

# Gamechangers

How nine key themes are shaping the future of the global economy

Seismic shifts in technology, population and energy are transforming the way the economy works...

...with implications for growth, inflation and jobs...

...adding to challenges facing policymakers across the world



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# Impact of thematic trends

Our nine themes are integrated in global economics ...

## Automation:

Labour shortages accelerating adoption of automation; new trends in robots; AI and the potential for job displacement

## Demographics:

Collapsing birth rates and fewer children; the rapid ageing of the global economy; economic impact of global population

## Digital Finance:

Increasing financial inclusion; facilitating consumption; delivering better outcomes through increased competition across the value chain

## Disruptive Technology:

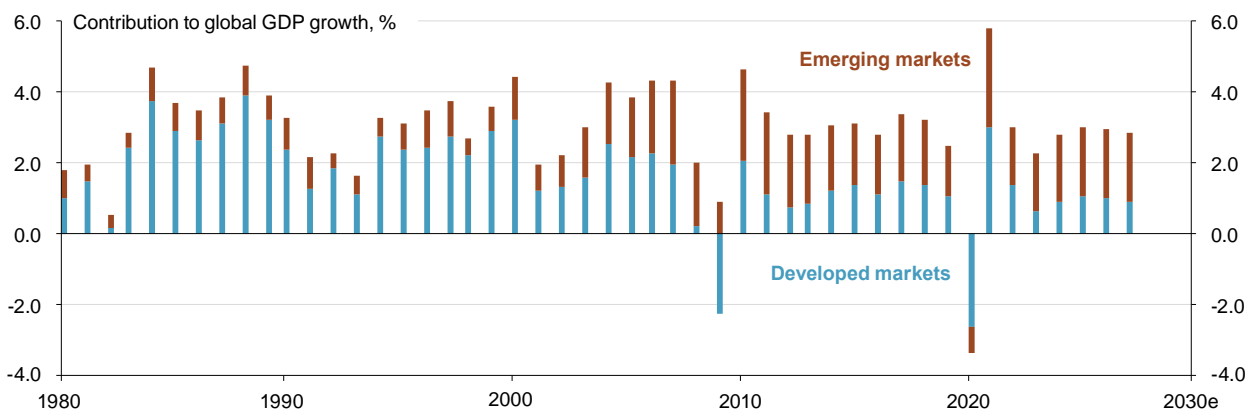
Rise of the metaverse; technologies that enable sustainability; emergence of quantum computing

## Energy Transition:

Near-term focus on Europe's energy crisis; longer term, we view the crisis as reinforcing the need for supply security and acceleration of renewables



... the greater impact of these underlying changes in the global economy may be seen in emerging markets, which are playing a bigger role in shaping the global economy



Source: IMF WEO, HSBC

# Executive Summary

## Continual evolution

As human beings, we regularly miss the woods for the trees. Events, data releases, news stories, earnings calls; these events affect the way we think about the world, the economy and markets. Regularly, we see these items presented without the context of a shifting global economy. **Too much attention is paid to the specific events that happen today, and not the generational forces that are reshaping the world, little by little, every day.**

That's where taking a step back and looking at the bigger picture can be helpful. We're currently going through one of the fastest advancements in technology in history – with technology that is already changing the world rapidly today and will likely do even more so tomorrow. But that's not an overnight event.

The internet and smartphones have transformed the global economy. But it's not as if we woke up one day and suddenly we all used social media, streamed music and watched people play video games online. These things happened due to a slow change driven by an underlying trend, the shift to a more digitised economy.

Or take another key structural shift, the rise of China. China didn't become such an important global driver overnight. It took decades of gradual growth to become the world's biggest exporter as the global economy turned slowly on its axis.

There are many more such long-term adjustments taking place today. We are going through the fastest transition in global demographics in history, with rapidly-ageing populations and collapsing birth rates. The sustainability agenda has never been more important, as the global economy transitions to a new way of producing and consuming, driven by clean investments and supporting policies. And we are seeing a new type of consumer in the world – a consumer who is more likely to care about these issues, be based in Asia, and be female than the world's median consumer of a decade ago.

At HSBC Global Research we pay particular attention to nine key themes, outlined below, which will shape the future of the global economy. They will impact global growth potential, inflation, labour markets and trade patterns as well as the development of businesses and policies from governments. Indeed, they have already begun transforming the way the economy works – and as they interact with and feed off each other, we expect the pace of change to accelerate.

But how and why will they matter? Of course, thematic research carries challenges, as predicting how things will evolve over the longer-term is very difficult. Humans are also famously bad at spotting exponential changes when they're happening right in front of us. So, we may get some things wrong: we could be too optimistic about many of these changes. We could be too pessimistic, too, a human bias that we need to be careful about when thinking about the impact of some of these evolutions in the global economy.

### What will this mean?

When it comes to global growth, for example, many of these thematic changes could be bad news – shrinking populations, potential job losses at the hands of automation, or a costly energy transition. Others could bring good news. Technological innovations could help to lift potential growth, particularly in the emerging world, as we streamline processes, find cleaner sources of energy and new consumption patterns support demand in some parts of the economy.

Our medium-term outlook is for a deteriorating growth-inflation trade-off in the years to come. But longer-term, these thematic changes could mean a world of either structurally higher, or lower, inflation depending on which of these longer-term trends win out. We could see more powerful workers (due to shrinking working-age populations) lifting wages more quickly or workers' bargaining power eroded by competition with machines and AI. There may be something in between, where some workers are able to bid up wages, widening inequality, or there may be sufficient new jobs created that we can't even imagine today.

We may see further efficiency gains through the global economy – where payment costs keep falling, renewable energy developments may make power cheaper and more reliable, and developments in terms of transport and cities may cut wasted time from our days. All of this could enhance productivity and could help to keep a lid on price increases.

Policymakers will likely be kept on their toes. Many of these thematic changes we expect to see in the coming years create challenges like never before. How, for example, can governments fund the healthcare needs of a rapidly ageing workforce as the pool of workers gets smaller? How likely are net zero policies to come to fruition?

There are questions, too, about how to support the labour force – be it with training, education spend and pensions, which will all be affected by the developments of these thematic topics. Whether central banks issue their own digital currencies could affect the financial system.

The simple conclusion is that we need to understand these shifts and the process of change that are happening at an unprecedented pace. We need to learn about technological developments, about demographic change and about how energy supplies are changing. These drivers are the bedrock of the underlying global economic story – and will continue to be so in the years to come.

#### **Why read this report?**

Thematic topics are key to understanding the changing nature of the global economy. To help keep track of these shifts, we are launching this new periodical that will publish every six months. This edition is designed to be a primer, highlighting how these underlying trends will likely influence the shape and size of the global economy in the years to come. In future editions, we will be looking at how these themes interact with the most pressing shorter-term issues of the day – from inflation to climate change.



