



# Perspectives on Global Development 2014

**BOOSTING PRODUCTIVITY  
TO MEET THE MIDDLE-INCOME CHALLENGE**



# Perspectives on Global Development 2014: Boosting Productivity to Meet the Middle-Income Challenge

Pocket Edition

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The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Developing economies continue to grow faster than more advanced countries. Non-OECD countries' share in world GDP surpassed that of OECD countries in 2010. Since its initiation in 2010, the series of publications *Perspectives on Global Development* has investigated the trends in "shifting wealth", the increasing economic weight of developing countries in the world economy. "Shifting wealth" has received a particular boost through the rise of China, which has also led to positive spillover effects on other developing economies that supply China's demand for resource-based products and intermediates. However, assuming that this growth trend remains the same in the coming decades, the recently accelerated process of convergence between the incomes of developing and developed countries is not sufficient for many middle-income countries to reach OECD average incomes by 2050.

The 2014 edition of *Perspectives on Global Development* therefore investigates whether convergence will continue. It argues that for sustained convergence developing countries need to boost productivity and narrow their significant productivity gap with advanced economies. The report identifies ways through which countries can boost productivity and sustain economic development. These are not mutually exclusive so countries can make improvements in different areas at the same time, and they are often interlinked. Moreover, some countries have greater opportunities and possibilities than others in some areas depending on their specific conditions and capabilities.

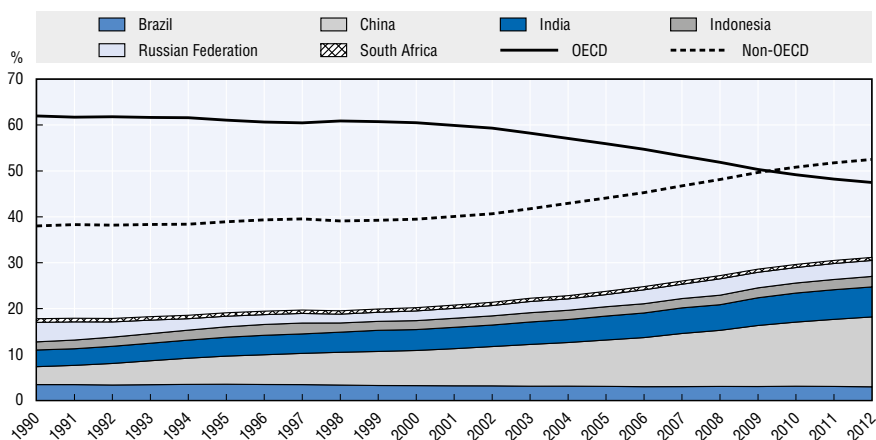
A continued trend towards convergence between OECD and non-OECD countries depends to a large extent on the performance of the BRIICS (Brazil, the Russian Federation, India, Indonesia, China and South Africa) – given the size and growth performance of their economies, the size of their populations and the spillover effects their development may induce on other countries. Therefore, the report also provides a broader overview of their challenges as well as their prospects to sustainably move beyond the middle-income level. Moreover, the report places emphasis on the increasingly important role of services to foster growth and boost competitiveness. It also shows the potential for regional development policies as a further means of enhancing competitiveness.

The report examines productivity at the macro level to identify its contribution to overall economic growth, but also at a more detailed level for up to 18 manufacturing and 16 service sectors in more than 40 countries. A special feature of the report is that it also studies productivity, technical efficiency and mark-ups for one million firms from nine countries – the BRIICS plus Cameroon, Colombia and Senegal.

## Shifting global economic landscape

Developing economies continue to grow faster than more advanced countries. Non-OECD countries' share in world GDP (in Purchasing Power Parity terms, PPP) surpassed that of OECD countries in 2010 (Figure 1) according to the new PPP series released in May 2014. The shift is in large part due to the growth in the BRIICS countries, in particular China and India. Together, China and India already accounted for almost one quarter of global GDP in 2012 (in PPP terms). However, the differential rate of economic growth between OECD and non-OECD countries has narrowed recently and there has been a significant slowdown in the rate of growth of emerging countries. It is not clear what the future trend will be.

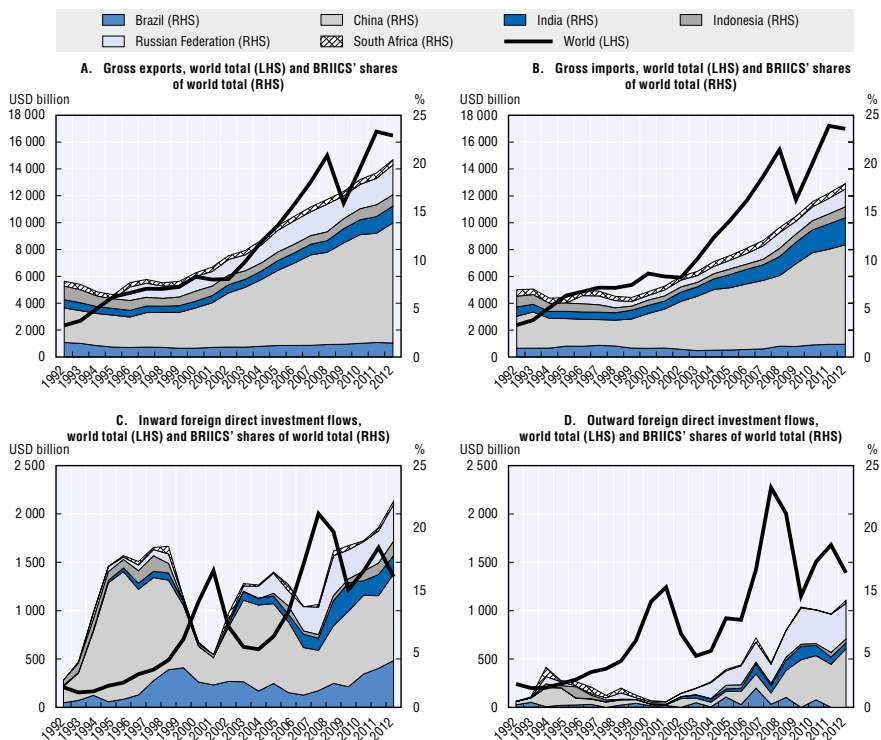
**Figure 1. Non-OECD countries' share in the global economy has been steadily rising**  
Share of GDP in PPP terms



Source: Authors' calculations based on World Bank (2014), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

All BRIICS countries, except Indonesia, increased their share of global exports between 2000 and 2012 and now account for over a fifth of global exports (Figure 2, Panel A). The BRIICS also doubled their share of global imports between 2000 and 2012 and now account for 18% of the global total (Figure 2, Panel B). Foreign direct investment (FDI) flows into the BRIICS also increased in the 2000s (Figure 2, Panel C) and later in the decade the BRIICS themselves became an important source of FDI: in 2000, FDI outflows from the BRIICS were extremely low – representing less than 1% of the world total – but by 2012 had increased to more than 10% of the world total, with China and the Russian Federation leading the pack (Figure 2, Panel D).

Figure 2. BRIICS countries have been increasing their share of global trade and investment



Source: Authors' calculations based on UN Comtrade (2014), United Nations Commodity Trade Statistics (database), <http://comtrade.un.org/db/default.aspx> for Panels A and B; UNCTAD (2013), UnctadStat (database), <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx> for Panels C and D.

Of all of the BRIICS, it is China that has seen the most dramatic changes in these trends. China is commanding an increasing share of world trade and investment flows. Its share in global merchandise as well as trade in services has been increasing unabated. It has become the world's largest exporter. The growth of China fuelled demand for agricultural and other raw materials, minerals and hydrocarbons, including inputs used for the production of capital goods and construction materials. In particular, China has become the world's largest importer of raw materials: its raw materials imports as a share of the world total have quadrupled from just under 4% in 2000 to nearly 16% in 2012, which together with India, accounts for nearly a quarter of global raw material imports.

