What will the global economy look like in 2050?

Bath Royal Literary and Scientific Institution
23rd June 2023

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Agenda

1. What drives economic activity?
2. Our view in 2017: Relative economic size, real GDP growth rates and real GDP per capita growth rates
3. What has changed since 2017?
4. Key takeaways

What is PwC's *World in 2050* report?

- **Summary**: A report which shows what how the global economic order could change by 2050. The report focuses on projections of economic size (absolute and relative to population) for c. 30 economies. At the heart of the report lies a economic model.
- Our report does not look at a wider suite of economic, social, environmental, political or other indicators which arguable provide a more holistic overview of the level of progress, well-being and development of countries.
- **Popular:** It is one of the most download reports on the PwC website. Launched at the World Economic Forum at Davos in 2017. Used my multiple institutions including the UK government and the EU.
- **Timing:** <u>The work was done in 2017</u> so before the UK officially exited the EU, the pandemic and the Ukraine war.

1. What drives economic activity?

How did we model long-term GDP trends?

- Economic theory states that GDP growth in our model is driven by four main supply-side factors, using a Cobb-Douglas production function:

Investment in physical capital	**Working-age population growth**	**Investment in human capital (education levels)**	**Catch-up with US total factor productivity levels**

- We **ignore short-term cyclical variations,** which are very hard to predict, and focus on long-term supply side fundamentals (although up to 2020, we do calibrate our model to broadly match IMF medium-term growth projections for this period).
- We **assume no major global catastrophes** or **political shifts that cut economies off from the flow of new technologies and ideas that drive long-term growth.**

GDP in PPPs vs MERs

We focus on GDP at purchasing power parity (PPPs), but also include GDP at market exchange rates (MERs).

- The difference between GDP at PPP and MER estimates reflect that price levels in lower income countries are generally significantly lower than in advanced economies based on current market exchange rates.
- This means emerging markets tend to have significantly higher GDP when measured at PPPs than at MERS.
- In the long-run, the difference between the two estimates should decline as faster emerging market growth pushes up price levels. This is a very gradual process, however, so full price convergence will still not be complete by 2050 in most emerging markets.

Our modelling approach is reinforced by our study of the drivers of historical real GDP per capita growth

- We conducted econometric analysis into the main drivers of real GDP per capita growth in emerging and developing markets between 2000 and 2015
- We found that average investment as a % of GDP and average levels of secondary enrolment over the last 15 years have had large positive impacts on economic growth, with the results also being highly statistically significant. These results are reflected in our forecasting model.

Variable	What impact does the variable have on GDP growth?	Is the impact statistically significant?	Why do we observe this result?
Initial GDP per capita in 2000	Negative	Highly significant	Countries with lower initial levels of GDP per capita have greater opportunities to catch-up with advanced economies.
Average **investment** as a % of GDP (2000-15)	Positive	Highly significant	Investment can improve infrastructure and support technological progress and productivity.
Average **secondary enrolment**, % (1995-2000)	Positive	Highly significant	Education boosts the productivity, creativity and potential of workers, supporting innovation and entrepreneurship.
Average **debt** as a % of GDP (2000-15)	Negative	Highly significant	High levels of government debt increase instability and can result in tighter fiscal policy.
Average **primary commodity exports** as a % of GDP (2000-15)	Positive	Significant	Primary commodities are consumed in all countries, therefore economies with a rich abundance of commodities can benefit from exporting them.

Source: PwC analysis

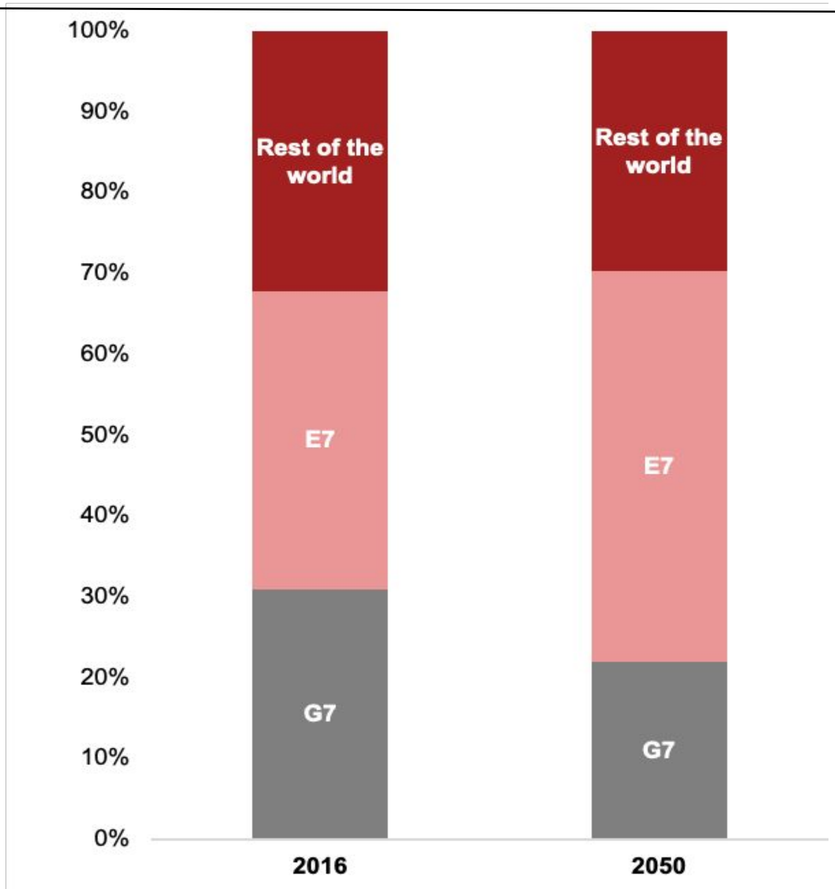
2. Our view in 2017

Emerging economies will dominate the list of the world's 10 largest economies and increase their share of world GDP to almost 50% by 2050

Ranking of GDP at PPPs

2016		2050p	
China	1	1	*China*
US	2	2	*India*
India	3	3	*US*
Japan	4	4	*Indonesia*
Germany	5	5	*Brazil*
Russia	6	6	*Russia*
Brazil	7	7	*Mexico*
Indonesia	8	8	*Japan*
UK	9	9	*Germany*
France	10	10	*UK*

Share of world GDP at PPPs



G7 = US, Japan, Germany, UK, France, Italy and Canada; E7 = China, India, Brazil, Russia, Indonesia, Mexico and TurkeY

