ECONOMICS
GLOBAL
September 2018

HSBC Global Research

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https://www.research.hsbc.com

The World in 2030

Our long-term projections for 75 countries

Emerging economies offer the best prospects for long-term growth...

…but the challenges for policymakers, although they may shift, are unlikely to lessen

China looks set to be the world's largest economy by 2030 while India should jump to No.3

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Executive Summary

The world in 2030

We have refreshed our long-term forecasting framework to make model projections for 75 developed, emerging and frontier economies to assess growth potential and changes in global rankings by 2030.

Our model focuses on catch-up potential, population (size and shape), human capital (education and healthcare), politics, openness and technology. Better-educated workers are more likely to be productive; poorer countries will have room to catch up by simply adopting best practice and technology available elsewhere; and those with strong governance are more likely to facilitate investment and growth. Our projections point to the following:

- The trend of the past five years, of just below 3% global growth, looks like it could be sustainable, implying that by 2030, global GDP is about 40% higher than in 2017. Growth in both EM and DM is projected to be a little weaker than over the past decade but EM now makes up a larger share of the world.
- Over the past decade EM accounted for about half of global growth and on our modelled estimates, over the coming decade or so, roughly 70% of global growth will be from countries we currently describe as emerging.
- China is set to continue to be the single biggest contributor to global growth over the next decade and by 2030, will have become the world's largest economy (see page 11).
- One of the most striking rises amongst the rankings will be by India, which is set to become the world's third-largest economy in just over a decade, up from seventh today – leap-frogging the second- and third-largest developed economies of Germany and Japan.
- Another five Asian economies feature among our six fastest-growing economies in the world – Bangladesh, India, Philippines, Pakistan and Vietnam – so that by 2030, the contribution to global growth from emerging Asia excluding China will be converging on that of the whole of the group of countries currently classified as developed by MSCI.
- There is also continued room for catch-up going beyond 2030. Even in this world, and after doubling in 2007-2030, average EM GDP per capita is set to remain just a fraction of that in the west. On our projections it will still be less than 15% of the developed economy average (roughly 10% today) and China's will be below 30%.
- Demographically, Africa stands out, with its working-age population set to grow by more than 2.5% per year for the next decade, versus a fall of 0.5% per year in Europe, so that by 2030, Africa will have more people of working age than China.
- The small population, demographically challenged, rich economies in Europe slide down the rankings: Austria and Norway do not even make it into the top-30 by 2030 while Denmark slips below the top-40.
- While poorer countries with younger populations will generally see the sharpest moves up the rankings, other factors matter too. Improvements in education, healthcare and the rule of law can still see countries with shrinking working populations hold their position or even move up the rankings, notably Thailand, Serbia and some of the other CEE countries.

- In others, technology could offset demographic drag. In our model we have lessened the impact of shrinking working populations in the countries with the highest number of robots – Korea, Germany, Singapore and Japan. But others, particularly China, could see its growth being lifted by this too.
- In Latin America, Mexico and Peru stand out, with plenty of room for catch-up, favourable demographics and relatively robust human capital fundamentals for economies at their stage of development.
- EM countries will account for roughly 50% of global GDP by 2030, which represents a seismic shift from half that in 2000. As these countries develop and the nature of growth becomes more domestically oriented and consumer-led, such as we are seeing in China, the influence on developed markets will rise.
- But their impact on other emerging economies, for instance on intra-EM trade and multi-lateral trade arrangements, will grow too. And as their economic might increases, their desire for greater political clout in international organisations and suchlike can be expected to grow too.

1. Projected ranking changes by 2030 compared with 2018

	Biggest economies (in 2030)			Biggest risers			Biggest fallers		
	Country	Ranking change		Country	Ranking change		Country	Ranking change	
1	China	+1	(2 to 1)	Bangladesh	+16	(42 to 26)	Norway	-10	(27 to 37)
2	US	-1	(1 to 2)	Philippines	+11	(38 to 27)	Denmark	-9	(33 to 42)
3	India	+4	(7 to 3)	Pakistan	+10	(40 to 30)	Finland	-7	(41 to 48)
4	Japan	-1	(3 to 4)	Vietnam	+8	(47 to 39)	Austria	-5	(26 to 31)
5	Germany	-1	(4 to 5)	Malaysia	+ 5	(34 to 29)	Portugal	-4	(45 to 49)

Source: HSBC estimates and projections. The full ranking of 75 countries by GDP and by population can be found on page 11

Policy challenges

As for policy, the projections and rankings contained in this report are based an assumption that policymakers will continue to make progress on addressing economic flaws (education, rule of law etc) and that they avoid wars and remain open to global trade and capital. If these bold assumptions are wrong, our projections could be wide of the mark.

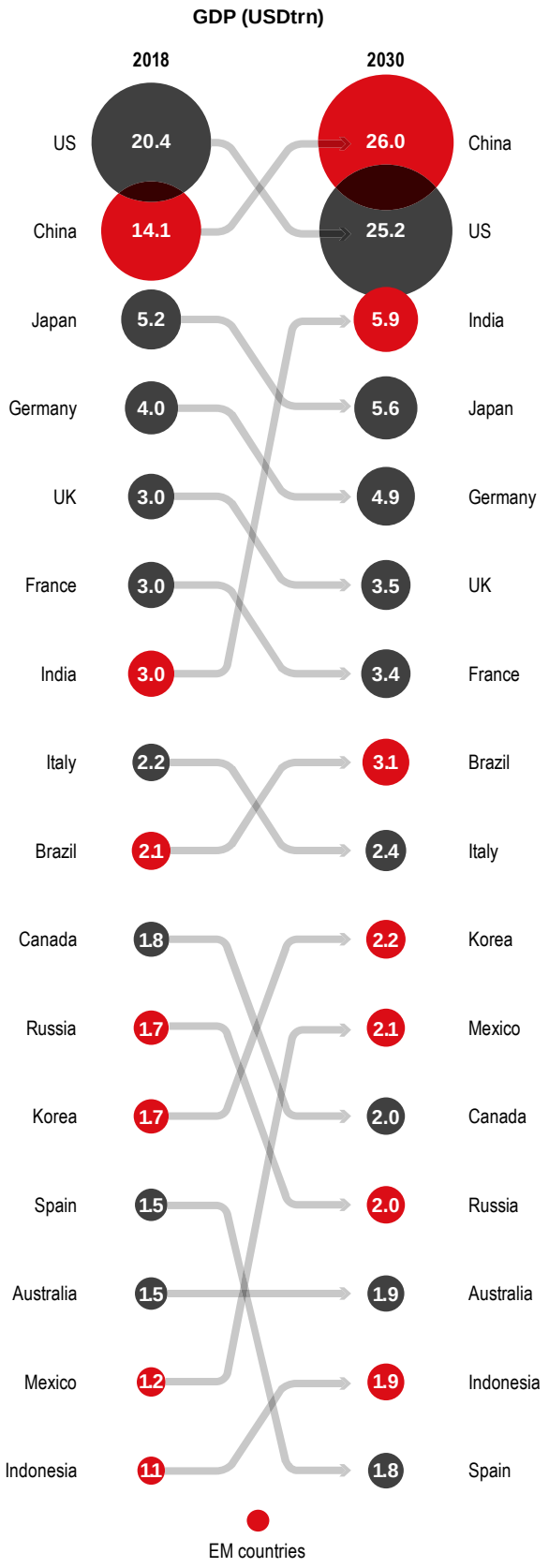
But there will also be policy challenges and changing priorities that may arise as a consequence of the projected global shifts in population and economic might – some local, some global.

Environmental challenges will be one of these: it is no coincidence that four of our top-six countries for projected growth – India, Pakistan, the Philippines and Bangladesh – also top the list of countries that our ESG analysts have estimated to be the most vulnerable to climate change.

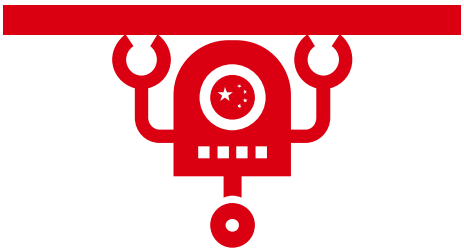
We cannot capture the implications for future growth in our model but environmental considerations, as well as one of the other most pressing policy challenges of our time – income inequality – are inevitably leading to renewed discussion about whether GDP itself is any longer the most appropriate measure for gauging economic growth and well-being (and therefore policy).

For DM policymakers the demographically-driven growth slowdown points to inevitable if –realistically – only gradual rises in retirement ages and less generous pension policies. Higher immigration could be an opportunity to ease demographic constraints but also presents a challenge given the associated political strains.

2030: Long-term global GDP rankings



Key facts for 2030

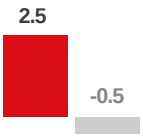


China is set to be the **world's largest economy by 2030**. China's push towards robotics could mean higher productivity and even faster GDP growth.

EM countries to account for **roughly 50% of global GDP** by 2030 …

… but EM plays a much bigger role, accounting for **70% of global growth**

… however **average EM GDP per capita** still only 14% of the DM average



Africa's working-age population set to grow by more than 2.5% per year for next decade, versus **fall by 0.5% per year in Europe**

Korea's **high level of automation** could offset the impact of its demographic drag on productivity and GDP

Bangladesh likely to be the **biggest mover in the global GDP rankings** (42nd to 26th), followed by Philippines, Pakistan and Vietnam …

… and the **biggest fallers** are set to be Norway, Denmark and Finland

Source: HSBC estimates. Note: GDP figures in constant 2018 USD terms

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Fundamental drivers

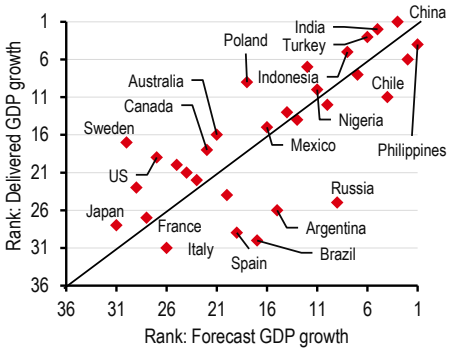
- Young, growing populations and high scope for catch-up…
- …mean emerging economies still offer the best prospects for long-term growth
- China looks set to be the world's largest economy by 2030 while India should jump to number three

Are EM's long-term growth prospects in question?

The growing risks in many EM countries have been increasingly in focus over the past few months. Their vulnerability to changing global financial conditions has been exposed by higher bond yields and a strengthening US dollar. Higher oil prices and growing trade tensions also threaten additional headaches. For the purposes of this report we set aside these near-term risks and try to assess the longer-term growth prospects.

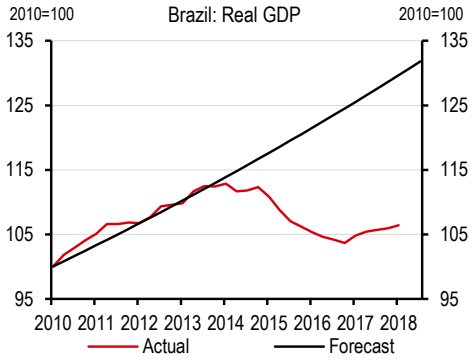
This is not the first time we have attempted to take a longer-term view. Back in 2011 in *The World in 2050, 4 Jan 2011*, we established a framework for longer-term forecasting and ultimately used it to make GDP projections for 100 countries in 2050. Demographics, education, life expectancy, rule of law and other elements of underlying "economic infrastructure" were the main variables that featured in the model.

3. In terms of ranking performance, the model did reasonably well…



Source: HSBC World in 2050, IMF

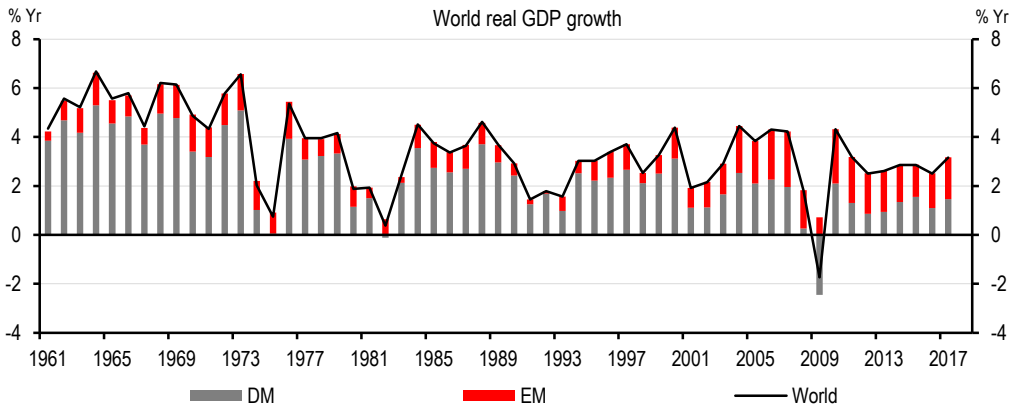
4. …but commodity producers can be abruptly thrown off course



Source: HSBC, Thomson Reuters Datastream

To the extent that the accuracy of a 40-year forecast can be assessed after a mere eight years, the forecasts generated from this model have proved reasonably accurate, at least in terms of the rankings of growth in a global context: the model correctly projected that the likes of China, India, Indonesia and the Philippines would outperform their emerging market peers and that developed market growth would remain much more subdued. The model had more difficulty with commodity producers, which tend to be less diversified and can be quickly thrown off course by price swings (a full discussion of how the model has fared is in the appendix on *page 27*.)

5. Global growth has been remarkably steady on a longer-term time horizon



Source: World Bank WDI

This ongoing outperformance by emerging economies means that they have accounted for more than half of the growth in the global economy since 2010, allowing global growth to remain remarkably stable in the post-crisis period. Indeed in 2017, the world registered the strongest year of growth since the immediate bounce-back following the global financial crisis. At 3.1% it was weaker than in the decade preceding the great recession but the same as the average pace delivered since 1970 despite weaker demographic drivers in nearly all economies.

We have written at length about how China (see: *China and the world, 19 May 2016*) and India (see: *India and the world, 12 September 2017*) are now crucial to the global growth outlook, but the rest of the emerging world is playing a part too. One of the biggest questions for economists is how sustainable is this pace of global growth? And can the emerging world do enough of the heavy lifting to offset the structural deficiencies of high debt and deteriorating demographics in the west?

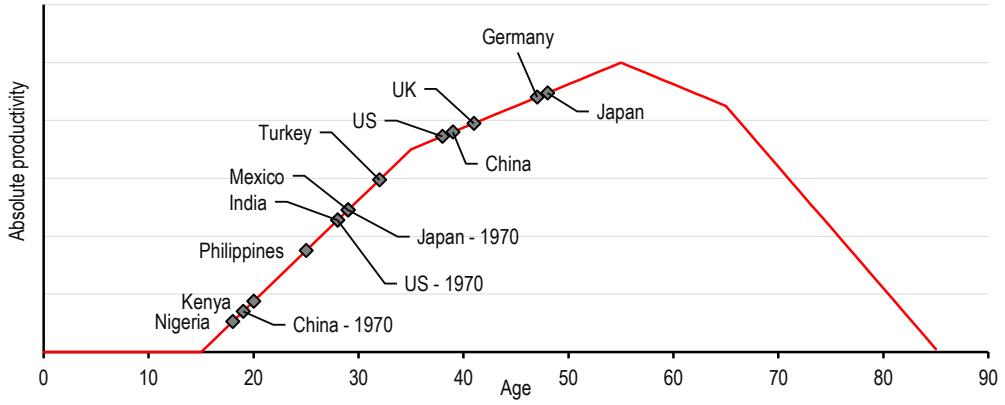
A newer model

Population shape matters too, not just population growth…

It has already become apparent that the model itself had some weaknesses for making projections. For instance, by forecasting a per capita growth rate and then simply adding on working age population growth, it ignored the impact of demographic variables, like the shape of the population, on driving per capita growth too.

Young populations with higher growth in working-age population growth will have a greater share of the population that is of working-age over the next decade or so, helping to lift per-capita growth rates, not just total growth rates. As these young people age (up to about aged 55 according to UN studies, chart 6), they should become more productive, particularly as education rates continue to rise across the emerging world.

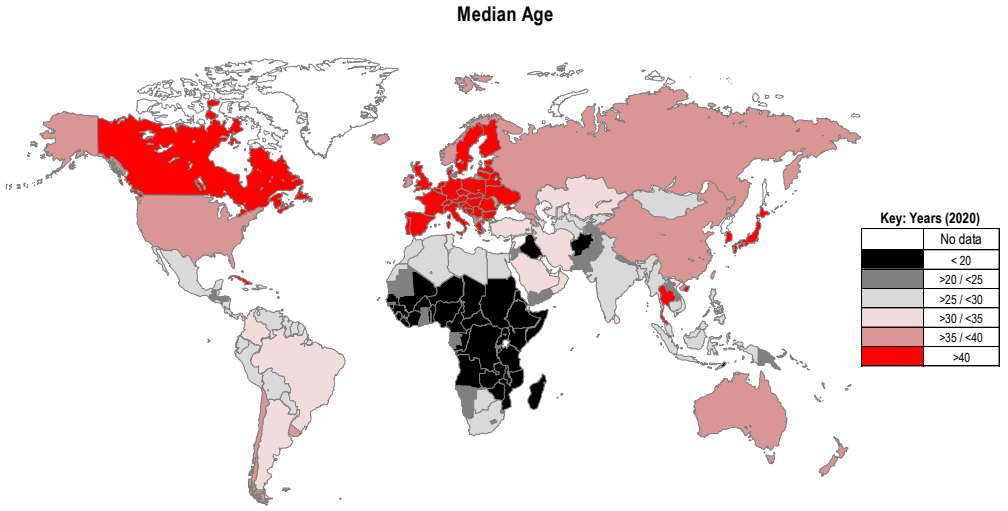
6. EM countries have the productivity gains to come from demographics…



Source: HSBC, UN population division. Note: Shape of productivity by age - based on academic work using a number of different job types. Shape will vary by country and job-type so is indicative.

