22 August 2022

The big baby bust

Fewer babies, slower growth

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Economics - Global

- Many economies are seeing fewer births…
- …with the trend likely to mean an earlier turn in the world's population…
- ...creating huge risks for GDP growth and fiscal positions

James Pomeroy
Economist
HSBC Bank plc

In much of the world, people are having fewer babies. This isn't necessarily something new; global fertility rates have been grinding lower for some time. But the scale of the decline over the past few years has been dramatic. For all of the risks for global growth that are present at the moment, few have such a dramatic impact on the medium-term outlook as this shift – which could mean the world's population is more than 10% lower in 2050 than UN baseline estimates and could mean that annual population growth rates for the next 25 years could be roughly 0.4ppt lower if birth rates keep falling at this pace.

The pandemic has accelerated things, and the number of births per woman has fallen sharply in some economies and continues to grind lower in others. In some cases, the fertility rate has already fallen to remarkable levels – with Korea standing out with a fertility rate of just 0.87 children per woman expected in 2022. That would be enough to cut Korea's population by 60% by the end of this century.

And more economies are going to be facing this issue. The UN's latest forecasts (see: *Global Demographics*, 12 July 2022) showed a drop in fertility rate assumptions and the impact may be seen in terms of total population figures in the coming years – with far fewer babies being born.

How bad could things get? The drop in the world fertility rate means that between 2022 and 2025, more than 14m fewer babies are set to be born in the world than the UN expected previously. The impact could become much more entrenched further out and lower fertility rates could mean halving of many populations during the rest of this century.

It also means the world's population may peak much sooner. The UN suggests a global peak in the 2080s and we'd previously said 2050s would be likely (see *Population and the pandemic*, 6 January 2021). Taking into account the updated 2022 data for fertility rates and the possible outcomes in the coming years, our assumption is now for the world's population to peak in the late 2040s.

Policy may have to react, but it's not so easy given that various attempts in recent decades have failed to see a notable rise in birth rates. We can hope that this changes, or that more flexible working means birth rates do rise. But unless we shift from this current path, global population growth may be much weaker than current models suggest, with big implications for activity growth, government finances and the planet's resources.

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The world's collapsing birth rate

- Fewer babies are being born…
- …and forecasts are probably too optimistic…
- …meaning substantial downside risks for global potential growth

Revising down the number of babies

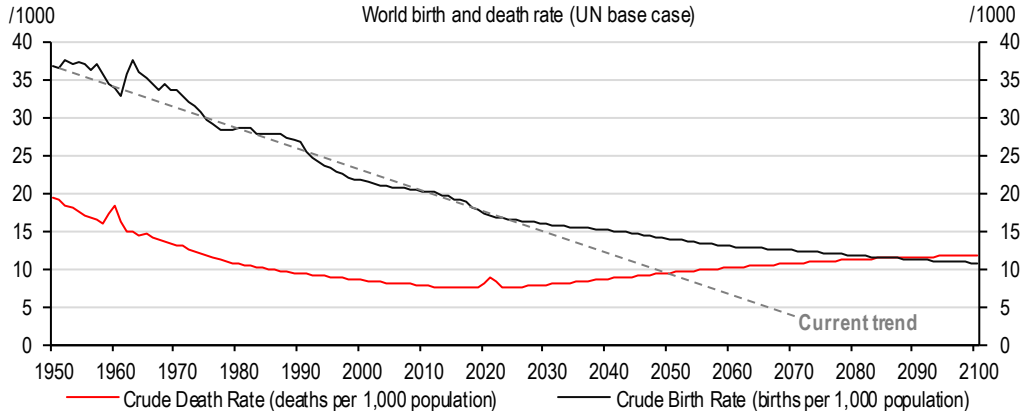
The UN's latest demographics forecasts brought about a number of headlines – notably that India's population is set to overtake mainland China's in the near future and that the UN now expects the world's population to peak in the 2080s, rather than continuing to grow through this century. As we alluded to in *Global Demographics: How soon will the world's population start shrinking?*, 12 July 2022, we still think these numbers are too punchy. The collapse in birth rates during the pandemic and the likely path from here is one of the most important things to happen to the global economy in any of our lifetimes – and it has widespread implications for economic growth, policy choices and environmental issues.

The drop in births globally is already incredibly significant. Across the world, the UN estimates that nearly 40m fewer babies were born across 2020-22 than if the birth rate from 2019 had held firm. That's more than twice the number of excess deaths than many estimates have suggested[1] from the pandemic during that time. The world's crude birth rate has fallen by 1ppt over that time, meaning that for every 1,000 people, one fewer baby is born today than in 2019 – and in a world population of nearly 8bn that means 8m fewer babies every year as a result.

The question is where this goes from here. The UN's forecasts assume that the world's birth rate and death rate cross in 2086 – but on current trajectories that moment looks to be coming much sooner, around 2050.

[1] Estimating excess mortality due to the COVID-19 pandemic: a systematic analysis of COVID-19-related mortality, 2020–21, The Lancet, 16 April 2022

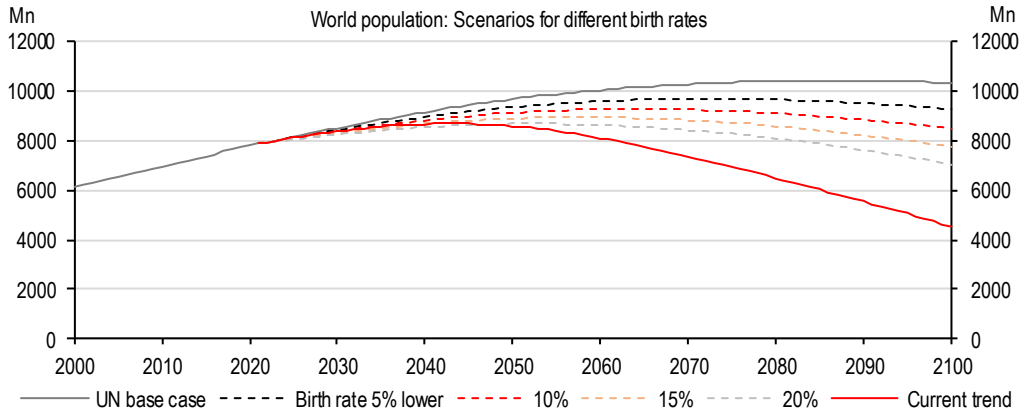
1. The number of global births is on track to fall below the number of deaths, possibly by 2050



Source: UN Population Division. Note: The global death rate is expected to rise due to the higher average age of the global population.

As a result, the role of fertility rates in determining the world's future population is massive. If the global birth rate continues to grind lower at its current trajectory, the world's population could peak around 2043. Scenarios such as those in chart 2 show the different paths we could take in terms of the world's population as a result of various assumptions about the path of birth rates from here. Given the factors weighing on birth rates, discussed in the coming pages, we see the current trend as closer to a base case – meaning that the chances of the world's population starting to shrink in the next twenty years or so are much greater than we may initially expect.