## Nine key themes

	What is it all about?	Three sub-themes?	What to focus on?
<b>Automation</b>	Automation is, in its broadest sense, the pursuit of increased efficiency and typically involves reducing or replacing the human involvement in a process across a range of sectors from manufacturing to consumers to IT and finance. The impact of automation can be felt vertically and horizontally, from the factory floor to the boardroom and across supply chains, logistics and utilities.	<ol style="list-style-type: none"> <li>1. Labour shortages accelerating adoption of automation technologies</li> <li>2. New trends in robots – cobots and human/machine interfaces</li> <li>3. AI and the potential for job displacement</li> </ol>	China reopening driving a recovery in automation demand in H1 2023 and longer-term the rise of new business models around AI and the emergence of human-friendly robot technologies.
<b>Demographics</b>	The world's population is ageing, fast. The balance of population pyramids across most economies isn't conducive for faster growth – with either too many older people relative to workers or too fast population growth that may make finding enough jobs tricky. Demographics can also impact other structural changes in consumption and investment patterns.	<ol style="list-style-type: none"> <li>1. Collapsing birth rates and fewer children</li> <li>2. The rapid ageing of the global economy</li> <li>3. Consumption pattern changes may be supported by demographic shifts</li> </ol>	Birth rates data are key – how many babies are born each year will shape the population outlook. But policy will matter too, in terms of retirement ages, pension systems and migration openness – to have a big impact on how incomes and living standards will evolve.
<b>Digital Finance</b>	Digital finance covers payments, CreditTech, InsurTech, WealthTech, as well as digital banks, distribution and insurers. This theme aims to understand and analyse how digital entrants and/or new technologies across financial services disrupt, complement and/or enhance existing business models and key market participants.	<ol style="list-style-type: none"> <li>1. Increasing financial inclusion</li> <li>2. Facilitating consumption</li> <li>3. Delivering better outcomes through increased competition across the value chain</li> </ol>	Growing proportion of financial transactions completed digitally creating opportunities for cross-selling and up-selling complementary products and services through embedded finance strategies.
<b>Disruptive Technology</b>	Technologies disrupt the way we do things, and in turn disrupt the global economy. In a highly connected and increasingly digitised world, disruptive technologies act as an enabler of many of the other HSBC's themes. The pandemic has been an accelerator for the faster embracing of innovations. We can see this in the way people are behaving as employees (working from home), as students (online education), when seeking entertainment (virtual events, gaming) and when needing medical advice (e-medicine).	<ol style="list-style-type: none"> <li>1. Rise of the metaverse - potentially the next iteration of the internet</li> <li>2. Technologies address feeding the world - but enable doing so sustainably</li> <li>3. Emergence of quantum computing may disrupt every industry going forwards</li> </ol>	Our HSBC Disruption Framework is divided into five phases, from "early disruption", "hype mania", "backlash window", "real applications" to the "new normal". We should seek to understand when a technology goes into the "real applications" and beyond. We break disruptive technologies into key innovation groups, namely connectivity (crucial for all businesses, impacts digitally led consumption), automation (enable efficiencies from smart farming, drones to 3D printing), experiential (trend of replacing physical consumption with digital goods and services) and digital health (rise of telemedicine to bespoke digital healthcare).
<b>Energy Transition</b>	Energy transition is about figuring out how to continue to power and fuel all of our activities with a lower carbon footprint.	<ol style="list-style-type: none"> <li>1. Transition of power generation</li> <li>2. Transition of transportation</li> <li>3. Transition of industry</li> </ol>	We can segment the decarbonisation question into "solved" and "unsolved" problems. "Solved" is where the process/technology route to decarbonisation is known, even if the economics and scale aren't where they need to be for broad based use. The focus is on adoption, cost curves, scale economics and competitiveness. For unsolved problems, it's about the rate of technological change and pace of evolution.
<b>Future Cities</b>	The shape of urbanisation is changing. In developed economies, the pandemic has accelerated the shift of populations away from the centre of large cities to suburbs and smaller urban areas. In emerging economies, large cities look set to dominate population growth. In both cases, there will be growing demand for urban investment.	<ol style="list-style-type: none"> <li>1. Remote working and the broader future of work</li> <li>2. Public transport and the greening of cities</li> <li>3. How building usage will evolve in the cities of the future</li> </ol>	Urban migration flows will be interesting to watch, as well as large-scale investment projects in some of the world's most important urban areas.
<b>Future Consumer</b>	The global consumer continues to evolve in terms of its purchasing habits, aspirations and priorities. The picture is also highly contrasted across regions and demographics. Nonetheless, there are a number of common themes we can pick out in terms of how consumers spend their money at different levels of income and which areas of the consumption basket have the best longer-term potential.	<ol style="list-style-type: none"> <li>1. Growth of emerging markets and the rising middle classes</li> <li>2. The aspirations of Gen-Z and millennial consumers</li> <li>3. How sustainability and circularity are affecting consumption choices</li> </ol>	The evolution of consumption baskets is heavily linked to GDP and the numbers of consumers in different income brackets. Emerging variations in how higher incomes are translated into consumption are important to monitor.
<b>Future Transport</b>	Decarbonisation is the key theme within future transport – primarily electrification for passenger cars (PC) and the use of alternate fuels for trucking, aviation and shipping. For cars, the shift is partly disruptive, especially in relation to the useful life of existing assets for the incumbents, but the shift also offers new revenue opportunities within software-enabled services, mobility solutions etc.	<ol style="list-style-type: none"> <li>1. Rising EV competitive intensity, pricing competition against the backdrop of high costs and shrinking purchase incentives</li> <li>2. The complex and uneven global landscape of regulation and adoption of new technology</li> <li>3. Shipping/aviation: Fleet renewal for decarbonisation, scaling up the production of alternative fuels</li> </ol>	Watch EV penetration rates of carmakers as a barometer of success in the EV world. EV profitability is currently dilutive but the market appears to reward growth in the sector rather than earnings. Also monitor technological breakthroughs in making available alternative fuels at reasonable cost and scale, and targets by aviation and shipping companies in transitioning to alternative fuels.
<b>Lower for Longer</b>	Determinants of low real rates include debt overhangs, demographics, globalisation and technology.	We look beyond the near-term cyclical outlook and examine the potential structural drivers of inflation and potential growth	How will the interaction of all of these factors impact on the growth-inflation trade off and appropriate policy setting over the following decade?

Source: HSBC

# What's happening every day?

- ◆ Taking a step back we can see the underlying changes in the world
- ◆ These themes will affect the size and shape of the global economy...
- ◆ ...and define the relative winners and losers over the medium term

## Unstoppable forces

Given how busy everyone is on a day to day basis, it's easy to get caught up in the now. What cyclical factors are driving the economy right now? What do the latest PMIs or the latest central bank communications say? These are the sort of questions that frequently come the way of economists, rather than thinking about what the tectonic plates underneath the global economy are and how they are shaping up.

When taking a step back, it's easy to see how the world has changed in recent years. If we take the latest estimates from the IMF World Economic Outlook that go out to 2027 and row back by eight-year intervals (to pick out years that aren't disrupted by the pandemic or GFC), we can see how the shape of the global economy has changed materially over this time frame. Someone looking at the global economy in 2003 would have had to pay a lot of attention to Japan, or developed Europe. For example, the UK and eurozone big-four were responsible for nearly 23% of global GDP, but in 2027 this share is expected to have nearly halved. Over that time, the share of global GDP accounted for by ASEAN is expected to have doubled, India's nearly tripled and mainland China will have gone from being smaller than France to being nearly the largest economy in the world. The way we have to think about global growth has changed materially.

### 1. Slow changes accumulate over time to create a very different world

% World GDP	2003		2011		2019		2027
1 US	29.2	US	21.1	US	24.4	US	23.0
2 Japan	11.5	Mainland China	10.2	Mainland China	16.4	Mainland China	20.1
3 Germany	6.4	Japan	8.4	Japan	5.8	India	4.1
4 UK	5.3	Germany	5.1	Germany	4.4	Japan	3.9
5 France	4.7	France	3.9	UK	3.3	Germany	3.7
6 Mainland China	4.2	UK	3.6	India	3.2	ASEAN	3.4
7 Italy	4.0	Brazil	3.5	ASEAN	3.1	UK	3.4
8 Spain	2.3	Italy	3.1	France	3.1	France	2.5
9 Canada	2.3	Russia	2.8	Italy	2.3	Canada	2.1
10 Mexico	1.9	ASEAN	2.7	Brazil	2.1	Brazil	2.0
11 Korea	1.8	India	2.5	Canada	2.0	Italy	1.7
12 ASEAN	1.7	Canada	2.4	Russia	1.9	Russia	1.7
13 India	1.6	Australia	2.1	Korea	1.9	Korea	1.6

Source: IMF. Note: ASEAN includes Indonesia, Malaysia, Thailand, the Philippines, Vietnam, Singapore, Cambodia, Laos, Brunei, Myanmar & Timor-Leste.

These changes didn't happen overnight. And the trends that drove this change in the way we have to think about the world aren't just changing the geographies that are important – sectoral composition matters, too. For example, back in 2005, between them Amazon and Google accounted for just 0.25% of the market cap of the S&P500, and as of now (and prior to the pandemic), that share is up at ~5%, a 20x increase in the importance of these two companies

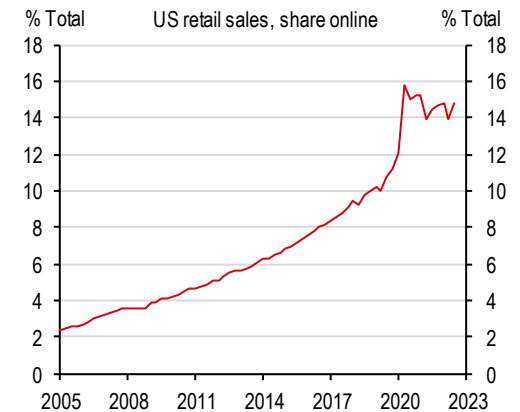
when thinking about the stock market. This has come as a result of the rise in digital adoption – with online retail sales in the US rising from just over 2% of total in 2005 to five times that prior to the pandemic and seven times that figure today. The chances are that it goes much higher in the years to come, too. This all seems so obvious now – emerging markets (EM) become more important and big tech does too – but these trends have transformed the way we think about the economy. Getting the underlying stories right is key.

