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Drivers of medium term growth

Josina Solomons, Kerschyl Singh and Jean-Francois Mercier

Abstract

Global long-run potential growth has been on a declining trend in recent years. Covid-19 and the measures undertaken to contain it may have exacerbated this trend. Emerging markets have not been immune to productivity slowdowns, and growth prospects seem particularly challenging over the medium to long term. Five-year ahead growth prospects in emerging market countries are forecast to decline, from roughly 7% in 2008, to 4.4% currently. Long-term drivers of EM productivity have also been declining and could drop even further over the coming decade. Over the last five years, labour productivity growth slowed in emerging market economies to 3.5%, from 4.1% during the period 2000-2009. Lower emerging market productivity could translate into weaker exchange rates and higher inflation over the medium term.

1. Introduction

The Covid-19 pandemic and the measures undertaken to contain it have resulted in the worst global recession on record. Even as the world economy recovers, there remain concerns that the damage from these Covid-related restrictions to the global economy could be long lasting. In this note, we will assess how the pandemic has affected global growth prospects, with particular focus on countries' ability to generate economic growth over the medium to longer term. We will specifically explore drivers of emerging market productivity growth and the likely impact on monetary policy.

Our analysis finds that global potential growth has been on a declining trend since the global financial crisis. Covid-19 and the containment thereof may have exacerbated this trend. Emerging market (EM) growth prospects seem particularly challenging over the medium to longer term. Prospects for lower EM productivity growth risk translating into weaker exchange rates and higher inflation over the medium term.

2. The impact of the pandemic on global growth prospects

Covid-19 hit the global economy at a time when long-term global growth prospects were already falling. The last decade saw a steady decline that intensified following the 2008-2009 global financial crisis. A simple way to measure medium-term growth prospects is to look at the evolution of the five-year ahead forecasts produced by the International Monetary Fund (IMF).

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For the world as a whole, the IMF's medium-term growth prospects fell from around 4.7% in 2008 to 3.3% in 2021.¹ Advanced economy growth prospects fell 1 percentage point, from around 2.5% in 2008 to 1.5% currently. But, growth in EM countries is forecast to decline by 2.5 percentage points, from nearly 7% in 2008 to 4.4% currently. While most EM regions experienced declining growth prospects, downward revisions have been particularly large across EM Asia (Figure 2).



There is also rising concern that the pandemic will exacerbate the slowdown in global potential growth. According to the World Bank (WB), the decade leading up to pandemic was marked by structural weaknesses that weighed on global potential growth². The WB estimates that global potential output growth declined from around 3.3% during the 2000s to around 2.5% during 2010 to 2019, and expects a further decline to 2.1% for the decade 2020 to 2029 (Figure 3). The WB now projects that the pandemic will erase a further 0.2 percentage points off annual global potential growth over the coming decade, taking it to 1.9%. For EMs it is an additional 0.6 percentage points lower (Figure 4).

¹ IMF's World Economic Outlook for April 2021.

² World Bank, Global Economic Prospects, January 2021.



3. Productivity growth

The major contributor to declining potential growth over the last decade has been a trend decline in productivity growth³. By 2018, labour productivity growth had slowed in both advanced and emerging market economies to 0.7% and 3.5%⁴, respectively, from 1.0% and 4.1% during the period 2000-2009⁵ (Figure 5). While there has been a synchronised drop in global productivity growth, declines appear to have been particularly large across EMs.⁶

As the literature suggests, differences in productivity are key to the income gaps between richer and poorer economies.⁷ Although EMs have been playing catch-up over the last few decades, EMs still have a long way to go. Furthermore, progress is uneven – there are still wide income gaps across our sample of EM countries – and in some cases, this has stalled or reversed. Perhaps unsurprisingly, the peak in EM productivity growth after the GFC coincided with the peak in income per capita in most emerging markets (Figure 6). In addition, the pandemic has erased most of the gains in per capita incomes from recent years. The IMF predicts that per capita incomes in some EMs will only return to pre-pandemic levels in about five years' time.

³ Productivity is generally pro-cyclical. This means that during recessions productivity usually drops, while productivity is positive when economic growth is positive. To assess productivity growth over the short term can be misleading. It is more useful to look at multi-year longer-term productivity growth.

⁴ These are calculated as 5-year rolling averages.

⁵ In our analysis, labour productivity is defined as output per worker.

⁶ This was in contrast to the previous decade, when productivity was generally still accelerating in large EMs.