Chart 7 shows how many of the large emerging market economies have a population whose median age is below 30 and so ageing could have a positive impact on growth potential in coming years. This is captured in the 'share of population that is working-age' variable in the model, and points to a greater share of the population being employed, paying taxes and consuming more. Taking the US as a guide, even with their higher household savings rates, the 35-64 age groups have the highest expenditure per person.

7. The world's young population is in Africa and South & South-East Asia

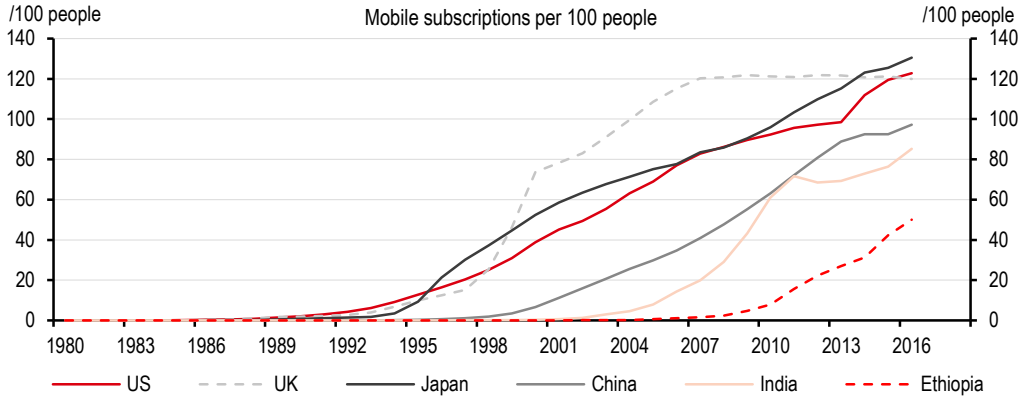


Source: HSBC, UN population Division

…as does technology and political rights

Hence, we have refreshed our longer-term growth model to be more all-encompassing by bringing in more demographic indicators and refreshing the education, health care and political indicators that feed in, and trying to account for the role of technology in development of an economy.

8. Some parts of the world have scope for catch-up in terms of technological availability



Source: World Bank WDI. Note: Can be >100 due to multiple subscriptions per head. Mobile phone adoption is not a perfect indicator. In some emerging markets still at an early stage of development, mobile phone ownership is much higher – often because they have no had easy access to landlines – than in some much more advanced economies. But some of the other benefits of a more technologically-advanced economy on productivity will have been captured in the educational performance and healthcare indicators in the model.

Our model focuses of six main categories of economic indicators: catch-up potential, population (size and shape), human capital (education and healthcare), politics, openness and technology: better educated workers are more likely to be productive; poorer countries will have room to catch up by simply adopting best practice elsewhere; and those with strong governance are more likely to facilitate investment and growth.

The full methodology for the model and how we got there is detailed starting on page 32 of the appendix while full details of the economic infrastructure for the countries covered is overleaf.

We also refresh the list of countries we forecast to include those within MSCI World, Emerging Market and Frontier indices, as can be seen in table 9. But for the purposes of our groupings into DM and EM in this report, the EM aggregate includes both "Emerging" and "Frontier" as EM.

9. 75 countries to forecast

Developed			Emerging			Frontier		
Americas	**Europe/ CEEMEA**	**Asia**	**Americas**	**Europe/ CEEMEA**	**Asia**	**Europe/ CEEMEA**	**Asia**	**Africa**
Canada	Austria	Australia	Argentina	Czech Rep.	China	Croatia	Bangladesh	Kenya
US	Belgium	Hong Kong	Brazil	Egypt	India	Estonia	Sri Lanka	Mauritius
	Denmark	Japan	Chile	Greece	Indonesia	Lithuania	Vietnam	Morocco
	Finland	New Zealand	Colombia	Hungary	Korea	Kazakhstan		Nigeria
	France	Singapore	Mexico	Poland	Malaysia	Romania		Tunisia
	Germany		Peru	Qatar	Pakistan	Serbia		Ivory Coast
	Ireland			Russia	Philippines	Slovenia		Senegal
	Israel			Saudi Arabia	Taiwan	Bahrain		Burkina Faso
	Italy			South Africa	Thailand	Jordan		
	Netherlands			Turkey		Kuwait		
	Norway			UAE		Lebanon		Ghana*
	Portugal					Oman		Ethiopia*
	Spain							
	Sweden					Ukraine*		
	Switzerland							
	UK							

Source: MSCI Country classification. Note: *Countries not in MSCI index but included as covered by HSBC or in Ethiopia's case have a large population and could play a significant role in global growth.

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10. The economic infrastructure

All latest available figures unless otherwise stated	GDP per Capita (2010 USD)	Working-age population (16-64) growth rate (2018-2023)	Share of population working age	Change in % working age (2018-2023)	Fertility Rate (children per woman)	Mobiles per 100 people	Gross Primary School enrolment	Human Capital Index**	Political Rights (1= high, 7 low)	Openness (Trade as % GDP)
US	55018	0.2	65.4	-1.6	1.9	130	99	3.7	2	26.6
Canada	52815	0.1	66.5	-2.3	1.6	89	101	3.7	1	64.4
Austria	50601	-0.3	66.5	-1.8	1.5	181	102	3.3	1	99.7
Belgium	47078	0.0	64.1	-1.4	1.8	105	103	3.1	1	164.4
Denmark	63158	0.2	63.7	-0.6	1.8	118	102	3.5	1	101.0
Finland	48417	-0.2	61.9	-1.6	1.8	132	100	3.4	1	71.7
France	43675	0.0	62.0	-1.0	2.0	106	107	3.1	1	60.5
Germany	48087	-0.5	65.3	-1.8	1.5	143	102	3.7	1	84.3
Ireland	78448	0.7	64.2	-0.1	2.0	101	101	3.1	1	221.2
Israel	35936	1.4	60.2	-0.2	2.9	125	104	3.7	1	58.4
Italy	35421	-0.5	63.3	-1.1	1.5	164	101	3.1	1	56.2
Netherlands	55648	-0.2	64.6	-1.5	1.7	123	103	3.3	1	153.9
Norway	93943	0.6	65.2	-0.9	1.8	107	100	3.6	1	67.4
Portugal	23581	-0.6	64.7	-0.8	1.2	110	105	2.4	1	78.9
Spain	33389	-0.3	65.7	-0.9	1.4	113	104	2.9	1	62.9
Sweden	59443	0.4	62.3	-0.9	1.9	124	123	3.4	1	83.7
Switzerland	79334	0.2	66.4	-1.7	1.5	131	104	3.7	1	120.4
UK	43397	0.2	63.5	-1.0	1.9	118	102	3.7	1	58.0
Australia	58621	0.7	65.1	-1.4	1.8	114	101	3.5	1	40.0
Hong Kong	39511	-0.8	71.2	-5.1	1.3	261	107	3.2	1	372.6
Japan	49027	-0.7	59.7	-1.1	1.5	141	99	3.5	1	31.2
New Zealand	39070	0.4	64.6	-1.3	2.0	131	99	3.3	1	52.5
Singapore	56108	0.2	71.7	-2.9	1.3	154	101	3.5	4	318.4
Argentina	10649	1.0	64.0	0.2	2.3	151	110	2.9	2	26.3
Brazil	11179	0.6	69.8	-0.2	1.7	102	115	2.7	2	24.6
Chile	15752	0.5	68.4	-0.9	1.8	129	100	3.1	1	56.1
Colombia	7869	0.7	69.0	0.1	1.8	124	114	2.5	3	34.9
Mexico	10132	1.3	66.7	0.6	2.1	92	104	2.7	3	78.1
Peru	6473	1.3	65.6	0.4	2.4	130	103	2.8	2	44.8
Czech Republic	23647	-0.5	65.0	-1.5	1.6	118	99	3.7	1	151.6
Egypt	2988	1.7	61.5	0.1	3.2	106	104	2.5	6	30.0
Greece	23523	-0.4	65.3	-0.5	1.3	112	95	3.0	2	61.6
Hungary	16182	-0.9	66.5	-1.8	1.4	121	102	3.3	3	169.0
Poland	16402	-1.0	67.8	-2.6	1.3	131	110	3.3	1	100.5
Qatar	69573	1.5	84.7	-0.8	1.9	125	104	2.9	6	89.1
Russia	11463	-1.0	67.6	-2.9	1.8	162	102	3.4	7	46.3
Saudi Arabia	21600	1.6	71.7	0.0	2.5	111	116	2.6	7	60.9
South Africa	7716	1.2	65.7	0.4	2.4	123	103	2.7	2	60.4
Turkey	15778	1.0	67.1	0.5	2.0	95	103	2.3	5	46.8
UAE	41886	1.3	84.9	-0.2	1.7	252	111	2.7	7	205.3
China	7849	-0.2	71.2	-1.6	1.6	107	101	2.5	7	37.1
India	2133	1.3	66.4	1.0	2.3	103	115	2.1	2	39.8
Indonesia	4396	1.1	67.5	0.5	2.3	180	103	2.4	2	37.4
Korea	27042	-0.6	72.2	-3.4	1.3	129	98	3.6	2	77.7
Malaysia	12299	1.2	69.4	-0.4	2.0	135	103	3.0	4	128.6
Pakistan	1310	2.1	60.8	0.9	3.4	79	98	1.8	4	25.1
Philippines	3132	1.6	63.6	0.5	2.9	96	113	2.6	3	64.9
Taiwan	22511	-0.8	72.7	-3.6	1.2	129*	98*	3.2	1	120.8
Thailand	6369	-0.3	71.2	-1.4	1.5	221	101	2.7	6	123.1
Croatia	15283	-1.1	65.1	-1.6	1.4	106	95	3.4	1	96.3
Estonia	19707	-0.7	63.7	-1.4	1.7	144	97	3.6	1	154.1
Lithuania	17000	-1.1	65.8	-2.3	1.7	148	101	3.2	1	147.7
Kazakhstan	11351	0.6	64.5	-1.2	2.6	129	108	3.2	7	60.2
Romania	11315	-1.0	66.5	-1.7	1.5	115	89	3.2	2	83.7
Serbia	6167	-0.8	65.8	-1.5	1.6	130	101	3.3	3	107.5
Slovenia	26714	-0.9	65.2	-2.7	1.6	118	99	3.5	1	146.2
Kenya	1263	3.1	57.2	2.0	3.8	82	105	2.2	4	37.9
Mauritius	10606	0.0	70.7	-0.7	1.4	151	102	2.6	1	98.4
Morocco	3433	1.0	65.8	-0.5	2.4	105	110	1.8	5	80.4
Nigeria	2528	2.9	53.4	1.0	5.4	82	94	1.9	3	21.1
Tunisia	4450	0.5	67.7	-1.5	2.1	117	115	2.4	2	90.0
Ghana	1968	2.5	58.3	1.1	3.9	154	105	2.4	1	88.6
Bangladesh	1180	1.6	67.0	1.8	2.1	87	119	2.0	4	38.0
Vietnam	2015	0.5	69.5	-1.4	1.9	125	110	2.6	7	184.7
Sri Lanka	4032	0.2	65.8	-0.2	2.0	141	102	2.9	3	50.5

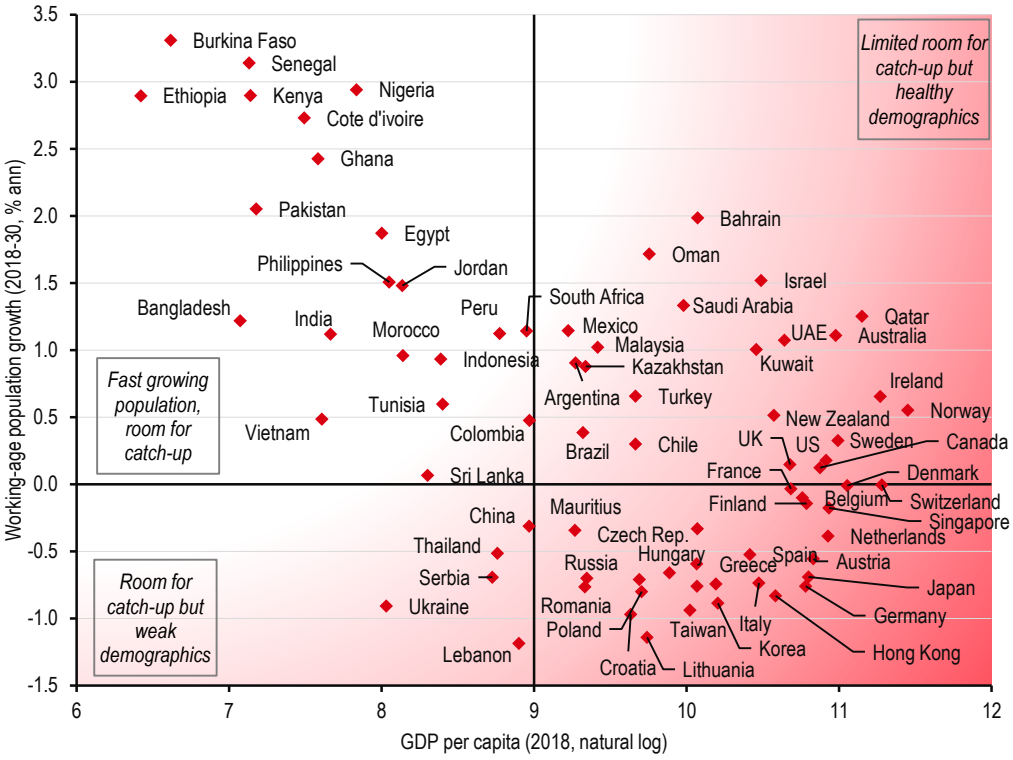
Source: HSBC, World Bank, IMF, UN Population Division, Penn World Tables, Freedom House International. Note: Sorted by income category and then region. *No data from World Bank, so Korea taken as a proxy. **Human Capital index is from the Penn World tables and is index of human capital per person, which is related the average years of schooling and the return to education. Mobile phone adoption may seem high for some emerging markets even compared with developed economies, but the benefits of technology will also be captured in DM in some of the other human capital indicators.

What do the new country growth projections look like?

Demographics and catch-up potential are key

Given the various idiosyncrasies of each country in the global economy, a model to generate longer-term economic forecasts on a broad cross-section of countries will have its limitations. Some could prove to be off-track in the very near term, should they fall into recession in the coming year (see What can't the model capture? on page 15). Nonetheless, we still see value in making projections out to 2030 in a consistent manner across countries. Our model projections should certainly give a clear sense of where the economic potential lies: current growth rates play no role in the projections. In simple terms, countries which have a low starting point in terms of level of GDP per capita, and have favourable demographics, should grow reasonably quickly as long as the other components for growth are in place – and the 75 countries in our sample are shown on chart 11 below.

11. Young, poorer countries should have higher growth potential



Source: HSBC, World Bank, UN population division

…but education, healthcare and strength of institutions matter too

In practice, our model favours those countries which not only have strong demographics and catch-up potential (Ethiopia), but which also have relatively high levels of education, good health care quality and which are open or have strong political rights. On this basis, our new model projects that some of the fastest growers will be those in the middle of the top-left quadrant: India, Bangladesh, Philippines and Vietnam. Some of the others with strong demographics in the top-left quadrant are held back by the relative weakness of their institutions: a young rapidly growing working-age population is not supportive for growth if these young adults are not doing anything productive. Those in the bottom right quadrant have little scope for catch up and are home to shrinking working-age populations, creating a double headwind to growth that requires strong human capital or investment in automation to raise productivity enough to prevent a slowdown in potential growth. Our projections for total GDP growth by five-year periods out to 2030 for all 75 countries are in the appendix on page 39 but we show the current rankings for total size of economy and total population on page 11.