## 2. Tech has gradually become more important...



Source: Refinitiv Datastream

## 3. ...partly due to big tectonic shifts in the economy

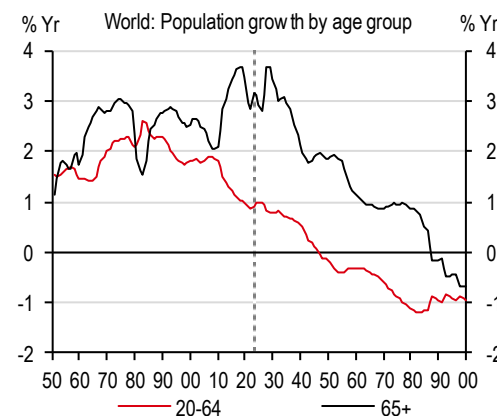


Source: Refinitiv Datastream

What about HSBC's nine themes? How will they affect the economic backdrop and the nature of growth in the years to come? Over the coming pages, we look at the various channels of influence.

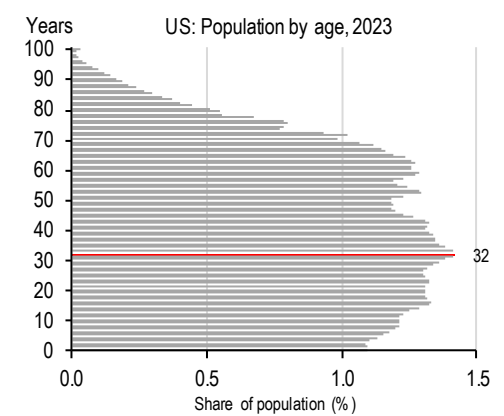
Let's start with **demographics** – one of the most important underpinnings of the global economy. We know, pretty much, how these will evolve in the course of this decade – working-age populations will start shrinking in more markets and the number of retirees will surge. We expect a **future consumer** class to come through – whose tastes may well be different from the generation before them. This will be two-fold: more consumption coming from emerging markets as well as taste changes being pulled along more aggressively by a cohort of consumers in their late 20s and early 30s in key markets (chart 5) such as more conscious and digital consumption.

## 4. Global demographics are changing quickly...



Source: UN Population Division

## 5. ...while a bump in the population pyramid may drive spending habit changes

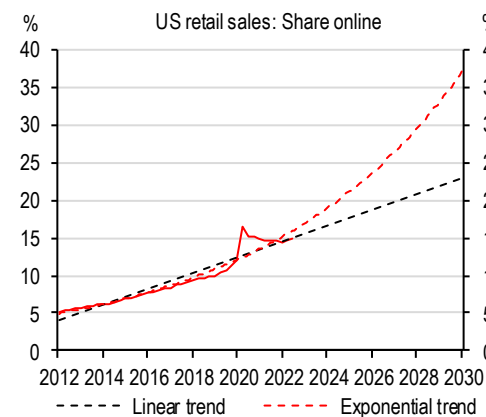


Source: UN Population Division. Note: Red bar shows modal population.

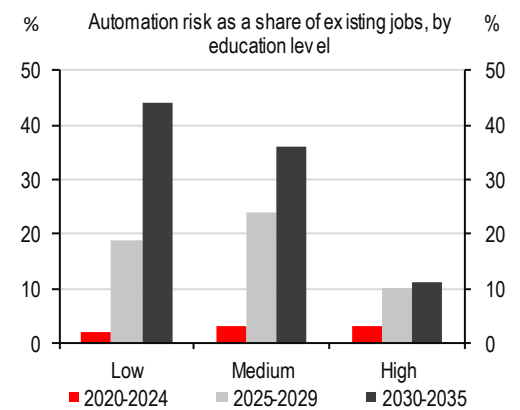
But it's not just about how many people we have – where they live will be key, too. We expect **future cities** to evolve in ways that make urban areas more productive. In the west, this will mean competing for people by investing in public transport, housing and green spaces. In the emerging world this will mean investment in many of the same things to make fast-growing cities work much better for their larger populations. This includes much of what is going to happen with **future transport**. Public transport investment and electric vehicles will likely be central to this theme.

Technological breakthroughs, including **automation**, could lift productivity and **disruptive technology** could create whole new industries, while other developments in **digital finance** will likely mean more digital payments, lower payment costs and the likely spread of Central Bank Digital Currencies (CBDCs).

#### 6. The world is likely to keep shifting more online

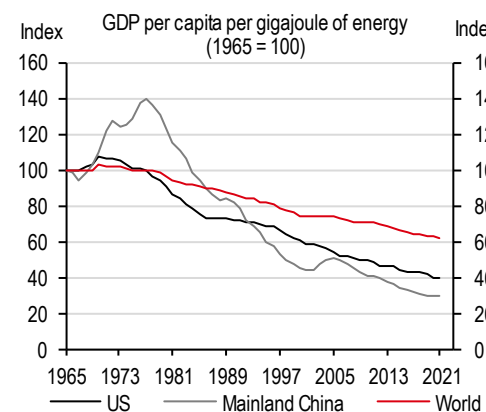


#### 7. Automation may play a big role in the labour market

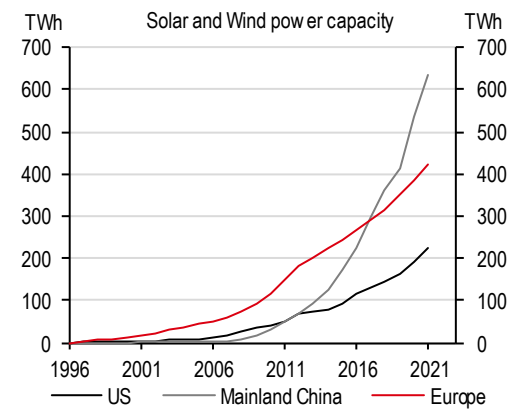


And central to this is likely to be changes in terms of the **energy transition**. The journey has started towards a greener planet when it comes to energy and economies become more energy efficient and shifting their energy usage is only likely to accelerate in the coming years. Many of the other themes will be key in achieving clean, sustainable, growth.

#### 8. Economies are becoming ever more energy efficient...



#### 9. ...and, slowly, more of that energy is coming from renewable sources





# The impact of themes

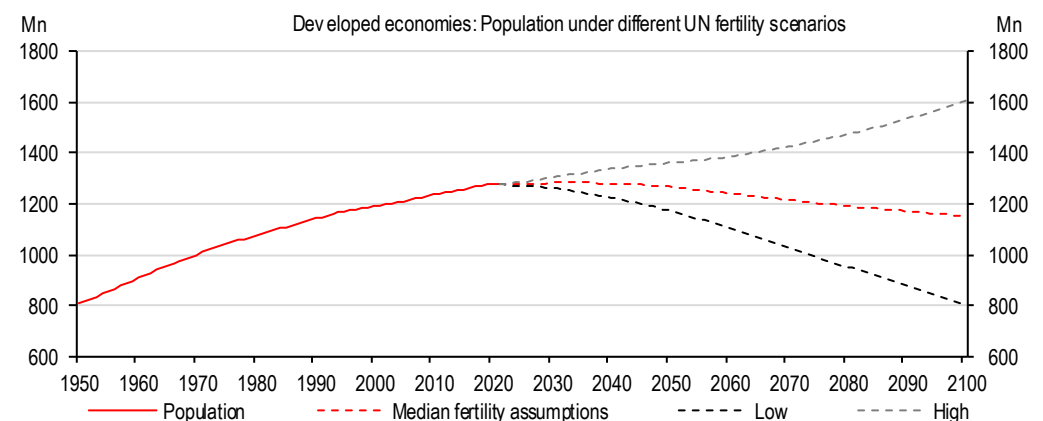
- ◆ Thematic trends can have a big impact on the pace of global growth...
- ◆ ...as well as inflation, labour markets and policy setting...
- ◆ ...with some economies and sectors more likely to benefit

## What could this mean for global growth?

It's quite easy to be relatively downbeat on the future growth rates of the global economy. The idea of secular stagnation, made famous by economist Larry Summers, was prevalent pre-pandemic – with the notion that many (particularly western) economies are likely to see an extended period of sub-par growth rates, held back by elevated debt levels and weakening demographics.

In many ways, these two components have gotten worse in recent years. The elevated stock of debt that many governments have accrued during the pandemic only becomes more challenging to manage in a world where the demographic outlook looks materially weaker, and potential growth lower, particularly in the developed world. This backdrop is key to our fixed income strategists' structural view for long-term interest rates to remain lower for longer.

### 10. DM demographics don't look great under more plausible low-fertility scenarios



Of course, some of the other thematic drivers of the global economy could offset these drags. Staying in the developed world for now, we may see population sizes shrink, but people could potentially become much more productive. This could come through a number of channels in the years to come, but much will depend on how technology and investment progress. It may be that demographic challenges are met with more automation and much may depend on whether technologies such as artificial intelligence (AI) are able to live up to their recent hype. Together with any improvements in skills and education, they will be big determinants of the extent to which productivity is able to offset the demographic challenges. This could extend beyond technologies that simply lift productivity to those which open up entire new industries, such as breakthroughs from the likes of virtual reality or quantum computing.