Hall, R., and Jones, C., 1999, "Why Do Some Countries Produce So Much More Output per Worker than Others?" Quarterly Journal of Economics 114, no. 1: 83–116.



Figure 5: Productivity growth

Figure 6: Per capita incomes

Colombia

Mexico

Russia

The World Bank estimates the impact of the Covid-19 pandemic on productivity to be much worse than previous epidemics, mainly because of its global reach and the unprecedented social distancing and containment measures put in place to slow the spread of the virus. Whereas previous epidemics such as SARS, Ebola and Zika lowered productivity (in affected countries) by around 4 per cent three years after the initial shock, the Covid-19 pandemic is estimated to have a significantly worse impact on productivity of up to 9 per cent over a period of three years.

What explains the differences across EM productivity? 4.

When looking at the productivity performance across a number of EM regions, we find a fairly similar pattern emerging, with productivity increasing sharply during the 2000s, up to the GFC, and declining thereafter (Figure 7). In a recent study by the World Bank, the authors decomposed EM productivity growth into three components: Capital deepening, human capital and total factor productivity⁸ (Figure 8). During the EM productivity boom period of 2003 and 2008, both capital deepening as well as total factor productivity were major contributors to productivity growth. Subsequently, during the downtrend, both factors have contributed to the slowdown. Interestingly though, the contributions from human capital have been fairly stable over both decades.

⁸ Dieppe, A., June 2020, "Chapter 1: Global productivity trends", World Bank Global productivity book.



We now assess the gap between emerging market productivity and that of advanced economies. In particular, we compare productivity levels relative to the US in both 1990 and 2019 for three categories: physical and human capital as well as total factor productivity. Successful economies – that graduated from emerging to advanced economy status -- are highlighted in green. These include South Korea, where income per capita more than doubled from around 32% of US levels to 67%.

Since 1990, most countries – but especially the successful ones – have seen convergence in relative levels of physical capital (Figure 9). The average stock of capital per capita rose from 19% of the United States' in 1990 to 36% in 2019. In 37 economies, the share increased; it declined in only four. Convergence has been more muted with respect to human capital, though initial 1990 levels were not that low to start with (Figure 10). With respect to TFP, the performance has been more disappointing: Thus, most EMs have accumulated more productive capacities in past decades, but this has not always translated into more efficient use of factors of production (Figure 11).











Figure 11: Total factor productivity relative to US

Relative to other EMs, South Africa appears to lag behind in the measure of total factor productivity and is fairly muted in physical capital accumulation. For EMs as a whole, it would appear that factors such as capital deepening, human capital, innovation and health have partially improved towards advanced economy standards, whereas factors such as trade complexity and FDI still require some improvement.

 Table 1: Recent developments in EM productivity

		Are EMs	How does SA
	Driver	approaching AEs?	compare?
Sources	Capital deepening		
	Human capital		
	Innovation		
	Health		
Supporting	Institutions		
environment	Macroeconomic stability		
Market	Trade complexity		
development	FDI		
Yes	Partially	Stalled	No

Source: World Bank Group, own estimations

5. Divers of EM productivity: Capital deepening

We now turn our attention to the different drivers of EM productivity growth and assess whether the pandemic's containment measures worsened future prospects of these factors. Capital deepening has been a major contributor of weaker EM productivity growth in recent years. While investment in advanced economies has been on a declining trend relative to GDP for more than a decade, EM investment rose sharply during the 2000s and early 2010s. However, it has also started to slow in recent years, mostly reflecting declining capital accumulation in China, which implemented a rebalancing strategy from investment to consumption. Consequently, investment growth in EMs fell to 2.5% in 2019, from a peak of

10.8% in 2010. Total EM investment collapsed in 2020 and is expected to remain fairly muted over the medium term. Some investments have also been postponed or even cancelled due to heightened uncertainty over the Covid-19 pandemic.

Furthermore, current investment levels may fall short of future needs, especially in infrastructure. A study conducted by the World Bank compares actual (current) infrastructure spending to an estimate of preferred spending needs for 2015–30. It shows that all EM regions are currently spending at sub-optimal levels. The region with the largest infrastructure deficit relative to future needs appears to be SSA.



6. Human capital

Another key component of productivity is human capital. Education remains a critical driver of productivity growth. Better educated, well-trained, and experienced workers tend to be more productive⁹. Over the last 60 years there has been major improvements in human capital investment through primary and secondary education. Average years of schooling in EMs increased substantially, from 3.5 to 8.6 years. However, a number of EMs and low income countries have spent a significant amount on education, but it has not necessarily translated into better learner outcomes (as measured by average years at school)¹⁰.