HSBC

12. GDP and population rankings in 2018 and model projections for 2030

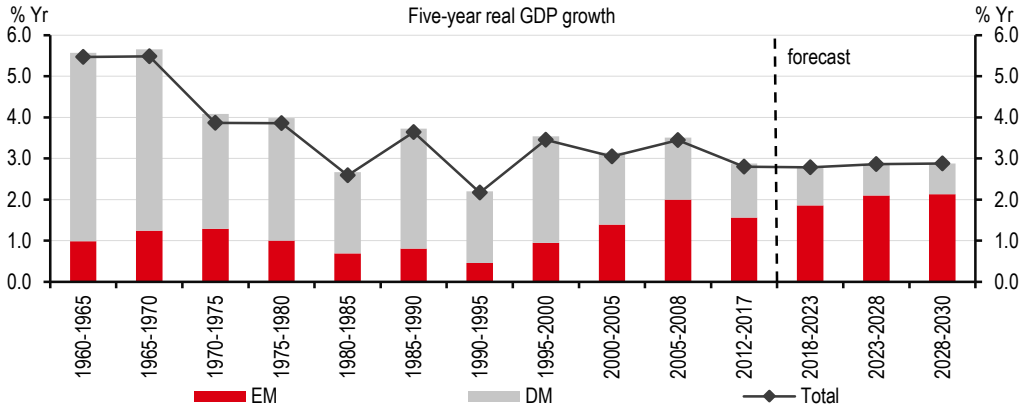
	GDP						Total Population				
	2018		2030				2018		2030		
	Country	USD trn	Country	USD trn	Change		Country	Million	Country	Million	Change
1	US	20.4	China	26.0	1	1	China	1415.0	India	1513.0	1
2	China	14.1	US	25.2	-1	2	India	1354.1	China	1441.2	-1
3	Japan	5.2	India	5.9	4	3	US	326.8	US	354.7	0
4	Germany	4.2	Japan	5.6	-1	4	Indonesia	266.8	Indonesia	295.6	0
5	UK	2.9	Germany	4.9	-1	5	Brazil	210.9	Nigeria	264.1	2
6	France	2.9	UK	3.5	-1	6	Pakistan	200.8	Pakistan	244.2	0
7	India	2.8	France	3.4	-1	7	Nigeria	195.9	Brazil	225.5	-2
8	Italy	2.2	Brazil	3.1	1	8	Bangladesh	166.4	Bangladesh	185.6	0
9	Brazil	2.1	Italy	2.4	-1	9	Russia	144.0	Mexico	147.5	1
10	Canada	1.8	Korea	2.2	2	10	Mexico	130.8	Russia	140.5	-1
11	Russia	1.7	Mexico	2.1	4	11	Japan	127.2	Ethiopia	139.6	1
12	Korea	1.7	Canada	2.0	-2	12	Ethiopia	107.5	Philippines	125.4	1
13	Spain	1.5	Russia	2.0	-2	13	Philippines	106.5	Japan	121.6	-2
14	Australia	1.5	Australia	1.9	0	14	Egypt	99.4	Egypt	119.7	0
15	Mexico	1.2	Indonesia	1.9	1	15	Vietnam	96.5	Vietnam	106.3	0
16	Indonesia	1.1	Spain	1.8	-3	16	Germany	82.3	Turkey	88.4	1
17	Netherlands	0.9	Turkey	1.2	1	17	Turkey	81.9	Germany	82.2	-1
18	Turkey	0.9	Netherlands	1.1	-1	18	Thailand	69.2	UK	70.6	1
19	Saudi Arabia	0.7	Saudi Arabia	1.0	0	19	UK	66.6	Thailand	69.6	-1
20	Switzerland	0.7	Argentina	0.9	1	20	France	65.2	France	67.9	0
21	Argentina	0.6	Poland	0.9	1	21	Italy	59.3	Kenya	67.0	3
22	Poland	0.6	Switzerland	0.8	-2	22	South Africa	57.4	South Africa	64.5	0
23	Sweden	0.6	Sweden	0.7	0	23	Korea	51.2	Italy	58.1	-2
24	Belgium	0.6	Thailand	0.7	1	24	Kenya	51.0	Colombia	53.1	1
25	Thailand	0.5	Belgium	0.7	-1	25	Colombia	49.5	Korea	52.7	-2
26	Austria	0.5	Bangladesh	0.7	16	26	Spain	46.4	Argentina	49.3	1
27	Norway	0.4	Philippines	0.6	11	27	Argentina	44.7	Spain	46.1	-1
28	UAE	0.4	UAE	0.6	0	28	Ukraine	44.0	Ukraine	41.2	0
29	Nigeria	0.4	Malaysia	0.6	5	29	Poland	38.1	Morocco	40.9	2
30	Ireland	0.4	Pakistan	0.6	10	30	Canada	37.0	Canada	40.6	0
31	Israel	0.4	Austria	0.5	-5	31	Morocco	36.2	Saudi Arabia	39.5	1
32	South Africa	0.4	Nigeria	0.5	-3	32	Saudi Arabia	33.6	Ghana	37.3	3
33	Denmark	0.4	Ireland	0.5	-3	33	Peru	32.6	Malaysia	36.8	1
34	Malaysia	0.4	Israel	0.5	-3	34	Malaysia	32.0	Peru	36.8	-1
35	Hong Kong	0.4	Colombia	0.5	4	35	Ghana	29.5	Poland	36.6	-6
36	Taiwan	0.4	South Africa	0.5	-4	36	Cote d'Ivoire	24.9	Cote d'Ivoire	33.3	0
37	Singapore	0.3	Norway	0.5	-10	37	Australia	24.8	Australia	28.2	0
38	Philippines	0.3	Hong Kong	0.5	-3	38	Taiwan	23.7	Burkina Faso	27.4	2
39	Colombia	0.3	Taiwan	0.5	-3	39	Sri Lanka	21.0	Taiwan	24.2	-1
40	Pakistan	0.3	Vietnam	0.5	7	40	Burkina Faso	19.8	Senegal	22.1	5
41	Finland	0.3	Singapore	0.5	-4	41	Romania	19.6	Sri Lanka	21.5	-2
42	Bangladesh	0.3	Denmark	0.4	-9	42	Kazakhstan	18.4	Kazakhstan	20.3	0
43	Chile	0.3	Egypt	0.4	5	43	Chile	18.2	Chile	19.6	0
44	Czech Republic	0.3	Chile	0.4	-1	44	Netherlands	17.1	Romania	18.5	-3
45	Portugal	0.2	Peru	0.4	4	45	Senegal	16.3	Netherlands	17.6	-1
46	Romania	0.2	Czech Republic	0.4	-2	46	Tunisia	11.7	Tunisia	12.8	0
47	Vietnam	0.2	Romania	0.3	-1	47	Belgium	11.5	Belgium	12.0	0
48	Egypt	0.2	Finland	0.3	-7	48	Greece	11.1	Jordan	11.1	4
49	Peru	0.2	Portugal	0.3	-4	49	Czech Republic	10.6	UAE	11.1	5
50	Greece	0.2	Greece	0.3	0	50	Portugal	10.3	Greece	10.8	-2
51	New Zealand	0.2	New Zealand	0.3	0	51	Sweden	10.0	Sweden	10.7	0
52	Qatar	0.2	Kazakhstan	0.3	1	52	Jordan	9.9	Czech Republic	10.5	-3
53	Kazakhstan	0.2	Hungary	0.2	1	53	Hungary	9.7	Israel	10.0	5
54	Hungary	0.2	Qatar	0.2	-2	54	UAE	9.5	Portugal	9.9	-4
55	Kuwait	0.1	Morocco	0.2	1	55	Serbia	8.8	Hungary	9.2	-2
56	Morocco	0.1	Kuwait	0.2	-1	56	Austria	8.8	Switzerland	9.2	1
57	Ukraine	0.1	Ethiopia	0.2	3	57	Switzerland	8.5	Austria	8.9	-1
58	Sri Lanka	0.1	Kenya	0.2	1	58	Israel	8.5	Serbia	8.4	-3
59	Kenya	0.1	Ukraine	0.2	-2	59	Hong Kong	7.4	Hong Kong	8.0	0
60	Ethiopia	0.1	Sri Lanka	0.2	-2	60	Lebanon	6.1	Singapore	6.3	1
61	Oman	0.1	Oman	0.1	0	61	Singapore	5.8	Denmark	6.0	1
62	Croatia	0.1	Ghana	0.1	4	62	Denmark	5.8	Norway	6.0	2
63	Slovenia	0.1	Croatia	0.1	-1	63	Finland	5.5	Oman	5.9	2
64	Lithuania	0.1	Jordan	0.1	5	64	Norway	5.4	Finland	5.7	-1
65	Lebanon	0.1	Serbia	0.1	2	65	Oman	4.8	Lebanon	5.4	-5
66	Ghana	0.1	Slovenia	0.1	-3	66	Ireland	4.8	Ireland	5.2	0
67	Serbia	0.0	Cote d'Ivoire	0.1	1	67	New Zealand	4.7	New Zealand	5.2	0
68	Cote d'Ivoire	0.0	Lithuania	0.1	-4	68	Kuwait	4.2	Kuwait	4.9	0
69	Jordan	0.0	Lebanon	0.1	-4	69	Croatia	4.2	Croatia	3.9	0
70	Tunisia	0.0	Tunisia	0.1	0	70	Lithuania	2.9	Qatar	3.2	1
71	Bahrain	0.0	Bahrain	0.1	0	71	Qatar	2.7	Lithuania	2.7	-1
72	Estonia	0.0	Estonia	0.0	0	72	Slovenia	2.1	Slovenia	2.1	0
73	Senegal	0.0	Senegal	0.0	0	73	Bahrain	1.6	Bahrain	2.0	0
74	Burkina Faso	0.0	Burkina Faso	0.0	0	74	Estonia	1.3	Mauritius	1.3	1
75	Mauritius	0.0	Mauritius	0.0	0	75	Mauritius	1.3	Estonia	1.3	-1

Source: IMF estimates & rankings for 2018, HSBC projections, World Bank, IMF, UN Population Division

What will the global economy look like in 2030?

Firstly, these projections suggest that, irrespective of the numerous strains on many emerging economies, the fundamentals imply that EM-supported global growth of the past decade has further to run. The trend of the past five years, of just below 3% global growth, looks like it could be sustainable, implying that by 2030, global GDP is about 40% higher than in 2017.

13. Global growth could stay close to 3%

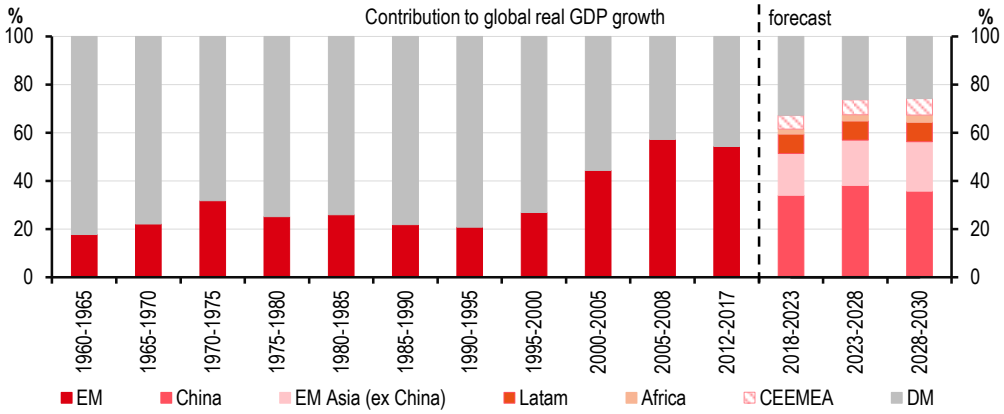


Source: World Bank, HSBC estimates. Global GDP growth is calculated using nominal GDP weights rather than PPP weights.

Growing EM contribution should allow global growth to hold up

On our projections, both DM and EM growth will be slower in the coming decade than they have been since the financial crisis but EM now comprises a larger share of the world. Over the past decade EM accounted for about half of global growth and on our modelled estimates, over the coming decade or so, roughly 70% of global growth will be from countries we currently describe as emerging. EM growth is projected to be 4.4% in 2018-30 (compared with 4.7% in 2010-17) and DM growth is seen at 1.5% (down from 1.7%).

14. 70% of global growth is set to come from EM – particularly Asia



Source: World Bank data, HSBC estimates. Note that the countries included in each of these regions are those listed in table 12 so the contribution from some EM regions which also include lots of countries which do not make it into the top 75 may be understated.

Note: For charts 13 and 14, we have excluded the period from 2009-2011 as the relative contributions in that period were heavily distorted by the global financial crisis

Our model suggests five of the six fastest-growing economies will be in Asia

Unsurprisingly, in 2008-17 the biggest single contribution to global growth came from China. On our projections China will continue to lead the charge over the next decade or so, but the other notable shift in the composition of global growth will come from the rest of emerging Asia. With five of our six most rapidly growing economies – Bangladesh, India, Pakistan, Philippines and Vietnam – all forming part of that region, by 2030 the contribution to global growth by emerging

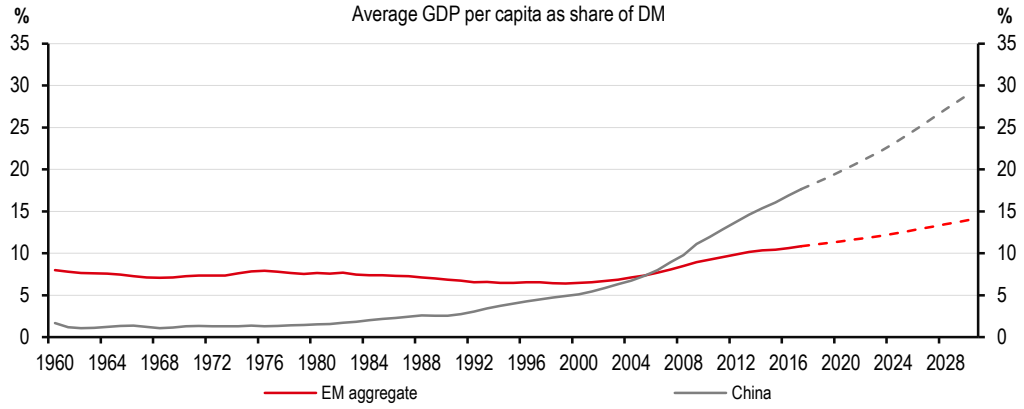
Asia ex China should be converging on that of the whole group of countries currently classified as developed by MSCI (chart 14).

India shows the sharpest move up the rankings to number three

Like the EM aggregate, China and the rest of Asia may not be set to grow quite as quickly in the next decade as in the last, but the region now makes up a bigger share of the world so its contribution to global growth is as high. The most notable shift is set to be in India, with our projections suggesting it will go from the seventh largest economy in the world to the third by 2030 (table 12).

There is also continued room for catch-up going beyond 2030. Even in this world, and after doubling between 2007 and 2030, underlying GDP per capita is set to remain just a fraction of that in the west. On our projections, the EM average will still be less than 15% of the DM average and China will be below 30%.

15. Emerging markets still have scope for catch-up



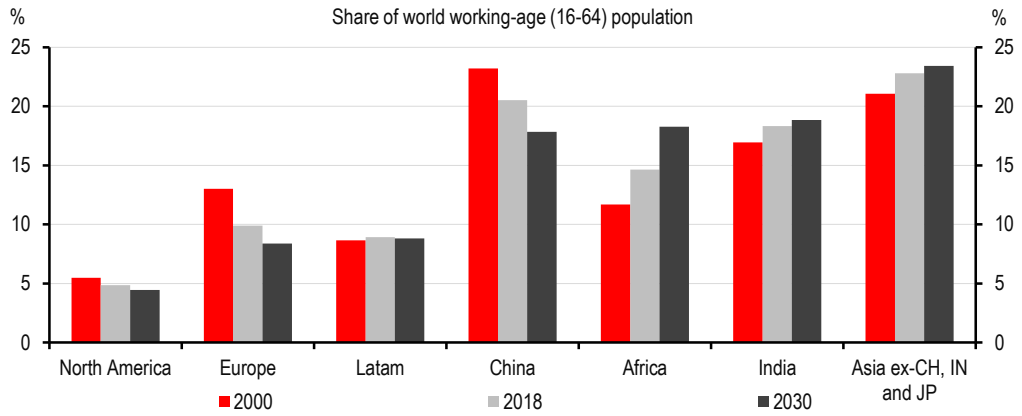
Source: HSBC estimates, World Bank. Note: In real USD terms

For DM it is a mixed picture. In terms of absolute size, the large economy and stronger demographics in the US keeps it close to the top of the rankings while the sheer size of their economies means Germany and Japan stay in the top five, despite rapidly ageing populations.

The biggest risers up the rankings are all in Asia. But the small population, demographically challenged, rich economies in Europe slide down the rankings: Austria and Norway do not even make it into the top-30 by 2030 while Denmark slips below the top-40.

As for the global population, the shift to EM looks set to continue. India and China, by 2030, account for 35% of the global population and by 2030, nearly 25% of the world's working age population will be in other Asian countries. However, the biggest regional mover will be Africa, where young, fast-growing populations mean the continent will have more people aged between 16 and 64 than China by 2030.

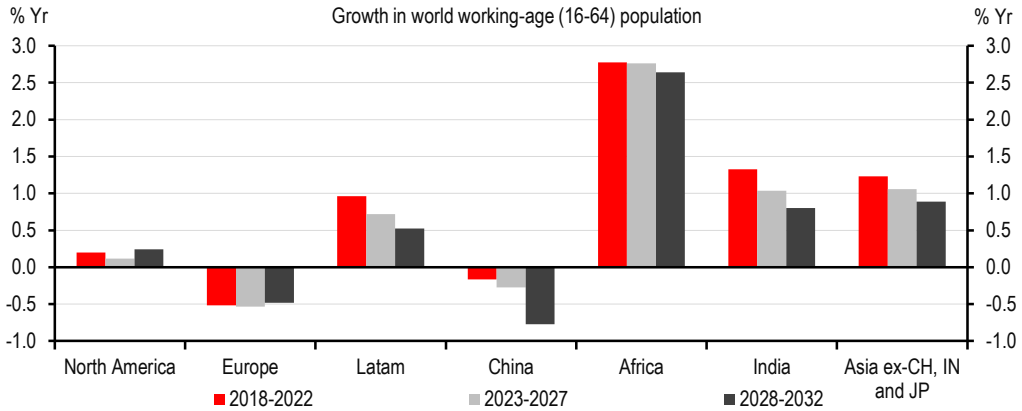
16. Africa is the big mover in the global demographic stakes



Source: UN Population Division, HSBC

And while the movements in the share of the global working-age population look quite small over the next 12 years (chart 16), the divergence between working-age population growth rates is really striking (chart 17). The shrinkage in China's working-age population becomes much more apparent in the latter part of the next decade, while the difference between the American and European demographic outlook is striking.

17. Demographic divide is clear when it comes to working age population growth rates



Source: UN Population Division

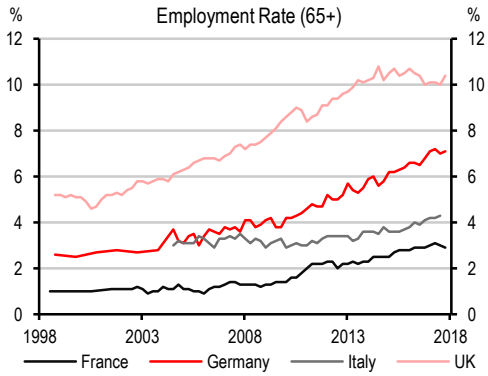
What can't the model capture?