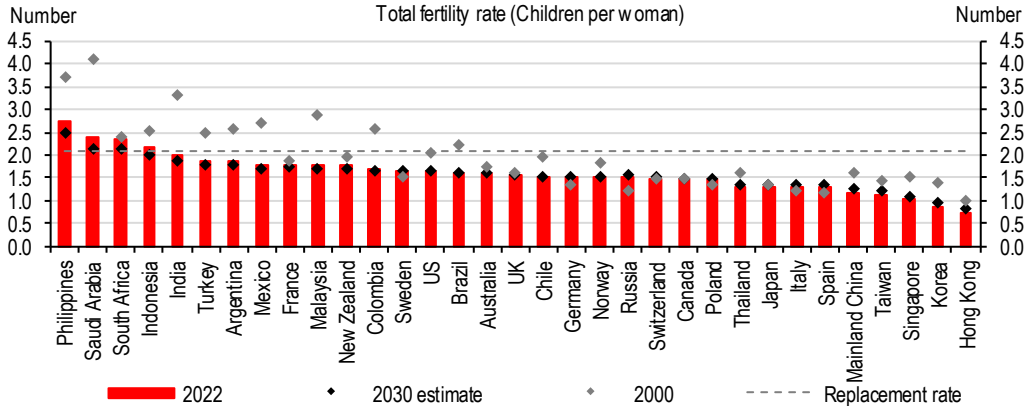
2. The global population outlook depends greatly on birth rates



Source: UN Population Division, HSBC estimates

It's also worth flagging the wide divergence across the world. Some economies – notably Hong Kong, Singapore, Korea and Taiwan – have fertility rates that are already at levels that would lead the population to halve by the end of this century. Mainland China isn't far behind. While birth rates have been low for some time in Europe, they have stabilised around 1.5 children per woman, whereas in these Asian economies the figures have dropped further. The drop in birth rates in many emerging markets has also been striking so far this century – and while further drops are expected during this decade, the UN's base case is still for a relatively small drop from here. To us, that suggests there are sizeable risks to the downside in terms of population numbers if birth rates keep falling, and those economies with very low birth rates give a sense of where we could get to.

3. Birth rates have been falling in most of the world, and are set to shift lower



Source: UN Population Division. Note: 2030 estimate is based on the median fertility model produced by the UN.

As a result, the path for birth rates, both globally and in individual economies, will be key to future population growth. Next, we can look at the likely path for birth rates from here.

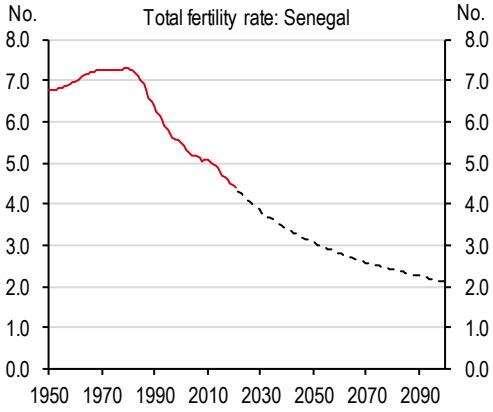
Why have birth rates collapsed?

To get a sense of where birth rates are likely to go next, it's worth looking at the reasons for the drop we've seen in recent years – both prior to the pandemic and during it. There are many overarching reasons – from the improvements in economic development lifting access to healthcare and contraceptives in the emerging world, cultural shifts pushing back the age of first-time mothers, economic realities making it more expensive to raise a family and policy changes in some parts of the world.

Economic development

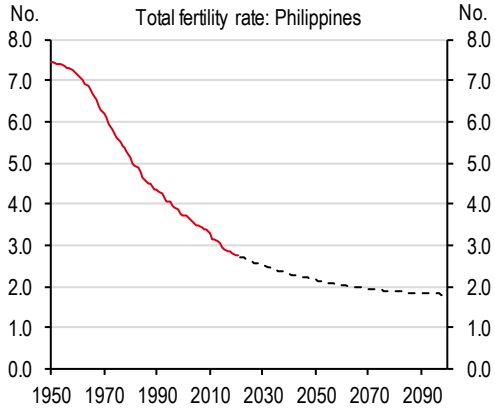
One of the most widely-cited reasons for lower birth rates across the world over recent decades is the steady improvement in economic performance which has lifted access to healthcare (meaning much lower infant mortality rates) and contraceptives in many emerging market economies. The latter has been most evident in some of the poorest economies in the world, with fertility rates dropping sharply in recent decades in many Asian and African economies – as can be seen in charts 4 and 5.

4. Birth rates have fallen quickly in many African economies…



Source: UN Population Division

5. …and in Asia, too



Source: UN Population Division

Economic development brings with it many changes that also drive birth rates. Dr Max Roser, the founder of Our World in Data[2], highlights the broad trends of higher levels of female workforce participation and female education: something that studies have found to be a key determinant of future birth rates – with the average years of primary schooling rising from zero to six years seeing a 40-80% drop in birth rates[3].

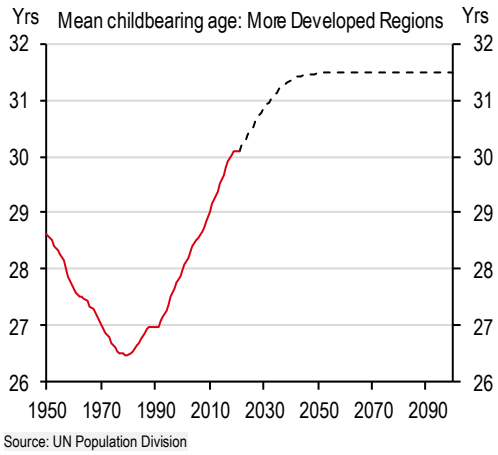
Later first-time parents

This then follows through to more women in the workforce – with a clear correlation between the increase in female participation rates and a drop in birth rates. Dr Roser highlights that due to the availability of more outside-options to having a large number of children, women have typically opted increasingly to take advantage of them and the total fertility rate declined. This has led to virtuous cycles, with smaller families giving women the freedom to do things other than childbearing and this in turn leads to a decline of fertility rates.

To a degree, we can see this in the slow move higher in the average age of mothers across the world, which has been grinding higher in the west since the 1980s and in the emerging world since the start of this century.

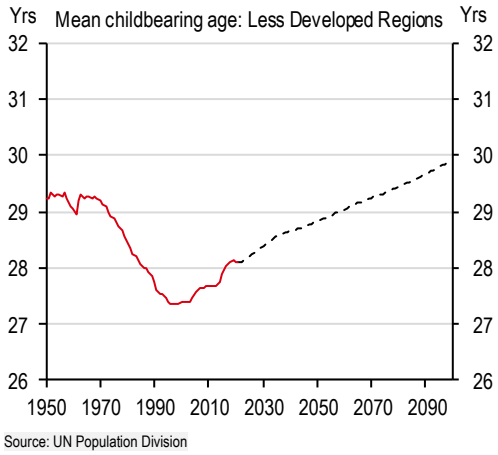
[2] Fertility Rate, Our World in Data, 2 December 2017
[3] Murtin, F. (2013). "Long-term determinants of the demographic transition, 1870–2000." Review of Economics and Statistics, 95(2), 617–631.