Sources: PwC analysis, IMF

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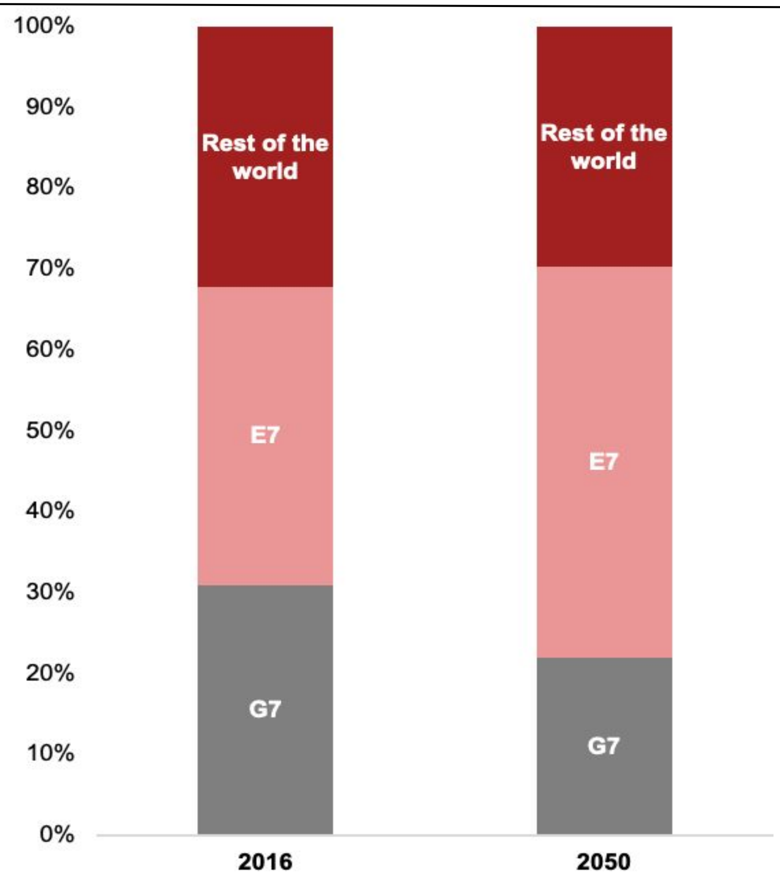

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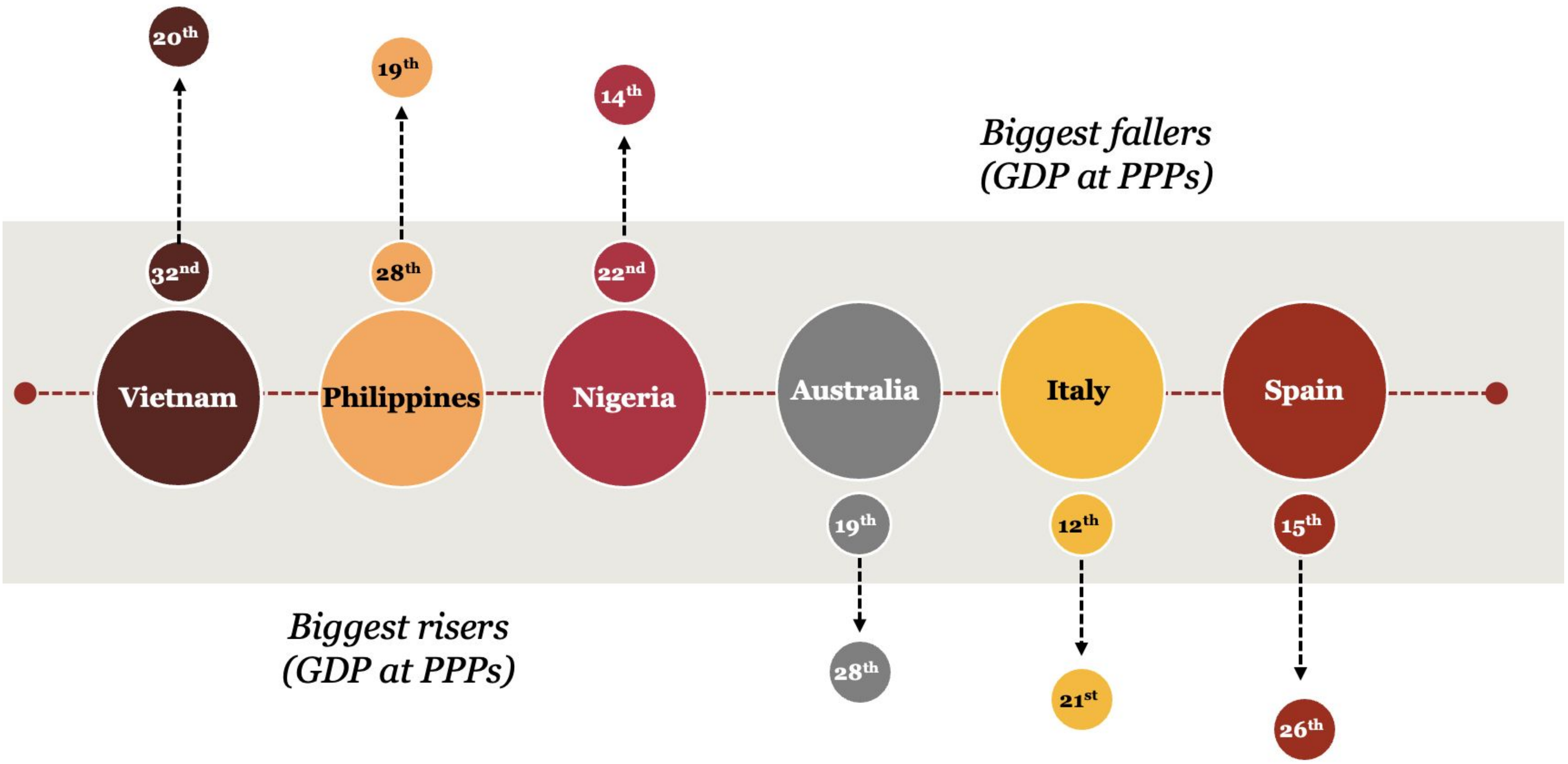
We expect to see some other emerging markets take centre stage by 2050, although this depends on long-term progress on structural reforms