- Trade wars and natural disasters could throw our projections off track…
- …while technology and migration could support stronger growth in some countries
- Long-term models cannot capture cyclical interruptions

Known unknowns

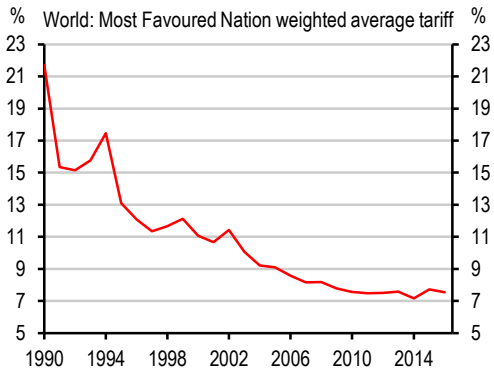
There are many ways in which medium- to long-term forecasting models can be wrong. Some are country-specific: the so-called 'known unknowns' out there. The UK, for example, will see its potential growth shaped by its resulting trade relationship after exiting the EU. Saudi Arabia and other oil exporters will depend heavily on the oil price itself, but also the pace of any structural reforms to lift potential growth in non-oil sectors. In Europe, ageing populations could be offset by rising participation rates for people aged over 65 if pension reforms are successful. All of these are known risks that are impossible to quantify in a growth model. But there are also a number of other factors that could significantly alter the entire global outlook, from trade wars to natural disasters:

18. Rising participation for over-65s could ease decline in working population



Source: Thomson Reuters Datastream

19. The decline in global trade tariffs may have come to a halt



Source: WITS

1) Trade wars

The biggest immediate danger to our projections is if the open borders that have delivered so much prosperity are closed. Recent actions by the US administration are not encouraging on this front as it is hard to see how such a wave of protectionism could benefit any individual economy, or the system as a whole. Global growth would inevitably be weaker but as always,

there would be distributional effects. The impact on confidence and investment would likely be negative while the disruption to integrated global supply chains established over the past few decades would ultimately weigh on living standards. This could be a particular blow to the likes of Mexico, where our model gives very generous forecasts due to its open economy and favourable demographic outlook.

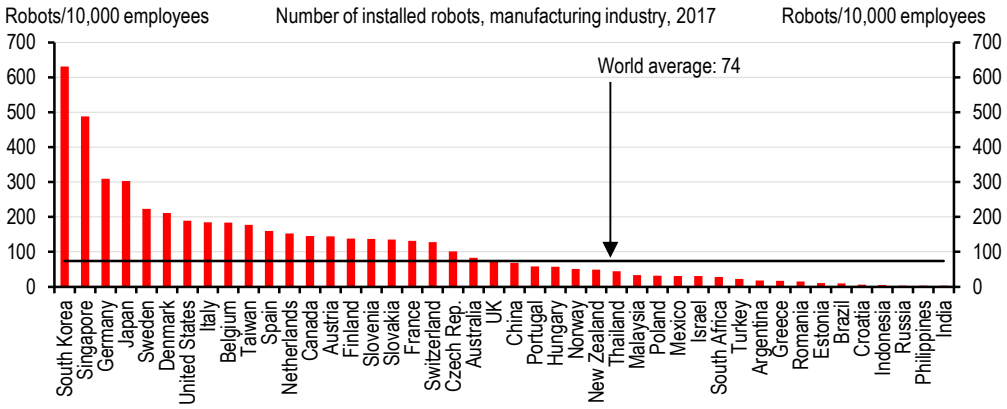
At the time of writing the latest round of US tariffs on further USD200bn of imports from China had just been implemented but our China economists have also written on how such a scenario could potentially lead to even more rapid intra-EM trade (see: *A blessing in disguise: why a trade war will strengthen China-EM links, 31 August 2018*).

2) Technology

We have incorporated a measure of technology usage into our estimates for growth potential. As explained on *page 37*, we also lessen the demographic drag in our model projections for the four countries with the highest number of robots (Korea, Germany, Singapore and Japan) – all of them face big demographic challenges. Nonetheless, it is highly likely that our model is not fully capturing the actual impact on GDP that technological advances are already having (for instance we have not incorporated China's robotisation plans as discussed on *page 16*), never mind the impact that future technologies will have on productivity and well-being.

As recently as 2007, very few would have foreseen the transformational impact that the iPhone and other smartphones would have on the world in the space of a decade. As we highlighted in *Upwardly mobile: Three themes driving EM growth, 09 October 2017*, the arrival of the smartphone in the hands of young EM consumers could have a transformational impact on access to banking, educational attainment and healthcare quality, which would lead to faster convergence in this sort of modelling, meaning that some of the countries with lower quality education and healthcare scores could see a more rapid catch-up, supporting growth rates in future years.

20. Korea leads the world in terms of industrial robots

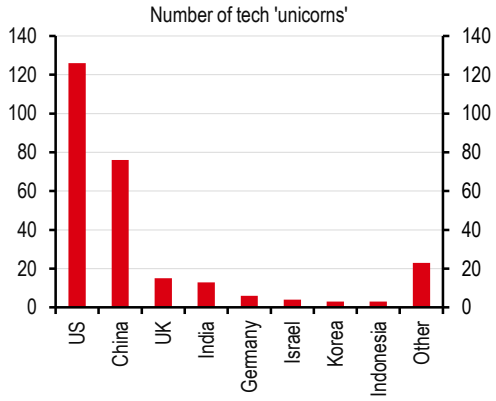


Source: IFR

China's industrial strategy

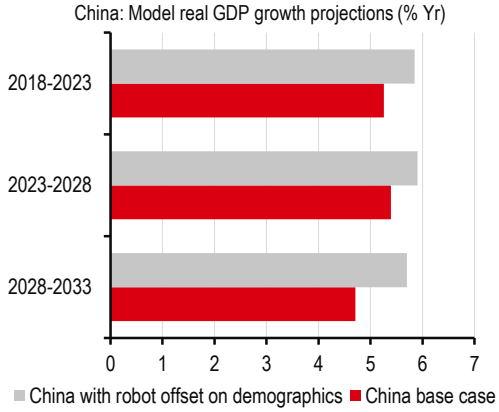
China currently faces demographic headwinds to growth, with a working-age population that peaked in 2017. While in our model we adjust some of the demographic indicators for high robot adoption, China's score is low on this metric, with 68 per 10,000 employees, below the global average. But there is a clear effort to push up automation and China's industrial upgrading will no doubt lead to a rapid increase in robots in the coming years. This has already started to happen (chart 21) and if China's industrial shift leads to a sufficient rise in automation to raise productivity enough to counteract its demographic drag, then higher GDP growth rates could be sustained.

21. China's economy is developing into new technologies



Source: www.CBinsights.com Note: A unicorn company is a start-up with a valuation over USD1 billion

22. More automation could offset the impact of demographic decline on productivity



Source: HSBC estimates. Note: Robot offset implies halving the rate of decline in the share of the population that is of working-age.

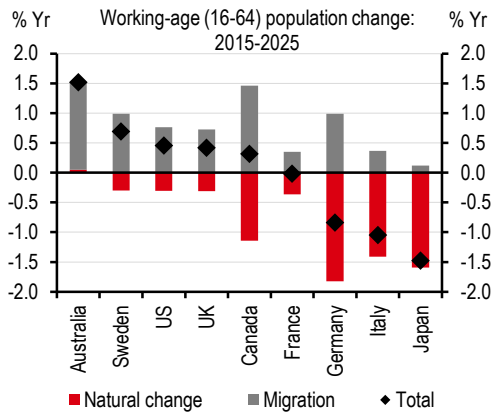
3) Natural disasters

Natural disasters can send economies seriously off course as their development seeks to replace what was lost (although they have a temporary upward impact on GDP growth) rather than make any further leap forward.

4) Migration flows

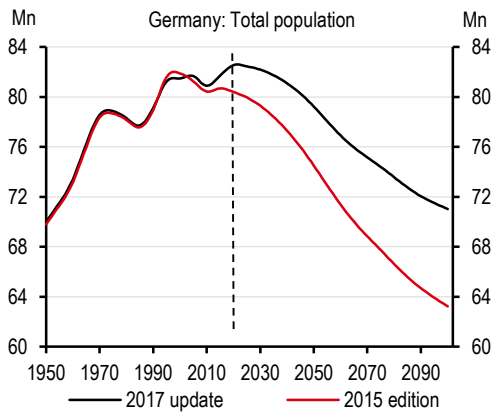
As discussed on page 29, demographic assumptions tend to be reasonably accurate over the short term but for many developed markets, population growth is heavily influenced by migration flows (chart 23) and the sheer volume of new arrivals to Germany in 2015/16 led the UN to heavily revise its forecasts for the size of the German population over the next few decades (chart 24). This leaves demographic projections open to error given how susceptible migration flows are to policy changes from governments. While Germany and Sweden saw that influx, Singapore has reduced its national quota for foreign workers and Australia is talking about it.

23. Migration drives demographics in DM…



Source: UN Population Division

24. …and transforms the demographic outlook



Source: HSBC, UN Population Division

5) Cyclical interruptions

Our model is a structural model of potential supply and therefore ignores cyclical factors and whether there are ebbs and flows in demand. We do not know when the next downturn will be. The EM economies most exposed to US tightening and where policymaking has been questionable, are already set to slide into recession, but this model is not about the cyclical.

It is notable that the two countries which most surprised on the upside in 2011-17 relative to the projections we set out in the *The World in 2050, 4 Jan 2011* were Sweden (where the forecast was probably too low but rapid debt accumulation no doubt played a role) and Turkey, where overly loose monetary and fiscal policy contributed to wide imbalances for which it may already be starting to face the consequences.

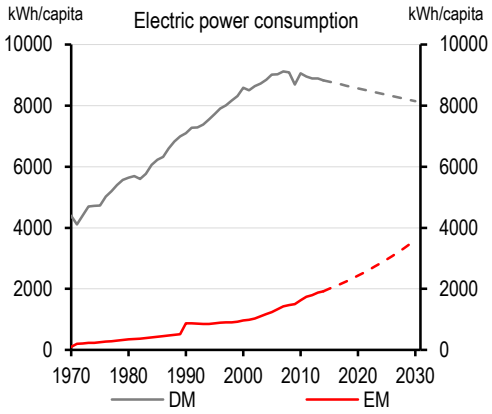
Resource constraints and the environment

- Energy demand is set to grow even if technology lowers demand for some resources
- The fastest growing economies in our rankings are also the ones most at risk from climate change…
- …but GDP does not account for the environmental impact of growth

Energy demand

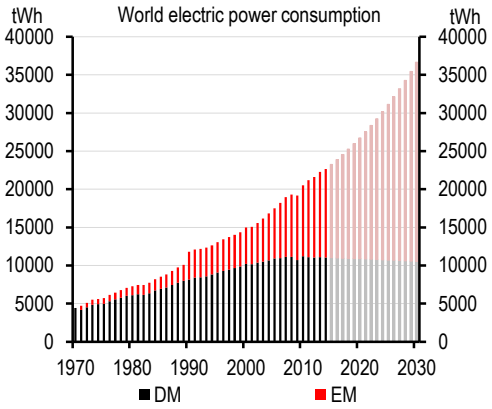
Projecting a global economic expansion of this scale is one thing. Whether it is feasible in terms of its impact on global demand for resources is another. Given the increasing energy demands from the emerging world (chart 25), global power demand could rise dramatically in the coming years, if recent trends continue (chart 26).

25. On current trends, EM power demand per capita would still be only half of DM by 2030…



Source: HSBC, World Bank WDI. Note: Projection assumes average growth rate as past five years

26. …but with population growth, could lead to a 45% increase in power consumption



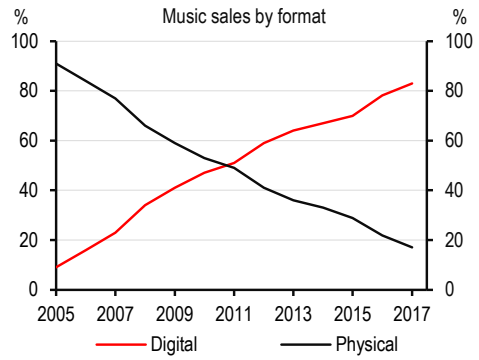
Source: HSBC, World Bank WDI, UN population division. Note: Pink and grey bars are projections based on left hand chart and demographic projections.

The potential challenges are not captured by the model but there can be little doubt that they are complex. The changing mix of growth over time, particularly in the digital age, means the relationship between GDP growth and demand for natural resources and labour is by no means linear. Hence, simple extrapolations are inadequate, especially given the scope for technological advances to make further rapid progress.

Is growth becoming more or less resource intensive?

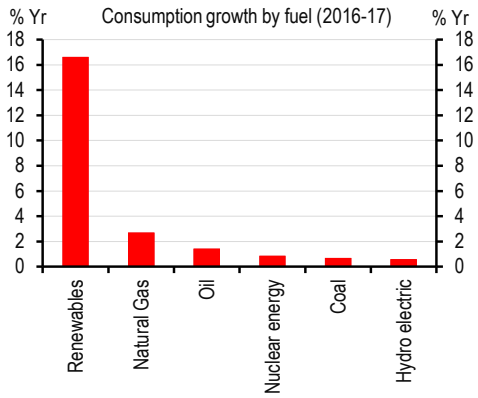
Some developments, such as increased customisation and digitisation, should already mean lower demand for such resources – think on-demand 3D printing or music streaming (involving lower shipping, storage, commodity and labour costs, as well as lower manufacturing output and less waste). But other parts of the economy will inevitably increase their call on resources as countries mature. Technological advance clearly has a role to play in improving energy efficiency and developing new energy supply – in the way that has already succeeded in considerably lowering the cost of renewable fuels – but in many countries, particularly in EM, demand for energy is set to grow much more quickly than GDP if current trends persist. To ensure that the necessary energy transformations take place will require not just technology but huge investments in infrastructure (see *Re-energising the world: The economics of energy: past, present and future, 8 January 2018*).

27. Not all growth requires more natural resources…



Source: Recording Industry Association of America (RIAA)

28. Demand for renewable energy is rising fast – albeit from a very low base



Source: BP Statistical Review of World Energy June 2018

Short-term gains, long-term pains?

Air conditioning is a clear example. Various studies have demonstrated the transformational impact that air-conditioning has had on the likes of productivity, healthcare and life expectancy. However, as highlighted in a recent edition of The Economist[1], the IEA estimates that over the next ten years, one billion air-conditioners will be installed around the world: more than were put in between 1902 (when air conditioning was invented) and 2005. The more emissions produced, the more the world warms and, as incomes rise, the more their use will rise.

> **At current rates, Saudi Arabia, will be using more energy to run air-conditioners in 2030 than it currently exports in oil**
>
> **The Economist, 25 August 2018**

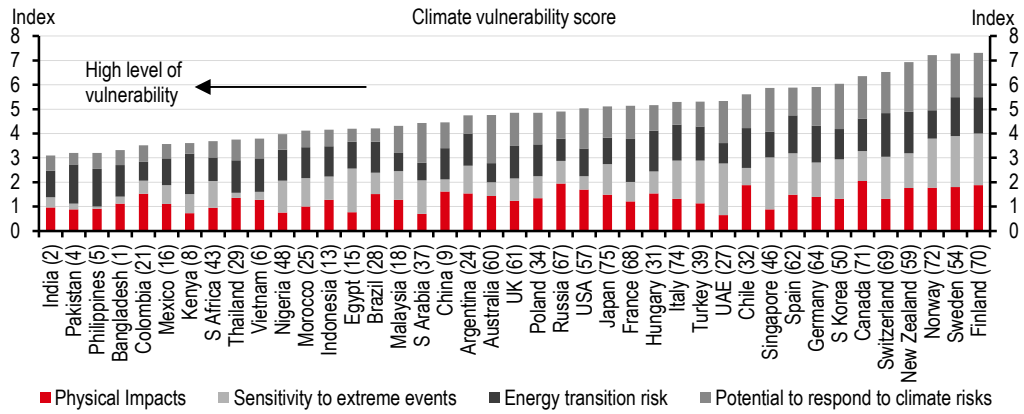
The forecasts contained in this report do not attempt to make a claim on the environmental impact of the projected growth but should readers wish to consider the likely implications of what are (in some cases) very high growth rates, they should be considered against other gauges of the sustainability of growth.

Our fastest growing economies also top the list for climate change risks

For instance, it is notable – if not surprising – that four of our top six countries for projected growth – India, Pakistan, the Philippines and Bangladesh –top a list of 67 countries that our ESG analysts[2] have estimated to be the most vulnerable to climate change. That ranking is based on an assessment of both the physical impacts and the associated energy transition risks to gauge which are better placed to respond to these pressures.

