Demographic change, technology change and migration: Implications for relationships between the Global North and the Global South[1]

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Executive Summary

In an atmosphere of discomfort about immigration in many parts of the world, raising the question about the future demand for immigrants may seem unwise. But as birthrates plunge and dependency ratios soar in many parts of the world, it would be foolish to delay this discussion too long.

A new factor in the equation is the increasing deployment of automation, robotisation and artificial intelligence (AI), especially generative artificial intelligence (GenAI) and agentic AI (AAI). These new technologies promise to substitute for human labour in many activities, ranging from production lines to many types of clerical and intellectual work.

Will the rise of the new technologies reduce the demand for human labour to the extent that it is able to negate the twin effects of ageing societies with low birthrates, or will the demand for labour continue to exceed the supply in many richer and middle-income countries? This overview paper concludes that it is too soon to conclude that the need for immigrant or migrating labour will disappear. For this reason, researchers ought to continue to think about what modalities of labour migration will be acceptable in the future to source and destination countries.

[1] This paper draws on research undertaken for the South African Presidency of the G20 supported by the South African Reserve Bank, and on papers prepared for the Carnegie Endowment for International Peace (https://nsi.org.za/publications/global-migration-policy-alan-hirsch/) and the Policy Centre for the New South (https://nsi.org.za/publications/atlantic-currents-2024-migration-cooperation/).

1. Introduction

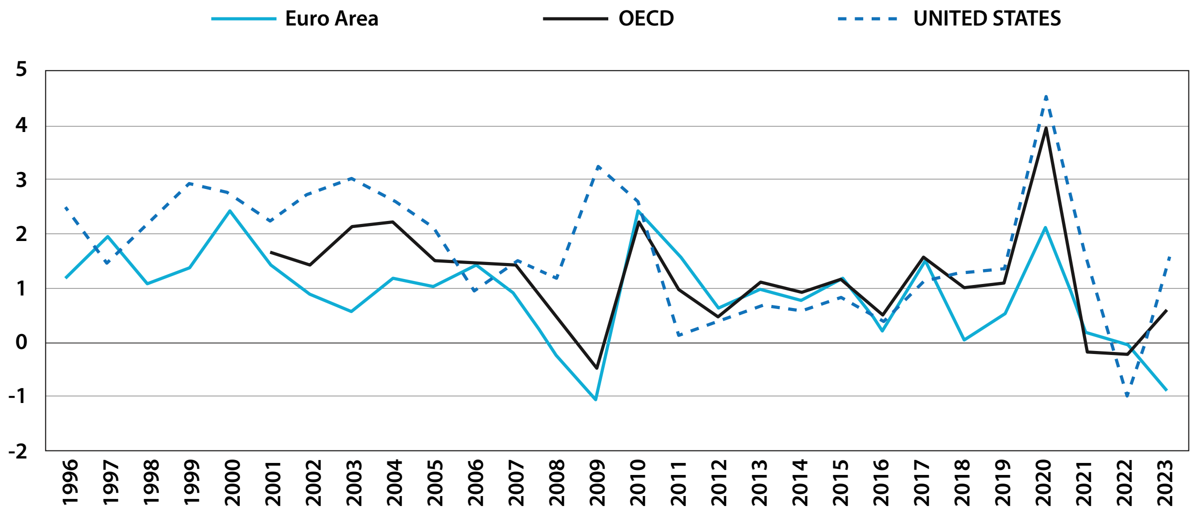
While it is widely accepted that the current era is characterised by the introduction of a new complex of innovations which constitute a general-purpose technology whose application should raise productivity, its impact is currently limited. Productivity gains are small and are not widely distributed.

In ageing societies which have experienced the inversion of the demographic pyramid, including the advanced economies (AEs) and some of the more advanced developing economies (DEs), poor productivity growth means stagnating and potentially declining living standards.