Major progress has also been made in education across EMs, but the gap with advanced economies is still wide. While the gap between EMs and AEs in the provision of secondary education have narrowed steadily, that for tertiary education has widened over the last 60 years as tertiary education expanded faster in AEs (Figure 15).

⁹ Fox J., Smeets V., 2011, "Does input quality drive measured differences in firm productivity?", International Economic Review, issue 4, pages 961-989.

¹⁰ Average years of schooling is not necessarily a guarantee of a successful education system. For instance, the PIRLS literacy and TIMMS numeracy studies show widespread performances across countries amid students in the same grade.



The measures to curb the pandemic are also expected to have weakened progress in human capital development. School closures probably reduced the learning-adjusted years of education across EM regions by roughly a third of a full year¹¹. During the pandemic, regions with generally lower productivity, have also experienced longer school closures (Figure 16). For instance, in Sub-Saharan Africa schools were closed for around 23 weeks at the height of the pandemic. This is likely to translate into a seven percentage point decline in learner outcomes. There are also views that deskilling due to prolonged unemployment, could likely lower future earnings and dent human capital.¹²



¹¹ World Bank, Global Economic Prospects, January 2021.

¹² This World Bank 2020 study translates the impact on education outcomes based on three scenarios (Optimistic, Intermediate and Pessimistic) of school closures. For instance, in SSA schools were closed for around 23 weeks, which makes the region fall into the WB's intermediate scenario, which translates into a 7 percentage point decline in learner outcomes.

7. Innovation

Total factor productivity (TFP) typically includes all the gains in productivity that are not accounted for by either capital deepening or improved labour quality. It more or less captures productivity gains from innovation, and a country's ability to make use of advanced technologies. The literature tends to find a positive relationship between productivity and innovation¹³.

Measures of innovation are typically lower in EMs than in advanced economies. Unesco publishes a survey on innovation trends across countries. The latest one was conducted in 2018. The survey looks at three types of innovations that manufacturing firms typically implement, namely: product, process and marketing innovators. Product innovation refers to a good or service that is new or improved in either technical specifications or software enhancement. Process or marketing innovators, on the other hand, refer to changes in techniques, design or packaging of a good. Hence, product innovation which generally requires technological advances, appears to be the least prominent type of innovation in most EM economies. Meanwhile AEs mostly make use of high-tech innovations.



Technological innovation is generally expected to boost labour productivity and output. UNCTAD recently published a survey that determines a country's technological readiness for advanced technologies such as artificial intelligence and robotics. The study developed a readiness index, which looks at five different areas of technological readiness. The higher the score, the more ready a country is to make use of advanced technologies. High income countries tend to be more technologically ready, while low income countries lag behind (Figure 21) albeit with significant outliers like Vietnam and India.

¹³ Hall, B. H., J. Mairesse, and P. Mohnen. 2010. "Measuring the Returns to R&D." In Handbook of the Economics of Innovation.



GDP per capita, PPP (international USD, 2019)

The pandemic is expected to have had significant negative effects on innovation and technological advances as it delayed or even cancelled investments in new technologies. The disruption of global value chains may have also impeded the creation of new technologies, including by weakening property rights, reducing research and development investment and increasing costs of doing business¹⁴. Meanwhile, the containment measures that were adopted to limit the spread of the virus sharply reduced trade and to some extent limited the transmission of innovation. However, to some degree the pandemic could encourage investment in new and more technologically advanced capital, such as robotics and other digital technologies such as artificial intelligence.

8. Economic complexity

Another identified potential driver of productivity growth is a country's economic complexity. Hidalgo and Hausmann (2009) calculated an economic complexity index that increases with the complexity of a country's exports. Complexity reflects diversification and production capabilities, and may be linked with higher productivity or greater scope for future growth¹⁵. EMs generally remain behind advanced economies in the complexity of their exports, but with significant regional variation. Complexity in the East Asia Pacific region is now close to advanced economy levels, while other regions remain significantly behind. Complexity in the Sub-Saharan Africa region has been declining since the 1970s and has moved further into negative territory over time (Figure 19).

¹⁴ World Bank Group, "*How do epidemics affect productivity*?", June 2020.

¹⁵ Jarreau J., Poncet S., 2012, "*Export sophistication and economic growth: Evidence from China*", Journal of Development Economics, issue 2, pages 281-292.