Projected GDP (PPP terms) in 2050



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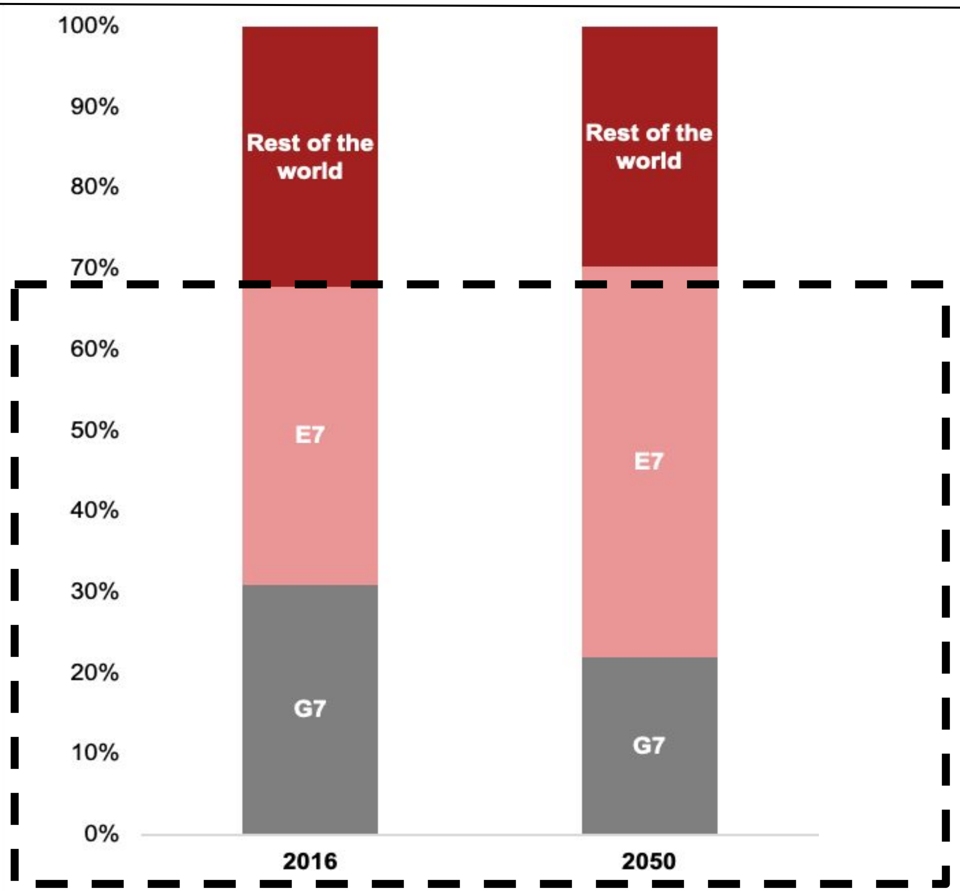

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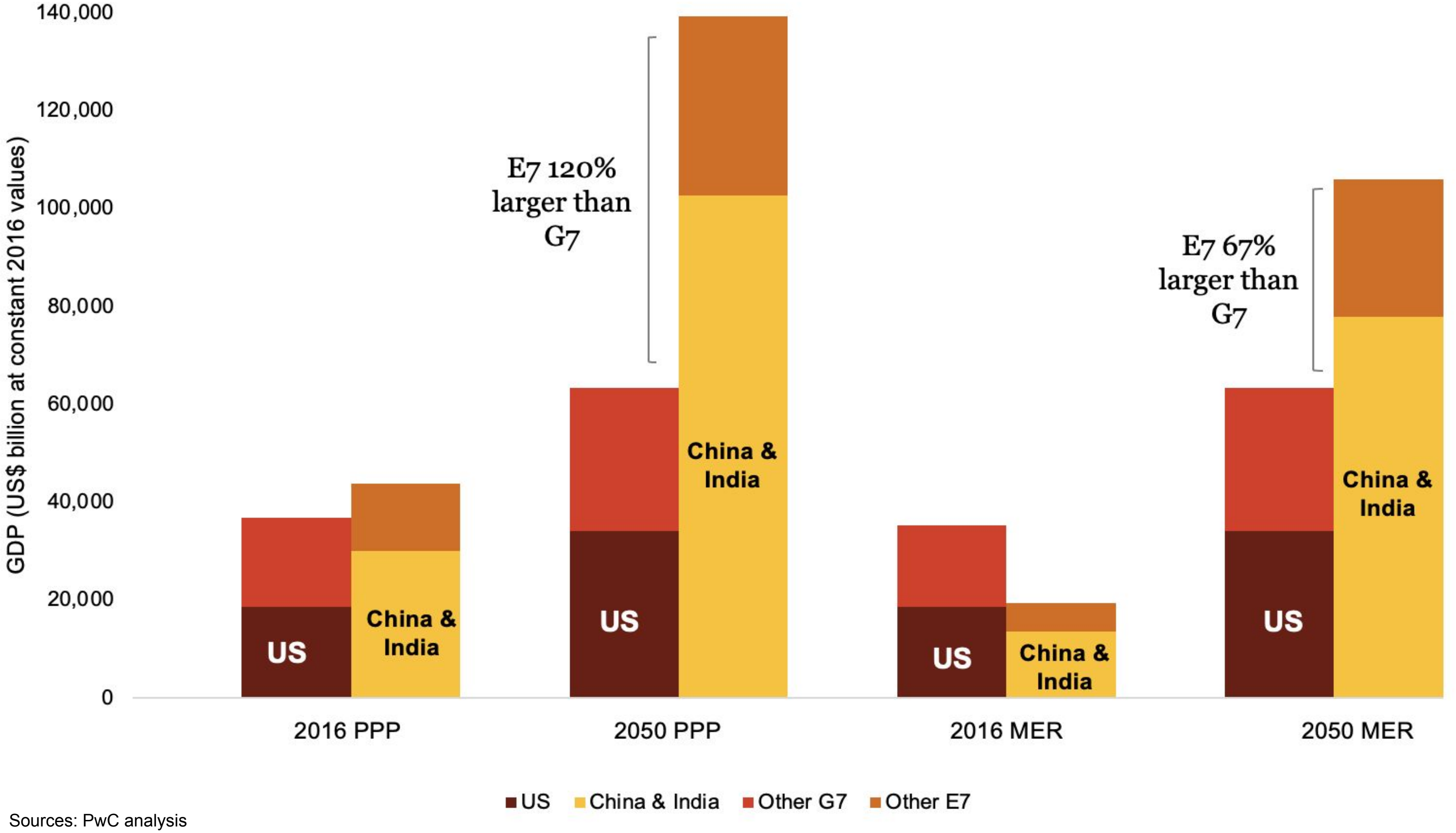
Sources: PwC analysis, IMF