## Alternatives to China as potential drivers of global growth are emerging

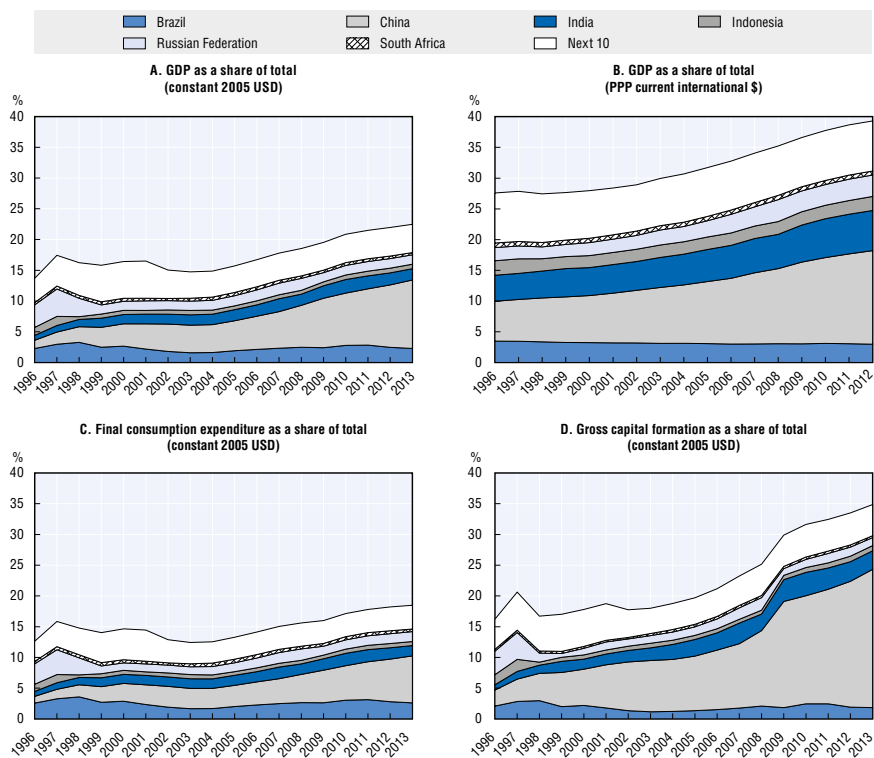
A crucial issue is whether growth in China will decelerate. If this were the case, can growth in other large and converging economies make up for the difference and thus help to maintain global growth performance? The other BRIICS could collectively have an impact comparable to that of China as potential drivers of global growth, but only if they were to achieve similar growth performances. Beyond the BRIICS, there are other economies of comparatively large size that jointly could also have a significant impact on the global economy. The next ten economies in terms of GDP in 2013 include Saudi Arabia, Chinese Taipei, Argentina, United Arab Emirates, Thailand, Colombia, Venezuela, Iran, Malaysia, and Singapore. These ten economies together with the BRIICS commanded almost a quarter of world GDP in 2013, up from about 14% in 1996, and in PPPs accounted for almost 40% of world output in 2012, up from about 28% in 1996 (Figure 3, Panels A and B).

Consumption by the growing middle classes in large non-OECD economies, will emerge as a new driver of global demand. In terms of household consumption, the share of the BRIICS and the next ten largest non-OECD economies in global household consumption only reached 18% in 2013 (Figure 3, Panel C), mainly due to the small share of household consumption in GDP in China. China's gradual shift to higher consumption and improving incomes in the other economies, provided they adopt the necessary overhauls of their development strategies towards more robust, inclusive and sustainable growth, will be significant drivers of global growth in the decades to come.

The BRIICS and other large non-OECD economies also have the potential to support global growth through investment. The total investment of these economies reached more than one-third of global investment by 2013 (Figure 3, Panel D), much higher than their share in world consumption, again mainly due to the "China factor", i.e. China's very high investment rate. Given the very low capital stock in most emerging economies and the need for a better quality infrastructure and more capital goods for industrialisation, investment is expected to rise, boosting global demand for capital goods.

**Figure 3. Large non-OECD economies command an increasing share of world output, consumption and investment**

Shares of output, consumption and investment in the world total of the BRIICS and the next ten non-OECD economies



Notes: Next ten non-OECD economies, based on GDP in current USD in 2013 are: Saudi Arabia, Chinese Taipei, Argentina, United Arab Emirates, Thailand, Colombia, Venezuela, Iran, Malaysia, and Singapore. The GDP figures in PPP terms in Panel B are based on the new PPP figures released in May 2014. For Argentina and Chinese Taipei, the GDP time series in PPP terms using the new benchmark year, 2011, have been calculated by the authors as these time series are not available in the World Development Indicators.

Sources: Authors' calculations based on IMF (2014), *World Economic Outlook* (database), International Monetary Fund, Washington, DC. (accessed April 2014) (for Panels A, C and D) and on World Bank (2014), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators> (for Panel B).



## The challenge of productivity for convergence

Notwithstanding the recent boost from China's rise, within the traditional view a number of middle-income countries are still not growing fast enough for their per capita incomes to converge with those of advanced countries by 2050. It is natural for growth to slow as economies mature, as predicted by growth convergence theories and seen in lower average annual growth rates (over 2000-12) in upper-middle-income compared to lower-middle-income and low-income countries (Figure 4). However, this slowdown has become important enough to prevent convergence of many upper-middle-income countries with average OECD incomes by 2050 at their average growth rates over 2000-12. These countries include Brazil, Colombia, Hungary, Mexico and South Africa among others.

In some middle-income countries, the average growth rate over 2000-12 was sufficient or actually above that needed for convergence with average OECD incomes by 2050 (Figure 4). China, Kazakhstan and Panama are among those upper-middle-income economies that will be at average OECD levels in the next decades, if they can sustain their growth performance. Also the Russian Federation, which is classified as high income since 2013, is growing fast enough to increase incomes to the OECD average level. Impressively, some lower-middle-income countries – Armenia, Bhutan, Georgia and Mongolia, for example – will also move to the high-income bracket before 2050.

These results are of course just indicative and countries' growth trajectories are not set in stone. For example, India surprised everyone when it started to grow at around 8% after 2003, having grown at an average of closer to 5% for the previous decade. Also, trends in “shifting wealth” will change with lower average growth in China, which will affect growth prospects in other developing economies too.

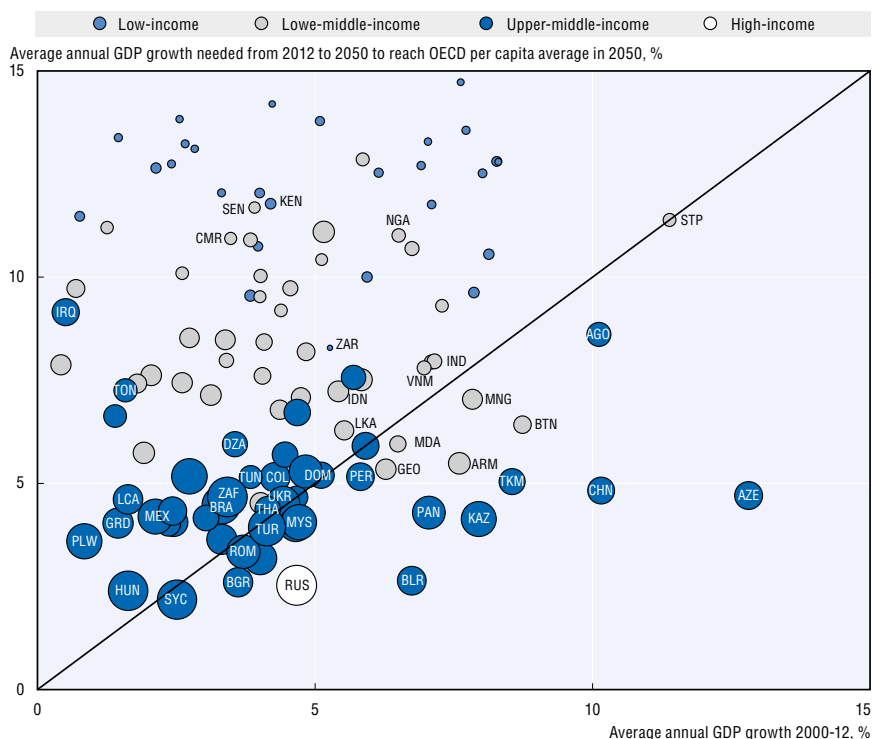
### Low economic growth can be associated with low productivity growth

The poor prospects for a number of middle-income economies to converge with average OECD income levels in the next 35 years raises the question of whether these countries are in the so-called “middle-income trap”. Despite the absence of a common framework to identify the trap, it is clear that middle-income countries often face sustained periods of lower growth and therefore have difficulties moving up to higher income brackets.

Such growth slowdowns are often associated with significant slowdowns in the growth of total factor productivity (TFP). It is found that on average more than three quarters of the slowdown in the rate of growth of output are explained by the slowdown in TFP growth. Productivity slowdowns can be associated with difficulties to move up the value chain, away from a factor accumulation-driven to an innovation-driven growth path. Many previously low-income countries have risen to middle-income status by exploiting labour cost advantages. These advantages vanish once the pool of surplus labour is exhausted and thus wages start to

accelerate. Higher wages very often cannot be afforded as the economic, regulatory and governance environment is not sufficiently conducive to the innovations needed to sustain growth or to the development of the more sophisticated labour skills required for the production of higher value-added products.