6. Families are having children later…



Source: UN Population Division

7. …in EM as well as DM



Source: UN Population Division

A study[4] based on Finnish mothers (undertaken after the sharp fall in the fertility rate, to 1.57 in 2016) suggested that this postponement of a first child (to later in life), with the start of childbearing after the age of 30 years was related to the drop in the fertility rate. In the emerging world, a study[5] published in the Journal of Health, Population and Nutrition showed that women in the MENA region are becoming more likely to enter the workforce, and less focused on child-bearing.

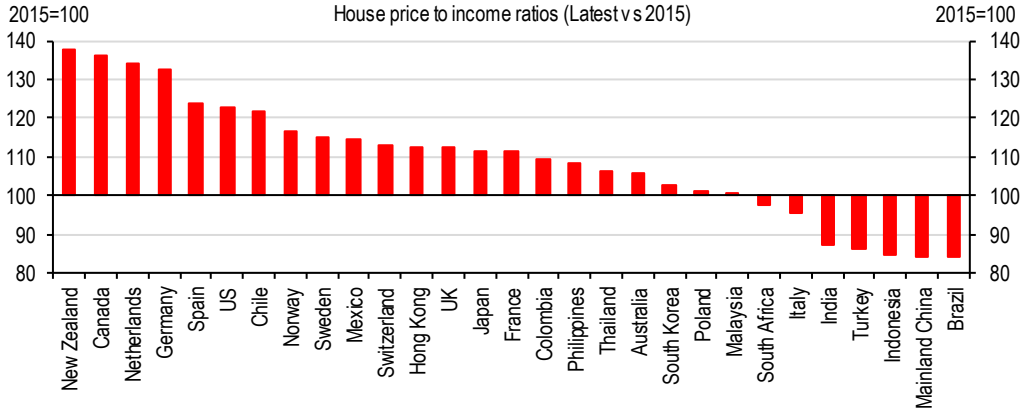
Economic concerns

On top of social changes, other recent developments may weigh on peoples' willingness to raise a family. Whilst economic development typically lowers fertility rates, in developed markets there is some evidence that fertility rates are being held back by elevated house prices as couples postpone their first child, partly as people tend to get married later, but also because they have to save for longer in order to buy a family home[6].

Given the moves in house prices in the course of the past few years, this is already adding to very high house prices, particularly relative to incomes. In Germany, Netherlands, Canada and New Zealand, house prices are more than 30% higher than they were in 2015 relative to incomes. For many younger households, with lower levels of incomes, these homes, particularly those large enough in which to raise a family are now out of reach.

[4] Roustaei Z, Räisänen S, Gissler M, et al. Fertility rates and the postponement of first births: a descriptive study with Finnish population data. BMJ Open 2019;9:e026336. doi: 10.1136/bmjopen-2018-026336
[5] Pourreza, A., Sadeghi, A., Amini-Rarani, M. et al. Contributing factors to the total fertility rate declining trend in the Middle East and North Africa: a systemic review. J Health Popul Nutr 40, 11 (2021). https://doi.org/10.1186/s41043-021-00239-w
[6] Ermisch, J., English fertility heads south: Understanding the recent decline, Demographic Research, October 2021

8. Elevated house prices may limit birth rates, particularly in the developed world



Source: IMF World House Price data

How out of reach will vary by country, but the chances are that many people in their 20s are simply unable to afford homes today. If we take a UK example, ONS data quotes the median annual gross salary for workers aged between 22-29 at GBP23.5k, and aged between 30-39 at GBP28.5k as of 2021. If we take these figures and assume a maximum mortgage lending of 4.5x combined earnings for a couple, then buying a home is out of reach for the median couple in their 20s in the UK. In fact, earnings need to be nearly 20% above the median for a home to be remotely achievable, and that's before the fact that a 3-4 bed home (to raise a family) is likely to cost more than the median house price that includes a large number of flats and 1-2 bed properties.

9. Housing affordability is getting stretched for younger people

	GBP 000s				
Age	Salary per person	Total for 2 people	4.5x total salary	+10% deposit	Median UK House price
22-29	23.5	47.0	212	235	278
30-39	28.6	57.1	257	286	278

Source: HSBC estimates based on ONS data

On top of this is the much wider cost of raising a family. In the US, estimates from the USDA estimated that the cost of raising a child was roughly USD13k per year back in 2015. With other economic considerations – such as higher costs of food, heating and vehicles, couples thinking about starting a family may think twice. Of course, given the current economic climate, this may weigh on the number of births in the coming years, with more households cutting back on expenses and the elevated prices of many essentials.

The impact of policy shifts

While it's very hard to lift fertility rates with policy choices, as we discuss on page 15, lowering them with policy changes has been effective and led to more persistent changes. A study by Tiola de Silva and Silvana Tenreyro, now Bank of England MPC member[7], suggests that population control policies can have a longer-lasting impact on birth rates if they lead to changes in cultural attitudes towards family size. For this reason, relaxing of these policies, such as China's one-child policy is unlikely to have a discernable impact on the population.

[7] De Silva, Tiloka & Tenreyro, Silvana, The Fall in Global Fertility:A Quantitative Model, May 2019

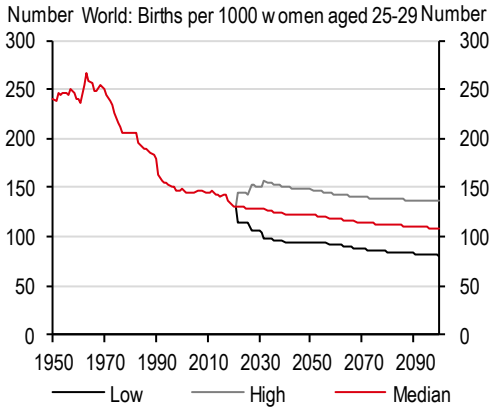
Social changes

Some social adaptations, such as working from home, could influence birth rates. It is possible that the increased flexibility will encourage more child caring responsibility for men and allow women to more easily re-enter the workforce more quickly or part-time following maternity leave. This could allow couples to have more time and money to have more children should they wish. However, it does not seem time and career are the only factors influencing millennials and Generation Z to have fewer children. According to one survey, 31% of millennials are not interested in having children at all, 38% think it is too expensive to raise children, and 13% are concerned with the climate change implications of a large population.[8]

Will this continue or improve?