By 2050, the E7 are projected to be significantly larger than the G7 even at market exchange rates (MERs), driven primarily by the continued rise of China and India

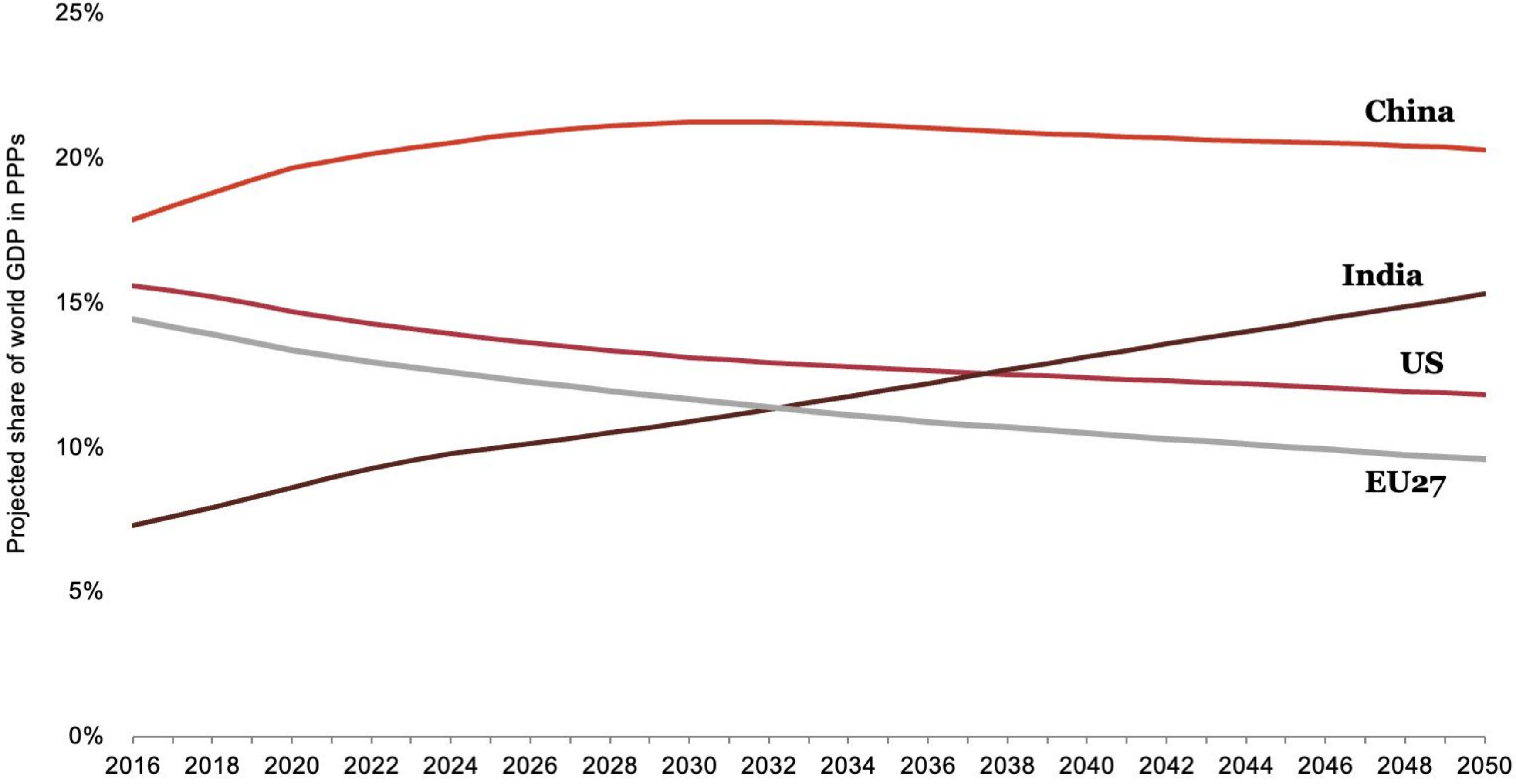
GDP (US$ bn at constant 2016 values)



Sources: PwC analysis

The rise of China and, in the long run, India will gradually push down the US and EU27 shares of world GDP at PPPs (broadly similar trends are projected for GDP shares at MERs, but China and India are starting from lower levels on that measure)