**Figure 4. Many upper-middle-income countries may not converge to average OECD GDP per capita by 2050**



Notes: GDP in constant 2005 PPP-adjusted USD in all economies are assumed to continue growing at their average growth rates over 2000-12. The OECD per capita income level is a simple average of the 34 member countries, with Israel included for 2000-11. It should be noted that the requirement of reaching average OECD income levels is stricter than just reaching high-income status as almost all OECD countries are in the high-income bracket. For population in 2050, the UN projections were used, at median fertility rates. The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law. Country names are abbreviated by 3-digit ISO codes.

Source: Authors' calculations based on World Bank (2013), *World Development Indicators* (database) <http://data.worldbank.org/data-catalog/world-development-indicators>.

## **In several middle-income countries, productivity growth is indeed low as are their productivity levels**

Productivity levels and growth rates have an important bearing on the ability of middle-income countries to move towards income convergence with advanced countries. While productivity growth directly translates into economic growth, productivity levels indicate to what extent a country has managed to compete in higher value-added agriculture, industry and service sectors or segments of these sectors.

The gap in productivity levels of many middle-income countries relative to the United States is still very high (Figure 5). Labour productivity at the economy-wide level was below 50% of that of the United States in 2008 (in 2002 constant prices) for all investigated middle-income countries (Figure 5, Panel A). Hungary, Turkey and Mexico reported the highest levels; while China, Indonesia and India had labour productivity levels at below one-tenth of that of the United States in 2008. The Russian Federation also had a very low aggregate labour productivity level, just above that in China, in 2008. In manufacturing and services, the respective shares of United States' labour productivity levels are similarly low in these selected middle-income countries (Figure 5, Panels B and C). Due to relatively more productive agriculture and resource sectors, the aggregate labour productivity levels in Brazil, Mexico and the Russian Federation are higher than their levels in manufacturing.

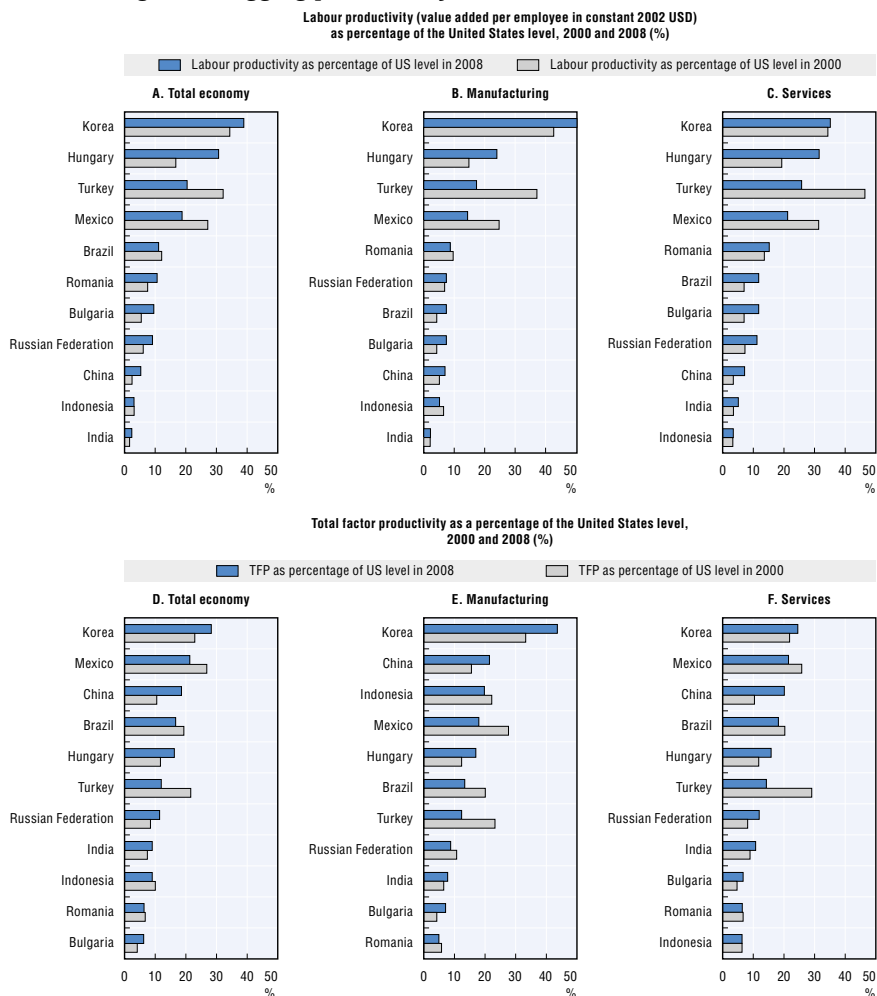
The gaps in terms of TFP are similarly large (Figure 5, Panels D, E and F). Countries with lower capital-output ratios (such as China in manufacturing and services and Indonesia in manufacturing) tend to have higher TFP levels compared to other countries, even if their labour productivity ranking is lower. Thus, manufacturers in China, for example, which had an average labour productivity level similar to manufacturers in Brazil or Bulgaria, have on average lower capital-output ratios and thus use capital more efficiently to produce outputs compared to their peers in Brazil and Bulgaria.

Labour productivity and TFP growth in a number of middle-income countries was not sufficient to markedly reduce the gap between 2000 and 2008 (Figure 5). In Brazil, Mexico and Turkey, the gap has in fact widened during this period. Some other countries have seen considerable productivity improvements during the 2000s. China recorded the most impressive growth in productivity over this period: around 10% annually in terms of labour productivity and above 7% in terms of TFP in both manufacturing and services. India has also experienced considerable TFP growth during the same period, although the speed of productivity improvement lagged behind China's, despite starting from a considerably lower level.

## **Boosting productivity for development**

Middle-income countries can consider four key areas when developing their strategies to improve productivity. These areas are not mutually exclusive so countries can make improvements in different areas at the same time and they are often interlinked. Moreover, some countries have greater opportunities and possibilities than others in some areas depending on their specific conditions and capabilities.

Figure 5. Lagging productivity in middle-income countries



Notes: Labour productivity is defined by value added per employee (in 2002 USD). Total factor productivity (TFP) is defined as the residual explaining value added after accounting for labour and capital. All variables are in real terms and converted to USD at annual average exchange rates. The base year is 2002. TFP is estimated with sector level data for 14 manufacturing and 18 service sectors (plus for the total economy for agriculture, fishing and mining) classified according to the International Standard Industrial Classification Revision 3 (ISIC Rev. 3). Aggregate TFPs for manufacturing and service sectors are weighted by value added. Comparable data for South Africa was not available, but comparisons for selected manufacturing sectors suggest productivity levels for South Africa at the lower end among the BRIICS. Korea is included as a useful benchmark of a country that successfully reached high income status without being caught in a middle-income trap.

Source: Authors' calculations using Timmer, M.P. (ed) (2012), "The World Input-Output Database (WIOD): Contents, Sources and Methods", WIOD Working Paper, Number 10, [www.wiod.org/publications/papers/wiod10.pdf](http://www.wiod.org/publications/papers/wiod10.pdf).

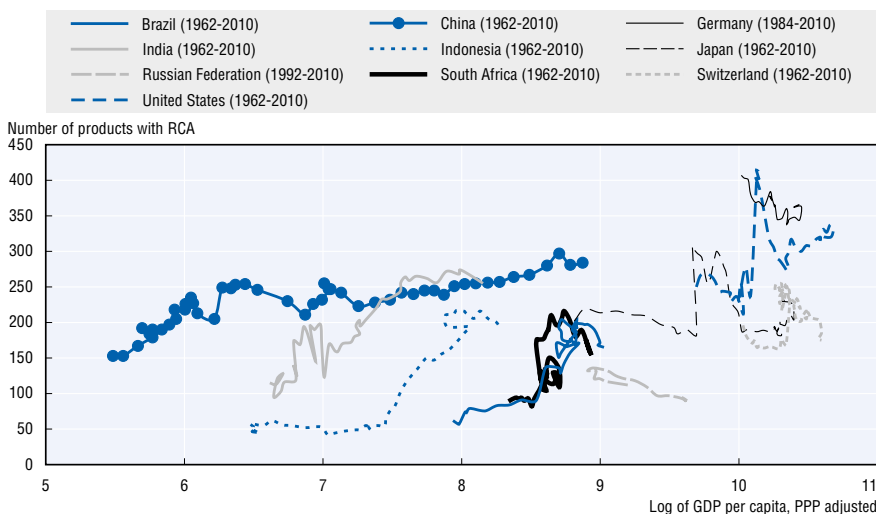
# 1. Diversifying continuously into higher value-added sectors within agriculture, industry and services

Increasing diversification into higher value-added sectors, which would also boost productivity, is needed to remain competitive in global markets at the middle-income level. This holds particularly for those developing countries that are reaching the limits of factor accumulation-led growth and have seen rising wages as well as those that are rich in natural resources. Moreover, diversification will make countries less vulnerable to external shocks. Resource-rich countries – benefiting from the commodity price boom induced by “shifting wealth” – face the risk of being complacent about commodities as their driver of growth.