[1] Global cooling, The Economist 25 August 2018
[2] *Fragile Planet: Scoring climate risks around the world*, March 2018

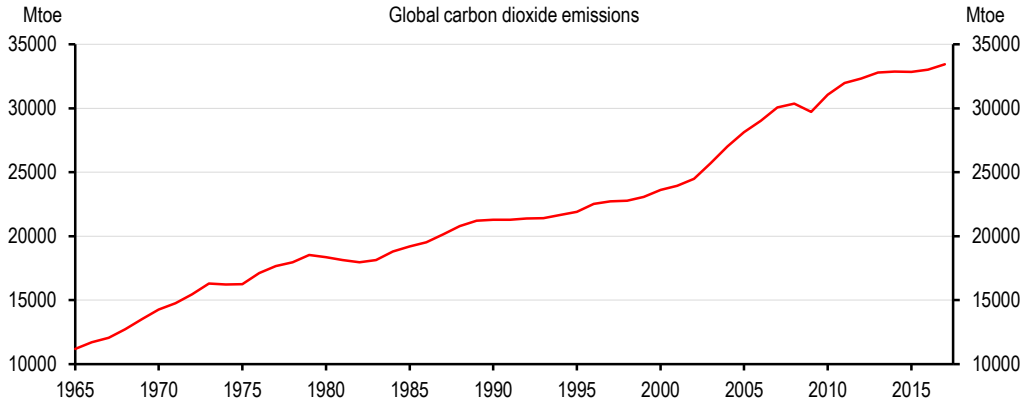
29. Our projected fast-growers are most at risk from climate impacts



Source: HSBC, Fragile Planet: Scoring climate risks around the world, March 2018. Note: Number in brackets show the ranking for trend growth pace from our model.

GDP does not capture this. Some economists[3], notably Diane Coyle, have argued that if policy decisions are to take account of the environmental impact of growth, there should be an assessment of the extent to which current growth is occurring at the expense of future growth. Hence, the depreciation of natural resources needs to be accounted for in measures of national income in the same way as the depreciation of machinery, equipment and infrastructure.

30. Net national income accounts for capital depreciation but not depletion of natural resources



Source: BP Statistical Review

While many governments now have their official statisticians collecting various environmental indicators, from emissions to air and water quality, we can find no example of a country which is incorporating it directly into GDP or related measures. Hence all our projections contained in our long-term growth model are aimed at projecting growth rates on the existing measures of GDP. We nonetheless recognise that environmental considerations, as well as one of the other most pressing policy challenges of our time – income inequality – are inevitably leading to renewed discussion about whether GDP itself is any longer the most appropriate measure for gauging economic growth and well-being (and therefore policy). This subject forms the basis of the next section.

[3] Diane Coyle. GDP: A brief but affectionate history. Princeton University Press 2014

Well-being and policy challenges

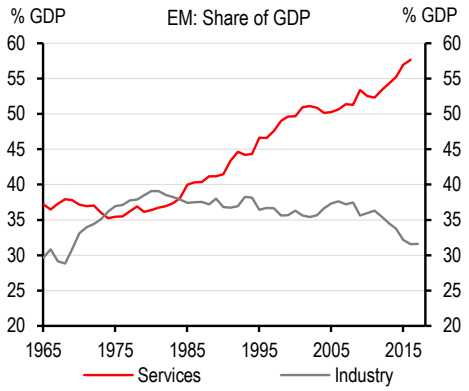
- GDP may not be a perfect measure for capturing economic activity in the digital age…
- …but some of the impact of technology on growth should be reflected in productivity and efficiency
- We assume policymakers will want to support growth, but they also face a range of other challenges

GDP is better at measuring goods than services

GDP basket to keep expanding – from prostitution to Air B&B

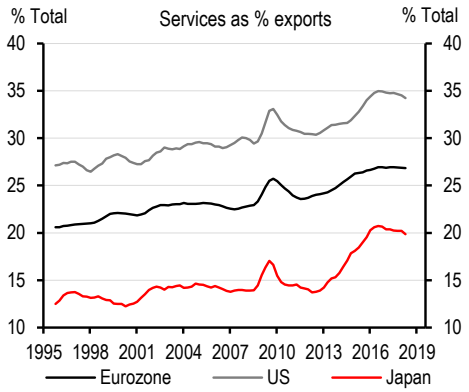
Our new projections are for the next decade or so. Based on the last decade, there is a strong likelihood that at a minimum, what is incorporated in GDP over that period evolves considerably, which could alter both the size of measured GDP and the growth rate. After all, in the past 15 years, the standard way in which GDP is measured has altered, mainly through the 2008 changes to the UN's system of national accounts and, the case of Europe, from the 2010 version of the European System of Accounts. The former related to the reclassification of R&D spending to be part of investment spending and changes to the measurement of financial services. The latter related primarily to elements of the informal sector, incorporating estimates for the likes of drugs and prostitution. Each resulted in the overall level of GDP being revised higher than previously reported.

31. The global economy is becoming more services based…



Source: Thomson Reuters Datastream

32. …and trade is too



Source: Thomson Reuters Datastream

Some quality improvements are being captured…

Given that every expansion of the GDP measure to date has focused on transactions for which a payment is made, it is likely that in the coming years the basket of goods and services included in GDP will at least be widened to include all services for which money changes hands. So spending on AirB&B, for instance, could be included going forward.

…but current measures of economic growth struggle with the impact of the digital age

Efficiency and productivity may be higher

Further efforts will no doubt be made to incorporate *quality* improvements in many of the *goods* being produced. But existing measures of economic growth struggle to gauge improvements in the *quality of services* being provided or the *utility* derived from services for which there is often no price because they are provided digitally: much music streaming; many online news services and thousands of apps providing anything from the quickest way around London traffic to hourly weather forecasts.

Productivity may be higher in some sectors

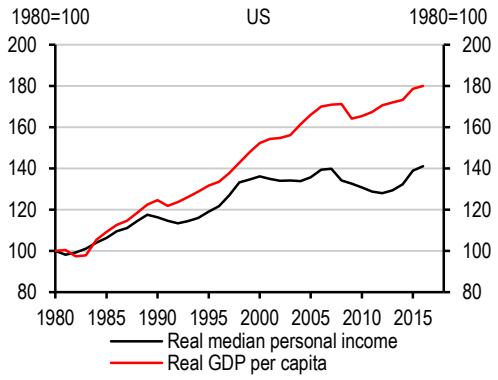
However, some of these may be captured via greater efficiency and higher productivity. With smart phones now affordable in large parts of even the least developed countries, consumers' access to banking and other services – or quite simply online information – is an important part of this; for example, the ability of consumers to compare prices, locate products or even just access weather reports, or the latest agricultural prices for farmers deciding whether to take their products to market on a particular day. Increasingly transformational improvements in high-tech areas relating to healthcare and education can also raise productivity.

Income inequality and well-being may not rise in line with GDP…

Other quality improvements relate more to well-being or "welfare". Few would argue that GDP is an adequate measure of well-being. Sure, when GDP is rising and unemployment is low a greater share of the population should be feeling content but averages can mask a lot of divergence. Data for the US in charts 33 and 34 highlight the divergence between the mean and the median incomes, illustrating how the average masks the underlying story. The causes and issues relating to income inequality, including labour market disruption from technological advances, are increasingly apparent and have been well documented by ourselves and others. As we highlighted in *The inequality challenge, 18 December 2017*, income inequality often goes hand in hand with a lack of social cohesion and can mean weaker growth.

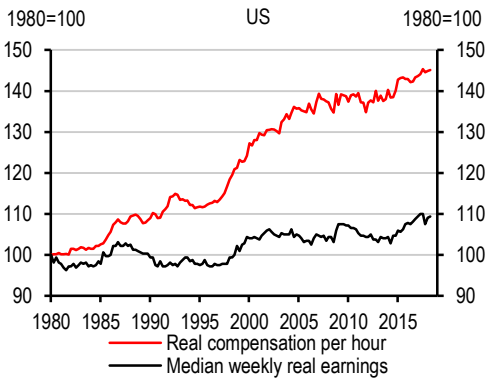
Furthermore, many of the wealthier countries do not necessarily have the highest quality of life and are also not without social problems. The US has a higher number of homicides than, say, Chile. Some of highest average GDP per head countries also have some of the worst statistics on drug addiction and suicide.

33. Median incomes lag GDP per capita…



Source: St Louis Fed

34. …and the same applies to wages



Source: St Louis Fed

In others the impact may just improve "welfare"

…but there are unmeasurable benefits too

But there is also a more positive side to the technology impact that is not being captured by GDP. Technology is in some cases allowing the provision of goods and services that before technological transformation were not possible or accessible, or were prohibitively expensive to provide: for instance in the field of healthcare, 3D scans and 3D printing mean artificial mechanical hands for children who had lost them or been born without can be made inexpensively in two days. Similarly, educational courses online can be accessed all over the world. Some are provided free of charge so do not show up in the expenditure measure of GDP, but they should improve productivity over time while improving "well-being" immediately.

So general well-being and quality of life may well be improving more rapidly than indicated by GDP, though of course problems arise for governments and households if nominal GDP and wages do not rise as much as envisaged when governments and households took on their debt.

See the table on *page 41* for a summary of environmental, social and governance variables that measure the progress of countries asides from growth.

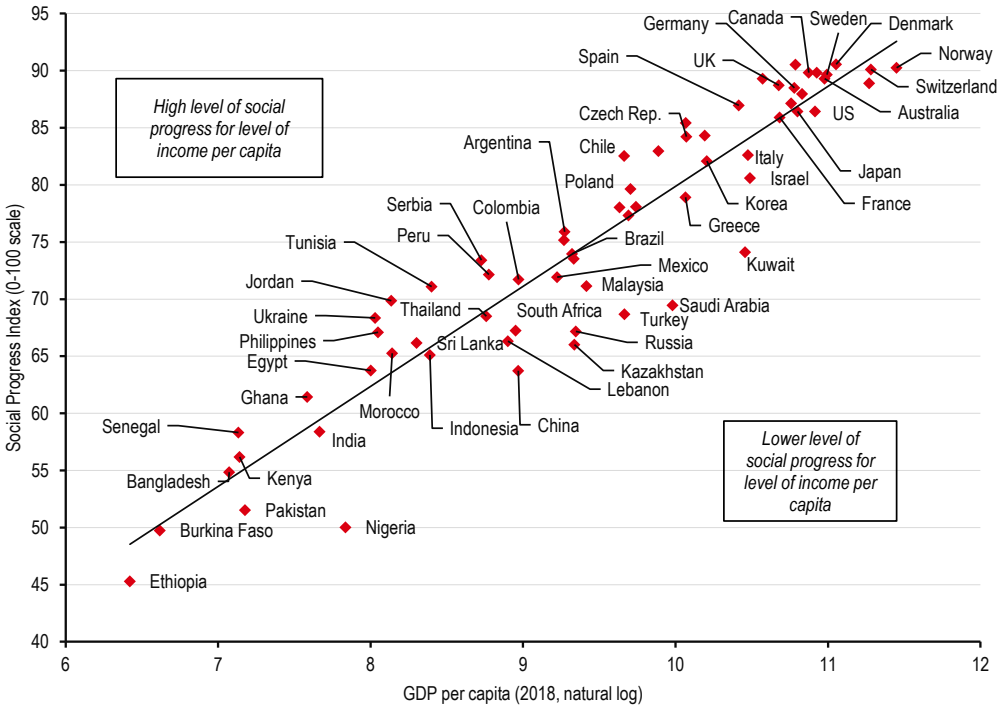
Alternative measures

Hence alternative measures of well-being have been devised, such as the Genuine Progress Indicator (GPI) which is measured in about 20 countries around the world and, in some cases – including the US – for regions within a country. It incorporates things like volunteer or household work and subtracts for the negative effects of income inequality and environmental damage as well as crime.

No easy substitute for GDP

The fact is it is hard to measure well-being, whereas it is quite straightforward to measure GDP in a timely way and make cross-country comparisons. Along with population and average income levels for household groups, it is the best indication of market size. Besides, for the most part, the Social Progress Index from the Social Progress Initiative shows there is a clear correlation between incomes and social progress (chart 35). Growth in income and an improvement in social progress do not always go hand in hand though. Over the past three years, Nigeria has seen the biggest improvement in its social progress index, thanks to improvements in information access and personal freedoms, but income growth, especially on a per-capita basis, has been extremely disappointing. At the other end of the spectrum, Japan has seen greater improvements in terms of social progress than Canada and Australia, despite weaker income growth.

35. Incomes and social progress tend to move together



Source: IMF, World Bank, Social Progress Initiative

Policy

The projections and rankings contained in this report are based on countries' potential to catch up with more developed nations. We assume that policymakers will continue to make progress on addressing economic flaws (education, rule of law etc) and that they avoid wars and remain open to global trade and capital. Some of our bold assumptions may turn out to be overly optimistic for some countries while others may over-deliver in ways that allow them to overcome any structural headwinds. Below we focus more on the policy challenges and priorities that may arise as a consequence of the projected global shifts in population and economic might – some global, some local.

EM will desire greater political clout on the world stage…

We project that EM countries will account for roughly 50% of the world by 2030, which represents a seismic shift from half that in 2000. As these countries develop and the nature of growth becomes more domestically oriented and consumer-led, such as we are seeing in China, the influence on developed markets will rise. But their impact on other emerging economies, for instance on intra-EM trade and multi-lateral trade arrangements, will grow too. And as their economic might increases, their desire for greater political clout in international organisations and suchlike will grow too.

…but their changing growth priorities will impact DMs as well

But even in some of these emerging economies the policy priorities for their own economies will start to shift, though the pace at which they do so will likely depend on their stage of development.

We discussed the environmental implications of high growth rates in the most rapidly growing countries on page 21. Already, China has made clear its desire for cleaner, fairer, more innovative growth (including an ambition to be world leader in artificial intelligence by 2030). This will have implications for growth elsewhere, not least as a consequence of China's changing import mix. Unlike much of the past 15 years when China's public investment floated all boats, particularly commodity producers, its growth mix in the coming decade can be expected to give a bigger lift to exporters of industrial and office machinery and even consumer

goods and services. Germany, Japan, Korea and Taiwan are likely to be among the bigger winners on the machinery side while big service providers of tourism, education and financial services will also gain. (See *page 36* for a discussion of the specific adjustments we have made to our projections for Australia and New Zealand.) Within a decade, the growth priorities of other emerging economies that currently lag China could shift too.

Demographic challenges in DM means retirement and pension policies will have to adjust

For many DM governments, a backdrop of weaker growth relative to the past few decades will present its own challenges. While much of the slowdown is demographic and per capita growth is projected to hold up, lower aggregate GDP growth implies lower revenues for heavily indebted governments in the west to sustain increasing age-related spending. The pressure to raise official retirement ages is set to intensify. Within the next decade some countries will start to see the impact of policies already in the pipeline. In the UK, the state pension age will rise to 66 years from 2020, to 67 around 2026, and then be linked to life expectancy. In Spain, reforms approved in 2011 will increase the retirement age from 65 years to 67 by 2027, and similar moves are underway in Greece and Portugal. The increase should be welcomed but the move is very small and retirement age changes take a long time to have any effect on public finances and participation rates.

Immigration to remain an opportunity and a challenge

Allowing more immigration could help to ease the demographic strains but the past few years have also demonstrated that higher immigration can cause political strain. Some countries are already resorting to controlled immigration schemes focusing on specific skills but the numbers who want to migrate from their native countries could actually rise. Despite stronger growth in EM, average GDP per head in EM will still only be about 14% of the DM average by 2030, as we note on *page 13*. But for the middle income parts of the population, the means to migrate will rise. Various studies[4] by the OECD and others using UN data have shown that African emigration rates to OECD countries are strongly related to GDP per capita.

Weaker growth in DM means addressing income inequality will remain a priority

Moreover, with the overall economy not growing as quickly as in the past and the likely ongoing disruption to labour markets from robotisation and automation, many DM governments' near-term priorities will be to address income inequality. They are well aware of the dangers – politically and economically – that divergences in income growth pose. But for many governments, which have accumulated huge debts since the global financial crisis, this involves big political choices (see: *The inequality challenge, 18 December 2017*). Do they facilitate the conditions for the market to deliver more inclusive growth? Or is the only way to curb the anger stemming from income inequality to embark on much more redistribution or government borrowing? Or retreat into protectionism? Only time will tell.

[4] See: Coppel, Jonathan, Jean-Christophe Dumont, and Ignazio Visco. 2001. "Trends in Immigration and Economic Consequences, OECD Economic Department Working Paper no. 284 and An Age-old Question, September 2016

Appendix: Making a model

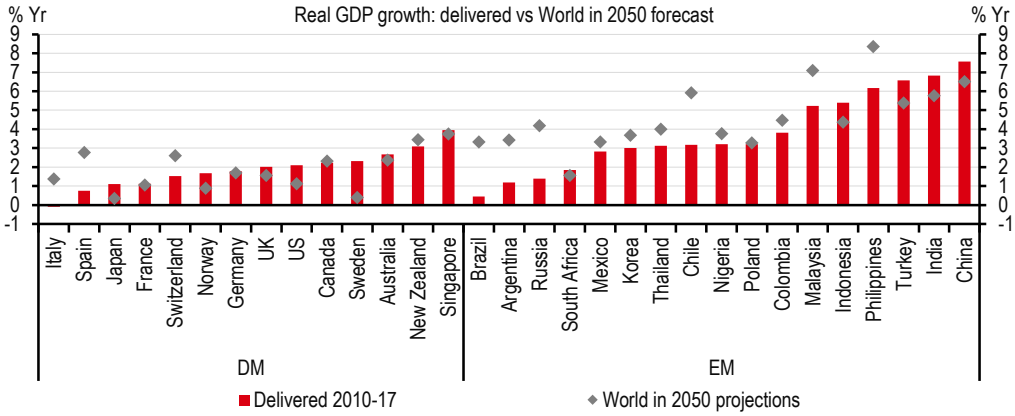
- We revisit what "The world in 2050" did well…
- …and update our trend growth forecast model…
- …to give new longer-term projections

Revisiting 'The world in 2050'

Back in January 2011, we published *The World in 2050, 4 Jan 2011*. Now, nearly eight years on, we revisit our model and forecasts made to assess where we were right, where we were wrong and where we can improve our thinking.