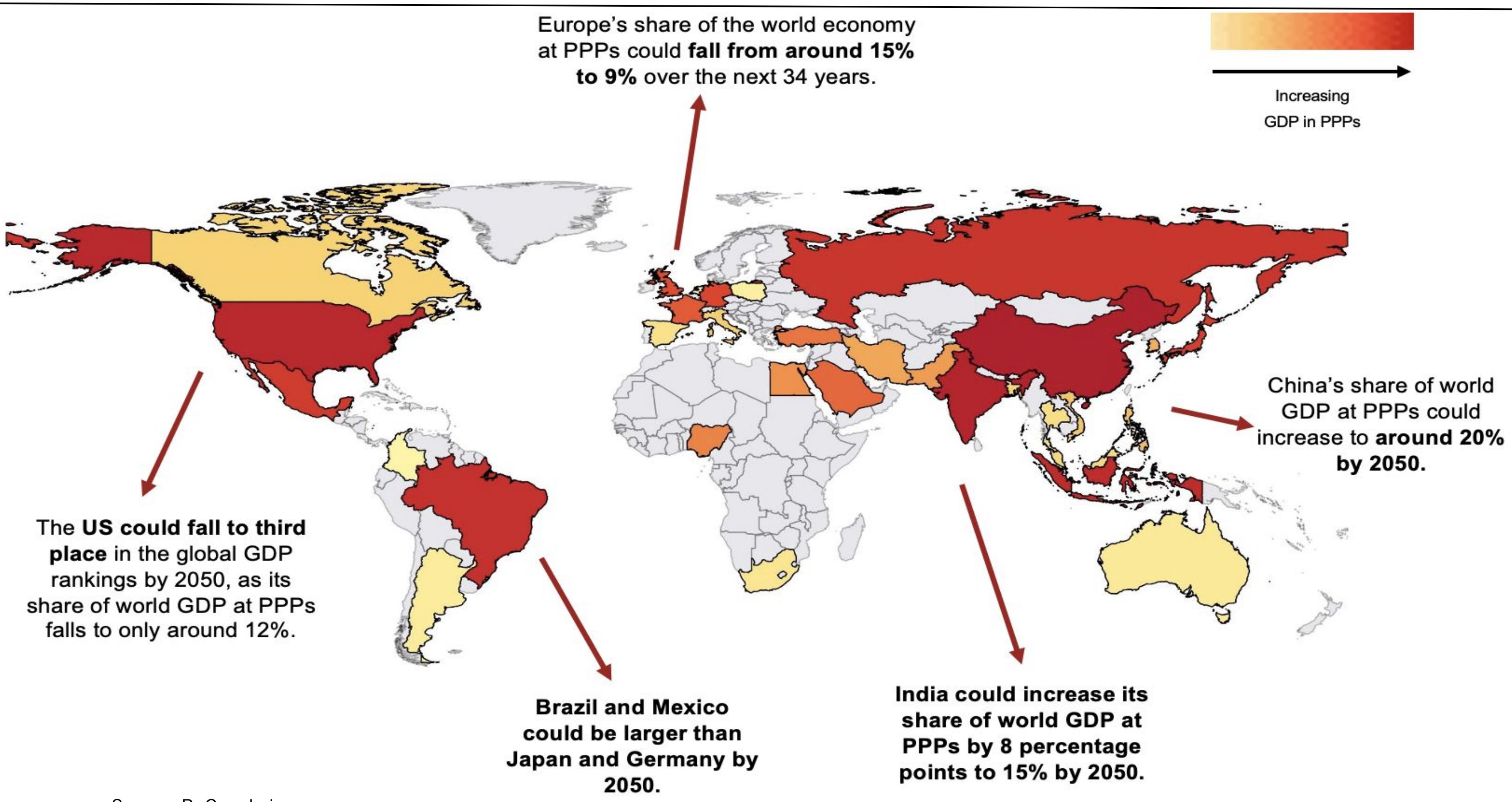
Projected share of world GDP in PPPs



Sources: PwC analysis, Refinitiv Eikon

US and Europe will steadily lose ground relative to the Asian giants as the centre of the economic gravity shifts to the East

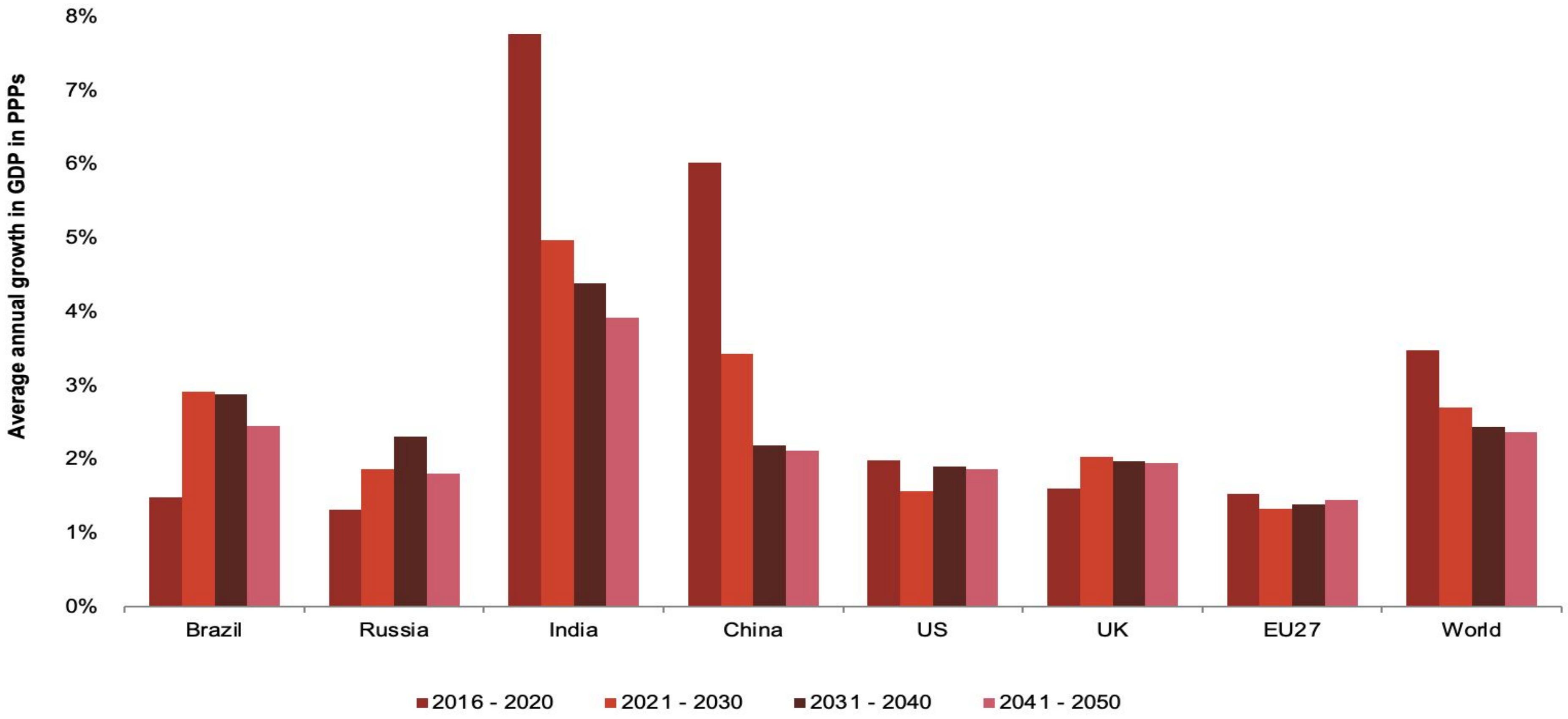
Projected GDP (PPP terms) in 2050



Sources: PwC analysis

China and India are projected to continue their current strong growth rates to at least 2020, before slowing down progressively in later decades as they mature (as happened to Japan, South Korea and other earlier emerging economies in previous decades)