Sophistication and upgrading are not processes that should be taken for granted: diversification is not automatic. As shown for the BRIICS, those that are relatively rich in natural resources (including Brazil, the Russian Federation, Indonesia and South Africa) have reduced their level of diversification at a premature level during the commodity boom since the 2000s, considering their levels of income and their level of diversification (Figure 6). Specialisation forces generally prove to be strong, which can lead to labour absorption challenges and rents, and a lack of resilience to commodity price downturns.

**Figure 6. The shifting wealth process led to specialisation rather than to diversification**

Number of products with revealed comparative advantages (RCA)  
in selected countries versus log GDP per capita (PPP adjusted)



Note: Calculations based on SITC 4-digit product data. Germany, Japan, Switzerland and the United States are included as benchmarks in terms of their levels of diversification.

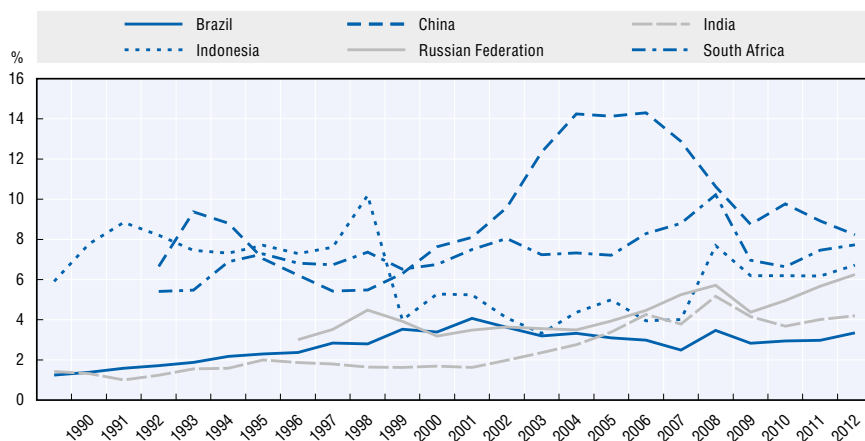
Source: Authors' calculations based on UN Comtrade (2013), *United Nations Commodity Trade Statistics* (database), <http://comtrade.un.org/db/default.aspx> and Penn World Tables (2013), *Penn World Tables* (database), <https://pwt.sas.upenn.edu/>.

## 2. Innovating by using global knowledge and developing domestic capabilities

Even the more advanced middle-income countries still have significant room for technological catch-up, as seen by their still very low labour productivity and TFP compared to advanced countries. Many countries can still better integrate into the global trading system and tap foreign knowledge through exports and imports, foreign direct investment (FDI) and participation in global value chains. China has successively done so. Its transition towards higher value-added exports is partly associated with its increasing GDP share of imports of foreign technologies through capital goods (Figure 7) and inward FDI, which allowed the development of local capabilities and led to productivity improvements. The importance of foreign knowledge embodied in imported products and acquired through FDI is confirmed at the firm level. Manufacturers in Indonesia and South Africa, for example, which use imported inputs, are more productive than those that do not. In China and Indonesia, partly or fully foreign-owned manufacturers are considerably more productive than domestic private firms. Thus, given the considerable remaining productivity gap in many middle-income countries, further productivity gains may still be realised by emulating more productive processes elsewhere. This keeps costs down, which can support export-led catching up.

**Figure 7. China has the most significantly imported capital goods during the last decade**

Imports of capital goods as share of GDP in the BRIICS, 1990-2012



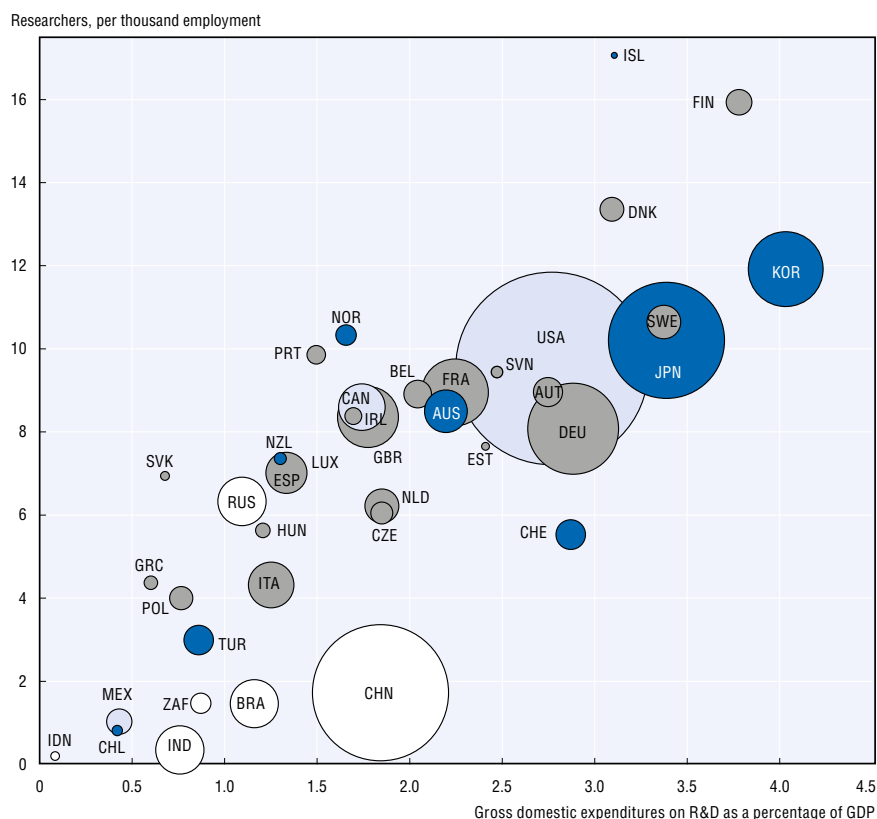
Source: Authors' calculations based on UN Comtrade (2013), *United Nations Commodity Trade Statistics* (database), <http://comtrade.un.org/db/default.aspx>.

Besides better international integration through FDI and imports of technology embodied in capital goods and components, countries can make effective use of technology licensing, getting technology, designs, production and management assistance from foreign buyers, consulting firms, and technical experts; foreign

education and training; among others. Part of China's success in tapping global knowledge is the massive investment in technical human capital accumulation, which is required to develop a domestic absorption capability of global knowledge. China has the largest number of students at the tertiary level in the world – roughly 31 million compared to 19 million in the United States and 15 million in India. Moreover, 40% of the students in China are in mathematics, science and engineering.

**Figure 8. Most BRIICS are investing significantly in research and development (R&D)**

R&D as percentage of GDP versus researchers in R&D per 1000 employees, in OECD and selected non-OECD countries, 2011



Note: The bubble size indicates total spending on R&D. Owing to methodological differences, data for these countries may not be fully comparable with those for other countries.

Source: OECD (2013), *Main Science and Technology Indicators* (database), [www.oecd.org/sti/msti.htm](http://www.oecd.org/sti/msti.htm), Brazil's Ministry of Science, Technology and Innovation and UNESCO Institute for Statistics (2013), [www.uis.unesco.org/Pages/default.aspx](http://www.uis.unesco.org/Pages/default.aspx).

Countries also need to innovate new products, processes, services and forms of organisation that are better suited to their needs than what is available abroad, as well as to develop their own frontier-shifting innovations to create competitive edges. For this, as well as to assimilate and adopt foreign knowledge, they need to develop their own technological capability. R&D can help to develop such capacity. China and, to a lesser extent, other emerging economies have made great progress in the last decades: China was the second largest spender on R&D in the world in 2011, and the Russian Federation, Brazil and India each spent about as much as Italy or Spain (Figure 8).