To start, we can look at where our previous long-run estimates failed to pick up a given trajectory in terms of growth. Some forecasts were clearly too optimistic – Italy, Spain, Brazil, Argentina and Russia stand out – but in some cases the projections were too pessimistic: many of the faster-growing EM countries outperformed our assumptions as did some developed markets for which our model estimated very weak trend growth assumptions – meaning that they were not hard to beat, such as Sweden, the US and even Japan.

36. Where did we go wrong?



Source: HSBC World in 2050 forecasts, IMF

But why did we go wrong? Looking at table 37, we draw out where the largest absolute errors have been across the major countries that we cover. The main reasons for substantial error are politics or commodity prices – with those countries with reasonably high projections seeing their performance hampered by the fall in prices in 2014, but also the fact that the biggest commodity producers tend to be less diversified probably meant the model over-estimated their growth potential. Politics has also played a role in Argentina, Brazil and Turkey, while the eurozone crisis made it very hard for Spain and Italy to achieve anywhere near the growth rates we forecast in 2011 over the whole period – although it is notable that Spain has grown at roughly 2.4% per year since 2012, not far from our trend assumptions.

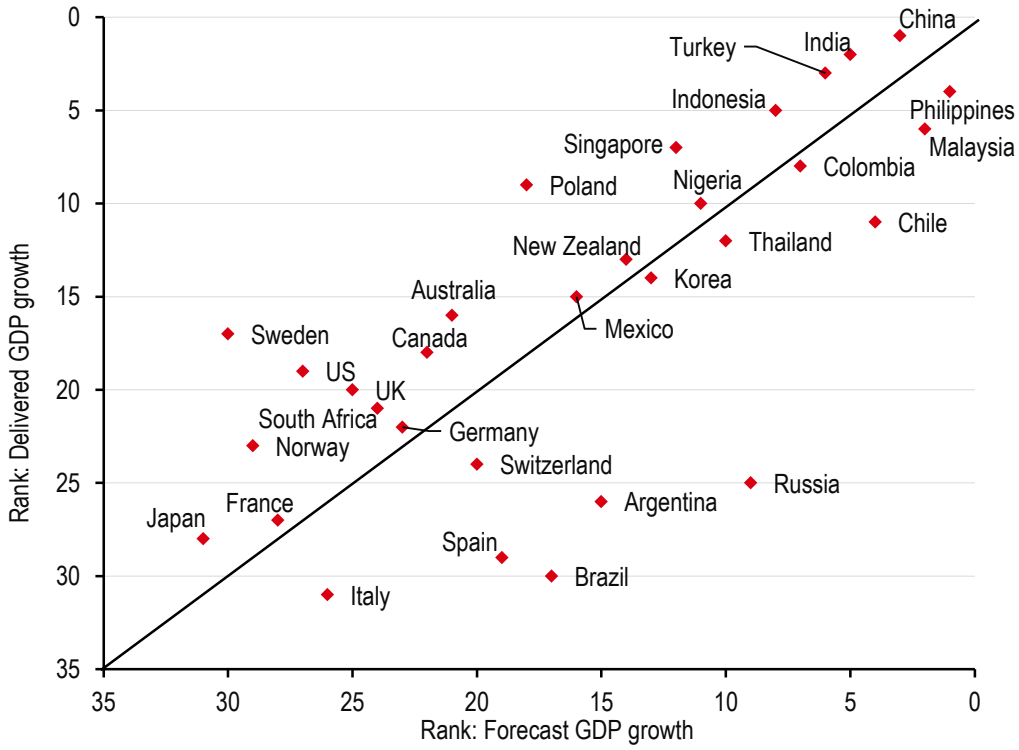
37. Most of the reasons for the biggest errors would not have been forecast by the model

	Delivered growth 2010-17	2012-17	World in 2050 projections	Error	Rationale
Brazil	0.4	-0.5	3.3	-2.9	Commodity/domestic shock
Russia	1.4	0.2	4.2	-2.8	Commodity/domestic shock
Chile	3.2	2.2	5.9	-2.7	Commodity
Argentina	1.2	0.7	3.4	-2.2	Domestic factors
Philippines	6.2	6.6	8.4	-2.2	Forecast for pace of catch up overly optimistic
Spain	0.8	1.9	2.8	-2.0	Eurozone crisis, but better since 2012
Sweden	2.3	2.8	0.4	1.9	Model penalised it for already high GDP per capita
Malaysia	5.2	5.2	7.1	-1.9	Very strong forecast due to low start point
Italy	-0.1	0.3	1.4	-1.5	Eurozone crisis but also forecast too optimistic
Turkey	6.6	6.1	5.4	1.2	Stimulus, creating imbalances

Source: HSBC World in 2050 forecasts, IMF

Some countries have done better, mainly those in EM that outperformed assumptions that are likely constrained by econometric modelling: China, India and Indonesia have all outperformed by around 1ppt over the past seven years. But the biggest two upside surprises came in Sweden (where the forecast was very low and debt has built up) and Turkey, where continued economic stimulus has led to wide imbalances for which it may already have started to feel the effects]. This underlines one of the key points about long-term forecasts: they attempt to project a long-term potential growth rate, not to forecast every twist and turn in the economy, which can be heavily influenced by fiscal and monetary policy and which in turn may mean an economy diverges markedly from its long-term trend for a period.

38. The model performed well in terms of rankings



Source: HSBC, IMF World Economic Outlook

Some parts of the model have already proven to be accurate: our projections for Poland, France, Canada and Germany were on track while the UK and South Africa have encountered shocks in terms of the Brexit vote and commodity prices/politics respectively but the model ended up being reasonably accurate: long-term forecasting can be right for the wrong reasons.

But, tellingly, the model did a very good job of getting the rankings right. Growth can be under or over-estimated by a model for a number of reasons that shock the global economy in a positive or negative way, but getting the rankings right is a good judge of whether a model is picking up the right country differentials when it comes to trend growth.

Time for a new model

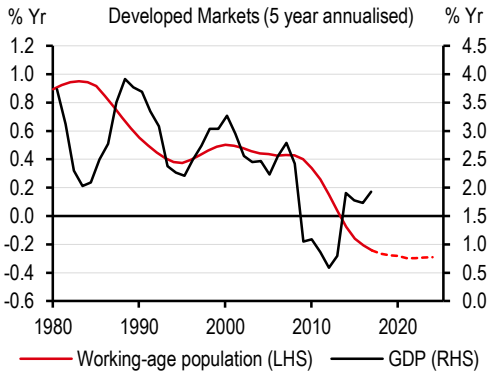
Despite the relative success of the model from the original *The World in 2050* report, it has already become apparent that the model itself has some weaknesses: by forecasting a per-capita growth rate and then simply adding on working-age population growth, it ignored the impact of demographic variables on driving *per capita* growth too, as we showed in *An age-old question, 30 November 2015*.

The model also uses variables which are hard to extrapolate. Inflation and the share of GDP that is government spending do not necessarily correlate with development; thus forecasting future periods becomes more spurious. Equally, running panel regression tests for some of the variables within the original model suggests alternative measures for education, healthcare and the political environment are more statistically significant and can be updated.

What drives growth?

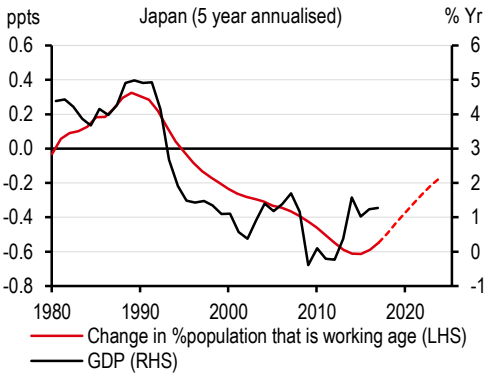
Some variables will clearly be important for determining economic growth: human capital, physical capital, innovation and strong institutions. Some make logical sense: better educated workers are more likely to be productive, poorer countries will have room to catch up and those with strong governance will facilitate investment and growth.

39. Demographic trends can weigh on growth…



Source: HSBC, World Bank, UN Population Division

40. …and the shape of the population matters too



Source: HSBC, World Bank, UN Population division

Populations

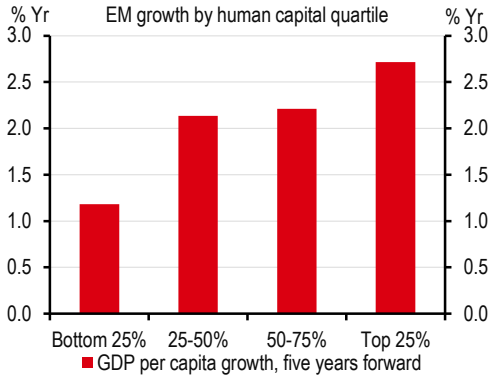
Demographics are important to economic forecasts. Size of population is crucial for demand – particularly the working-age population, which is more likely to produce and consume goods and services. It seems logical to think that a larger share of the population that is of working-age would be conducive to faster growth rates too – as the shape of the population will become more productive as well as putting less strain on the fiscal position of a government. We use indicators for both the growth rate of the population and the shape of the population for

this reason. Demographic indicators have a lot of use in this form of modelling because we can use the forecast for the next five-year period. There are risks around these forecasts as there can be shifts in fertility rates, migration and life expectancy (see: *Are demographics destiny? 30 July 2018*) but demographic assumptions are reasonably accurate over the short term.

Human capital

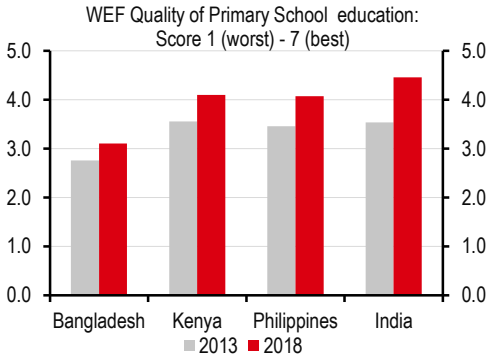
It is all well and good having a fast-growing population, but if the potential output per head does not change, this may not be fully realised in headline growth rates. Across the world education levels are rising very quickly (chart 42), and historically have been shown to be a good indicator of future growth potential. While many long-run forecasts use the educational data from Robert Barro and Jong-Wha Lee[5], this data is only available at five-year intervals. We instead use two sources: the World Bank's data on primary enrolment: the share of the population undertaking primary education, a good measure of the breadth of educational attainment; and we also use the broader 'human capital' index from the Penn World Tables, which accounts for educational attainment as well as enrolment. Both are shown to be more statistically significant when modelling than the Barro-Lee set.

41. Better human capital can spur growth in EM…



Source: Penn World Tables, HSBC calculations. Note: Taking countries with a human capital index score that are in each percentile, we then took a 5-year forward annualised GDP growth and the chart shows a simple average.

42. …and education quality is on the rise in the poorest countries



Source: HSBC, World Economic Forum Global Competitiveness Index

Capital quality/ Catch up

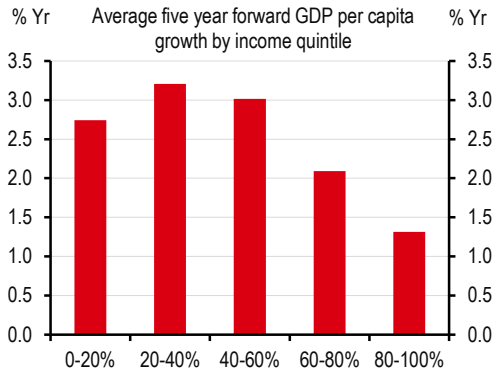
The starting point for a country is a key part of its potential growth. It is very clear that a country such as Bangladesh has far more potential for growth than one like Norway, which is far richer. The make-up of the economy could provide some insights here: how much of GDP is investment or what share is government spending could give an indication of how countries sit in the development sphere. We could also use the share of the economy that is primary, secondary and tertiary industries as a measure of where an economy is in its development process. But, in practice, these indicators are so correlated with the level of GDP per capita that they fall out of the reckoning.

Capital quality is a difficult item to incorporate into projections of potential growth rates. Underdeveloped capital stock creates room for future growth, but equally may mean there is not enough capital to spur future growth. For this reason, many variables are statistically insignificant: the capital stock level as a share of GDP (or population), investment as a share of GDP and the cost of investment all failed to show meaningful predictive power. In fact, the

[5] *Barro, Robert and Jong-Wha Lee, 2013, "A New Data Set of Educational Attainment in the World, 1950-2010." Journal of Development Economics, vol 104, pp.184-198.*

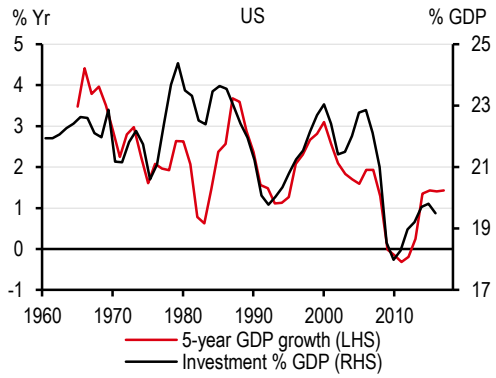
share of GDP that is investment appears to be more coincident than leading, as faster growth leads to a more rapid pick-up in investment relative to other parts of the economy – hence why many academic models may find the variable significant.

43. Poorer countries typically grow more quickly



Source: World Bank WDI, HSBC calculations. Note: uses past 25 years of data across the World Bank data available.

44. Investment correlates with GDP growth in real time, not leads

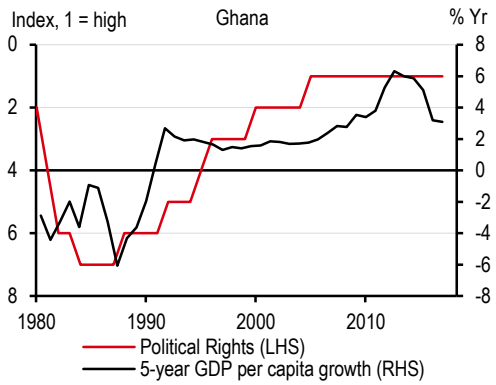


Source: World Bank WDI, HSBC

Institutions

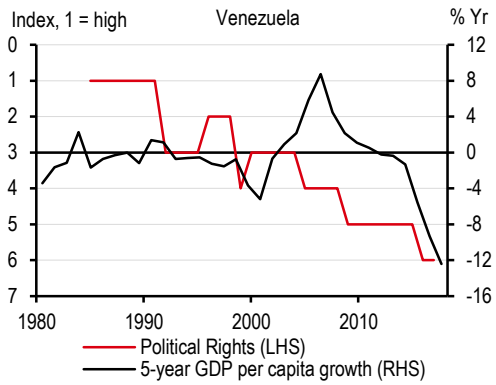
The quality of institutions will play a big role in delivering on the potential growth in a country. Without a regulatory environment that makes investment attractive and facilitates investment, potential growth will be lower. Quantitatively, this creates challenges because the nature of such things makes them hard to quantify and many of the widely used indicators in the field have a reasonably short history. The Freedom House indices[6] have a longer time series, back to the 1970s, providing a history for political rights, civil liberties and whether an economy is free or not. We find political rights to be the best catch-all in this category and to be significant, even though there can be sizeable differences between countries that are given the same score: e.g Singapore and Pakistan currently both score 4 (on a range of 1 to 7).

45. Ghana's improved political climate has led to more stable growth…



Source: Freedom House International, World Bank, HSBC

46. …unlike in Venezuela



Source: Freedom House International, World Bank, HSBC

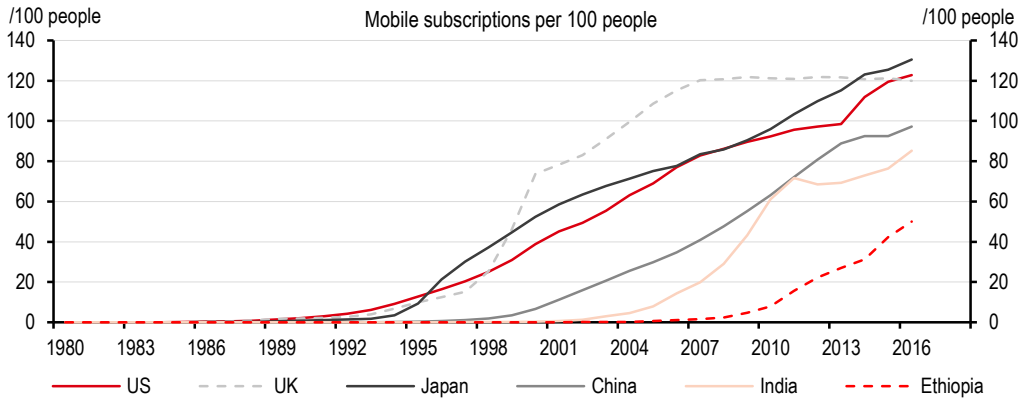
[6] *Freedom House, Freedom in the world index.*

Technology/productivity

The quality of technology is a key driver in many countries as a multiplier on human and physical capital stock. But finding a variable to model is tricky. The Penn World Tables provide a Total Factor Productivity (TFP) index for each country, but this is more of a residual than an input. We could look at the rollout of internet usage, but much of the development has been very recent or not a relevant indicator (broadband lines, for example, have stopped growing in EM countries due to mobile leapfrogging). We have used mobile phone adoption (as this starts earlier) as a proxy for technological development, which is found to be statistically significant. Indicators such as the share of GDP spent on R&D, while ideal, have too short a time-series to be appropriate for this sort of modelling.

Mobile phone adoption is not a perfect indicator. In some emerging markets still at an early stage of development, mobile phone ownership is much higher – often because populations have no had easy access to landlines – than in some much more advanced economies. But some of the other benefits of a more technologically advanced economy on productivity will have been captured in educational performance and healthcare indicators.