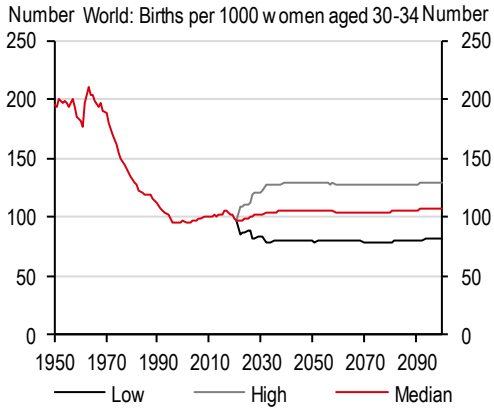
Looking at the reasons for dropping birth rates in recent years, it seems likely that many of these shifts will persist, or even amplify. The aforementioned paper by Tiola de Silva and Silvana Tenreyro finds that historical models have a track record of overestimating future fertility rates, something that we need to keep in mind when looking forward. Many demographers expect the global birth rate to keep falling sharply as a result. The Lancet[9] estimates that, following the slow decline in fertility rate from c.2.5 in 2010 to c.2.4 in 2020, this number could drop to 1.66 by 2100.

10. Birth rates have been grinding lower for women in their late 20s…



Source: UN Population Division. Note: Low, High and Median refer to different fertility rate assumptions in the UN's models.

11. …but steady for those in their 30s

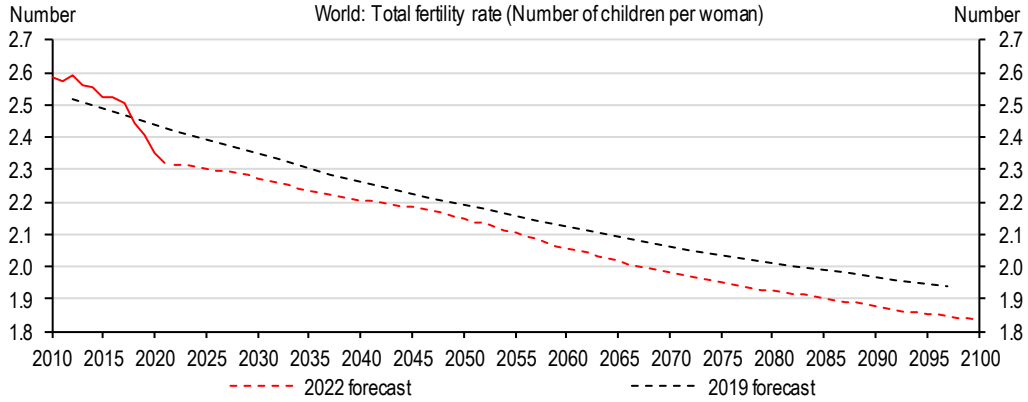


Source: UN Population Division. Note: Low, High and Median refer to different fertility rate assumptions in the UN's models.

The numbers that are baked within the UN's latest set of forecasts agree that birth rates are likely to head lower, but in the central case they'd only be edging lower in the years to come. Given the sharp drops we've seen in recent years in fertility rates and the downward revisions made by the UN between the 2019 and 2022 releases, we have to be aware that these figures could also prove to be too high.

[8] Millennials Were Already Putting Off Having Children. Then the Pandemic Hit, Morning Consult, 28 September 2020
[9] The Lancet: Fertility, mortality, migration, and population scenarios for 195 countries and territories from 2017 to 2100: a forecasting analysis for the Global Burden of Disease Study, 14 July 2020

12. The UN cut its base case for fertility rates sharply between 2019 and 2022



Source: UN Population Division

And given the various reasons for the drop in the fertility rate we've seen in recent years, the pandemic is unlikely to mean any of these trends reverse. In some cases, they may have intensified even more.

13. The reasons for fewer births may be exacerbated by the pandemic

Reason	Detail	Pandemic effect
Economic developments (EM)	Greater wealth in EM and improved healthcare means fewer babies born	Likely to be negligible. Continued improvements in access to contraception and medical care likely to push down birth rates
Economic developments (DM)	Higher costs of living/home purchases may mean couples have smaller families	Surge in house prices and cost of living likely to weigh on ability for families to be as large as was previously possible
Later first time parents	Choosing to have a family later due to other life events	Delays to weddings, dating and uncertainty over the pandemic likely to play a role in lowering family sizes
Social changes	Changes in attitudes towards having a (large) family	More flexible and remote work may increase birth rates, but more concerns about climate change and pursuing other interests may offset that
Policy changes	More governments wanting to pursue family-friendly or limiting policies	Likely limited impact, broader cost-of-living squeeze likely to outweigh any policy push

Source: HSBC

And of course, there is the very near-term question of what has happened to birth rates in recent years and whether we're likely to see a post-pandemic rebound in births that had been delayed. For starters, the US Congressional Budget Office doesn't see such an impact – lowering its estimates for birth rates in 2022 and beyond across the population, particularly those under the age of 30. They still expect the birth rate to creep up in the next 5-6 years, mostly due to people having more children over the age of 30.

In the UK, while the birth rate looks to have rebounded[10], it has only recovered to pre-pandemic levels, suggesting that there hasn't been a catch-up in the number of births. The same study finds that three out of four modelled scenarios would see the UK total fertility rate fall further from here, even in 2022 and 2023. So while birth rates are likely to pick back up from the sharp drops seen at the end of 2020, this is only back to pre-pandemic levels. And if the changes to the economic backdrop through the pandemic accelerate the drop in birth rates, we could be looking at much lower birth rates across the world in the years to come.

[10] What is the likely impact of Covid-19 on fertility in the UK?, Centre for Population Change, January 2022

What does this mean?

- We expect global populations to fall more quickly than current UN baselines suggest…
- …which may mean slower GDP growth and more debt challenges…
- …but alleviate some of the critical climate challenges we face

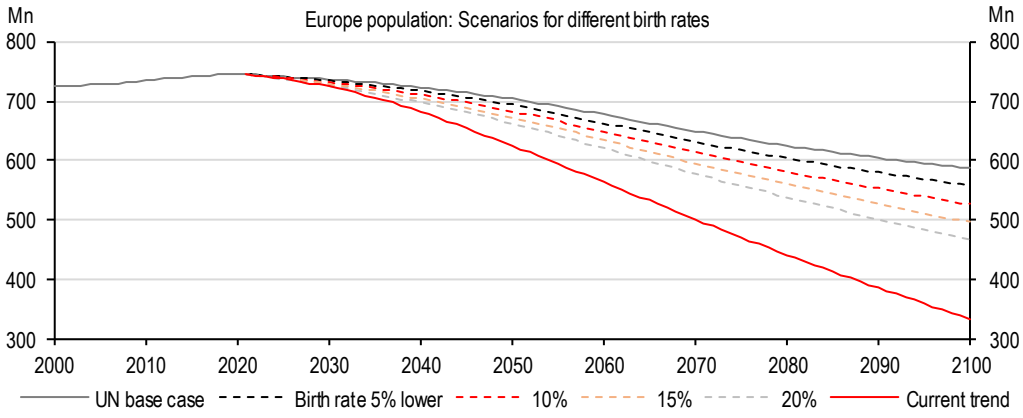
Populations to shrink faster

Firstly, in terms of global population projections, things start to look much more concerning. With lower numbers of births, populations could start falling more quickly, meaning slower potential GDP growth and fewer consumers and taxpayers.