### **3. Reforming product, labour and financial markets and developing skills**

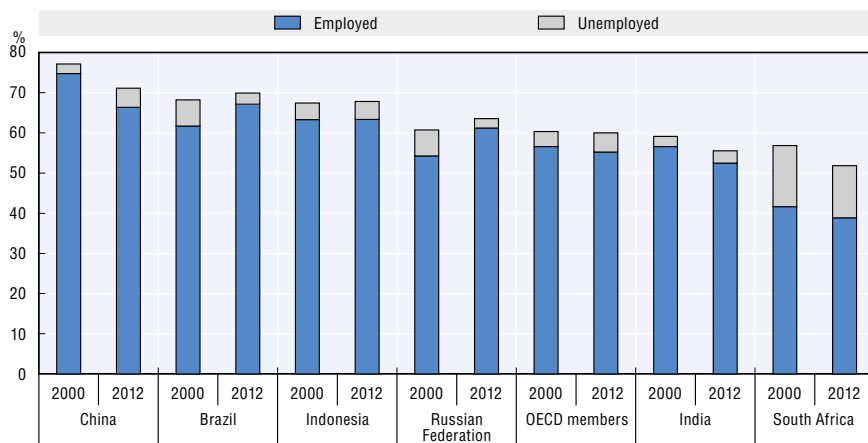
In many middle-income countries, the development of productive, innovative businesses is often constrained by an inadequate regulatory environment or a lack of appropriate skills. With respect to product market regulation, for selected service sectors, a more business-friendly regulatory environment is associated with higher productivity levels. A regulatory environment that encourages firm entry is an important source of competitive pressure and innovative technologies. For example in China and India, younger manufacturing firms are more likely to improve productivity relative to older firms. Furthermore, encouraging firm growth can be a major driver of productivity improvements, as larger firms tend to be more productive than smaller firms. Smaller firms often face larger barriers (particularly in access to finance). Therefore, assistance to overcome these challenges to firms (such as the provision of credit guarantees) – selected through a competitive process – may be useful. Size-discriminatory policies with threshold effects that create high costs to the marginal expansion of firms, however, form disincentives to growth and should be avoided.

In the area of labour markets, the regulatory environment needs to balance labour market flexibility (with respect to wage determination as well as hiring and firing) and employment protection. For example, in South Africa, labour market flexibility is undermined, as formal unemployment is 25% and there is a very low labour force participation rate (Figure 9). In the Russian Federation, by contrast, the labour market is rather flexible but employment protection standards are lagging far behind more advanced countries.



**Figure 9. Labour force participation rates are low in South Africa and a quarter of the labour force is unemployed**

Labour force participation rates decomposed into employed and unemployed, 2000 and 2012

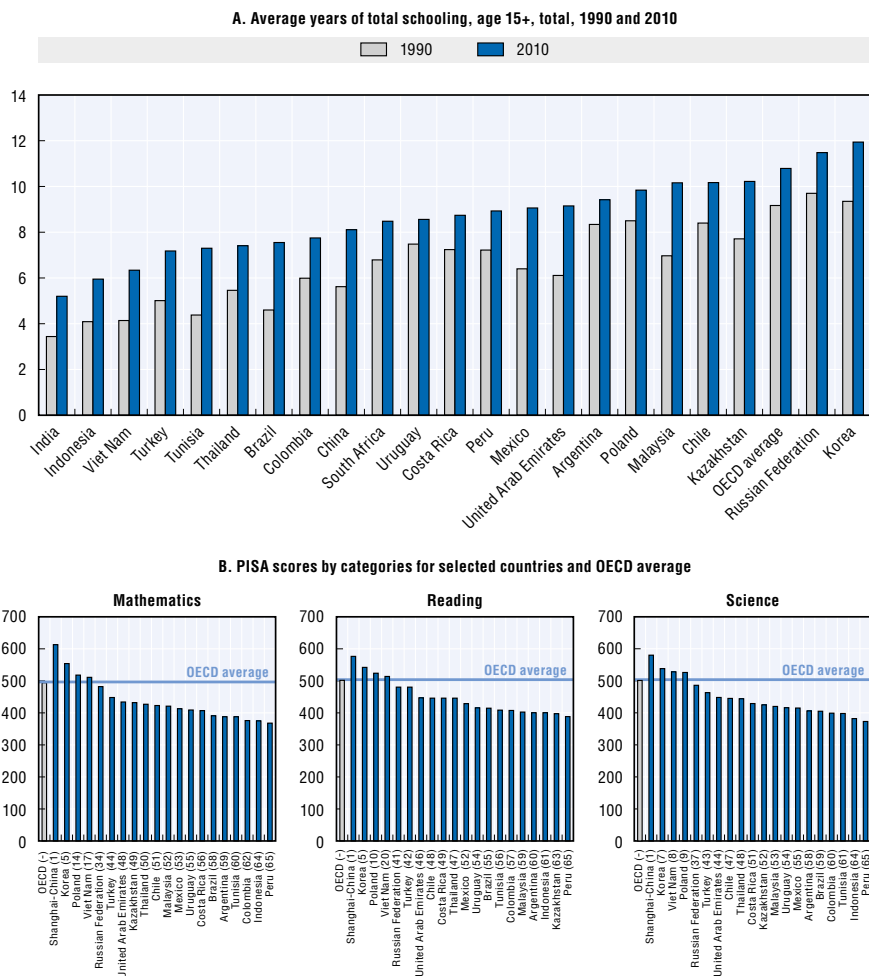


Note: All data from 2012 except for unemployment data for Brazil (2011) and Indonesia (2011) and China (2007).

Source: Author's calculations based on World Bank (2013) *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators>.

Moreover, tighter coherence between education policies and technological absorption mechanisms would contribute to an upgraded, more diversified economy. In many middle-income countries, recent improvements in educational attainment (Figure 10, Panel A) and deeper integration into value chains have often not been sufficient to ensure the competitiveness of the labour force, as shown by the lower quality of education in most emerging and developing countries than in advanced ones (Figure 10, Panel B). This suggests that education and technology policies need to be framed in coherence with each other and is supported by cross-country evidence from the business service sector, for example, where the share of higher skills used in business services is positively associated with productivity in these services. A better match between skills demanded and skills supplied can be addressed through on-the-job training – for example in China and Indonesia, firms that provide employee training tend to be more productive – but governments should also work with the private sector to develop education systems responsive to the needs of productivity-driven economies, including through vocational training and life-long learning programmes.

Figure 10. Education attainment is improving, but the quality of education remains relatively low



Note: In Panel B, ranking out of 65 economies in parentheses.

Source: World Bank (2013), *World Development Indicators* (database), <http://data.worldbank.org/data-catalog/world-development-indicators> and OECD (2013), *Education at a Glance: OECD Indicators*, OECD Publishing, Paris.

## 4. Fostering competitive service sectors

Boosting productivity and efficiency in service industries has great potential as a way to enhance overall economic competitiveness – particularly in developing countries where services are generally less developed relative to their per capita incomes, as in China, Malaysia and Thailand. They can help create jobs and – with their relatively low resource intensity – drive inclusive, sustainable development.

Financial and business-related services constitute a much smaller share of value added in the BRIICS than in OECD countries. These services are intense users of ICT infrastructure and tend to emerge as drivers of growth once the necessary infrastructure is put in place. Even India, a successful exporter of ICT-enabled services, lags considerably behind the OECD average in terms of the share of financial and business services in GDP. More manufacturing-based economies like China, Malaysia and Thailand have even smaller shares of service industries. Such patterns suggest that middle-income countries have significant room for catch-up by fostering services which offer a high potential for productivity gains.

Rapid progress in ICT has allowed economies of scale in the production of most services (including traditional services where such effects were unknown before such as retail trade, education and health) and spillover effects to be realised. In fact, services contributed more than half of overall growth between 2003 and 2007 in most BRIICS economies (Figure 11). The joint contribution of financial, business and telecommunications services was higher than the contribution of manufacturing in most BRIICS.

Middle-income countries need to prepare for soaring consumption demand of goods and services by a rapidly expanding middle classes. China and India will account for most of the world's middle-class consumption by 2030. Given that consumer services generally show higher-income elasticity than basic goods, their value-added shares are likely to increase rapidly when incomes and domestic demand rise. Low entry and exit barriers for start-ups, streamlined administrative procedures, skills development schemes, the nurturing of creativity and measures to attract venture capital firms such as business case contests are effective tools to accelerate innovation in service industries.

An important aspect enabling higher value-added manufacturing in developed economies is that they make growing use of business-related services (e.g. labour recruitment, IT, marketing, customer contacts, market analysis, and R&D) and that they outsource them to independent firms. Replicating the outsourcing practices of developed countries in emerging economies – if the necessary preconditions were met – would help to move up the value chain in manufacturing and to increase productivity (Figure 12).