47. Some parts of the world have scope for catch-up in terms of technological availability



Source: World Bank WDI. Note: Can be >100 due to multiple subscriptions per head.

Openness

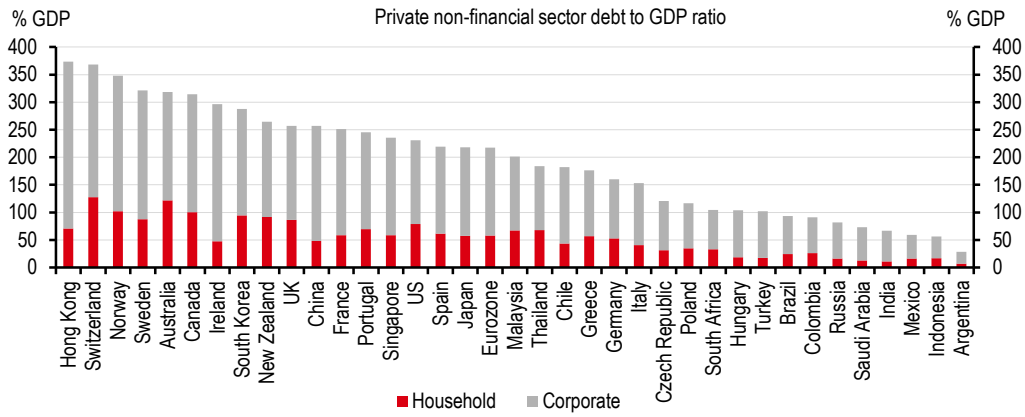
Historically, trade openness has been a strong driver of economic growth across the world. Academic texts such as that from Romain Wacziarg and Karen Horn Welch in 20087, which finds trade liberalisation contributing to a roughly 1.5ppts higher annual growth rate. However, in recent months, the idea that openness is conducive to growth is up for question, with trade war risks weighing on the economic growth opportunities of many countries.

Turning this into a model

We have to pick a dependent variable first – and given we are trying to estimate a trend growth rate, five years forward seems appropriate. Much longer, and new factors will influence growth, and much shorter would make our projections even more vulnerable to shocks. It is also telling that the IMF World Economic Outlook forecasts five years out.

[7] Wacziarg, R., and Welch, K.H., 2008. Trade Liberalization and Growth: New Evidence, The World Bank Economic Review, vol. 22, no. 2, pp. 187–231

48. We have been unable to incorporate debt into our model



Source: BIS

From this stage of a rough list of variables to consider, we then have to think about data availability. Indicators such as private sector debt/GDP would be excellent indicators to include, but a long-term history does not exist for many countries. The same applies to technology indicators where access to smartphones or 3G would cut our sample of countries so short (in terms of the number of years we look at) that we would be unable to run a meaningful regression.

49. Variables to take to a model

Africa dummy variable	Electricity consumption per capita	**Openness (exports + imports as % GDP)**
Agriculture as % GDP	Female participation rate	Participation rate (in employment)
Average years of total schooling	**Fertility rate**	**Political rights index**
Current account balance	GDP per capita (real USD)	**Primary school enrolment rate**
Capital stock as % GDP	Government spending as % GDP	Private sector debt (% GDP)
Capital stock per head	Gross government debt as % GDP	Rule of law index
China dummy variable	**Human Capital Index**	Services as % GDP
Change in share of population that is working age	Investment as % GDP	**Share of population that is of working age**
Civil liberties index	Industry as % GDP	Urbanisation rate
Cost of investment index	Inflation rate (trend)	**US dummy variable**
Democracy index	Life expectancy	**Working –age population growth**
	Mobile phone ownership	Youth unemployment rate

Source: HSBC. Note: Bolds were found to be significant

These indicators will have some correlation between them: for example, health-based indicators such as infant mortality, life expectancy and fertility rates will be correlated, not just with each other but with measures of income and development. This must be accounted for when running regressions and thinking about how inter-connected the variables are within the data set.

From this set of indicators we built a panel of data that covers as broad a range of countries and time periods as possible. We want to include countries with a range of income levels too, given the forecasting model will be looking to forecast developed and emerging markets. The panel contains the countries below.

50. Countries included in the panel set

Australia	Ecuador	Latvia	Slovenia
Algeria	Egypt	Lithuania	South Africa
Argentina	Finland	Luxembourg	Spain
Australia	France	Malaysia	Sri Lanka
Austria	Germany	Mexico	Sudan
Bangladesh	Ghana	Morocco	Sweden
Belgium	Greece	Netherlands	Switzerland
Bolivia	Hungary	New Zealand	Tanzania
Brazil	India	Norway	Thailand
Canada	Indonesia	Pakistan	Turkey
Chile	Iran	Peru	Uganda
China	Ireland	Philippines	UK
Colombia	Israel	Poland	Ukraine
DR Congo	Italy	Portugal	UAE
Cote d'Ivoire	Japan	Romania	Uruguay
Croatia	Kazakhstan	Russian Federation	US
Czech Republic	Kenya	Saudi Arabia	Vietnam
Denmark	Korea, Rep.	Singapore	Yemen
Dominican Republic	Kuwait	Slovak Republic	

Source: HSBC

The next discussion is over what estimation technique to use within the regression. We used a panel data set, and a panel regression[8].

51. Panel descriptive statistics

Date range	Total Observations	Countries	Time Periods	Variables	R^2
1980 - 2002	716	58	22	13	0.453

Source: HSBC

Many of the independent variables in table 49 were thrown out by being deemed insignificant in determining future trend growth. Some may have proved useful, but the lack of data availability meant the number of panel observations was too low. Many indicators, however, remained in the model and we were left with the variables in table 52 below. For four of the variables, GDP per capita, share of population of working age, mobile ownership and openness, we take the natural logarithm in order to put less weight on extremities. Much of the impact will be seen through the initial improvement in these variables, with the change in GDP per capita from USD10,000 to USD20,000 likely to have a greater impact than a move from USD80,000 to USD90,000 on the potential pace of growth. This equation has an R^2 to future GDP growth of 0.46.

For subsequent time periods, we use the UN's projections for demographic indicators coupled with an "improvement" in the other indicators based on their pace of GDP growth in the previous period.

[8] While using fixed effects for cross sections may have appeal for this sort of model, the output gave extremely unrealistic outcomes for the model. Instead, we used dummy variables for the countries the model struggles with.

52. Regression output

Variable	Source of data	Coefficient	Std. Error	t-Statistic
Log (GDP per capita)	World Bank/IMF	-1.254	0.10	-13.04
Working-age population growth	UN population division	2.657	0.25	10.60
Log (Share of population of working age)	UN population division	0.506	0.08	6.46
Change in share of population of working age	UN population division	0.606	0.11	5.50
Human Capital Index	Penn World Tables	0.262	0.21	1.22
Gross primary education enrolment rate	World Bank	0.015	0.00	3.10
Fertility Rate	UN population division	-0.687	0.13	-5.16
Log (Openness)	World Bank	0.790	0.14	5.73
Political Rights Index	Freedom House	-0.173	0.07	-2.47
Log (Mobile ownership)	World Bank	0.025	0.01	3.42
China dummy	n/a	3.317	0.81	4.09
US dummy	n/a	1.573	0.45	3.52
Africa dummy	n/a	-1.426	0.33	-4.29
R-squared	0.460			

Source: HSBC. Note: The Human Capital Index may have a p-stat of 0.22, but improves the predictive power of the model with its inclusion.

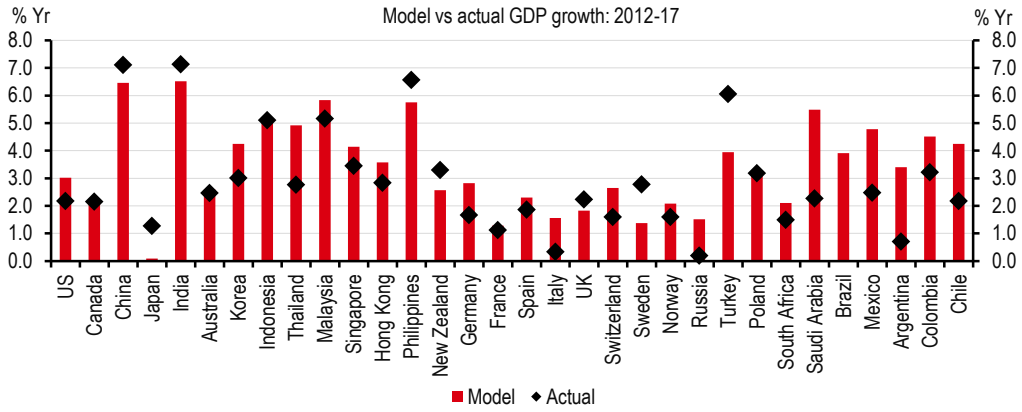
Alternative models

While our final regression uses 13 explanatory variables (three of which are dummies), many other options were tried. We used the shares of the economy as the building blocks as well as trialling a human plus physical capital approach. The challenge within a lot of these variables is that they either have too short a time series (many are only available from 1991 onwards), are not available for a large selection of countries, or simply are not significant when put into a regression as a leading indicator for growth.

Testing the model

With this sort of econometric modelling, the priority is not getting a strong fit of the model, it is instead seeing how well it deals with fresh data, so out-of-sample testing is key. We used data from 1980 to 2002 (to project trend growth out to 2007) within the panel, enabling us to back-test over the period 2012-17. The forecasts generated over-estimated growth slightly for many countries, but no more systematically than the IMF did (as a comparison) over the same period.

53. The model was not too bad when faced with out-of-sample data – errors were shocks



Source: HSBC

This model also got some countries wrong. Our forecasts for Saudi Arabia were far too optimistic, but given the 4% pa rise in working-age population and a 3ppt increase in the share of the population that is working age over the period, it is hard to come up with a more benign forecast using this sort of modelling when the demographic change within the period is so dramatic –an outlier compared with the rest of the world.

But, encouragingly, the other large errors are more understandable. Brazil, Russia and Argentina would have been hard to forecast in this type of model given that political and commodity shocks are out of the remit of this sort of modelling. A few outperformed, with Sweden the other stand-out surprise, where the fast growth was partly due to big changes in the near-term demographic picture with the large number of migrant arrivals in 2015 and 2016.

Panel reliability tests

With this sort of regression, the best way to check the reliability of the variables and betas is to see how they change under a range of different time periods and with or without certain countries included. These tests show only a small variation in the size of the betas, and no change in signs on each of the betas in the regression output.

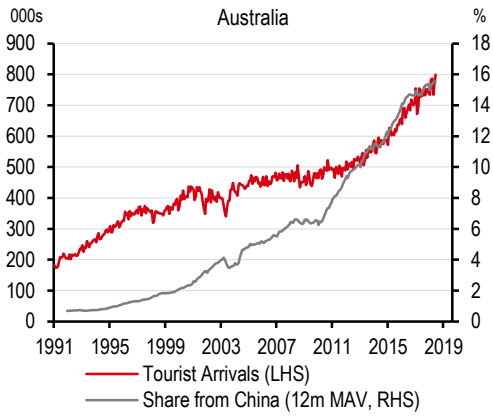
Specific country adjustments

As discussed on page 15, there are many ways in which medium-term forecasting models can be wrong. While some are the so-called 'known unknowns' we mentioned like Brexit and oil price swings, there are some countries with which the model struggles for what we consider reasonably straightforward reasons and which in many ways represent a limitation of a model that cannot capture the impact of changes in in other countries or even global factors. Some of these we can make specific adjustments for:

Australia and New Zealand, whose economies are supported by both migration and overseas visitors, are hard to forecast accurately. Both economies are wealthy and although they have favourable demographics by developed market standards, forecasting tourism is difficult, especially when it has been one of the key drivers of growth in recent years. Since 2012, tourist arrivals to both countries have been rising more than 8% per year, with Chinese arrivals rising by 18% per year over the same time frame – and helping to support the domestic economies (see: *Downunder Digest: Services exports and the AUD, 30 March 2016*). Given that in the 1990s Chinese arrivals accounted for less than 1% of the total, the changing dynamic is hard to pick up in a model that looks at historical data.

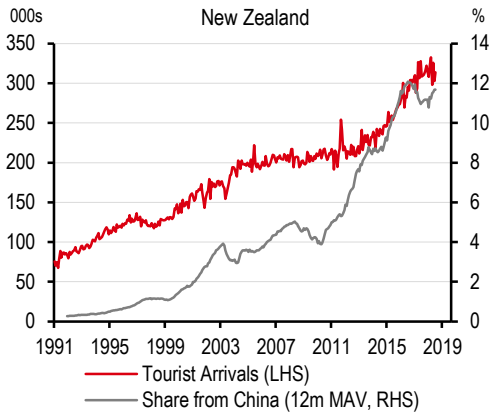
The same could apply to Thailand, as Jingyang Chen highlighted in a recent note (*Thailand tourism: A story of resilience, 15 August 2018*). But, on top of this, both Australia and New Zealand have continually seen increases in immigration numbers. Knowing the number of consumers and possibly producers will be higher than base-line figures, we nudge up the demographic growth rates for both countries.

54. Tourism is driving growth in some parts of the world…



Source: Thomson Reuters Datastream

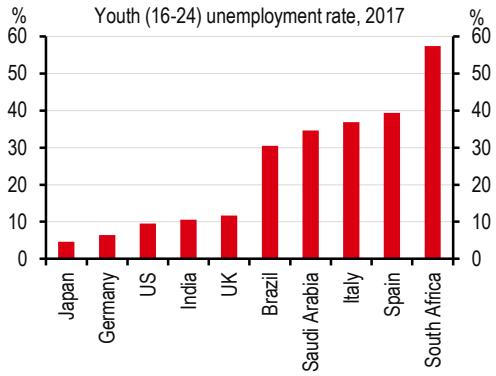
55. …with arrivals from new sources



Source: Thomson Reuters Datastream

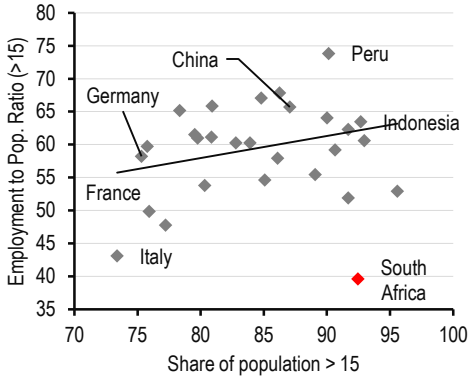
Another country where the model appears to be giving a forecast that is slightly "out" is South Africa; where the model gave us a roughly 3.5% growth rate over the next decade, which seems too high given its recent history. South Africa is a good example of where limiting factors on its own growth rate are not statistically significant across a broad range of countries. This includes youth unemployment (ie, a rapidly-growing population of working age but many not engaged in productive activity) – a huge headwind to growth in South Africa with nearly 60% of 18-24 year-olds unemployed. However, when putting the indicator into a cross-country model, it is either found to be insignificant or to have a positive beta, which is intuitively wrong. To account for this, we adjust the share of the population that is of working age lower, due to the extreme disconnect between the two variables for South Africa. Our 'adjusted' model projected rate for South Africa is 2.0% for the average period to 2030, which is still higher than our actual forecasts for the next couple of years, as GDP growth is held back by rising taxes and reform paralysis.

56. Youth unemployment in South Africa is the highest in the world…



Source: World Bank WDI. Note: ILO measure for comparability

57. …meaning we need to adjust the demographics indicators

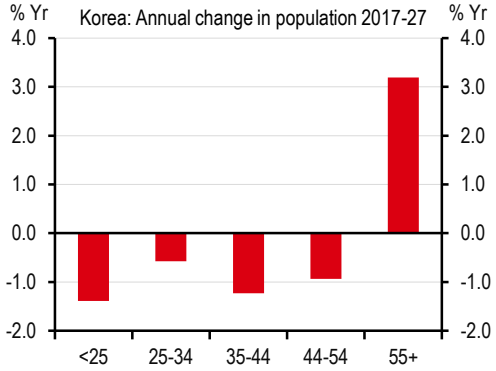


Source: HSBC, World Bank WDI, UN Population Division.

Overcoming demographic headwinds, with robots

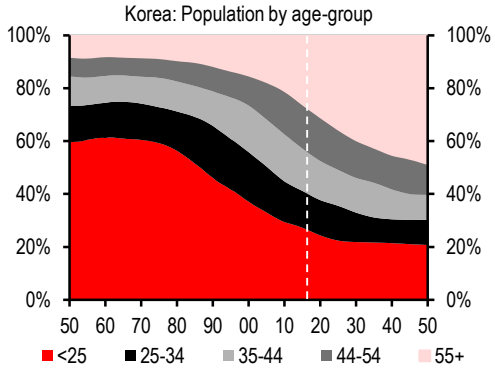
Another country that stands out for the weak growth forecasts is Korea. Here, the demographic drag is set to be large over the coming decade or so, with the working-age population set to shrink by 10% between 2018 and 2030. This then requires a per-capita growth rate of in excess of 1% just to see headline growth turn positive. But unlike much of the world so far, the Korean economy is being powered by a high level of automation – with a world-high 631 robots per 10,000 employees in the manufacturing sector, compared to a global average of just 74. This should help ensure that labour productivity rises to offset much of the demographic drag.