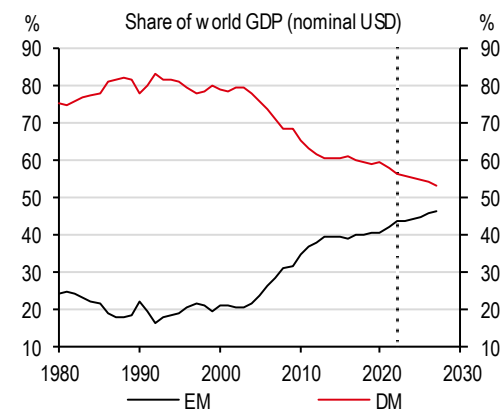
In the developed world, too, new ways of working may support productivity growth or hinder it – questions include if more remote or hybrid work becomes more entrenched and whether urban areas are able to develop in such a way that allows people to travel more freely, waste less time and benefit from agglomeration economies.

Those are some of the upside risks, but downside risks are everywhere – from higher debt levels, geopolitical uncertainty, inequality and, of course, the possibility that these potential lifts to productivity don't manifest themselves at all (or are hard to capture quantitatively). There are plenty of challenges for the future of growth in the developed world.

### More structural drivers in the emerging world

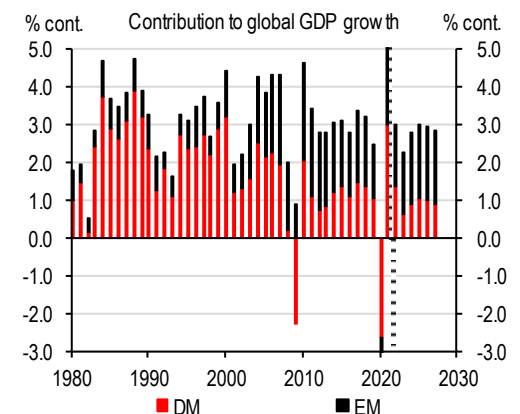
But, the greater impact of these underlying changes in the global economy may be seen in the emerging world, in economies which are continuing to play a bigger role in shaping the global economy. These economies will also be at the centre of the climate challenge, both in terms of reducing emissions and seeing the impact of higher temperatures and more extreme weather events.

#### 11. EM economies are soon to be bigger than DM ones in aggregate...



Source: IMF WEO, HSBC

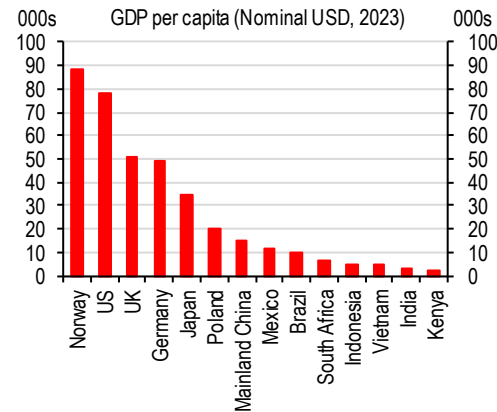
#### 12. ...and are already more important for global growth



Source: IMF WEO, HSBC

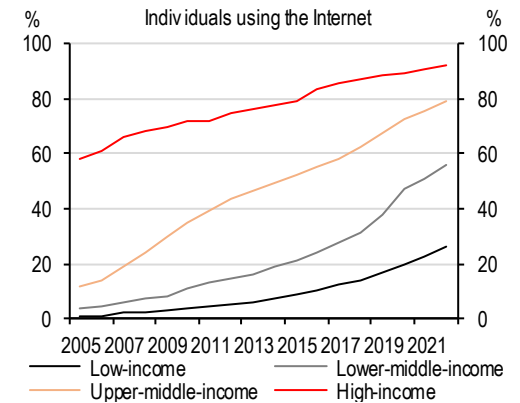
Despite facing many headwinds in the near term, many of these themes bode well for longer-term potential emerging market growth. Given that GDP per capita levels are a fraction of those in the developed world, convergence is likely to be a key theme. And for all of the worries about deglobalisation, some impacts of which may be overstated, one area that isn't slowing down is the spread of information – with more people being connected than ever before (given the rise in mobile phone and mobile internet connectivity in much of the emerging world in the past decade).

### 13. GDP per capita levels are very low in many emerging market economies



Source: IMF World Economic Outlook

### 14. But, tech adoption is rising fast



Source: ITU

This means that it's easier for many general purpose technologies (GPTs) to take hold in the emerging world than ever before. Think about GPTs as platforms on which other things can grow – so smartphones allow an app economy to exist, for example. Essentially, the evolution of these thematic topics can lift us to tipping points in terms of growth, as outlined by Nicholas Stern and Mattia Romani in their policy insight paper in January 2023<sup>1</sup>.

As a result, we see these technologies as potentially transformational for the way we think about emerging market growth, and in ways they haven't been able to be previously, as we have now hit tipping points in terms of access to smartphones, internet and a digital world.

Many of the technology-centric changes are likely to be growth-positive for EM economies. In terms of financial inclusion, continued increases in the share of the population with access to bank accounts is a positive step for economic potential, lifting savings, investments and streamlining payments.

Improvements in access to information due to these technological advances could well help to support other fundamentals of economic growth. We could see education levels rise quickly as better communications technology allows higher quality education to become more accessible in many of the poorest parts of the world. Healthcare breakthroughs, that either tackle diseases or make it much cheaper and easier to supply medicines to more remote areas could continue to lift life expectancy, cut infant mortality and provide a bedrock for faster economic development.

In a similar vein, food security has been brought to light due to the pandemic and the war in Ukraine. Producing sufficient food is not the only issue in global food security, as there is an increasing need to do this in a sustainable way. Farming and food production has used technology to leverage labour for a long time. However, over the last few years, disruptive technologies such as AI, big data analytics, robotics, drones and blockchains have started to make their way into farms. These innovations not only enable the production of more food (e.g. better crop yields) but also reduce emissions, use less land and water, foster more ethical standards on the welfare of animals and make farming safer for labourers.

<sup>1</sup> Stern, N., and Romani, M., The global growth story of the 21st century: driven by investment and innovation in green technologies and artificial intelligence, January 2023

### 15. Smart farming matrix: Impact on sustainability growth themes

Technology or application	Emissions	Crop yield	Land	Water	Animals	Labour	Ethics/social
Connectivity	○	●	●	●	●	●	●
Robotics	○	●	●	●	●	●	●
AI, big data & data analysis	●	●	●	●	●	●	●
Drones	●	●	●	●	●	●	●
Blockchain	○	●	●	●	●	●	●
Cybersecurity	○	○	○	○	○	○	●
Alternative proteins	●	●	○	●	●	●	●
Synthetic biology	●	●	○	●	●	●	●
Genetics, medicines	●	●	●	●	●	●	●
Vertical/indoor farming	●	●	●	●	●	●	●
Circular economy	●	●	○	○	○	●	●

Source: HSBC

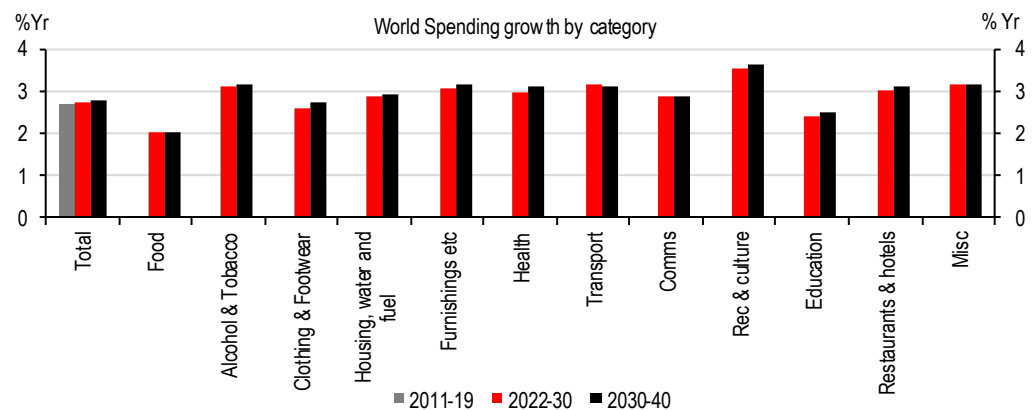
Key: ● = Direct impact, ○ = Indirect impact

Key: Connectivity framework = red, Automation = orange, Experiential = blue, Digital health = green

All of this will likely support incomes continuing to rise in most lower-income economies – enough to lead to a new generation of consumers – an emerging middle class whose tastes are likely to drive a new wave of global consumer spending. This is likely to mean a structural lift to discretionary spending in Asia, Africa and Latin America as household incomes rise.