Source: Hidalgo and Hausmann (2009) "The building blocks of economic complexity"

Disruptions to global supply chains from the COVID-19 pandemic is likely to have slowed investment in export-intensive sectors. These factors may have further impeded technological progress in EMs and particularly low income countries such as SSA.

9. Impact on monetary policy

Based on our findings, it would appear as though EM productivity could remain fairly muted over the coming decade, with persistent divergences across regions and countries. What then could this environment of expected low productivity growth mean for monetary policy in EMs over the coming years? In this section, we assess the likely impact of low productivity on real effective exchange rates, inflation and real policy rates for a group of emerging markets.

10. Productivity and exchange rate

Loko and Tukladhar (2005) argue that higher productivity growth will translate into an appreciation of the real exchange rate¹⁶. Here we look at a group of emerging market countries¹⁷, and the data seem to confirm a positive correlation between medium-term productivity and a country's trend REER. Countries with high productivity growth appear to have improved currency performance. Turkey appears the key outlier – displaying trend REER depreciation despite positive TFP growth – though policy instability and financial vulnerabilities probably largely explain this discrepancy.

¹⁶ Loko B., Tukladhar A., 2005, "*Labour productivity and real exchange rate*" IMF Working Paper series No.05/113.

¹⁷ Sample of emerging market countries include: Argentina, Brazil, Chile, Colombia, Czech Republic, Hungary, India, Indonesia, Israel, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, South Africa, Taiwan, Thailand and Turkey.



Moreover, in comparing productivity growth with REER performance over time, we selected two subgroups from our EM sample, those countries where TFP growth was below or above the sample median, respectively. We then calculated the average REER for each sub-group, and our calculations show a clear under-performance of the "below median" group. Hence, countries with weaker productivity growth, typically have weaker exchange rates.



11. Productivity and inflation

2011

2014

2017

2020

2005

2008

Generally, one might expect an inverse relationship between inflation and productivity, because lower labour productivity would raise business costs for a while, as firms face higher unit labour costs. Firms in turn raise prices to offset the squeeze on their profits. Whereas in the long run workers accept lower wage growth to compensate for lower productivity growth, in the short to medium term however, there is upward pressure on inflation.¹⁸

¹⁸ The poorer performance of real exchange rates would also add to inflationary pressure in lowerproductivity countries.

In trying to assess whether the relationship holds for EMs, we compare the change in average inflation from 2005-09 to 2015-2019 with productivity growth for a group of EMs. On balance the relationship looks negative as one would expect, insofar as countries with higher average TFP growth have lower and/or faster-declining inflation. The relationship is even stronger if one excludes the likes of Turkey and Nigeria, which enjoy positive TFP growth, but for other reasons, poor inflation performance.





12. Productivity and real policy rates

The literature suggests that a positive relationship exists between productivity and real interest rates¹⁹. In our sample of EM countries however, there appears to be no clear correlation between the two, which is no surprise. On the one hand, high productivity growth normally means a dynamic, fast-growing economy, which would coincide with a higher neutral real rate (NRIR).²⁰ But at the same time, a dynamic economy generally means better credit ratings, which tend to depress the risk premium on a country's assets, so in a world of open capital flows this would lower the NRIR. We therefore see no strong argument for a relationship between the two, with unique country characteristics likely to prevail, such that for some countries the risk premium would matter more, whereas for others (for example, relatively closed economies with low debt and external surpluses) it might not even matter.

¹⁹ The positive relationship between productivity growth and real interest rates can be found in the Ramsey (1928) model of saving and investment. The intuition for the Ramsey model is as follows. When productivity growth is low, households suspect that their future income may be lower than their present income. Thus, households save more today in order to supplement low incomes in the future, smoothing out consumption. This high level of desired savings provides more funds to firms for investment. Because firms normally invest in their most profitable projects first, these additional funds allow firms to invest in less profitable projects, which lowers the interest rate that can be paid. Hence, low productivity growth leads to low interest rates.

²⁰ This argument was first laid out by Wicksell in *Interest and Prices* (1898).



13. Conclusion

Emerging market productivity growth has been on a trend decline in recent years. The pandemic probably exacerbated this downtrend and EM growth could thus slow further over the medium to long term. The pandemic and resulting containment measures are expected to negatively impact productivity over the coming years, as lower investment, reduced progress in human development and declining investment in technological advancement could potentially weigh on EM productivity growth. Intra-EM performance is likely to vary significantly, but some countries with low productivity growth could experience weaker exchange rates and higher inflation over the medium term.