In the charts below we have shown the impact on total populations from various drops in birth rates compared to the UN's base case, as well as the current trajectory that birth rates are on (capped at only going as far as the lows we've now seen in Korea). These charts may look bold, but it's worth stressing that **this is the path that the world's population is currently on.**

In Europe, if things continue as they are, the population would halve by the time we get to 2070, and we'd have 400m fewer people living on the continent by the time we get to the end of the century. Even stepping away from current trends, we can see by 2050 how we could have more than 50m fewer people with a lower birth rate assumption.

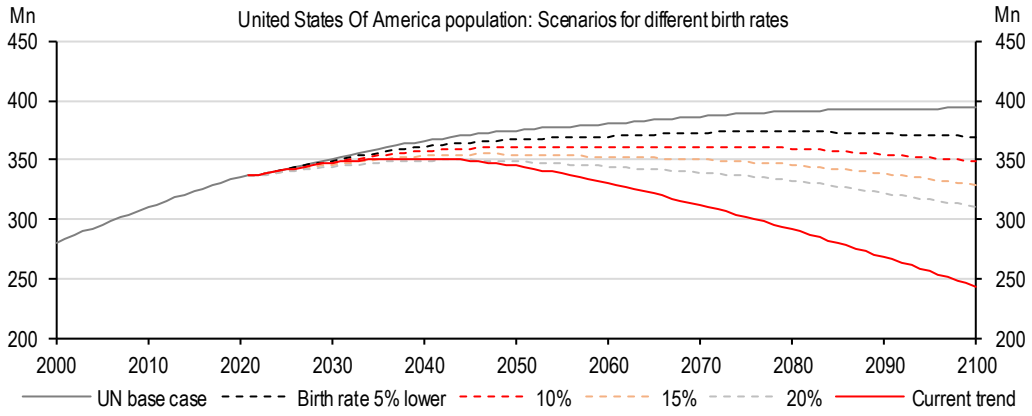
14. Europe's population is set to fall, but how quickly?



Source: UN Population Division, HSBC estimates. Note: Current trend only goes as low as Korea's current birth rate, used as a "floor" for any economy.

In some cases, such as the US, it means that the turn in the population could happen sooner – and instead of rising through the century we could see the population starting to peak in the early 2040s. The Congressional Budget Office's projections are very similar to the black dotted line in the chart, with a 5% lower birth rate, but the difference in terms of the size of the US population becomes increasingly stark as we start thinking about where fertility rates are likely to go. Whichever assumption is used, it seems a population peaking within the next 20 years seems likely.

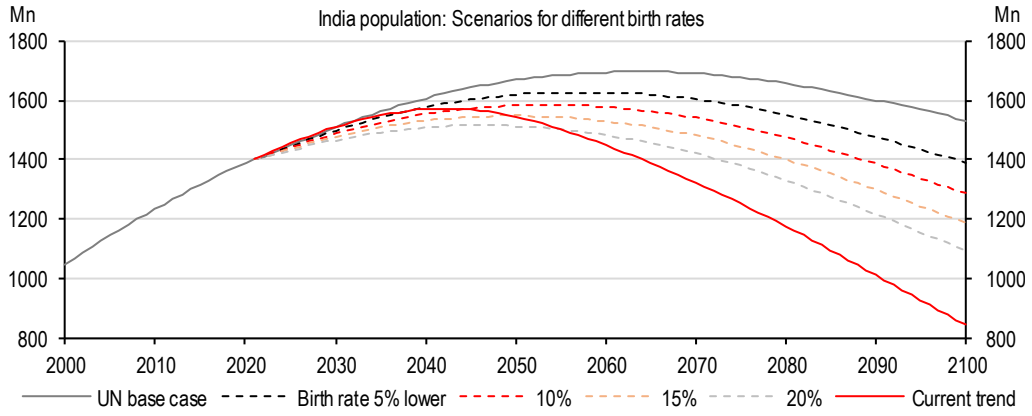
15. In the US, the turn could come quite soon



Source: UN Population Division, HSBC estimates. Note: Current trend only goes as low as Korea's current birth rate, used as a "floor" for any economy.

In economies with much higher birth rates to begin with, the impact may be more noticeable in terms of the progression of the population over the next decade. Interestingly, even on the UN's base case, India's total population may start shrinking in the 2070s, but with a lower fertility rate this could happen in the 2040s or 2050s. The difference by the end of the century could be as much as 700m people in the country.

16. India's population could feasibly start shrinking in the 2040s or 2050s



Source: UN Population Division, HSBC estimates. Note: Current trend only goes as low as Korea's current birth rate, used as a "floor" for any economy.

So, we can think a bit about the impact of lower fertility rates on both the population and likely population growth. Table 17 sums up how dramatic this could be – by 2050 populations could be as much as 20% smaller than in the UN's base case assumptions depending on which fertility rate scenario we use.