**Figure 11. Services drive over 50% of value-added growth in selected emerging economies**

Average sectoral contributions to real value-added growth between 2003 and 2007

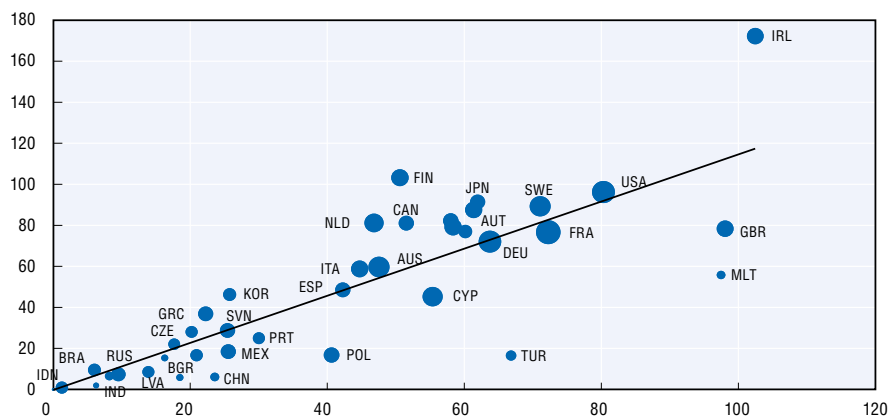


Notes: Sectors are classified according to the ISIC Rev. 3. Telecommunications, financial and business services encompass ISIC sectors 64, J and K. Traditional services include all other services. Comparable data for South Africa was not available.

Source: Authors' calculations based on Timmer, M.P. (ed) (2012), "The World Input-Output Database (WIOD): Contents, Sources and Methods", WIOD Working Paper, Number 10, [www.wiod.org/publications/papers/wiod10.pdf](http://www.wiod.org/publications/papers/wiod10.pdf).

**Figure 12. Business service productivity and intensity of use are positively associated with manufacturing productivity**

Labour productivity in business services versus labour productivity in manufacturing



Notes: The bubble size denotes the share of business services inputs in the total inputs used in manufacturing. The shares of business service inputs in total inputs used in manufacturing range from 0.2% in Indonesia to 13.3% in France. Sectors are classified according to the ISIC Rev. 3. Business services are defined by ISIC sectors 7174.

Sources: As for Figure 11 above.

Services can become important drivers of growth in the BRIICS and other non-OECD countries, but only in tandem with manufacturing. Bypassing industrialisation and focusing on services has not (yet) proven a successful strategy for upgrading to middle-income, let alone high-income, status. Even small, rich service economies, such as Singapore, first industrialised comprehensively. India, Morocco and the Philippines have become large exporters of services in recent years. Although the exports of services, particularly business process outsourcing (BPO), may lift economic growth, developing economies with large service sectors should not focus solely on that channel, but diversify their economies, including into manufacturing. A heavy focus on the narrow BPO sector may deliver short- and medium-term gains in growth, but will not lead to a sustainable development trajectory. Moreover, over-reliance on a few export categories exposes countries to external shocks.

## **Better exploiting “old” drivers of growth**

Making improvements in the four key areas above can be a focus for low-, middle- and also high-income countries, but getting these areas right becomes more crucial in the upper-middle-income bracket. At the same time, most middle-income countries (including those in the upper bracket) can and should continue exploiting the “old” drivers of growth.

## **Shifting labour from lower to higher productivity sectors**

During the rise to middle-income status, not only does the working-age ratio increase, but labour moves from lower to higher productivity sectors. In earlier phases of development, this is often related to the migration of surplus labour from rural areas to cities.

Among the BRIICS economies, in India and Indonesia, a relatively large share of labour productivity growth was attributed to the shift of labour to more productive sectors over the last decade. Those economies, and to a lesser extent China, still have room to realise labour productivity gains through industrialisation and urbanisation, but in Brazil, the Russian Federation and South Africa the gains from shift effects will be smaller due to already high urbanisation rates and will mainly be realised through shifts across manufacturing and service industries.

## **Fully reaping factor accumulation-led growth (including the utilisation of labour and the accumulation of human and physical capital)**

Most middle-income countries still have room for improvement in at least one of the three areas of factor accumulation. Labour force participation and utilisation in India and South Africa, for example, is still considerably below the levels in China and Brazil or more advanced countries (Figure 9 above). Developing significant employment opportunities is even more important in these countries given their relatively young populations that will soon enter the labour market. A

decomposition of the sources of growth of the BRIICS shows that both India and South Africa have been growing significantly over the last two decades by creating employment (Figure 13). Brazil also expanded employment, which supported their GDP growth, particularly during the last decade.

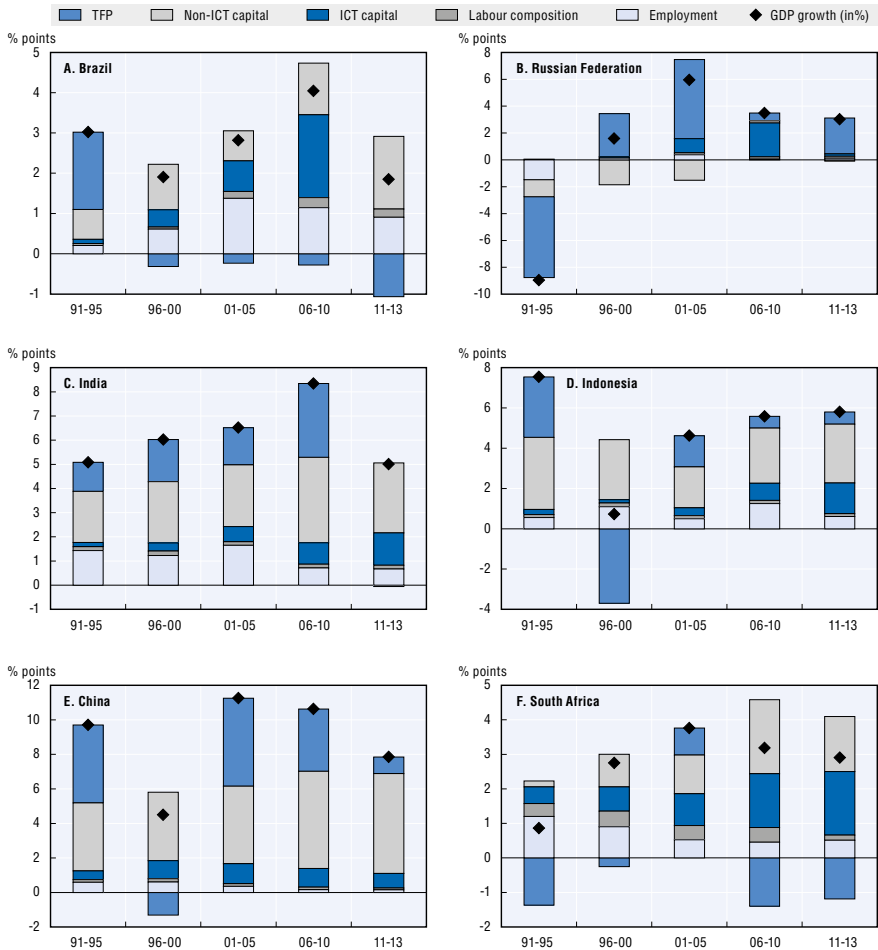
With respect to the accumulation of human capital, PISA scores indicate that many middle-income countries fall far behind the OECD average, for example, Argentina, Brazil, Colombia, Peru and Tunisia (Figure 10 above). Moreover, the average years of total schooling in India and Indonesia, for example, at five and six years, are still considerably lower than the OECD average at above ten years. This suggests that many developing countries still have significant room to develop human capital and also to make sure the education system produces the skills demanded by the labour market.

Also, despite remaining gaps in physical capital stocks (including infrastructure, business capital and real estate) relative to the OECD average, investment rates in Brazil and South Africa are considerably lower than in the Asian BRIICS. At the same time, efficiency of investment – measured by incremental capital output ratios (ICORs) – is decreasing in many middle-income countries, including in China. Therefore, countries also need to address the efficient allocation of their investments. A positive association between capital intensity and productivity in business services, just to mention one sector, underlines that capital accumulation is not only relevant during the factor accumulation-led growth period of a country's development path, but actually prepares it for competing through productivity during later stages of development.