This may bring with it tilts in where global consumer spending growth is strongest. Our analysis suggests that this transition will mean that growth in leisure will outstrip other sectors of the economy as this is where spending rises quickest as households see their incomes cross into higher income cohorts. This may also mean more use of financial services as savings and investments usage rises - an opportunity for the digital finance sector.

### 16. Demand for leisure will likely be stronger than other sectors



Source: HSBC estimates, based on work in *The next generation of spenders: The changing tastes of a billion new consumers*, 6 September 2022. Note: Real spending.

But it's not just spending in aggregate or by product that is likely to be influenced by these underlying trends. We think that future global consumer spending may see some key topics rise in prominence, which could be summed up by the idea of dematerialising consumption:

- ◆ More digital consumption: as younger consumers, more attuned to digital processes, replace older ones as key consumers in the economy
- ◆ More focus on ESG issues: as generational shifts amplify the speed at which firms need to appeal to conscious consumers
- ◆ Second hand purchases may grow in this environment, with more value-conscious consumers

- ◆ Female consumers growing ever more important: with women expected to hold a greater share of the world's wealth in the future, companies may increasingly prioritise their aspirations in the development and marketing of products

### **Any downside risks for EM?**

Is that all a little rose tinted? Maybe. But the potential for many of these underlying themes to support growth in the emerging world in particular is enormous. However, for these economies, two themes could carry big headwinds for growth.

Firstly, demographics. That may seem counter-intuitive, given the big support that young, fast growing populations are widely expected to bring to growth. But for many economies, this could be a hurdle if jobs growth cannot keep up. In India, the economy needs to generate roughly 700k-1m jobs per month just to keep the employment-to-population rate stable, while in Nigeria, it's more than 3m per year. The possible tailwind of demographics could become a political headwind if these young populations cannot find work (which may be more of an issue in commodity-centric economies if jobs aren't created quickly enough), and prompt more economic migration from economies unable to create enough.

And this links into the second risk, from automation. While in the west, it's widely seen that more automated processes will trim costs and remove jobs – the impact on many of the world's would-be manufacturing economies could be massive. If we see production leave these currently manufacturing-intensive economies to be replaced by more automated processes elsewhere, we may see a displacement of jobs without other sectors (such as in-person or professional services) being big enough to pick up these workers. This poses the risk of seeing employment in many economies faltering in the years to come, holding back potential growth.

### **Transformations for all?**

Humans are naturally negative and bad at seeing longer-term exponential change<sup>2</sup> – we're loss-averse and cautious when thinking about the future<sup>3</sup>. But what if we see some of these themes lead to complete sea-changes in the economic backdrop that lift the quality of life for billions of people across the world?

Over the past year, surging energy prices have highlighted implications of lack of investment in hydro carbons that may keep the price of many commodities more elevated than pre-pandemic levels for the next few years. But what if the impact of the energy transition and improved farming techniques lead us to a world where energy and food are no longer scarce?

This may seem wishful thinking, but renewable energy is already making up much bigger shares of energy production in some economies than we might think (for example, in the UK in November 2022, more than 20GW of electricity was produced by wind for the first time, representing over 70% of electricity generated on that day<sup>4</sup>). And in late 2022 the breakthrough in terms of fusion energy means that suddenly something that seemed impossible is now plausible. What if it not just becomes possible, but becomes reality? It may not need to be fusion, either, as improvements in resource efficiency and much more abundantly available clean energy could take us down a similar path if technology improves quickly enough.

In terms of food – a product area that makes up nearly half of consumer spending in some economies – shortages mean poverty for millions across the world. What if vertical farming, smart farming, lab-grown meats or other disruptive developments on this front mean that many foods become much more readily available, removing shortages and pulling down costs?

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<sup>2</sup> See, for example: Behzad Benam, Exponential Growth is a Major Challenge for the Human Brain, Medium, 24 February 2022

<sup>3</sup> See almost any work on behavioural economics, such as that of Richard Thaler or Daniel Kahnemann

<sup>4</sup> National Grid, How much of the UK's energy is renewable?



What about that world? One where two of the world's biggest challenges are gone overnight – the potential for growth is huge. Whilst this may seem like a pipe dream to many, it's worth remembering that 15 years ago we didn't have smartphones with mobile data or video streaming services; the first generation of modern electric passenger cars was only just hitting the roads, and working from home was – across much of the planet – a niche pursuit that many people had never experienced. The world can change quickly. These are just some examples, and the world could change materially over the course of this decade and beyond, driven by these thematic changes – possibly for the worse, but given the speed of technological progress the world is seeing at the moment, it could well be for the (much) better.

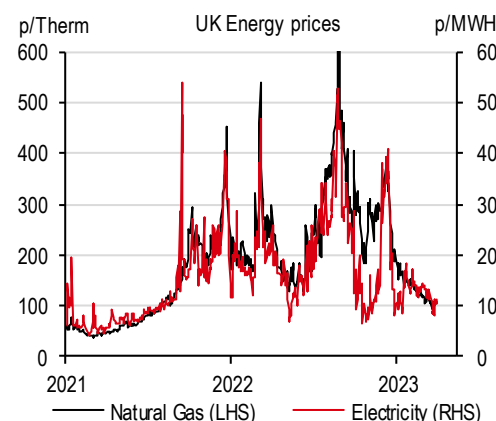
## Inflation: Structurally higher or lower?

This is a good place to pick up what these trends may mean for prices. Over the course of 2022, the role of energy prices on broader inflation and the impact of shocks has become much more of a focus for markets and economists.

This has two components. Firstly, the volatility and uncertainty of energy prices seen over the past year or so. But secondly, how electricity prices are so heavily correlated to gas prices in many economies, even as other forms of electricity generation become much cheaper and more widely used. Because electricity prices are often set by the marginal cost of the last generating unit to be turned on to meet demand, they track gas prices rather than the weighted average costs of production.

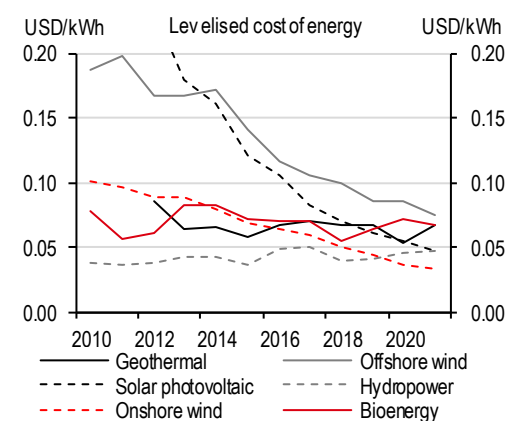
As a result, for many economies where energy usage becomes more reliant on renewable sources, either as a result of policy changes (such as removing marginal pricing) or much wider adoption, we could see prices hit tipping points where energy prices move lower as the cost of wind and solar energy (for example) continue down the path seen in chart 18, lower. Whilst the near-term picture is still for energy prices to be much higher than back in 2019, there may be some room for optimism over the longer term.

**17. Gas and electricity prices are highly correlated**



Source: Refinitiv Datastream

**18. The costs of most renewables is falling fast**



Source: Our World in Data

Of course – much of this will depend on technological developments. This can happen in two ways. Firstly, renewable energy sources will continue to become more efficient at generating energy (and likely more cheaply). At the same time, battery storage is a great example of where technological breakthroughs could completely change the economic landscape – as allowing greater storage of, for example, wind energy could alter how the source could be used all year round. This could mean

much lower costs of energy, greater energy security and, at an extreme level, a cost of energy which is slowing tending towards zero. Such shifts would completely alter the inflationary landscape and now seem more plausible that affordability and reliability of these clean energy sources are moving in the same direction.

That said, it's important to remember the transition itself may lift inflation in the near term. This is likely to come through the required investments, the increased demand for many key commodities (such as lithium, nickel and cobalt), green premiums (which may mean additional taxes on carbon-emitting fuels) and the fact that for many economies, green energy (today) is more expensive than fossil fuel alternatives (although accounting for reduced pollution and other side effects, it may not be). It must be highlighted that this process needn't be inflationary – work from the New York Fed<sup>5</sup> suggests that if subsidies for clean energy are introduced, rather than taxes for “dirty” energy, as with the Inflation Reduction Act, then the transition may be disinflationary instead.

This could also be a cyclical process – lower electricity prices may accelerate the shift towards EVs (a key component of the future transport theme) which lifts demand (and prices) for these commodities that are key for the transition. The journey is likely to be messy, but the end result may be one of greater energy security, lower energy costs and even the possibility of persistently falling energy prices, lower GHG emissions and air pollution.