17. The outcomes in terms of fertility rates are crucial to global trend GDP growth

	Population size (mn)							Annual change 2022-50(%)		
		2050 (scenarios)								
	2022	UN base case	UN low fertility	15% lower fertility	20% lower fertility	Current trend fertility	Difference between base case and worst (%)	UN median	Worst case	Difference
Argentina	45.5	51.6	47.3	48.3	47.3	54.8	-8.4	0.5	0.1	-0.3
Australia	26.2	32.2	29.8	30.4	29.9	29.5	-8.2	0.7	0.4	-0.3
Brazil	215.1	230.9	211.7	217.4	213.5	189.2	-18.1	0.3	-0.5	-0.7
Canada	38.4	45.9	42.5	43.6	43.0	39.0	-15.1	0.6	0.1	-0.6
Chile	19.6	20.7	19.1	19.6	19.4	17.6	-14.7	0.2	-0.4	-0.6
Colombia	51.8	57.0	52.2	53.4	52.6	47.0	-17.5	0.3	-0.3	-0.7
France	64.6	65.8	61.1	62.4	61.3	62.3	-7.2	0.1	-0.2	-0.3
Germany	83.3	78.9	73.4	75.7	74.6	70.3	-11.0	-0.2	-0.6	-0.4
Hong Kong	7.5	7.0	6.5	6.8	6.7	6.7	-7.0	-0.3	-0.5	-0.3
India	1415.8	1670.5	1527.3	1547.9	1513.2	1546.8	-9.4	0.6	0.2	-0.4
Indonesia	275.2	317.2	289.8	292.8	285.8	254.5	-19.8	0.5	-0.3	-0.8
Italy	59.0	52.3	48.6	50.5	49.9	47.7	-8.7	-0.4	-0.8	-0.3
Japan	123.9	103.8	96.6	100.6	99.3	94.3	-9.1	-0.6	-1.0	-0.3
Korea	51.8	45.8	42.5	44.3	43.9	43.4	-7.0	-0.4	-0.7	-0.3
Mainland China	1424.7	1312.6	1215.7	1260.5	1244.8	1171.7	-10.7	-0.3	-0.7	-0.4
Malaysia	33.9	41.0	37.6	38.2	37.5	34.4	-16.2	0.7	0.0	-0.6
Mexico	127.4	143.8	131.0	134.2	131.4	119.5	-16.9	0.4	-0.2	-0.7
New Zealand	5.2	5.9	5.5	5.6	5.5	5.3	-11.1	0.5	0.1	-0.4
Norway	5.4	6.4	5.9	6.0	6.0	6.1	-7.4	0.6	0.3	-0.3
Philippines	115.4	157.9	144.4	142.1	138.0	139.1	-12.6	1.1	0.6	-0.5
Poland	39.8	34.9	32.4	33.5	28.9	30.3	-17.1	-0.5	-1.1	-0.7
Russia	144.6	133.1	122.8	127.6	124.4	114.2	-14.2	-0.3	-0.8	-0.5
Saudi Arabia	36.4	48.4	44.7	44.7	43.7	40.2	-16.9	1.0	0.4	-0.7
Singapore	6.0	6.3	5.9	6.1	6.0	5.8	-8.1	0.2	-0.1	-0.3
South Africa	59.8	73.5	66.8	67.0	65.2	64.8	-11.9	0.7	0.3	-0.5
Spain	47.5	44.2	41.2	42.6	42.1	40.0	-9.6	-0.3	-0.6	-0.4
Sweden	10.5	11.9	11.0	11.3	11.1	11.6	-7.3	0.4	0.2	-0.3
Switzerland	8.7	9.8	9.1	9.3	9.2	8.9	-9.0	0.4	0.1	-0.3
Taiwan	23.9	22.4	20.9	21.6	21.3	20.1	-10.3	-0.2	-0.6	-0.4
Thailand	71.6	67.9	62.8	64.9	64.0	59.2	-12.8	-0.2	-0.7	-0.5
Turkey	85.3	95.8	88.1	89.5	88.0	78.6	-18.0	0.4	-0.3	-0.7
UK	67.5	71.7	66.3	68.1	67.1	70.4	-7.5	0.2	-0.1	-0.3
US	338.0	375.4	346.6	354.8	348.7	345.0	-8.1	0.4	0.1	-0.3
World	7975	9709	8928	9373	8685	8595	-11.5	0.7	0.3	-0.4

Source: UN Population Division, HSBC

The bad: Macro spillovers

These possible population shifts are clearly huge – and the impact of fertility rates isn't just on the level of people in future years, it could have a dramatic impact on GDP growth rates.

If we look at the trend population growth rate between 2022 and 2050, in a lower fertility rate scenario, this could be as much as 0.7ppts lower in some emerging markets, on average, every year, for 28 years. In the developed world, these changes are typically 0.3ppt, but in parts of the world where the trend growth rate is little more than 1%, the outcomes in terms of birth rates in the coming years could be the biggest determinant of underlying GDP growth.

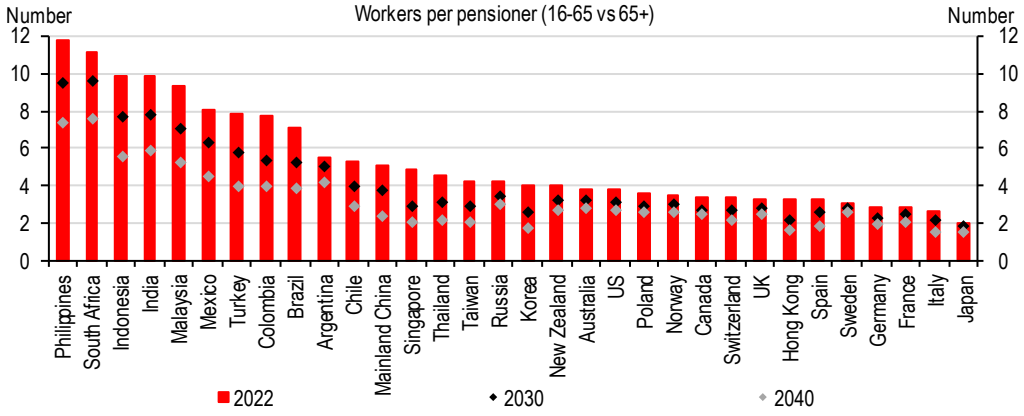
The impact of shrinking populations of potential GDP growth is well-flagged across academic literature[11], and in our own work on potential GDP growth rates, is a key input. The logic for this

[11] See, for example, Jinill Kim, 2016. "The Effects of Demographic Change on GDP Growth in OECD Economies," IFDP Notes 2016-09-28, Board of Governors of the Federal Reserve System (U.S.).

part is simple – fewer people means fewer consumers and fewer workers, at least once people reach certain ages.

The economic challenge is greater because of the speed at which populations are ageing. The number of over-65s across the world is set to rise at the fastest pace ever over the course of this decade (averaging roughly 3% per year), and this means that a number of demographic ratios become even more challenging. Chart 18 shows how quickly the number of workers per pensioner could drop in a number of key economies in the coming decades – with many going from 4-5 workers per pensioner today to just two by the time we get to 2040. This could have a dramatic impact on how government spending has to be focused – with current spending on healthcare and pensions set to make up a larger share at the expense of productivity-enhancing capital investments.

18. The sharp drop in workers per pensioner will likely weigh on economic growth

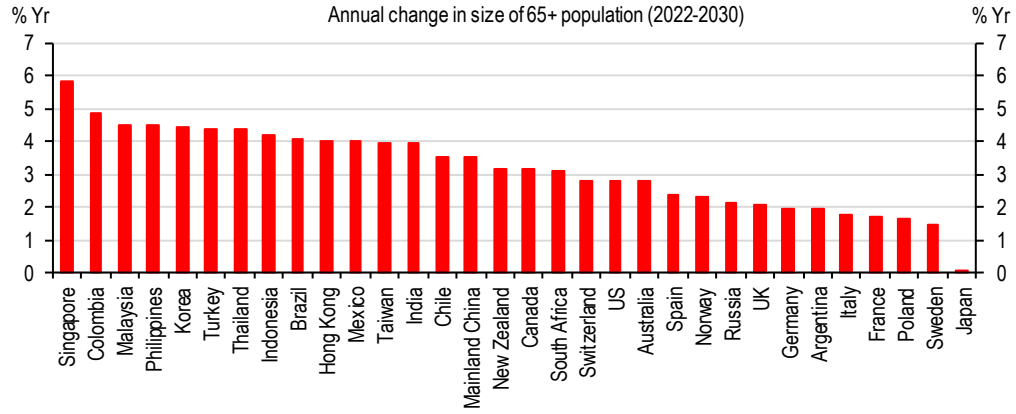


Source: UN Population Division, HSBC estimates. Note: Based on the UN's low fertility assumption.