Slow growth combined with ageing populations can lead to lower savings combined, counter-intuitively, with lower equilibrium interest rates, inhibiting monetary policy scope, and fiscal pressure exacerbated by the rising cost of pensions, health care and care of the aged, and rising intergenerational inequality. Such circumstances also increase the capital intensity of investment (Auclert et al, 2024) and raise the premiums on riskier assets (Kopecky and Taylor, 2022). An impact of the greater capital intensity of investment could be long-term or permanent job loss or underemployment on a large scale which current social security nets may not be able to cope with. Additionally, the contribution of labour to taxes could fall. Current conditions already feature some of these characteristics.

Figure 1: Labour productivity growth since 1995

GDP per hour worked, Per cent



Source: OECD (2025)

Many developing economies and low-income countries are dependent on resource-based exports and the production of goods and services for domestic and regional markets. They are unable to compete globally in the production of most goods, which is increasingly automated, or services where the vast proportion of value is added by large companies based in AEs. As a result, their growth rates are relatively slow (though higher than most advanced economies), and rates of unemployment, informality and poverty are high.

There are long-term risks in both situations – the more advanced economies face rising dependency ratios and low productivity growth, and the less developed economies have limited scope for extensive growth even though in some regions population is expanding rapidly due to improved life expectancies and high fertility rates.

2. Current trends in innovation and diffusion of new technologies

2.1 *Technology and AI*

2.1.1 Digitalisation, Automation, Robotisation, and Artficial Intelligence

Microchips have been at the centre of innovation since their invention in 1958. The latest wave of microchip-based innovation includes widescale digitalisation, automation and robotisation, and a new wave of artificial intelligence including machine learning, generative and agentic AI. For the purposes of this note, this complex of interrelated and complementary innovations will, when lumped together, be referred to as ‘the new technologies’. The bundle of new technologies underwritten by AI is considered a ‘general purpose technology’ (similar to the steam engine or electricity) that has the capability to radically transform many spheres of economic life and beyond, constituting the current era as a period of industrial revolution.

2.1.2 Adoption rates and development rates

Rates of adoption are uneven. Advanced economies (AEs) have adopted these new technologies more quickly and are more likely to experience impacts on employment and productivity. While the diffusion of the new technologies and their adoption and integration in DEs is limited by the concentration of access to digital infrastructure, skills and data (Adan and Trager, 2024; UNCTAD, 2025), China is leading the way in the application of robots in the economy and has made significant advances in AI. Most other developing economies and lower income countries (LICs) are slower adopters due to their poorer digital infrastructure, skills constraints and lower investment levels but there are considerable variations among DEs depending on specific circumstances. The rate of diffusion, adoption and integration will be discussed further below.

2.2 *Impact on Employment*

All jobs are composed of tasks. The new technologies facilitate or automate or completely execute some of those tasks. Some jobs are augmented by the new technologies in that routine work is reduced allowing for more analytical or strategic work, while some are diminished in that the more skill-intensive elements are reduced, leaving occupations less fulfilling.

Even when similar tasks are automated, different occupations could be affected differently. A recent study shows that automation of the clerical component of their work enhances the work of accounting clerks but diminishes the work of inventory clerks. In this case, wages rise and demand for clerical accounting employees falls as the expertise content of their job rises, and wages fall, and demand rises for inventory clerks whose jobs are becoming less expert and lower paid (Autor and Thompson, 2025).

Research shows the value of separating tasks from jobs, but also that outcomes may not conform to intuition.

2.2.1 Which jobs are likely to be negatively impacted?

The types of jobs affected by automation and robotisation are mostly repetitive manual jobs, for example assembly line and general factory work, which are already considerably affected in many production lines in more advanced economies. Some of the occupations currently affected by GenAI are clerical work such as financial service tasks, basic legal drafting and customer service, while occupations such as writing and software development are somewhat affected.

Women are overrepresented in the sectors affected by GenAI and are likely to be more impacted by it. Women employees are affected in AEs (Cazziniga et al, 2024) and in DEs (Egana 2021) but are more likely to be impacted in higher income economies according to the International Labour Organization (ILO, 2025). GenAI is likely to have more impact on younger, less experienced workers. Older, more experienced people in senior positions are more likely to have their jobs enhanced by the application of GenAI, rather than it replacing them (ILO, 2025).