58. Korea's demographics are concerning…



Source: UN Population Division

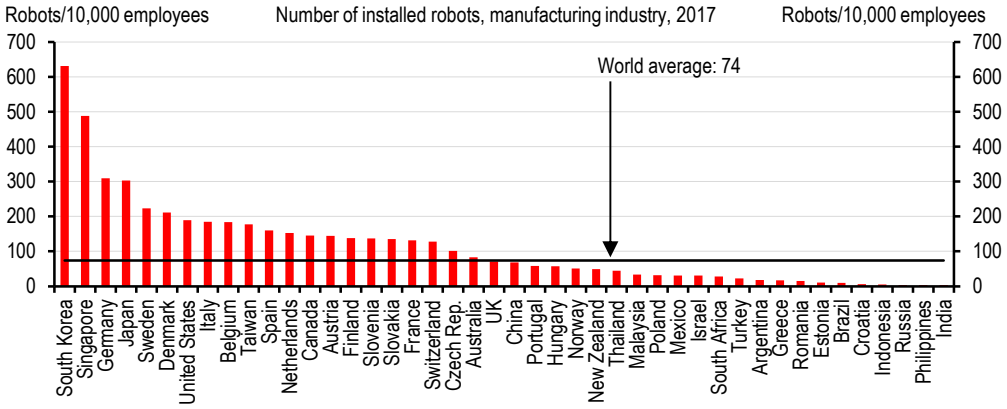
59. …and the population shape is set to weaken sharply



Source: UN Population Division

As our colleague James Lee has written, this shift in the Korean economy towards higher-tech sectors that have lower employment intensity (ie higher labour productivity) has allowed growth to hold up (see: *Korea outlook: Implications of a flourishing high-tech industry, 23 January 2018*). Based on data from IFR, there are four countries (Korea, Germany, Singapore, Japan) with a particularly high number of robots, who also have a noticeable demographic challenge. We can therefore lower demographic drag to account for this, as the impact on GDP growth should be reduced – with Korea by a bigger factor than the other three.

60. Korea leads the world in terms of industrial robots



Source: IFR

So these adjustments lead us to the projections over the page. We also include a table of the comments from our country economists – who are responsible for our two-year ahead central GDP forecasts published in our global and regional quarterly economics reports – about where they see the potential risks to our long-term global model-based projections, on *page 40*.

HSBC

61. HSBC long-term growth model projections for real GDP growth

		Trend growth pace (to 2030)	2018-2023	2023-2028	2028-2033
1	Bangladesh	7.1	7.3	7.0	7.2
2	India	6.2	6.1	6.1	6.5
3	Ethiopia	5.8	5.4	5.9	6.6
4	Pakistan	5.7	5.2	5.9	6.5
5	Philippines	5.7	5.4	5.7	6.2
6	Vietnam	5.6	5.4	5.7	6.2
7	Ghana	5.4	4.9	5.6	6.0
8	Kenya	5.3	5.1	5.4	5.6
9	China	5.2	5.3	5.4	4.7
10	Jordan	5.0	4.8	5.0	5.3
11	Burkina Faso	5.0	4.5	5.1	5.7
12	Senegal	4.9	4.3	5.2	5.6
13	Indonesia	4.8	4.7	4.8	4.9
14	Peru	4.6	4.5	4.6	4.8
15	Egypt	4.6	3.8	5.0	5.6
16	Mexico	4.6	4.5	4.6	4.7
17	Sri Lanka	4.2	4.3	4.2	4.0
18	Malaysia	4.2	4.1	4.1	4.6
19	Serbia	3.8	3.5	3.9	4.2
20	Bahrain	3.7	4.4	3.3	3.2
21	Colombia	3.7	3.9	3.6	3.4
22	Tunisia	3.5	3.0	3.8	4.3
23	Argentina	3.4	3.3	3.5	3.7
24	Morocco	3.3	3.0	3.4	3.8
25	Cote d'Ivoire	3.3	2.8	3.4	4.0
26	UAE	3.2	3.4	3.2	2.7
27	Brazil	3.2	3.3	3.1	3.1
28	Thailand	3.1	3.6	3.0	2.4
29	Oman	3.1	3.0	3.0	3.4
30	Czech Republic	3.1	2.7	3.3	3.4
31	Hungary	3.1	2.6	3.4	3.4
32	Chile	3.0	3.1	2.9	2.7
33	Kazakhstan	2.9	1.9	3.4	4.1
34	Poland	2.9	2.3	3.2	3.6
35	Estonia	2.8	2.6	2.9	3.1
36	Romania	2.8	2.3	3.4	2.6
37	Saudi Arabia	2.7	2.6	2.6	2.9
38	Israel	2.6	2.1	2.9	3.1
39	Turkey	2.6	2.9	2.5	2.5
40	Ukraine	2.6	2.2	2.7	3.2
41	Croatia	2.5	2.4	2.6	2.8
42	Ireland	2.5	2.4	2.6	2.3
43	South Africa	2.4	2.2	2.5	2.7
44	Taiwan	2.3	2.6	2.1	2.1
45	Hong Kong	2.3	2.4	2.1	2.6
46	Lebanon	2.2	2.9	1.6	1.8
47	Singapore	2.2	2.5	2.0	1.9
48	Kuwait	2.2	1.9	2.5	2.0
49	Nigeria	2.2	1.7	2.4	2.9
50	Lithuania	2.1	2.1	1.9	2.5
51	Korea	2.1	2.4	1.9	1.7
52	Mauritius	2.0	2.7	1.6	1.4
53	Portugal	2.0	2.4	1.9	1.4
54	Greece	1.9	2.3	1.9	0.9
55	Sweden	1.8	1.8	1.9	1.9
56	Slovenia	1.8	1.5	2.0	2.1
57	Belgium	1.8	1.9	1.7	1.8
58	US	1.8	1.8	1.6	2.0
59	Qatar	1.8	1.9	1.8	1.3
60	New Zealand	1.7	1.8	1.7	1.8
61	Australia	1.7	1.5	1.7	2.0
62	UK	1.5	1.6	1.5	1.4
63	Spain	1.5	2.0	1.3	0.6
64	Germany	1.3	1.7	1.1	0.9
65	Denmark	1.3	1.7	1.2	0.7
66	Netherlands	1.2	1.6	1.0	0.8
67	Russia	1.2	0.5	1.3	2.6
68	France	1.2	1.3	1.2	1.1
69	Switzerland	1.1	1.4	0.9	0.8
70	Finland	1.1	0.9	1.1	1.4
71	Canada	1.1	1.0	0.9	1.5
72	Norway	1.0	1.1	0.9	0.8
73	Austria	0.9	1.4	0.6	0.4
74	Italy	0.9	1.4	0.7	-0.1
75	Japan	0.6	0.6	0.7	0.3

Source: HSBC. **Note that these projections are the projections from our long-term global model. They may differ from the forecasts from HSBC's country economists , the details of which can be found in the Global Economics Quarterly and the regional quarterlies.**

62. Countries where our economists see some risks to our long-term projections

Country	Comment
Australia/New Zealand	Favourable demographics, driven by migration could help to keep the average age of the population lower and spur growth higher - particularly if infrastructure and housing investment is improved.
Chile	The central bank sees trend growth closer to 3.5% and they raise an interesting point which is the potential for labour force changes. In this case, either from immigration or larger participation of the elderly or female population. They see those scenarios potentially bringing higher growth.
China	Reform will be a key determining factor of China's medium to long term growth outlook. Deepening market-oriented reforms in areas including state owned enterprises, industrial policy, financial sector and labour markets can substantially lift the country's total factor productivity whilst resolving the debt problem.
Colombia	To reach 3.7% we would need a catch-up in terms of infrastructure or major education reform to increase the share of the population getting college education over the next decade.
India	India has undertaken several reforms over the last few years, namely the Goods and Services Tax reform, a new Insolvency and Bankruptcy Code, steps to promote digitization, steps to clean up the real estate sector, and making the RBI an Inflation Targeting central bank. As growth dividends from these trickle in, potential growth could be higher than that identified in the model for the next few years.
Indonesia	We think long-run growth can be slightly higher, due to incremental improvements in capital spending and better macro stability, especially in terms of managing inflation and more sensible spending on both hard and soft infrastructure.
Korea	Korea's trend growth is likely to slow, but the slowdown may partly be offset by capital investment and automation, which has been leading to productivity growth.
Mexico	Although the 4.6% may seem a bit ambitious, there are strong arguments to support it. We should eventually see a big leap in terms of growth, especially considering demographics and the openness of the economy. However, some of the things that have capped growth (quality of institutions for example) are hard to measure and Mexico's openness leaves it exposed to a slowdown in trade.
Morocco, Jordan, Tunisia, Egypt	High youth unemployment poses a risk to the economies' ability to harness their demographic potential. In Jordan's case - as long as the political problems on its border persist, it is difficult to imagine Jordan taking growth this high, whatever its potential might be. The growing proportion of the educated population choosing to work overseas may maintain growth through remittances, but their departure will discourage domestic productive investment, providing a further cap to growth.
Nigeria	Given its demographics and natural resources and the impact that even a modest improvement in structural policymaking could achieve, there is every prospect that growth exceeds the rate identified by the model.
Oman & Bahrain	Maturing conventional oil reserves pose a risk to long-term outlook, especially if the two economies do not succeed in reforming their fiscal accounts and diversifying their economic base.
Peru	Peru's story so far has been catching up to other countries, and has relied on mining, so may be harder to continue over a longer time frame.
Philippines	In recent years the government has significantly ramped up spending on fixed investment after years of chronic underspending, which has increased potential growth. Due to sufficient fiscal space and recent tax reforms, this spending can be sustained, and there seems to be a credible trend of improved economic management over the course of the past three administrations, thus transcending politics. Coupled with the long-term demographic boom and relatively strong levels of tertiary education, a higher rate of long-run growth is very possible in the Philippines.
Saudi Arabia	The success of the Kingdom's ambitious reform programme, or lack thereof, could shift Saudi Arabia's growth trend in either direction.
Turkey	The risk to the long-term trend growth assumption of 2.6% for Turkey lies to the upside. The government's assessment of potential growth is around 5%, which makes it likely that domestic policy is likely to be loosened if growth remains below that perceived potential for a few years.
UAE	Maintaining strong demographic growth will be contingent on the country's ability to attract expatriate labour as it has done in recent decades.

Source: HSBC

63. Non-growth metrics for key countries

	ENVIRONMENT			SOCIAL						GOVERNANCE	
	Physical Impacts	Sensitivity to extreme events	Energy transition risks	GINI coefficient	Female participation rate	Youth unemployment rate	Commercial bank branches (per 100,000 adults)	Intentional homicides (per 100,000 people)	Total (recorded+unrecorded) alcohol per capita (15+) consumption	World Bank ease of doing business ranking 2017	Overall infrastructure score, WEF, from 1 (low) - 7 (high)
Argentina	6.2	4.6	5.3	42.4	47.7	18.8	13.6	6.5	9.8	117	3.9
Australia	5.7	2.3	3.1	34.7	59.8	12.6	30.1	1.0	10.6	14	5.3
Austria	5.7	6.0	6.8	30.5	55.9	11.3	12.1	0.5	11.6	22	5.7
Bangladesh	4.5	1.2	5.2	32.4	33.2	11.4	8.4	2.5	0.0	177	2.9
Belgium	4.5	5.2	4.8	27.7	47.8	20.1	6.7	1.9	12.1	52	5.4
Brazil	6.0	3.5	5.1	51.3	52.7	30.2	19.5	26.7	7.8	125	4.1
Canada	8.2	4.9	5.3	34.0	61.5	11.6	21.7	1.7	8.9	18	5.7
Chile	7.5	2.8	6.6	47.7	48.7	17.2	16.2	3.6	9.3	55	4.8
China	6.5	2.0	5.1	42.2	63.7	-	8.8	0.7	7.2	78	4.7
Colombia	6.1	2.2	3.1	50.8	57.7	17.5	15.5	26.5	5.8	59	3.8
Croatia	6.3	6.1	5.7	30.8	45.4	31.3	32.9	0.9	8.9	51	4.6
Czech Rep.	3.9	3.3	6.4	25.9	51.9	10.5	21.3	0.7	14.4	30	4.6
Denmark	4.6	8.4	6.6	28.2	59.4	12.0	20.9	1.0	10.4	3	5.5
Egypt	3.1	7.1	4.4	31.8	23.0	30.8	4.5	3.2	0.4	128	4.1
Estonia	7.2	8.3	6.8	32.7	56.4	13.4	10.1	3.2	11.6	12	5.1
Finland	7.5	8.5	5.9	27.1	55.0	20.1	1.4	1.6	10.7	13	5.4
France	4.8	3.2	7.1	32.7	51.6	24.6	37.1	1.6	12.6	31	6.1
Germany	5.6	5.7	6.0	31.7	55.6	7.1	12.9	0.8	13.4	20	6.0
Ghana	-	-	-	42.4	65.5	15.2	7.1	1.7	2.7	120	3.3
Greece	5.6	4.5	4.2	36.0	45.0	47.3	22.9	0.8	10.4	67	4.9
Hong Kong	-	-	-	-	54.8	9.8	21.4	0.3	-	5	6.7
Hungary	6.2	3.6	6.7	30.4	48.0	12.9	14.6	1.5	11.4	48	4.4
India	3.8	1.7	4.3	35.1	23.4	10.1	14.1	3.2	5.7	100	4.2
Indonesia	5.1	3.8	5.0	39.5	52.8	13.4	17.4	0.5	0.8	72	4.5
Ireland	6.8	7.5	6.0	31.9	53.2	17.2	20.9	0.6	13.0	17	5.1
Israel	2.2	3.9	4.2	41.4	59.3	7.3	18.2	1.4	3.8	54	5.4
Italy	5.2	6.3	6.0	34.7	40.5	37.8	44.6	0.8	7.5	46	5.4
Japan	5.9	5.0	4.4	32.1	50.3	5.1	34.0	0.3	8.0	34	6.3
Kazakhstan	6.3	6.0	3.0	26.9	66.7	3.9	2.8	4.8	7.7	36	4.2
Kenya	2.9	3.2	6.6	48.5	76.3	21.3	5.4	5.8	3.4	80	3.5
Korea	5.3	6.5	5.0	31.6	52.6	10.4	16.3	0.7	10.2	4	6.1
Lithuania	6.8	6.7	5.4	37.4	55.7	14.4	13.4	6.0	15.0	16	4.7
Malaysia	5.1	4.7	3.0	46.3	54.3	10.5	11.5	1.9	0.9	24	5.5
Mauritius	4.0	6.7	4.8	35.8	45.5	23.9	20.4	2.7	3.6	25	4.8
Mexico	4.4	3.1	4.4	43.4	43.0	6.9	14.4	16.3	6.5	49	4.3
Morocco	4.0	4.7	5.1	40.7	25.2	19.9	24.9	1.0	0.6	69	4.4
Netherlands	5.6	7.8	3.6	29.3	58.7	10.8	12.0	0.6	8.7	32	6.4
New Zealand	7.1	5.7	6.8	-	65.4	12.7	29.0	0.9	10.7	1	5.5
Nigeria	3.0	5.3	5.1	43.0	51.8	12.4	5.4	9.8	13.4	145	2.0
Norway	7.1	8.0	4.7	27.5	61.4	10.4	6.2	0.6	7.5	8	5.0
Pakistan	3.6	0.9	6.4	30.7	24.2	6.6	10.4	7.8	0.3	147	3.0
Peru	6.4	3.9	4.3	43.8	62.5	15.2	7.7	7.2	6.3	58	3.8
Philippines	3.6	0.4	6.2	40.1	48.0	7.7	8.9	9.8	6.6	113	3.4
Poland	5.4	3.6	5.2	31.8	48.3	17.7	31.0	0.7	11.6	27	4.7
Portugal	6.0	4.5	5.2	35.5	54.1	23.9	30.2	1.0	12.3	29	5.6
Qatar	2.1	8.5	2.7	-	99.3	0.5	11.7	8.1	2.0	83	5.8
Romania	6.3	4.0	6.2	28.3	44.4	20.6	26.5	1.5	12.6	45	3.8
Russia	7.8	3.7	3.7	37.7	63.8	16.1	29.1	11.3	11.7	35	4.9
Saudi Arabia	2.8	5.5	2.9	-	22.2	24.2	8.8	1.5	0.2	92	5.2
Serbia	6.1	2.4	5.4	28.5	45.4	34.9	28.1	1.1	11.1	43	4.1
Singapore	3.6	8.5	4.2	-	60.4	9.1	8.5	0.2	2.0	2	6.5
Slovenia	5.8	3.5	6.2	25.4	52.0	15.2	29.5	1.2	12.6	37	4.8
South Africa	3.8	4.4	3.9	63.0	48.8	53.5	10.2	34.3	9.3	82	4.3
Spain	5.9	6.8	6.2	36.2	52.6	38.6	58.8	0.7	10.0	28	5.9
Sri Lanka	4.0	1.0	6.4	39.8	35.9	21.6	18.6	2.9	4.3	111	3.8
Sweden	7.2	8.4	6.4	29.2	62.0	17.9	16.4	1.1	9.2	10	5.6
Switzerland	5.3	6.9	7.2	32.5	62.6	8.1	42.5	0.7	11.5	33	6.3
Thailand	5.4	0.8	5.4	37.8	60.2	3.7	12.0	3.5	8.3	26	4.7
Tunisia	4.1	7.1	4.1	35.8	26.1	34.7	20.5	3.1	1.9	88	3.8
Turkey	4.5	7.0	5.6	41.9	33.5	20.5	17.7	4.3	2.0	60	4.5
UAE	2.6	8.5	3.3	-	47.5	12.1	12.4	0.7	3.8	21	6.3
UK	5.0	3.7	5.4	33.2	57.5	13.0	25.1	0.9	11.4	7	6.0
United States	6.8	2.2	4.6	41.5	57.0	9.2	32.7	4.9	9.8	6	6.0
Vietnam	5.1	1.3	5.5	34.8	72.0	7.2	3.5	1.5	8.3	68	3.9

Source: HSBC (A new metropolis), World Bank, WEF. Note: Dark grey is a top score within each metric, dark red is a low score.

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[1104632]

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