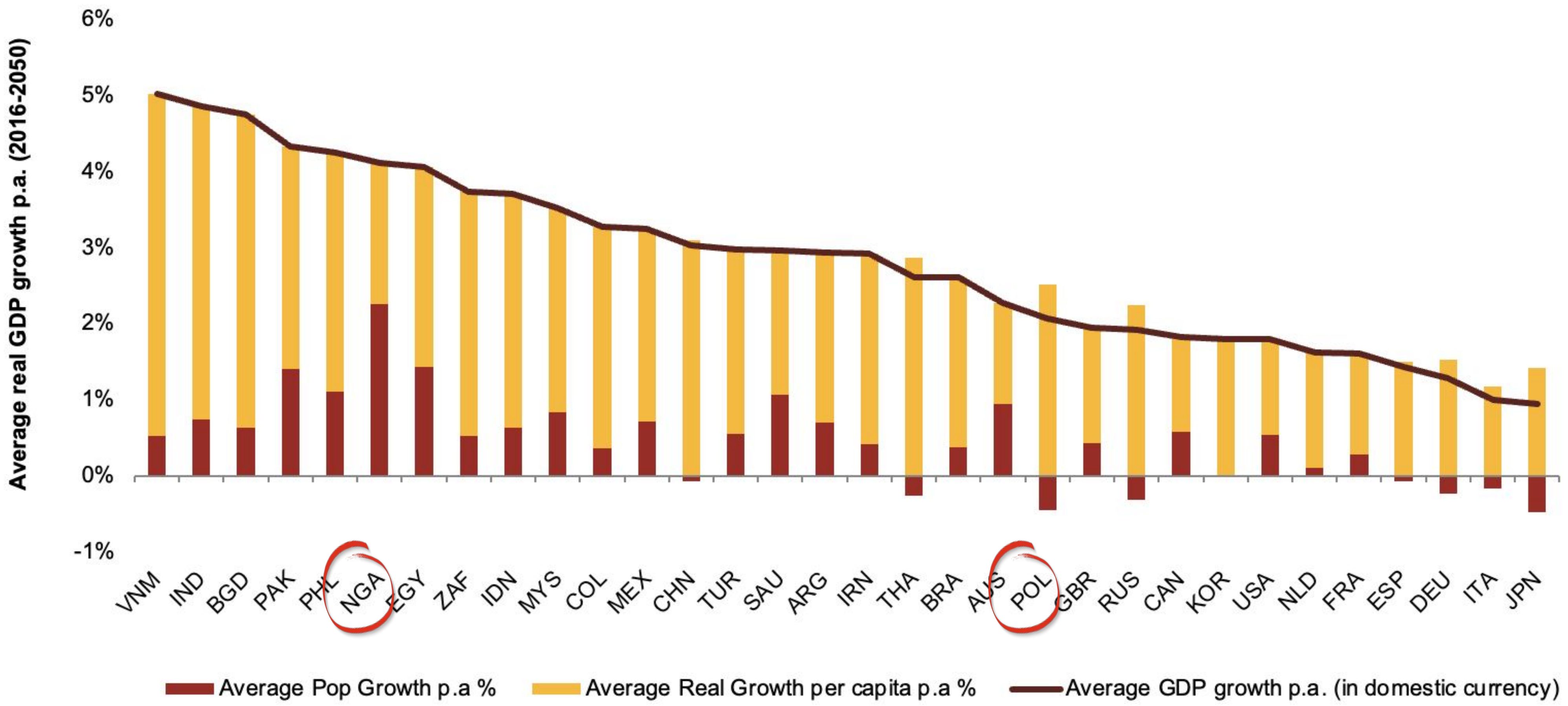
Average annual growth in GDP in PPPs



Sources: PwC analysis, Refinitiv Eikon

What will drive growth? Population growth will support growth in most emerging markets, but ageing populations could be a drag on growth in advanced economies and emerging markets like China and Russia (unless people work for longer)

Average real GDP growth p.a (2016-2050)



Sources: PwC analysis, Refinitiv Eikon

However, average incomes are likely to remain lower in emerging markets than the G7 even in 2050, but they should close a significant amount of the gap by then (e.g. China's average real income level in 2050 similar to the UK in 2017)

1. With the possible exception of Italy, all of the **G7 continue to sit above the E7 in terms of GDP per capita** in 2050. Russian average income is projected to be broadly on par with Italy by that time.

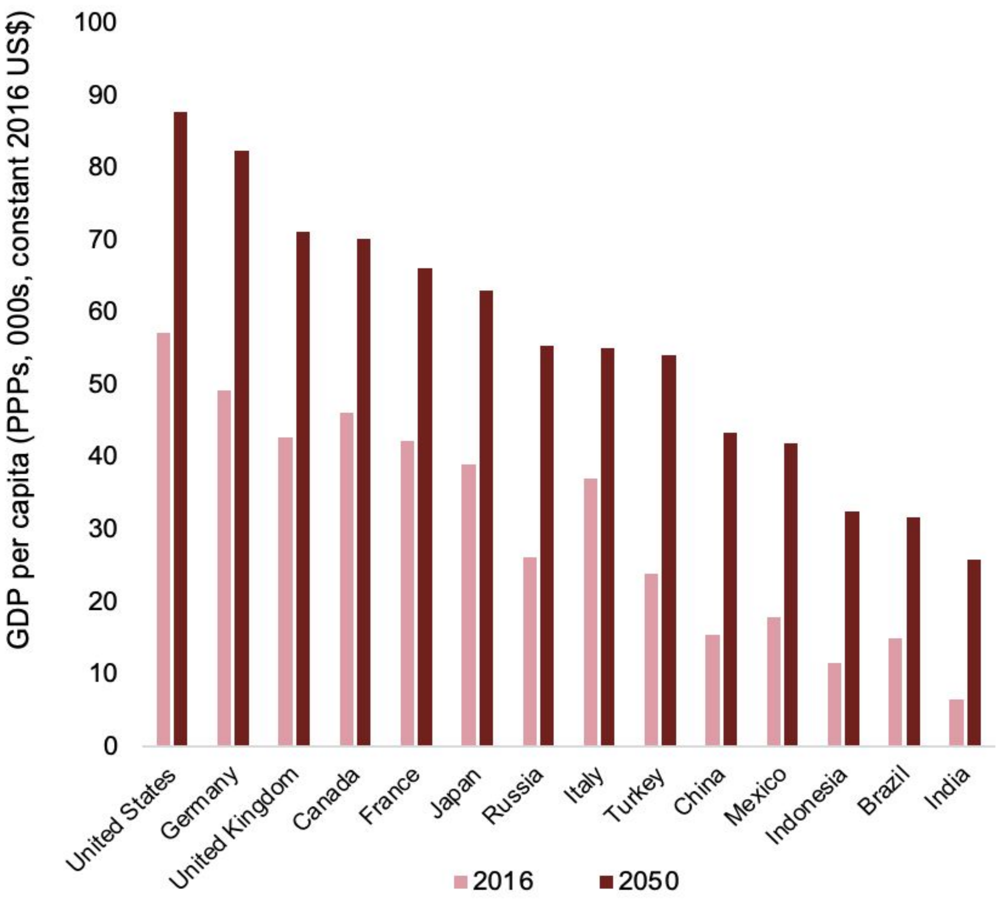
2. The largest economy in the world in 2050, **China, only achieves a middling rank** in terms of GDP per capita (but still similar to the UK's level today).