There are some occupations that may be negatively affected in terms of quality of work according to the ILO. Data labourers, workers on microtask platforms (gig workers), and business process outsourcing (BPO) employees can be closely supervised by AI to the point of exploitation and often have very limited job prospects.

According to the World Economic Forum (WEF)'s Future of Jobs Report (WEF, 2025) based on employer surveys, the fastest declining jobs over five years include cashiers and ticket clerks, administrative assistants and executive secretaries, building caretakers and cleaners, stock keeping clerks, printers, three categories of financial sector workers, transportation attendants and conductors, and security guards.

2.2.2 Which jobs are positively impacted or currently not affected?

At the same time, the new technologies have ushered in a wide range of new or repositioned occupations. These jobs are in the fields of AI development and engineering, data and analytics, ethics, strategy compliance and various other roles.

Some senior professional and managerial jobs are enhanced, not negatively impacted by the new technologies. For those whose jobs are enhanced by AI, job quality may improve. There are also many non-repetitive jobs that are relatively low-skilled and medium skilled which are currently difficult to replace. In the 2025 WEF Future of Jobs Report, the top ten growing sectors of employment over five years include: farmworkers, two categories of delivery service drivers, builders, shop salespersons, two categories of food service workers and nurses. These are labour intensive and low-to-medium skilled occupations.

2.2.3 Location of employment

Until relatively recently, the cost and availability of labour and the success of a rules-based globalised order had led to the dispersal of jobs globally, first in manufacturing and more recently in business services. Offshoring became widespread. However, due to contemporary geopolitical uncertainties and the opportunities offered by the new technologies, there is an increasing tendency for reshoring, onshoring and nearshoring – bringing back jobs and workplaces closer to or into the core economies. This tendency was accelerated by the COVID-19 crisis when long and complex supply chains broke down causing several years of shortages and higher inflation. The purpose of onshoring is also to bring production closer to the strongest markets. This trend is visible, not only in the AEs, but also in DEs such as China which are now under less economic pressure to move activities offshore; they can reshore, onshore or nearshore exploiting the new technologies.

The impact of these trends is that traditional paths to economic development are no longer available or are far more limited. The pattern of relocating the less complex and more labour-intensive production activities to less developed countries and regions, which fuelled several waves of industry-based economic development, is unlikely to be reproduceable again (Rodrik, 2025).

As the first industrialising countries grew, productivity and, eventually, wages rose. In recent times countries like Japan, then South Korea and Taiwan and, later, South-East Asia and mainland China were able to absorb the labour-intensive sectors priced out of the advanced industrialised countries because of their abundant, cheap labour and were able to grow, in part, through competitive manufactured exports. In turn, each of them graduated to higher levels of productivity, wages and greater prosperity. There were expectations as recently as a decade ago that low productivity, low wage manufacturing would shift to regions with large, poor populations such as many parts of Africa, that it would be Africa's turn to climb onto the lower rungs of the industrialisation ladder (Lin, 2015; Oqubay, 2015).

Climbing the industrial ladder is no longer as straightforward as it was. Even advocates of industrial policy who previously supported a focus on manufacturing as the path to structural transformation are asking, as opportunities in manufacturing shrink, how industrial policies can work in the services sector (Juhász et al, 2023).

Offshoring in the services sector includes, for example, business process outsourcing and platform-based gig-employment. It also includes the provision of some medical, care and other social services.

Even the offshoring of services such as software development, customer service and other forms of BPO is likely, at some point, to be limited through the widening application of the new technologies in AEs. Increased protectionism in AEs in the current era is making paths to economic development even more elusive in developing countries.

A key challenge in global development is to understand where jobs, growth and development will come from in poorer developing countries which have large and growing young populations. These are mainly concentrated in Africa.