### **Supply vs demand**

As we've seen first-hand in the past few years, inflation comes down to the interaction between supply and demand drivers. In 2021, the collapse in supply of goods due to shipping disruptions and a shortage of labour in 2022 ran up against rampant demand in reopening economies, pushing prices higher and leading many to call for a new era of higher inflation. This may be due to higher inflation expectations, businesses getting more used to passing on price increases or consumers becoming more accustomed to prices rising.

One key question over the course of this decade will be whether the themes that mean higher inflation will offset those that mean lower inflation over a longer period of time.

## **19. Will thematic trends mean higher or lower inflation?**

### **Structurally higher inflation**

Labour shortages  
 Energy transition (possibly)  
 Stronger demand (EM discretionary)  
 Geopolitics, deglobalisation

Source: HSBC

### **Structurally lower inflation**

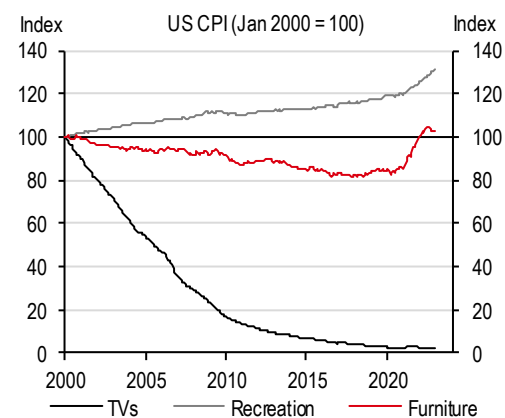
Automation  
 Cheaper (green) energy  
 Weaker demand (DM - Demographics)  
 Technological breakthroughs

The top trade-off here focuses on workers, which we will come back to, but the other issues here are important to touch on.

On the demand side of the equation – much will come down to whether more robust EM growth is able to offset softer spending growth in the developed world in the years to come. But this may also bring with it pockets of the economy where demand is rising more quickly. As we previously highlighted, we expect demand for leisure and recreation, globally, to rise more quickly than for other categories. That may mean that unless supply can pick up enough, we could see prices rise more quickly in this part of the economy. This may be simply due to caps on supply such as the number of flights that can operate or how many gig venues can be within an urban area, or more broadly due to an inability for a lot of leisure to be substituted as easily for alternatives – people cannot change whose music they like or which sports team they want to watch.

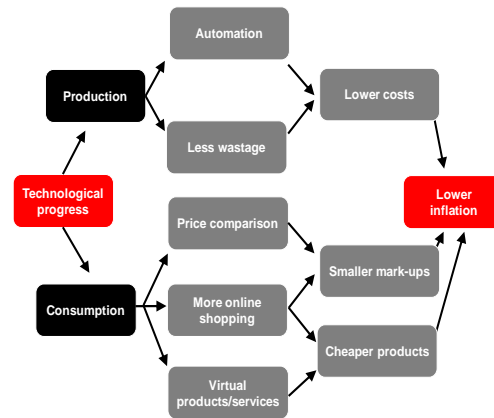
<sup>5</sup> Is the Green Transition Inflationary?, Federal Reserve Bank of New York Staff Report no. 1053, February 2023

## 20. Some goods prices have collapsed due to innovation



Source: Refinitiv Datastream

## 21. How technological progress may weigh on inflation



Source: HSBC

The opposite may be true for goods prices. Whilst the pandemic period saw goods price inflation soar as demand spiked and supply was constrained, prices for many goods may continue to be weighed down by technological progress. This has been historically clearest within IT products, such as TVs (chart 20) but cheaper costs of production and greater price information for consumers has played a role in capping many goods prices. This was a key part of the very low goods inflation through the pre-pandemic period and may resume once supply and demand shocks from the pandemic have dissipated.

A lot will depend on how interconnected the world is. For now, the evidence on deglobalisation was limited but we could well see trade evolve, with regional trade becoming more widespread and where different economies benefit from the rejigging of global supply chains. However, if we were to see globalisation go into reverse, this would lift costs for firms via increased barriers to trade, access to information and increased costs of moving production. On the other hand, technological improvements in supply chains may improve their reliability and trim costs – these efficiency gains offsetting some deglobalisation concerns.

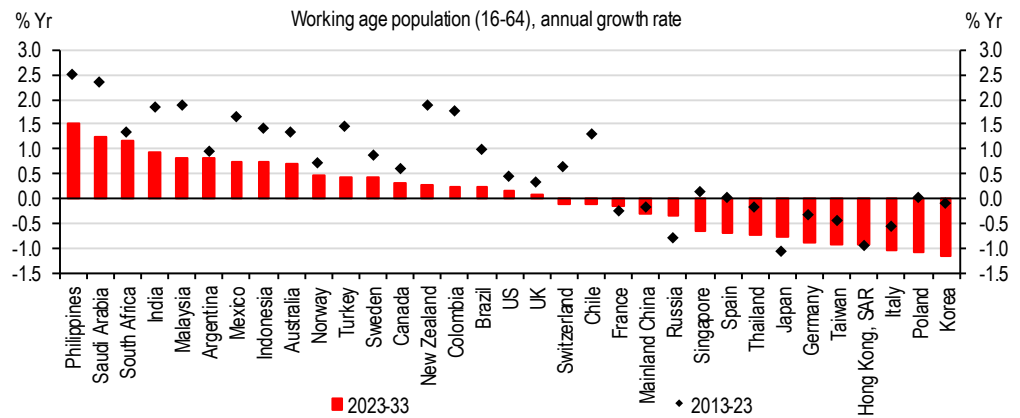
These effects could be greatest in lower income economies where typically wastage within supply chains is highest. Data from the FAO suggests that while in Europe and North America food loss in the supply chain adds up to around 16%, in Central and Southern Asia, that figure shoots up to 20-21%. Technological progress in supply chains, such as intelligent packaging, and better temperature control as well being able to track shipments better (possibly using blockchain technology) may alleviate food loss.

## Enough workers?

Beyond these various upside and downside risks for structural inflationary pressures, there are “concerns” that labour may hold more bargaining power in a world of strong labour demand and ever-decreasing working-age populations. This is the theme of the now famous book from Charles Goodhart and Manoj Pradhan, *The Great Demographic Reversal: Ageing Societies, Waning Inequality, and an Inflation Revival*, which estimates that the deflationary impulse of the surge in the world’s available labour pool will now go into reverse, owing to closed borders and shrinking working-age populations in much of the world.

At the same time, elevated wealth amongst older generations may mean that an increasing number of retirees needn’t have the same impact on demand as it may have done in previous generations – so essentially demand may hold up better than supply.

## 22. Working age populations are either shrinking or growing less quickly



Source: UN Population Division (Low fertility assumptions).

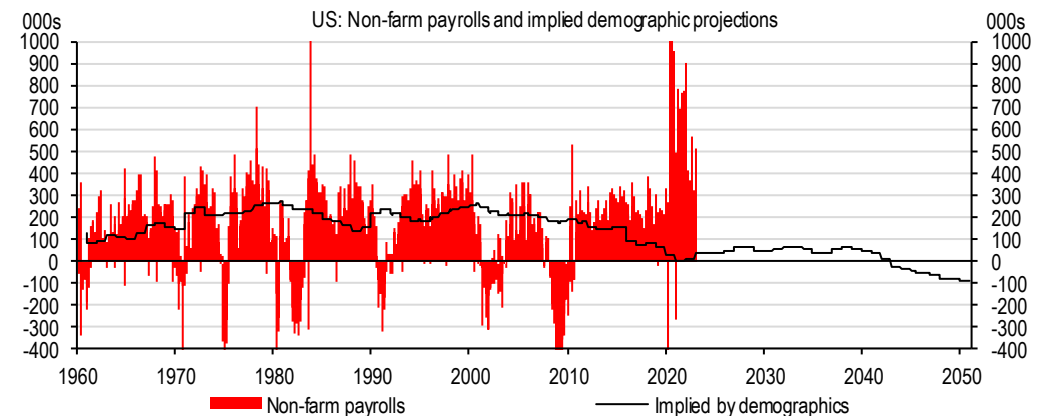
The counter argument to this lies in the automation sphere. Labour shortages in the short term already look set to accelerate the wave of automation, both at the more manual, in person end and amongst knowledge workers. The rapid emergence of AI technologies such as ChatGPT are increasing fears that many manual tasks could be automated, thus increasing fears over job stability. This is quite the opposite story to the demographics-related fear over not enough labour – and it's likely the two offsetting trends will interact to provide some upward pressure to the tightness of labour markets as well as loosening it up.

This will likely have an impact beyond simply the number of jobs that are available – it could affect what happens to inequality within populations. In Goodhart and Pradhan's thesis, the greater wage bargaining power of workers could help to tilt the gains from economic activity away from capital owners and back towards workers. Many people worried about the spread of technological disruption within the labour market think the opposite could happen. Clearly – which of these two themes wins out will be crucial for the future of wages, inflation and inequality.