3. Despite overtaking the US by 2050 in total GDP at PPP terms, **India ranks only 28thof of the 32 countries in our study in terms of GDP per capita in 2050.** India's average real income level then might be similar to that in Russia today.

4. China and India are closing the gap with the top. In 2016, US GDP per capita was almost 9 times that of India's. **By 2050, it may be only around 3 times higher than in India (and twice Chinese levels).**

5. While population growth will be a key driver of GDP growth in emerging markets, it can have **partly offsetting effects** on average income growth., particularly if job creation is constrained.

GDP per capita is on the rise in the E7



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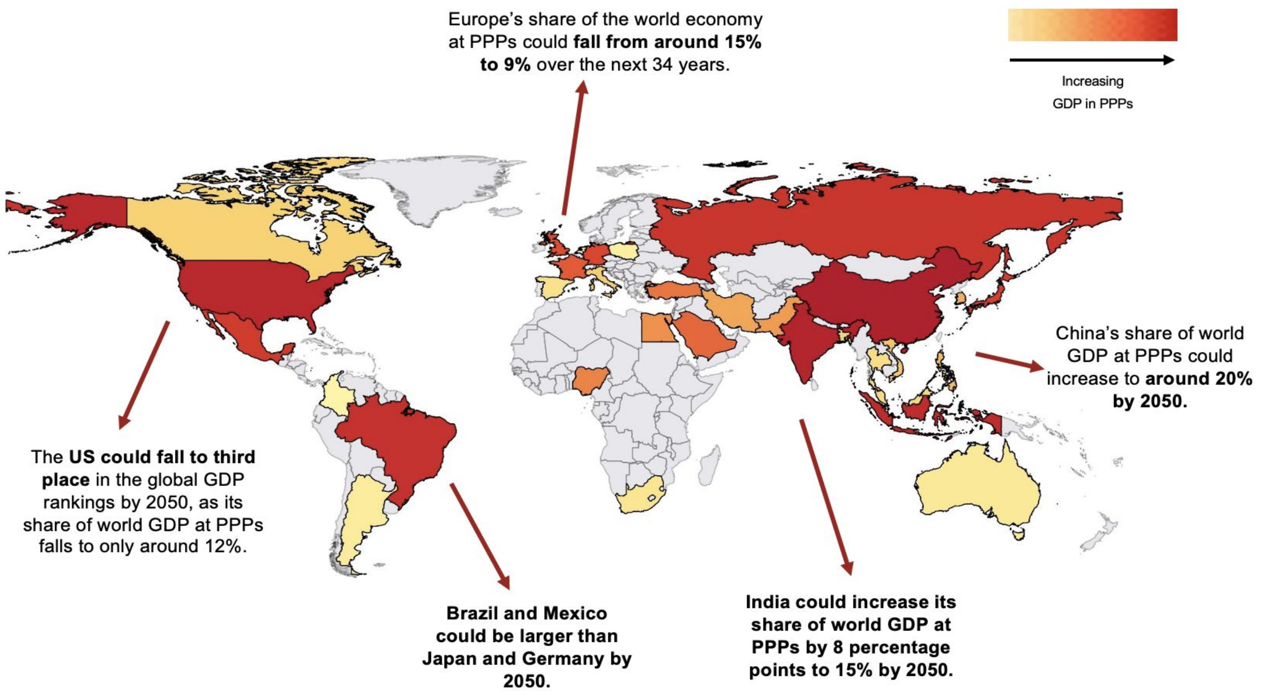
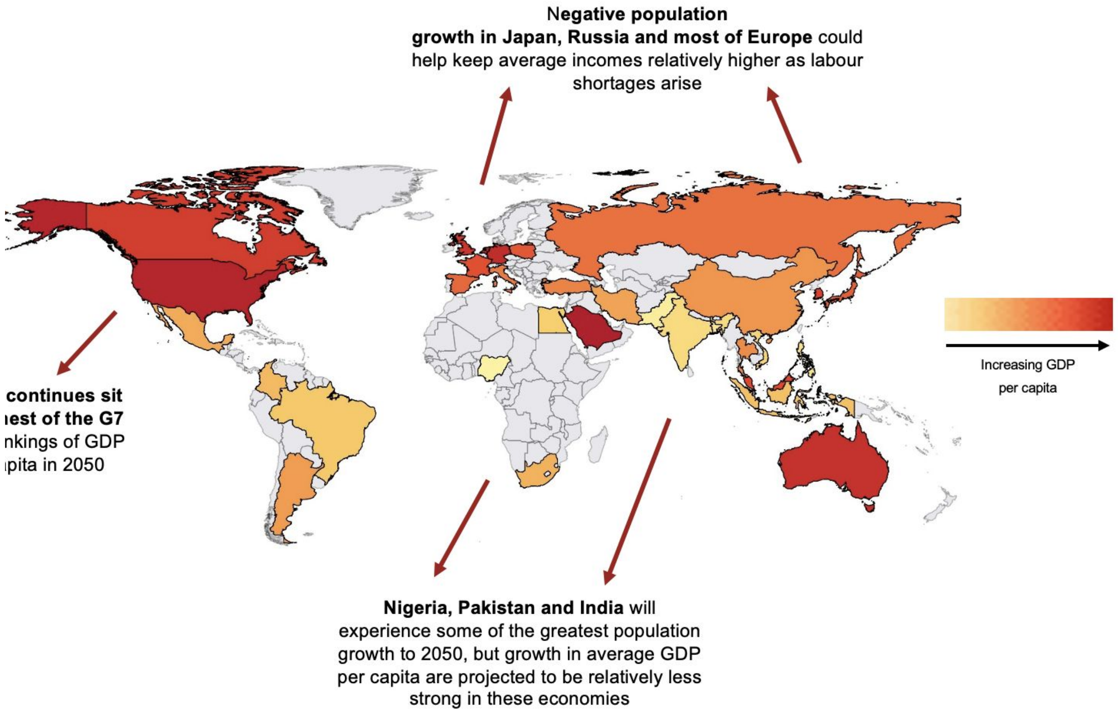


Average real per capita GDP growth p.a (2016-2050)



Sources: PwC analysis, IMF

What does this mean for businesses? The trends I just described is not necessarily bad news for advanced economies

1. GDP: **Shift of economic gravity from the West towards the East.** Markets will be growing in that part of the world, poverty will continue to reduce and this will be associated with opportunities
2. GDP per capita: **Incomes will continue to remain significantly higher in advanced economies.** This means that consumers in the West will be able to afford more sophisticated products and will demand more specialised services for themselves and their families.