3. Productivity

Productivity growth has been relatively slow globally in recent years. There was a detectible productivity boost in the 1990s due to the widescale adoption of the internet and related applications, but it slowed down in the 2000s. The current wave of innovation has not yet seen an extended improvement in productivity; while labour-saving devices have been widely adopted, employment in those sectors has not yet fallen to the point that it shows significantly in productivity data (Acemoglu, 2025).

While the new technologies have not yet had a significant impact on productivity data, experiences of previous industrial revolutions show that the lags between invention, innovation, adoption and integration into systems are considerable. The steam engine took many years to impact on productivity in a generalised way. The impact of general-purpose innovations on productivity generally takes decades because whole systems of production need time to evolve (Edquist and Henrekson, 2004).

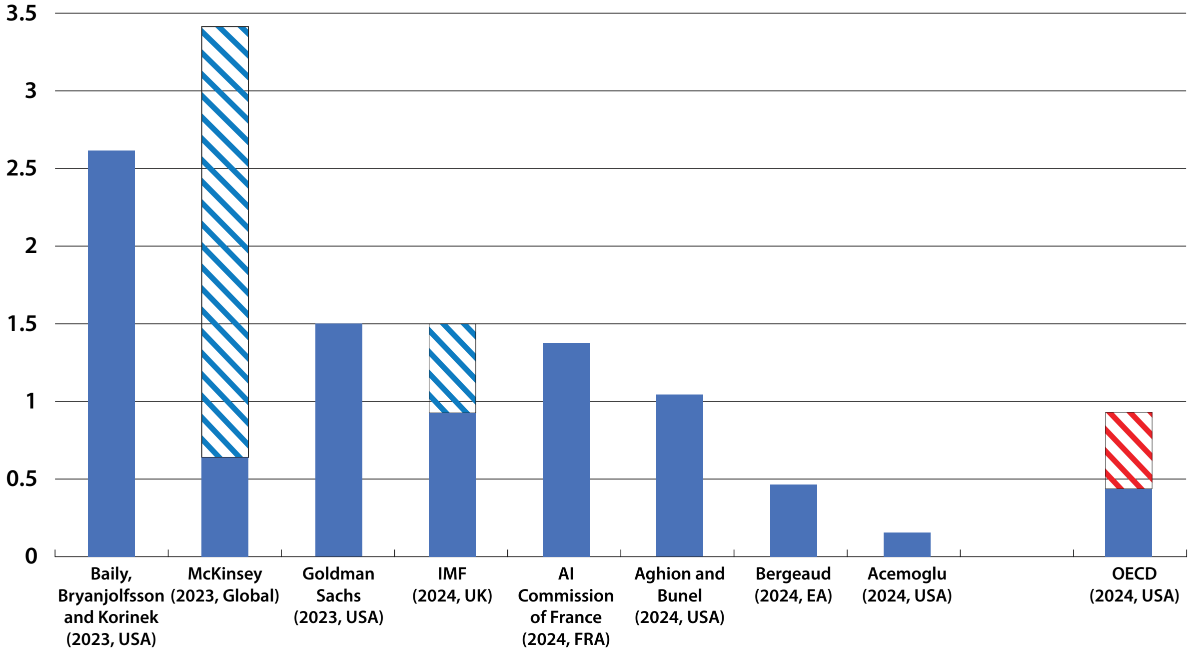
It is agreed that the impact of GenAI and AAI on productivity depends on the pace of adoption and systemic integration into business processes. We should expect a significant impact on productivity as these technologies are understood, adapted, adopted and integrated into production systems. It is still unknown how rapidly this will take place and how widespread adoption will be.

In one view (for example, Acemoglu, 2025) the impact of the new technologies will be limited over the next ten years due to the limited systematic adoption of AI in business. Another view observes and expects a more rapid adoption of GenAI and is more optimistic about the impact of AI on productivity (Bick et al, 2025). The latter paper measures adoption and estimates productivity effects from a user questionnaire. It does not measure productivity impacts directly, its results have been questioned, and the readiness of AI for general adoption is considered overhyped by some (Narayanan and Kapoor, 2025). Firm-based studies exhibit a wide range of productivity outcomes (UNCTAD, 2025) but there is little disagreement that whether the rate is slow or fast, the ultimate impact of AI on productivity is likely to be very significant.