Debt

And for governments across the world, this combination of shrinking populations, ageing populations and weaker potential GDP growth makes debt stocks more unstainable. As we outlined in *Global Demographics: Mapping out a century of changes*, 19 February 2021, there is a strong correlation between ageing and healthcare spend that increases as populations age into certain (higher) age groups. So across most of the world, the cost challenges from demographic change are likely to be greater in the years to come – but the increases may be most acute in those economies in chart 19 where the number of over-65s is set to rise sharply through the rest of this decade.

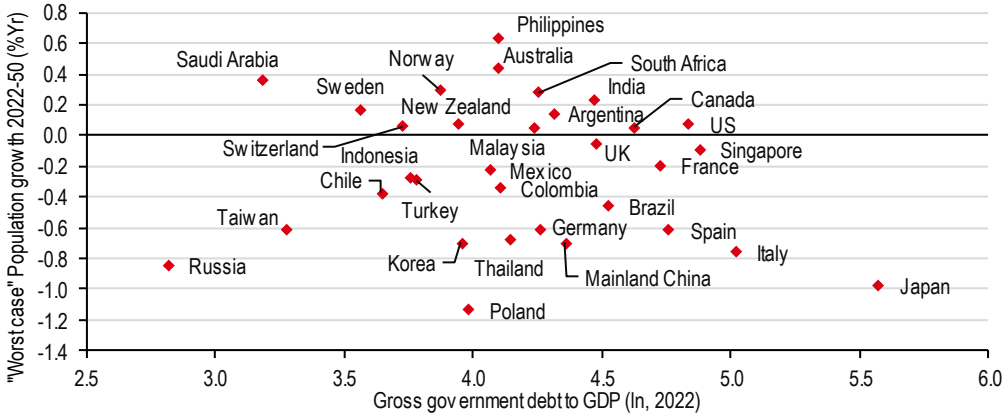
19. A rapid rise in older populations could add to fiscal woes



Source: UN Population Division, HSBC estimates. Note: Based on the UN's low fertility assumption.

The challenge on the revenues side could be greatest in those economies with a troubling population growth outlook over the coming years. Fewer would-be taxpayers and weaker activity growth may mean that overall tax take is down without some serious policy changes (see page 15). As a result, those with higher levels of debt as a starting point and weaker demographics could be most vulnerable.

20. Economies with high levels of debt and weak demographics could be most affected by the fiscal challenge



Source: UN Population Division, HSBC, IMF

The good news: Lowering some of the stresses on our planet

But, in some ways, fewer people can be good news. Economies may not grow as quickly, but that doesn't mean we can't have progress. While Japan's population has continued to shrink for the best part of three decades, per capita GDP growth has not been far off its developed market peers. While Japan's overall GDP may not have risen as much as elsewhere, its people have enjoyed a period of progress, low employment and an improving quality of life.

A smaller working-age population (particularly relative to the overall population if older generations continue to spend) may mean less unemployment and higher wages for workers – which could lead to lower poverty levels. All in all, it may mean that while headline GDP growth is slower, the quality of that growth is higher, more sustainable and more evenly distributed. The

often-cited work of Charles Goodhart and Manoj Pradhan[12] alludes to this shift – that workers' increased bargaining power may mean a more even playing field, reducing income inequality.

Importantly, a smaller global population may take some of the strains out of the system. Given the enormous climate challenge facing the world, a much smaller global population could lower our planets' needs in terms of food and energy. This may buy time to find technological solutions to food and energy production before feeding and powering the world's population becomes impossible. In some parts of the world, notably in Asia, a slowdown in population growth may have an even more material benefit – if we see some of the most densely population cities or parts of cities become less congested and less vulnerable to the risks from climate change that we outlined in *Cities and climate change: The key piece of the puzzle*, 1 December 2021.

However, in almost any global scenario, it's hard to see the world's population peaking within the next 20 years, so these challenges will remain very pressing and policymakers cannot rely on population change to tackle the climate crisis.

Which policy responses are needed?

A rapidly falling global birth rate therefore creates a headache for policymakers. While smaller populations may create some positives – such as making it easier for people to find jobs or limiting the demand for our planet's resources, the combination of worries about the size of economies and how to pay for elevated levels of government debt are likely to mean that populations falling this quickly are unlikely to be desired.

In some parts of the world where we already have too-fast growing populations (such as India and parts of Sub-Saharan Africa), policymakers may welcome this slowdown. We outlined the demographic challenges faced by these economies in *Global Demographics: Mapping out a century of changes*, 19 February 2021, but in most cases working-age populations are rising too quickly for labour markets to keep up – and there are growing risks to sustainably higher unemployment rate.

On the other hand, policymakers in economies with low birth rates have a big incentive to take action now to try to limit the decline. But what can be done? Policies put into place historically have typically had limited success in raising birth rates materially, but there is evidence of short-term impacts playing a role in slowing the decline.

Affordable childcare

Looking at the range of birth rates across Europe, it's clear that France and Scandinavia stand out compared to much of the rest of the continent. In these economies, more favourable policies on child costs have helped to stem the tide in terms of sharp falls in fertility rates. Most Scandinavian governments have adopted policies that favour boosting fertility, usually by removing financial obstacles to having children. Finnish parents are given a box full of childcare equipment from the state[13] when children are born. In Sweden, changes in the 1980s linking child benefit to income on the birth of a first child, and not reset before each subsequent child, helped to encourage childbearing.

In terms of more direct policies, between 2005-14, the town of Nagi-cho in Japan managed to double the birth rate from 1.4 to 2.8 children per woman, a huge outlier in an economy where birth rates are much lower. Families that have children receive baby bonuses (worth over

[12] The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival, 8 August 2020
[13] See: Why Finnish babies sleep in boxes, BBC, 4 June 2013

USD5,000 for three children), child allowances, and subsidised nursery costs[14]. However, similar policies in Korea, with free childcare and housing benefits have hardly made a dent in the rapidly declining birth rate.

Make work more flexible

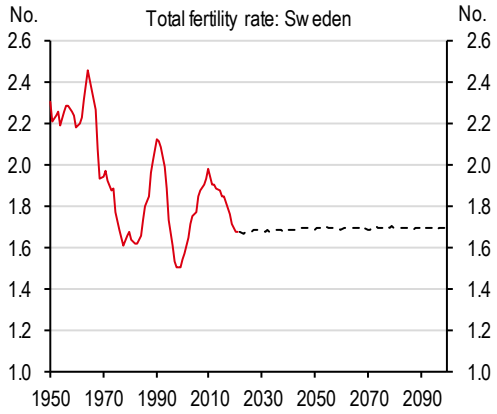
Another solution could be to allow workers to have the time to care for and raise families. A 2003 study[15] found that countries with a higher prevalence of part-time positions tend to have higher fertility rates, and we've seen more flexibility applied to the workforce in many economies since.