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3. What has changed since 2017?

A lot has changed since 2017....

1. Once-in-a-generation events have occurred including a pandemic, a war on the European continent and populism spreading in a series of large advanced economies all of which make the future less predictable
2. We have entered a new chapter of globalisation
3. Projections about the size of future populations across the world have changed
4. Technological developments and how they are incorporated in our day-to-day lives remain a big question-mark

We think about these (and other changes) and how they could influence the medium-term outlook using our Megatrends framework

Introducing the megatrends…

Climate change

Technological disruption

Demographic shifts

Fracturing world

Social instability

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Fragmented world

or

- ➔ New emphasis on building domestic industries amidst strategic competition between the world's largest economies & focus on security & resilience.
- ➔ The US is leading the way. Including $400bn IRA and $52bn CHIPS Act which set to grow domestic industries at the expense of its rivals.
- ➔ Other governments are responding in turn. EU president Ursula von der Leyen has already called for an EU version of IRA.

Openness restored

- ➔ Persistent labour shortages will create a business need for deeper cross-border ties, particularly as reshoring boosts the demand for domestic workers.
- ➔ New and better technologies (remote-working, machine translation) are making it easier and cheaper to export services to overseas markets.
- ➔ International trade in data is still rising.

Fracturing world

or

Fragmented world

➔ Slower transfer of goods, services, ideas and people across borders.

➔ Implies that economic convergence will probably take longer to occur as emerging economies will need to develop their own technologies and grow their own domestic demand base.

Openness restored

➔ Similar to what was experienced in the early part of the 21st century with transfer of goods, services, ideas and people across borders continuing at a largely relatively unimpeded pace

➔ This will help converge economic activity across the world similar to what we are used to and is likely to benefit emerging markets more.

Technological disruption

or

Technology disappoints

- Regulation will slow progress as policymakers wake up to new risks posed by AI & other technologies.
- AI firms underperformed MSCI in 2022.
- Round 2 of the Solow Paradox? “You can see the computer age everywhere but in the productivity statistics (1987)”.
- Autonomous vehicles (AVs) are still not on the road. Ford CEO Jim Farley predicts that “profitable, fully AVs at scale are a long way off”.

A new technological era

- Bill Gates: “[AI] will change the way people work, learn, travel, get healthcare & communicate with each other”. Metaculus now expect that we will get a weak human-like AI by 2026. 3 years ago, they predicted 2050.
- Goldman Sachs - 7% increase in Global GDP in 10 years.
- 3pp increase in annual labour productivity.
- ‘Golden era’ for vaccines tech coming. Malaria vaccines are here now, cancer vaccines could be widespread by 2030.

Demographic shifts

or

Nearing crunch-point

- ➔ People are living longer. Global life expectancy has increased from 34 years in 1913 to 72 years in 2022. It is expected to continue rising, reaching 75 in the 2030s.
- ➔ Fertility rates are now below replacement level (2.1) in all four of the “BRIC” countries. Rates in Africa are falling too
- ➔ Pensions reform is challenging (e.g. France).

Problem for another decade

- ➔ As long as GDP/capita growth is greater than ‘demographic drag’, then merely a distribution issue.
- ➔ Japan has shown how older people can remain in workforce (13.6% >65).
- ➔ Attractive countries can always import workers - e.g. long-term immigration into UK estimated at 1.1 million in the year to June 2022.

Social instability

or

Loss of institutional trust

- Survey data indicates that the UK has a low levels of confidence in its institutions relative to its international peers, and that trust levels have been on a downward trajectory over time.
- Income inequality has been on an upward trajectory in the UK since the 1980s. This may be heightened further by the job displacement from automation in the coming decades.

Normal intergenerational tensions

- Across the OECD group of advanced economies, trust levels are now higher than their 2008 levels after around a decade of recovery.
- Governments will step in to level the playing field as automation displaces jobs (e.g. through UBI or UBS), as they did during the pandemic and the inflation crisis.

4. Key takeaways

Key takeaways

1

The world economy

The **world economy could more than double in size by 2050,** assuming broadly growth-friendly policies and no global catastrophes.

2

Shifts in global economic power

The E7 could account for c.50% of world GDP by 2050, up from 35% today. Emerging economies could be six of the largest seven economies in the world by 2050

3

Drivers of global growth

Emerging economies will drive global growth. Vietnam, India and Bangladesh could be three of the fastest growing larger economies over this period.

4

Policy implications

To realise this potential, governments need to implement structural reforms to improve macroeconomic stability, diversify their economies and develop more effective institutions.

5

Business implications

Rising incomes in emerging markets will **open up great opportunities for businesses with sufficiently flexible and patient strategies** for these fast evolving markets.

However, the rapidly evolving nature of economies, societies, technologies and policies across the world since 2017 means that the pace at which economic convergence between the West and the East happens could take longer than initially anticipated.

PwC UK Macroeconomic Services

Our macroeconomics team works with businesses and governments to identify opportunities, assess external risks and measure the effectiveness of their strategies.

We provide a range of services across three key areas:

Thought Leadership

- Macroeconomic analysis, insight and commentary on UK and global economic trends
- Presentations to C-suites on latest economic developments

Risk

- IFRS 9 support
- Scenario building and stress testing
- Risk analysis and horizon scanning

Outlook

- Macroeconomic variables forecasting (e.g. GDP, inflation)
- Demand, revenue and cost forecasting
- Market assessment and sizing

We are powered by a unique combination of competencies:

- **Macroeconomic expertise**
- **Econometric modelling**
- **Forecasting capabilities**
- **Data analysis & visualisation**
- **Excel modelling**
- **Strategy & policy design**

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World in 2050
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Thank you

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