The accumulation of capital translated significantly into economic growth in all the BRIICS over the last two decades (Figure 13, the contribution of capital stock growth is decomposed into ICT capital and non-ICT capital growth). The increase in the capital stock continues to be an important factor to increase production output, where the accumulation of ICT capital seems to become more relevant in richer economies. In China, India and Indonesia, growth through non-ICT capital accumulation was higher than through ICT capital. The Russian Federation has been growing through ICT capital accumulation and not non-ICT capital. The contribution of both ICT and non-ICT capital to growth has been considerable in Brazil and South Africa.

**Figure 13. Capital accumulation has been the most important driver of growth in all BRIICS**

GDP growth contributions (in percentage points), by production factors



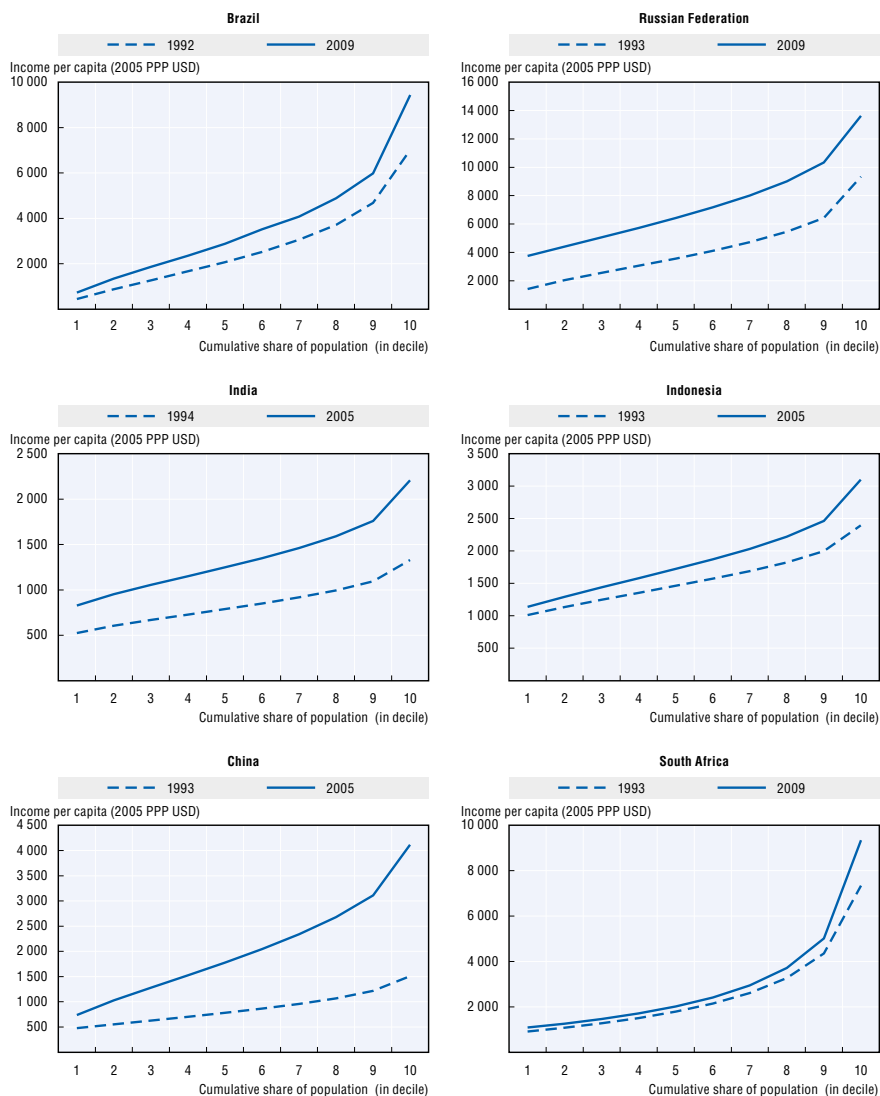
Notes: TFP stands for total factor productivity growth. Non-ICT, ICT and employment stand for the contribution of non-ICT capital growth, ICT capital growth and employment growth, respectively. Labour composition stands for the contribution to growth of changes in the skills composition of labour. For methodological details of this growth decomposition see <https://www.conference-board.org/retrievefile.cfm?filename=Methodological-Notes--20141.pdf&type=subsite>.

Source: The Conference Board (2014), *The Conference Board Total Economy Database*, <https://www.conference-board.org/data/economydatabase/>.

## Growing inclusively and sustainably

Development is more than economic growth. Fostering equitable and sustainable development to continue toward convergence is also needed.

Figure 14. Inequality is increasing in some of the BRIICS



Source: Authors' calculations based on Anand, R., S. Mishra, and S.J. Peiris (2013), "Inclusive growth: Measurement and determinants", IMF Working Paper WP/13/135, [www.imf.org/external/pubs/ft/wp/2013/wp13135.pdf](http://www.imf.org/external/pubs/ft/wp/2013/wp13135.pdf).



## Ensuring equal opportunities for all citizens

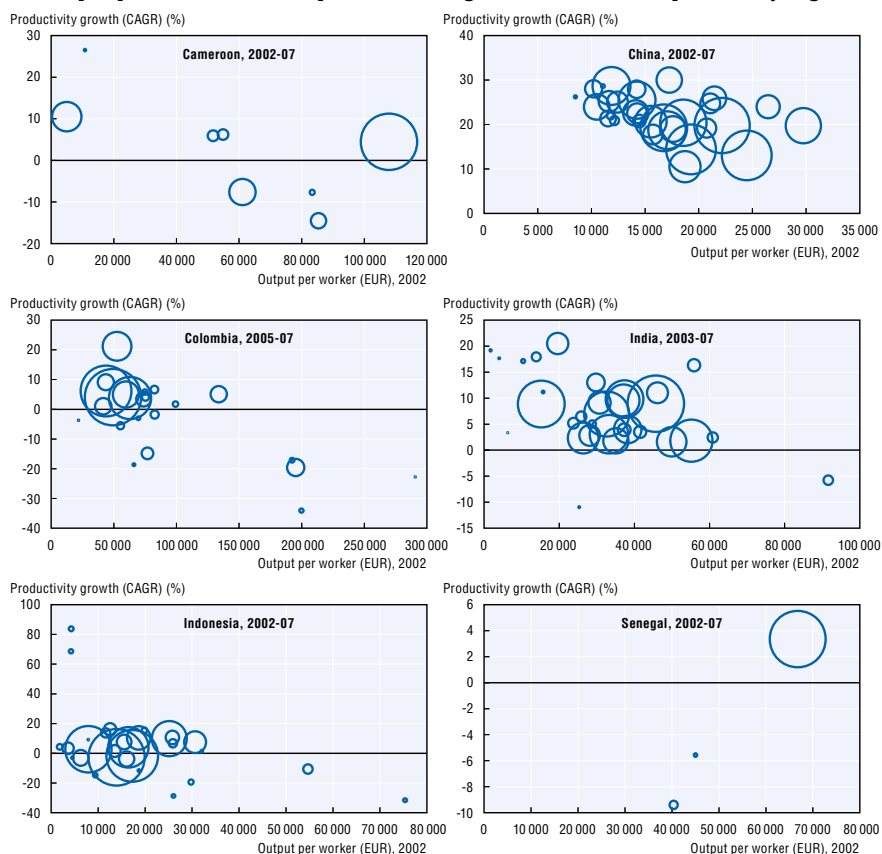
Many emerging and developing economies have reduced poverty over the last two decades or so, but inequality in per capita incomes is increasing in many of these economies. Among the BRIICS for example, the lowest decile of the population (in terms of per capita income corrected for PPP) in China and India was earning the least among all BRIICS economies in the mid-1990s, but this income group has significantly increased its income level during the following decade (Figure 14). However, in both China and India, income groups in the upper brackets increased their incomes proportionately more than those in the lower brackets. In Indonesia and South Africa, income inequality also increased. Brazil and the Russian Federation are exceptions, where the Gini coefficient of income inequality actually decreased.

There are also rising tensions in a number of middle-income economies, kindled by the middle classes' thwarted expectations as to standards of living and voice in decision-making processes. Ensuring equal opportunities would help reduce poverty and inequality. It would also encourage all citizens to take part in the development of their country and decrease the risks of social instability. In particular, greater and more inclusive educational attainment is a way for converging countries to reduce inequality in market incomes in the long run. Beyond enrolment, the quality of education needs to receive attention so that increases in educational outcomes effectively translate into greater productivity, better growth prospects, more job creation and improved chances in the labour market.

