights being among the early adopters. Cirera, Comin and M. Cruz (2022).
86. R. Baldwin (2022. ibid) observes that "Barriers are radically higher and falling radically faster for services versus goods… digitech is rapidly lowering the technological barriers to trade in intermediate services…and, unlike farm and factory goods, there is no capacity constraint when it comes to intermediate services."
87. McKinsey's research found that companies that firms in the top quartile that registered the fastest rate of growth in gross value of output invested 2.6 times more in intangible assets. McKinsey (2021); Eberly (2022) has spelled out the productivity augmenting benefits of partially or wholly non-rivalrous intangible investment especially for large firms in industries where concentration is rising—aided by intangible capital accumulation; An analysis of the returns to data acquisition and use suggests that returns are slowing in both the US and Europe because of constraints impinging on the innovation eco-system e.g. weakening competition possibly the outcome of increasing concentration. C. Corrado et al (2022 ibid); The worth of intangible capital is explored at great length by J. Haskel and S. Westlake in books published in 2017 and 2022. https://www.mckinsey.com/capabilities/growth-marketing-and-sales/our-insights/forward-thinking-on-the-transformative-role-of-intangible-assets
88. This is the conventional wisdom rooted in Robert Solow's seminal piece published in 1957; Hulten (2000); For a recent update on the research, see, Jones (2015).
89. For example, 17.5% of Korea's population is over 65 years of age. With a fertility rate of less than 1.0 (0.8 in 2021), by 2025, a fifth of the population will be over 65, 30% by 2030 and 40% by 2050. Countries such as Thailand and Vietnam will also be aging, not to mention China, which worries that it will "be old before it is rich". https://en.yna.co.kr/view/AEN20220929003000320?section=economy-finance/economy
90. China accounted for 15 percent of global exports in 2020. https://www.reuters.com/world/china/chinas-export-share-grew-pandemic-may-be-near-peak-unctad-says-2021-04-27/; the Japan Center for Economic Research (JCER 2022) is now projecting a growth rate for China in the balance of the 2020s of between 3-4 percent per annum falling to 2 percent in the 2030s with the likelihood of overtaking the United States now pushed well into the future. See also footnote 29.
91. Rogoff and Yang (2020); https://www.fitchratings.com/research/corporate-finance/multiple-sectors-in-china-face-rising-headwinds-from-lingering-property-stress-06-12-2022; https://www.reuters.com/markets/asia/xi-faces-painful-gear-shift-chinas-investment-led-growth-sputters-2022-10-14/
92. https://www.bloomberg.com/news/articles/2022-03-29/china-crackdowns-shrink-private-sector-s-slice-of-big-business?leadSource=uverify%20wall; Huang and Lardy (2021); Bramble (2021).
93. See the FRED ST Louis database for a longer series. FRED data base. https://fred.stlouisfed.org/series/RTFPNAUSA632NRUG
94. The investment in sustainable infrastructure required to achieve the desired reduction in GHG emissions by MICs (excluding China) and other developing economies, could be of the order of 4.1 percent of GDP by 2025, and 6.5 percent of GDP by 2030 as against the 2.2 percent of GDP invested in 2019. M. Wolf (2022). Delay makes climate action more urgent. *Financial Times*, November 9th, 2022. p.17.

95. China's total factor productivity grew at an impressive 3.1 percent per annum during 1979-2008, the halcyon years of "reform and opening." Thereafter, as China's economy closed in on the technology frontier, TFP growth slowed to 0.7 percent per annum during 2009-2018. Brandt et al (2020); Research by Branstetter et al (2022) has shown that China's technology Big Push and the Great Wall of Patents has been slow to generate the desired productivity and growth outcomes. Branstetter, Li and Ren (2022); Branstetter and Li (2022). Other projections point to the wide discrepancy between average labor productivity in Chinese manufacturing and services and that of the US and the scope for closing that gap. In other words, China could potentially achieve higher rates of productivity growth and conceivably double its GDP by 2035. Sasaki et al (2021); Zhu et al (2019).
96. To break out of middle-income convergence clubs may require "bold" actions. Johnson and Papageorgiou (2020). A few countries are implementing—industrial and technology policies, digitization, servitization and greening. Whether these are bold enough to move the needle only time will tell.
97. This echoes the finding of Pritchett and Summers (2014). "History teaches that abnormally rapid growth is rarely persistent, even though economic forecasts invariably extrapolate recent growth. Indeed, regression to the mean is the empirically most salient feature of economic growth." And an earlier paper by Hausmann, Pritchett and Rodrik (2005) also concluded that shocks and policy could accelerate growth but only temporarily.
98. "Things fall apart; the center cannot hold;...And what rough beast, its hour come round at last, / Slouches towards Bethlehem to be born?". "The feeling that the old rules no longer apply and there's nothing to replace them." Tabor (2015).

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