### Payrolls – what's a par score?

A great example of where thematic topics can interact with short-term market moves is with US non-farm payrolls. Widely seen as the most important barometer of the health of the global economy, many people will have a number in their head of what a "good" reading is each month. But in reality, whereas back in the 1990s or 2000s, a reading of 200k would have been acceptable, that figure is now closer to 100-150k (excluding the sharp falls in the US population in the pandemic era). Going forwards, by the time we reach 2040, it would be widely expected that the monthly NFP figure oscillates around zero – changing the way markets interpret such a key data point.

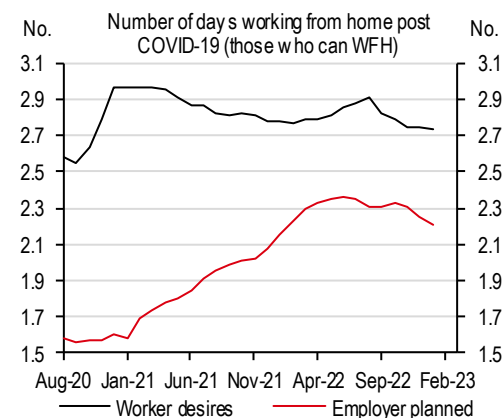
### 23. Payrolls numbers may be lower in the years to come



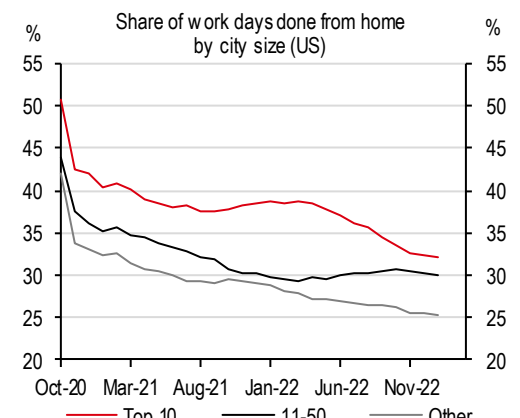
### Future cities and the future of work

One area where the labour market may be affected beyond the simple supply and demand of labour is the nature of work going forwards. The pandemic ushered in a dramatic shock in the ways of working – with remote and hybrid work becoming much more commonplace, particularly amongst knowledge workers and in large cities.

### 24. Workers still want to spend at least half their time at home...



### 25. ...and are doing so more in big cities



The data continue to suggest that this trend is sticking. Despite some high profile examples of firms wanting more workers back in offices full time, survey data from Economist Nick Bloom's WFH Research suggest that workers are reasonably unwavering on their desires to work remotely. The latest round of their monthly worker survey suggested that given the option between working from home any number of days of the week, being fully remote was the clear winner, with just over 30% of the vote. Firms may have to continue to adjust in order to keep workers happy or to attract new ones.

What is the impact? We could see an impact on wages from more flexible working arrangements given that there is an amenity value (the value attached to good feeling) of remote work which is key when thinking about the future of wage growth in high-skill and higher-paid professional work.



A paper led by Jose Maria Barrero in June 2022<sup>6</sup> associates this value at roughly 2ppts over two years, with firms saying they expect wage growth to be roughly 1ppt lower than otherwise would be given the opportunity to offer more flexible working.

A world with more remote working clearly has implications for cities. A paper led by Cevat Giray Aksoy<sup>7</sup> found that the average daily time savings when working from home is 72 minutes, saving the average of two hours per week per worker through 2021 and 2022. But importantly, workers chose to spend 40% of the time savings on more work, 34% on leisure and 11% on caregiving. This has implications for productivity, spending habits and possibly even birth rates.

The implications of this shift spreads across themes. For urban areas, working out how to deal with fewer commuters is a big challenge, especially if those numbers of people travelling in each day are unlikely to return to pre-pandemic levels. We think this will usher in an era of a new type of urbanisation where bigger cities are more of a playground than a workplace but the preference is for people to move to smaller urban areas and suburbs

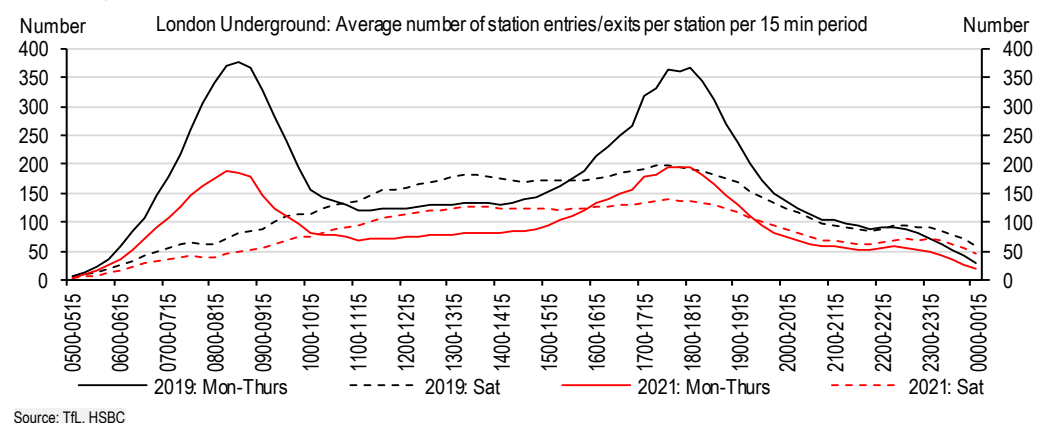
## Policy: Thinking big picture

This is an area where governments will likely have to think seriously about what could help to tackle the challenges that these thematic changes could bring, as well as how they can allow the benefits to be maximised.

### Getting people moving

Urban areas are a great example of this – where these changing living habits, with lower commuter numbers poses challenges for how to set up public transport infrastructure. Many networks rely on ticket sales and passenger numbers to be functional, but with lower usage in peak times this may help ease network congestion but at a cost to running the network.

### 26. Although 2021 data was affected by the pandemic, rush hours saw more of a hit than Saturday traffic



This may make many governments, both national and local, think twice about investing in rail, buses and trams, when the benefits of well-functioning public transport systems can stretch beyond making journeys more enjoyable for those using the network: we can see overall congestion and pollution levels drop and a broader network may widen the areas in which people can live and commute, potentially easing the strain on the housing stock.

<sup>6</sup> The Shift to Remote Work Lessens Wage Growth Pressures, by Jose Maria Barrero, Nicholas Bloom, Steven J. Davis, Brent Meyer, and Emil Mihaylov, 20 June 2022

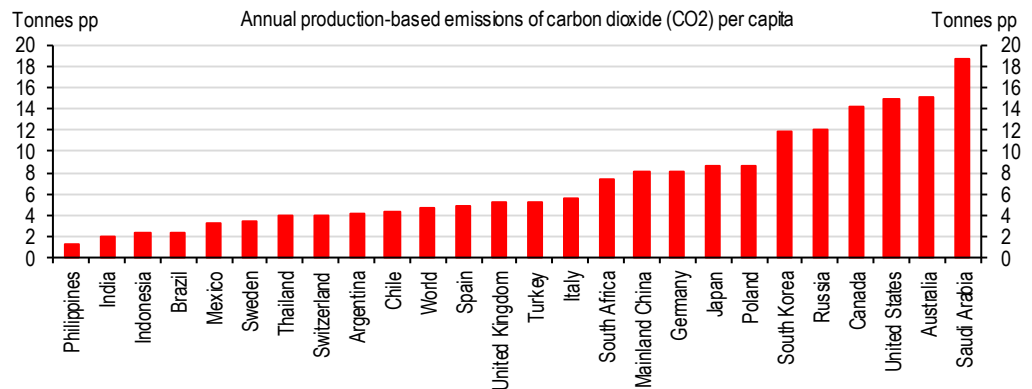
<sup>7</sup> Aksoy, C.G., et al, Time savings when working from home, NBER Working Paper 30866, January 2023.

### Cutting emissions

Sticking with transport, policy decisions will need to be made on the subject of electric vehicles, low emissions zones and road taxes. Whilst better public transport is the “carrot” in cities, charging to drive is very much the “stick” approach. Many governments have put forwards cut offs for combustion engine cars, but at the same time lack the required infrastructure to make this happen. For example, in the UK it is estimated that to reach the 2030 target, the country will need roughly 300k EV chargers, up from roughly 40k today. How to build this infrastructure will be a key component of the move towards net zero – in the UK example, the rollout will have to continue at pace to close that gap.

Climate policy more broadly will play a key role. With most governments putting in place some sort of net zero commitments in recent years, policy will need to keep up. Most major economies have committed to achieving net zero levels of emissions by 2050, but some smaller economies have 2030 targets and Germany has a 2045 target<sup>8</sup>. This will mean more investment, particularly as climate policy is increasingly being integrated into finance ministry operations.