## Developing effective regional policies to support more equitable growth and reduce regional disparities

In developing countries, inequalities across regions tend to be relatively high and often persistent, locking poor regions in relative income stagnation. In addition to nation-wide policies, a redesign of regional policies to support overall national objectives of stronger, fairer and greener economic growth is therefore needed. Among the objectives of a good policy mix at different government levels, the provision of basic services (including, for example, water, electricity and health services) in all regions is crucial. More targeted regional policies can aim to enhance each region's competitive edge. In some emerging economies, progress in terms of convergence in productivity can be reported (Figure 15). This convergence is most clearly seen in China. Among the regions with the highest manufacturing productivity growth in 2002-07 were the low-productivity regions of Henan, Hainan, Gansu and Inner Mongolia, all of which grew by an annual average of over 25% over that period. This may be related to China's Western Development Strategy initiated in 2000 that aims, among other things, to foster competitiveness in lagging provinces. Similarly, there was some trend toward convergence in productivity across regions in Colombia and India, which could help to narrow regional income gaps.

**Figure 15. Regional productivity levels are converging in some countries**  
Output per worker and compound annual growth over various periods, by region



Notes: The size of the bubble represents the share of national manufacturing employment in the region in the first period. Labour productivity was calculated as output per worker, deflated to 2002 local prices and converted to euros using the average of the 2002 to 2007 exchange rate.

Source: Authors' calculations using national firm-level datasets.

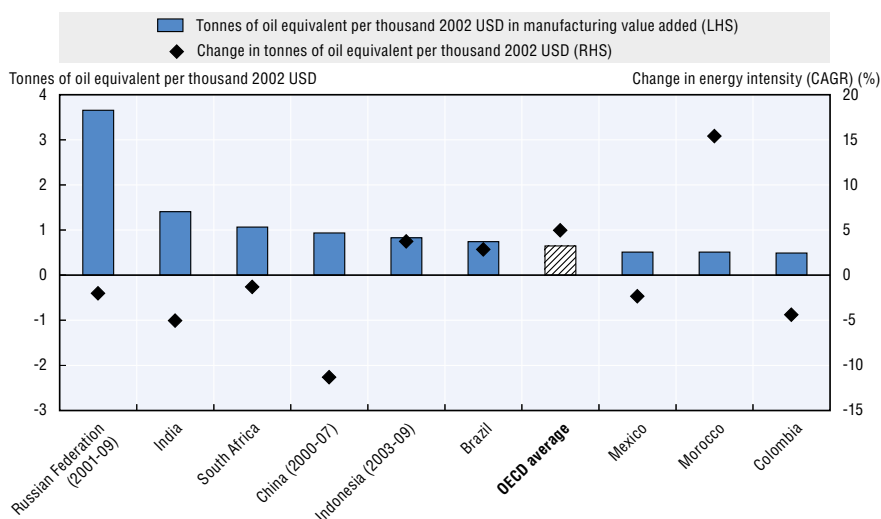
The policy environment at the sub-national level may be as, if not more, important than that established by central government. The wrong choice of regional policies may frustrate efforts to boost competitiveness at the national level, particularly in countries with decentralised public finance systems and civil services. If service delivery is delegated to a government level that cannot cope with externalities, let alone capacity constraints, productivity and efficiency growth are likely to suffer. Well-designed regional policies that encourage the development of local strengths can, on the other hand, lead to enhanced growth.

## Increasing energy efficiency and environmental sustainability

Shifting wealth and the expansion of manufacturing in more energy-intensive emerging economies have led to considerable increases in manufacturers' energy consumption outside the OECD, though many of these are reducing their energy intensity at the same time (Figure 16). Although the amount of energy used per unit of manufacturing value added remains above the OECD average in China, India, the Russian Federation and South Africa, these countries have reduced energy intensity in recent years. The improvements in China have been particularly large: between 2000 and 2007, energy intensity declined by 57%. Energy intensity continued to increase in Indonesia, Brazil and Morocco, however.

**Figure 16. China and other emerging economies are improving manufacturing energy efficiency**

Tonnes of oil equivalent used per thousand USD value added in selected manufacturing industries and compound average  
annual growth in energy intensity, 2000-09



Notes: Due to data limitations and for the sake of comparability, manufacturing averages are calculated from the following industries (ISIC Rev.3): 15-19, 21-24, 26 and 27. The OECD average includes member countries from 2009, except for Korea and the Slovak republic, for which comparable data was not available.

Sources: Authors' calculations, using IEA (2012), *World Energy Statistics and Balances* (database), International Energy Agency; UNIDO (2013), *INDSTAT4: Industrial Statistics Database* (database), United Nations Industrial Development Organisation.

Higher energy use in industrialising economies is to be expected, as development is typically accompanied by electrification, the rapid expansion of energy infrastructure, and the growth of energy-intensive industries. This trend can be reversed, however. The environmental Kuznets curve hypothesis suggests that, starting from a low level of development, environmental degradation increases

with a country's income. It then eases as growing wealth allows economies to restructure towards less energy-intensive activities or as technological developments improve efficiency in general and energy efficiency in particular. To avoid vulnerabilities due to fluctuations in energy prices and changes in regulations and preferences, countries should try to accelerate the process of becoming more energy efficient and diversify into less energy-intensive sectors and adopt energy-efficient technologies. Such strategies are associated with higher productivity and reduced negative externalities.

In addition, more attention has to be paid to environmental sustainability in crafting successful development strategies. BRIICS countries have important challenges of environmental degradation, particularly China and the Russian Federation where rapid industrialisation has had a heavy toll on the environment. Brazil and Indonesia face the challenge of deforestation. China and India also face serious problems of inefficient use of water and water shortages. China is also facing the downside of rapid industrialisation in the form of air pollution in its major cities which may become a serious health problem and is likely to reduce life expectancy for urban residents.

## **Making government more effective**

Finally, maintaining rapid growth with equity and sustainable development requires capable and effective governments.

## **Developing greater capability to develop and implement strategies**

This requires better training of government officials and the establishment of co-ordination mechanisms across government ministries, as well as effective implementation capacity. To concentrate scarce government resources and enhance the effectiveness of policy interventions, targeting and prioritisation of the steps to ensure convergence are needed.

Sustaining catching up beyond the middle-income level is likely to require some bolder reforms that go beyond incremental measures. Bold changes in strategies may be politically difficult and costly, though less so than no change. Effective communication strategies and the right timing are critical to obtain the support of multiple stakeholders to implement these reforms.

China's rapid rise had been in large part due to its determined, target-oriented government with a vision to address changing economic challenges. It made bold reforms which were possible through effective organisations and procedures to implement the necessary steps. Other countries with more democratically-organised governments need to obtain support for necessary reforms through consultation processes where key stakeholders – including private businesses, local communities and civil society – can voice their opinion and help formulate and implement strategies.

## Importance of the external environment

The future growth paths of emerging and developing countries also very much depend on the broader international environment because of the increasing interdependence of the global system. In the short run it is going to be affected by changes in international financial markets. The gradual exit of quantitative easing in the United States and internal factors in emerging countries have triggered strong capital outflows and financial volatility. To reduce capital outflows and to avoid currency depreciations, central banks in emerging and developing countries have tightened monetary policy. Since mid-2013 long-term interest rates have been increasing, rendering long-term investments more expensive. This will have a negative impact on growth in most emerging and developing countries, particularly those that rely on net international capital inflows. In the medium and longer run, future growth paths also depend on the stability of the global financial system as well as other broader drivers such as technological change, and the ability of the global system to address global challenges such as climate change.

# Perspectives on Global Development 2014

## BOOSTING PRODUCTIVITY TO MEET THE MIDDLE-INCOME CHALLENGE

Developing economies continue to grow faster than more advanced countries. Non-OECD countries' share in world GDP surpassed that of OECD countries in 2010. Since its first edition in 2010, the annual *Perspectives on Global Development* has investigated the trends in “shifting wealth”, the increasing economic weight of developing countries in the world economy. “Shifting wealth” has received a boost through the rise of China, which has also led to positive spillover effects on developing economies that supply China’s demand for resource-based products and intermediates. However, even at their higher rates of growth since 2000, the per capita incomes in developing countries – including many middle-income countries – will not reach the levels of developed countries by 2050. Boosting productivity growth in middle-income countries could stem this trend and is the focus of this report. At the same time, this growth needs to be inclusive so that a real convergence in living standards can take place.

### Contents

Chapter 1. **Shifting wealth and the productivity challenges for middle-income countries**

Chapter 2. **Competitiveness in a catching-up context**

Chapter 3. **Improving competitiveness in manufacturing industries**

Chapter 4. **Competitiveness in and through services**

Chapter 5. **Regional policies to enhance competitiveness**

Chapter 6. **Development challenges of the BRIICS**