Finland passed the Working Hours Act 1996, which allows staff to adjust their typical daily hours by starting/finishing three hours earlier/later (uptake of 92% of workforce) and Sweden has imposed policies which encourage firms to allow flexible hours[16] (only required in the office 9-4, with very good uptake), and the law gives parents the right to take the day off to look after a sick child, with the state reimbursing 80% of any salary lost. However, birth rates in these economies have still come down in recent years. Whether changes to the labour market post pandemic allow couples to have more children remains to be seen – but it could be one of many spillovers into the broader economy from that shift (see: *Remote impact*, 24 January 2022).

21. Policy changes supported birth rates in Scandinavia…

Source: UN Population Division. Note: Dotted line shows latest UN forecasts

22. …but fighting against a losing trend



Source: UN Population Division. Note: Dotted line shows latest UN forecasts

Cultural shifts

One approach is to tweak policies to enable more families to have more children. This may involve men spending more time at home and changing cultural attitudes towards housework. A study in Korea[17] found that men doing more domestic work led to a significant increase in the chances of families having a second child. This is again something that has worked in Scandinavia, with typically more generous paternity pay and offerings, as well as time off around a new arrival being much more evenly split between men and women.

[14] How do you convince people to have babies?, BBC, 16 May 2021
[15] Ariza, A., de la Rica, S. & Ugidos, A., The effect of flexibility in working hours on fertility: a comparative analysis of selected European countries, 2003.
[16] How Stockholm became the city of work-life balance, The Guardian, 22 May 2019
[17] Hye-Won Kim, Erin, Division of domestic labour and lowest-low fertility in South Korea, Demographic Research, Volume 37- Article 23, September 2017

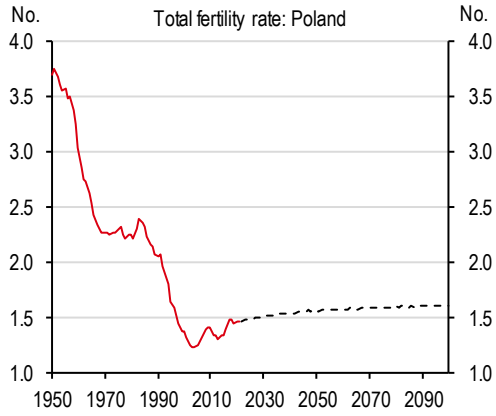
In Asia, these policies have focused around changing work cultures and lowering the costs of education. In Korea this has been a key focus – with a 2010 policy that every third Wednesday employees could go home early[18] and in 2019 that workers with children under eight can leave work an hour earlier[19], and paid paternity leave extended to 10 days.

In 2021, China banned private tuition[20] in an effort to reduce the costs associated with raising a child (as parents would no longer have to worry about paying for extra tuition). Policymakers hope that this will improve the parental experience, reducing the pressure on parents and giving them more time to bond with their child. It's too early to say whether this policy will also encourage parents to have more than one child, but it certainly has the potential to trim the cost of raising a family, and shift the culture around families.

Economic incentives: Throwing money at the problem

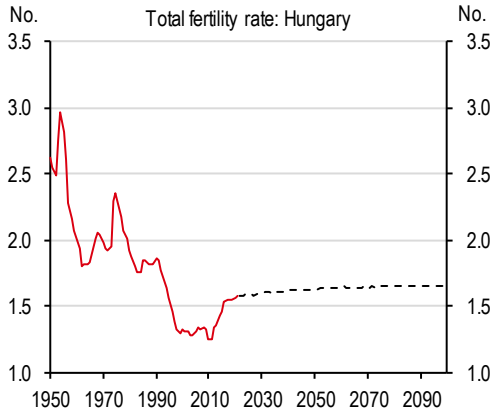
In eastern Europe, where birth rates are extremely low, governments are using financial benefits to encourage larger families. In Hungary, there is now (as of 2019) a personal income-tax exemption for married women with four children or more; interest-free loans of USD36k to be cancelled after the third child; and a low-interest loan for women under the age of 40 marrying for the first time, where the debt is reduced by 30% after the birth of a second child, and full waiver after the third. Poland's financial incentives have been as generous – the government's flagship social policy has been the "500 plus" programme that gives parents a tax-free benefit of PLN500 (about EUR120) per month for the second and any consecutive children until they reach the age of 18. In 2019, the government introduced "Mama 4 plus", which guarantees minimum state pensions to mothers who have raised four or more children.

23. Poland's birth rate is very low but has edged up…



Source: UN Population Division

24. …and the same is true in Hungary



Source: UN Population Division

Similar policies across the region in the 1970s saw brief bounces before a return to the prior trend. In Russia, in 2007, a Maternal Capital Fund was launched, offering mothers who have a second/third child USD12,000, roughly the average annual income. There is little doubt this costly incentive did increase the birth rate (from 1.30 in 2006 to 1.76 in 2016), but as soon as payments became fixed (in nominal terms, so not rising with inflation) in 2016, the birth rate dropped sharply to 1.50 in 2019. At the start of the pandemic, payments offered were lifted by 40%, but the efficacy of the shift will now be hard to work out following the invasion of Ukraine.

[18] Child policies across the world: From restrictions to incentives, The Economic Times, 16 April 2017
[19] Govt. to lower child-rearing expenses to tackle low birthrate, The Korea Herald. 7 December 2018
[20] China bans private tutors from giving online classes, Reuters, 8 September 2021

What else could be done?

If we can't have enough babies, policymakers may wish to implement other policies to tackle the near-term demographic challenge. This could involve opening up the economy to more people via greater levels of immigration (although this may not prove politically popular in many places) or to raise the retirement age. We have outlined many times in recent years why an increase in retirement ages is necessary to combat these challenges, even if it may prove to be an unpopular policy with the electorate.

Equally, economies may evolve to adapt to what they've got. This could mean a much faster wave of automation of many roles. However, even if automation can pick up some of the slack, policymakers will have to ensure people have access to training and skills as employers' needs change. More generally, appropriate training is key to maintaining or increasing labour market participation, among not only parents, but among the population as a whole.

Conclusion

The collapse in global birth rates is one of the biggest economic challenges of our time. Whilst there may be some benefits from shrinking, or slower-growing populations, there's no doubt that this comes with consequences for many economies – slower economic growth and more challenging metrics in terms of debt levels. Fixing the problem is hard, too. There's no clear evidence of policies put in place to encourage procreation working over a sustained period of time in terms of materially raising birth rates. Policy may slow the impact, but it's fighting against a whole raft of challenges from social change to an economic reality that is likely to trim family sizes, particularly in the West.

Given that slower birth rates could take up to 0.4ppt from global growth rates in the coming years (relative to a base case), we need to take this seriously. Those economies facing sharper slowdowns in births will fare worst – and it could be that views on underlying potential growth rates have to be revised down sharply – with a clear impact on asset price valuations.

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