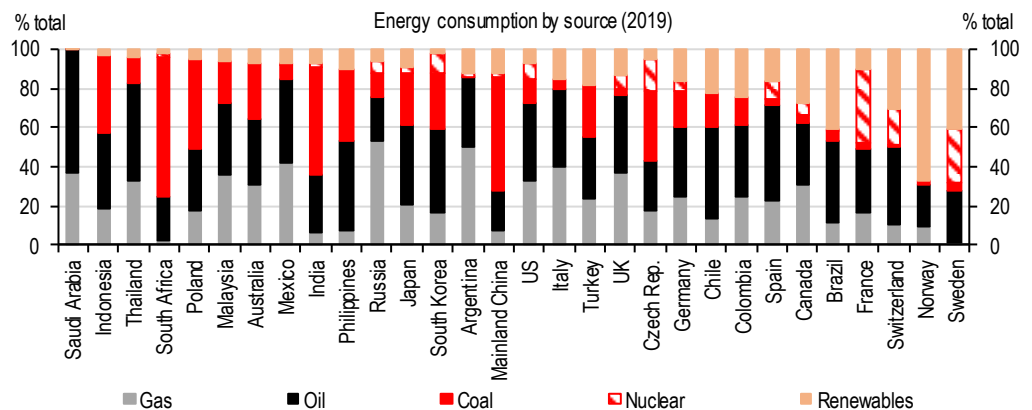
### 27. Some economies may find it harder to move towards net zero



Source: Our World in Data

Much of this will centre on energy generation – and given our starting point in terms of energy sources in much of the world we have scope to see dramatic changes in terms of where energy comes from in the decades to come.

### 28. The energy transition may be more relevant for some economies than others



Source: Our World in Data

<sup>8</sup> Based on data from zerotracker.net

### Looking after the population

Governments also face a number of challenges in other key areas of spending. Education is a great example – where the nature of learning may have to change as the type of jobs available adjusts to a new economy, with a greater role for the likes of AI and automation. The nature of jobs will no-doubt continue to evolve, with more jobs using the sorts of skills outlined in table 29; skills which the current education system in many economies doesn't cater for. A re-think of both the school system as well as how to allow workers to re-skill or re-train may have to be undertaken, to try and minimise the risks of frictional or structural unemployment. This may be better undertaken within businesses, but government policy may need to support firms in doing this.

### 29. Top skills needed for 2025

Skill	Skill
1 Analytical thinking and innovation	9 Resilience, stress tolerance and flexibility
2 Active learning and learning strategies	10 Reasoning, problem-solving and ideation
3 Complex problem-solving	11 Emotional intelligence
4 Critical thinking and analysis	12 Troubleshooting and user experience
5 Creativity, originality and initiative	13 Service orientation
6 Leadership and social influence	14 Systems analysis and evaluation
7 Technology use, monitoring and control	15 Persuasion and negotiation
8 Technology design and programming	

Source: World Economic Forum Future of Jobs Survey 2020

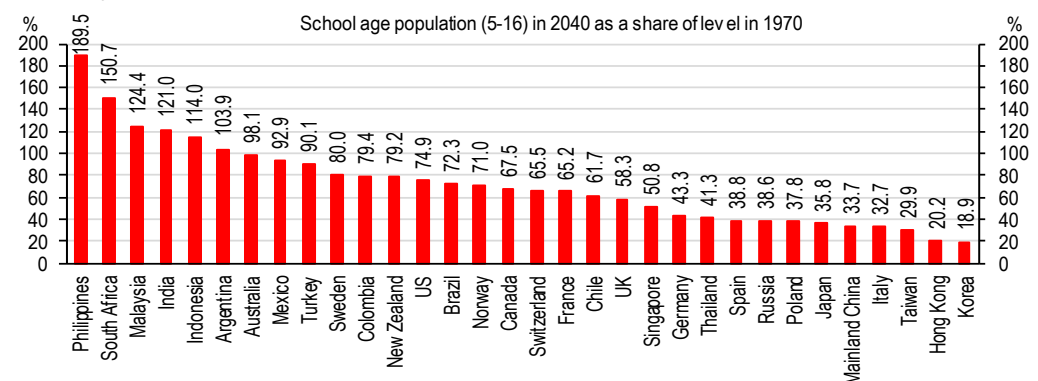
There will also be a need to provide a better social safety net for those people unable to retrain or adapt to a more automated world; as well as how to help people who do happen to lose their job due to these changes (or see the relative importance of their personal contribution diminish significantly) enjoy life, and feel a sense of purpose and self-esteem. Additionally, ensuring the ethical application of technology – such as data privacy, identity verification, age checks; or trying to establish guidelines to for the application of AI (such as unintentional bias or removing credit for completed work) – all of which are areas where regulators are already struggling to keep up.

The threat of automation and job losses will no doubt rekindle discussions of universal basic incomes (UBI), robot taxes and jobs guarantees – all policies which had been much more widely discussed prior to the pandemic.

### Different numbers of people...

But also, in many developed economies, there will be many fewer schoolchildren. In many cases the drop is dramatic and may mean that less money needs to be spent on education – but that's a policy shift that may run up against political opposition. But to put these figures in context, by 2040 most developed markets will likely have roughly half as many school-age children as they had in the 1970s. In Korea, the number of school-age children could well be 80% lower.

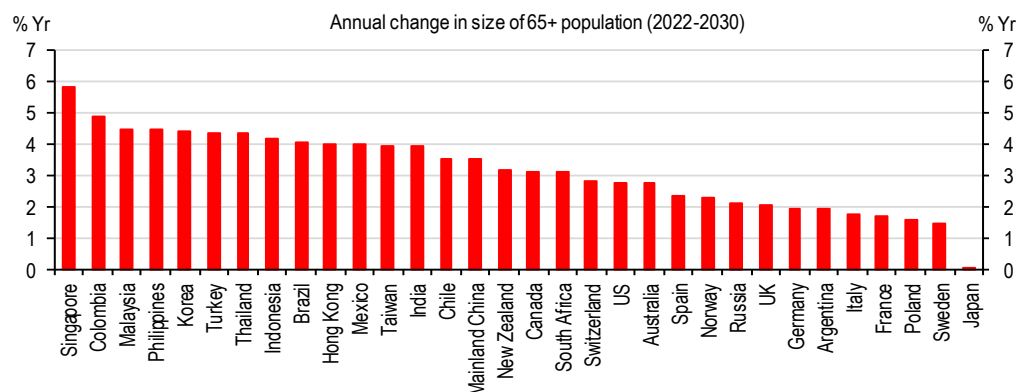
### 30. Many fewer school children poses an education investment question



Source: HSBC, UN Population Division, Low fertility estimates.

This becomes a challenge due to the shifting demographic picture at the other end of the age spectrum. Rapidly ageing populations require much more support in terms of healthcare spend, and pension provisions will need to be considered in some economies where the ageing is most rapid. These challenges may be most evident in Europe where retirement ages may have to rise, no matter how politically unpopular that may prove to be.

### 31. Rapidly ageing populations may create a fiscal headache



Source: UN Population Division, HSBC

One final area of policy uncertainty focuses on digital currencies. Whilst we expect most major economies to continue their journeys towards issuing Central Bank Digital Currencies (CBDCs) the journey in that direction is unlikely to be straightforward. Central banks will have many considerations to mull over before they decide whether or not to issue a CBDC. These issues and questions are still relevant – but principally, policymakers will need to decide whether they want to have limits on the amount of CBDC any person can hold, how anonymous payments are and whether the instrument should bear interest. Recently, central banks appear to be moving towards choices of being non-interest bearing, likely limits of how much CBDC could be held and have minimal levels of data collection. This is the path that the Bank of England appears to be leaning towards<sup>9</sup>.

### In summary...

The global economy is constantly evolving. The next decade and beyond will likely bring with it further massive underlying changes which alter the way we need to think about the broader economic landscape – from potential growth to inflation and the likely policies that could well take more prominence.

Forecasting is a very difficult thing to do. Many of these trends may turn out to be much less impactful than they could be, and others could completely change the world we're living in. Much of which side of the fence they fall will depend on the breakthroughs of scientists and engineers in the years to come. But if we've learnt one thing from history, and particularly the pandemic, it's brave to bet against human progress. The world may be challenging, and there are many reasons to be cautious. But, at the same time, there are some longer-term positives that may support growth, lower inflation and improve the quality of life for many people across the globe. Whether you're an optimist or a pessimist, these themes look set to change the global economic landscape in the years to come.

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*The full report also looks at each of our nine themes in more detail – what's happening with each of them and how they may evolve in the years to come.*

<sup>9</sup> The digital pound: A new form of money for households and businesses?, Bank of England, 7 February 2023

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