Figure 1.5. AI's predicted annual labour productivity gains over the next ten years across studies

Percentage points

Euro area, the United States, the United Kingdom, and France



Source: UNCTAD (2025)

Regarding the diffusion, adoption and integration of the new technologies, a key issue for global development is whether they will reduce or deepen global inequality.

4. Constraints on the diffusion and adoption of AI

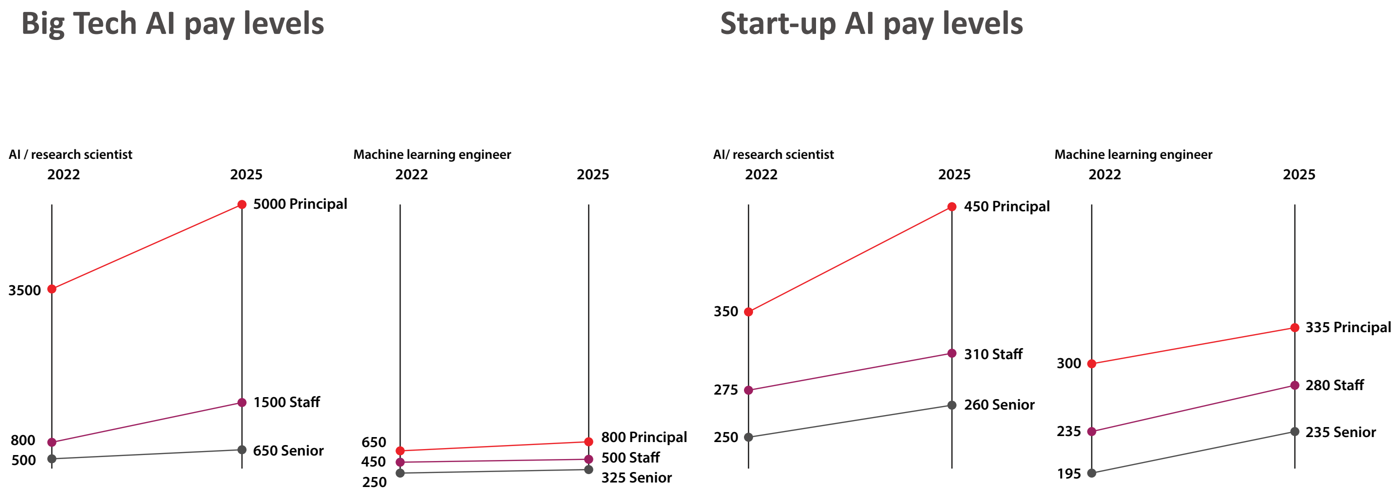
There are constraints, also called bottlenecks, which limit the diffusion and adoption of AI. While there is recent evidence that 'productive firms should be the great winners of the AI revolution, as they are much more likely to adopt AI' (Aghion et al, 2025), we also need to know what the impact on firms, countries and regions will be where productivity is lower. Constraints or bottlenecks are evident in several spheres where industry support and/or market power is exercised.

Talent

Human resource data show how concentrated the market for talent in AI is. There is evidence in employment numbers, salary levels and recruitment patterns. A recent report published in the Financial Times shows the recruitment power of big technology companies. In 'Big Tech' companies AI principal research scientists are paid \$5m per year on average in 2025, compared with the \$450k that the average start-up can offer. Since 2022 the average salary offered principal AI scientists in big tech companies increased by about 43%, versus the 29% increase that start-ups were able to offer.

Some ICT firms are seeking talent in refugee communities. (ITC TASC 2025) The concentration of AI talent in product development is likely to impact on the capacity for diffusion too.

Figure 3: Pay levels for AI talent between 2022 and 2025



Source: *FT Weeknd* (5/6 July 2025)

Cloud/computing power/energy

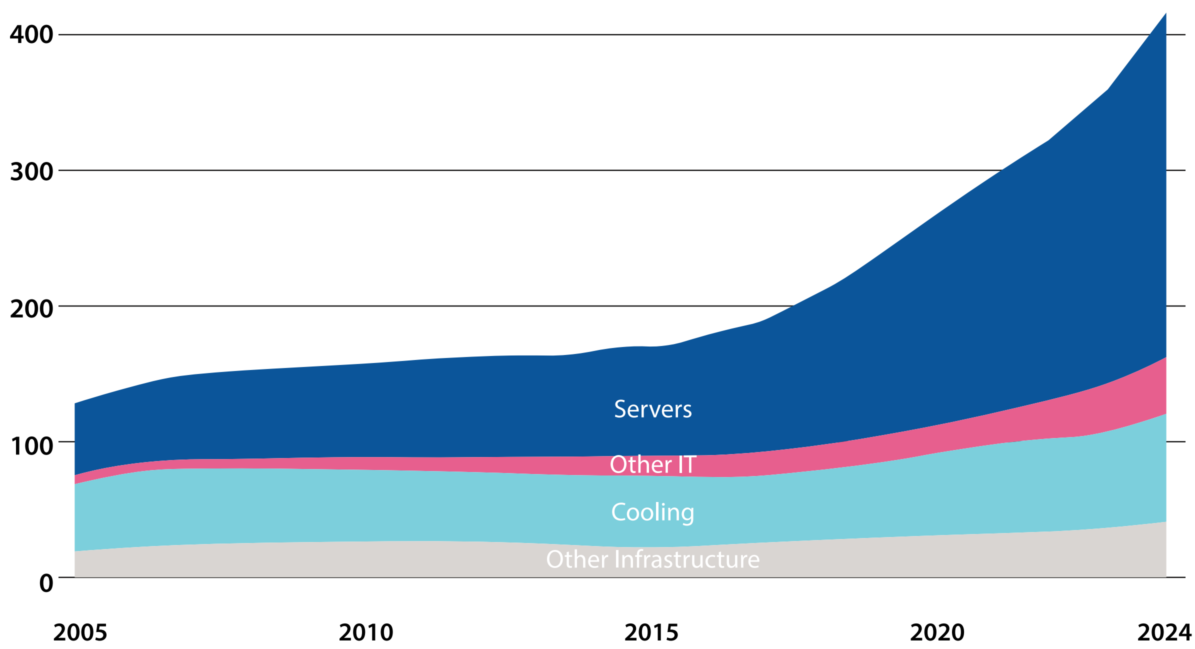
A second area dominated by a small group of very large companies is cloud computing. A recent report noted that three 'U.S.-based companies – Amazon, Microsoft, and Google – dominate almost 70% of the European cloud computing (IaaS) market, while Europe's largest cloud provider holds a mere 2% share' (Bria et al, 2025). 63% of the global cloud offering was provided by the same three companies in the first quarter of 2025 (CloudZero, 2025).

This imbalance may constrain the capacity for development and adoption of new technologies (Stokel-Walker 2025).

The provision of electricity for the data centres which host the cloud and AI computing is a related constraining factor which may deepen inequalities between companies and regions. Energy needs for AI and data centres are great, and demand for energy is rapidly growing. Some data centre operators are planning to build their own small nuclear power stations to supply their data centres and AI computing needs (BBC, 2024).

Figure 4: Growing power needs of data centres

Electricity consumption, TWh



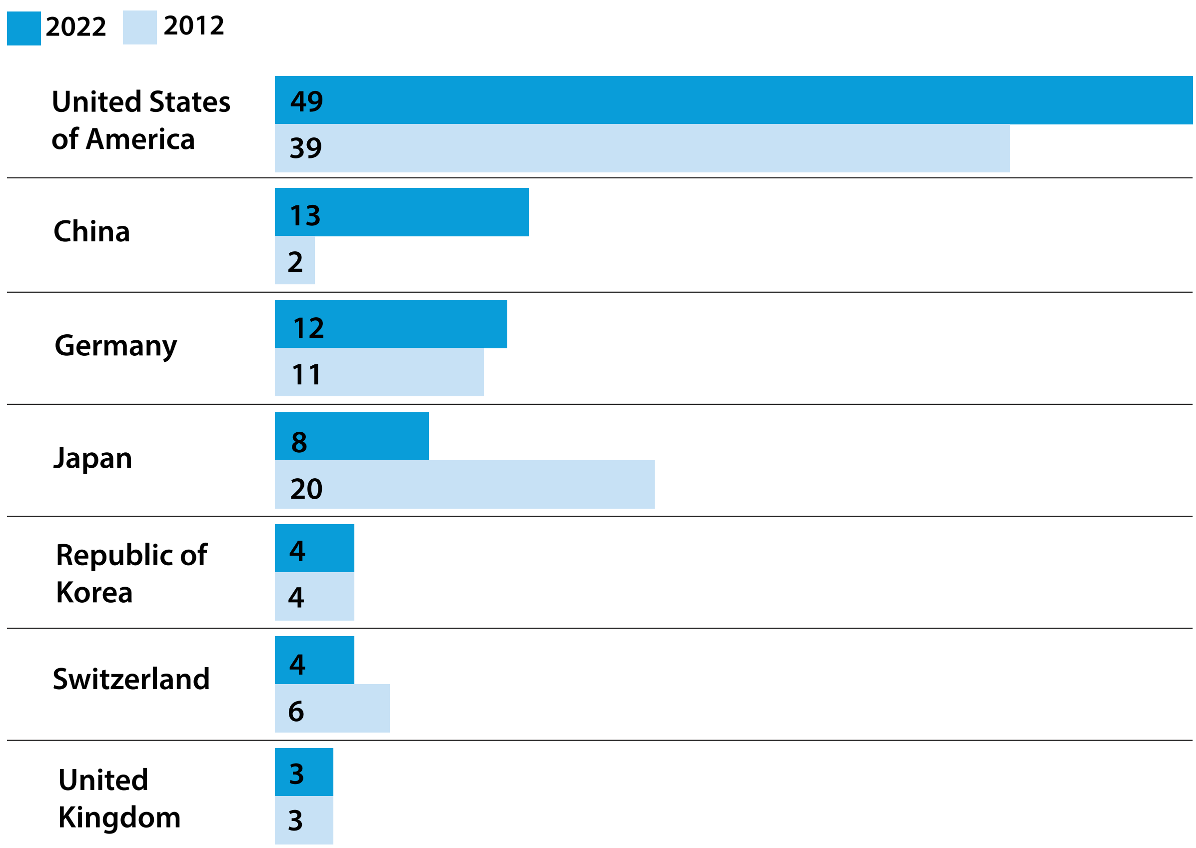
Source: Financial Times, cited in Tooze (2025)

Research & Development

Research in the sector is highly skewed globally. 71% of global R&D spending in software and internet technologies is undertaken by US firms and 15% by Chinese companies, leaving 14% for the rest of the world, including Europe. Since 2017, 70% of foundational AI models have been developed in the United States and 15% in China. However, China's share is growing rapidly, and both figures continue to rise (Bria et al, 2025). Figure 5 shows how R&D in software and computer services is increasingly concentrated in a few countries.

Figure 5: Concentration of Research and Development in leading countries

Share of investment by global top 100 corporate R&D investors, by country; percentage



Source: UNCTAD (2025)

There are some who believe that the long-run risks of concentration are smaller than feared because the long gap in time and large gap in knowledge between innovation and widespread, beneficial adoption are great enough for new approaches to emerge that challenge the current trend to concentration (Athey, 2025). Lazar believes that there is considerable scope in Africa to build new AI models and systems trained on data sources that are relatively untouched (Lazar, 2025).

These perspectives rest on the argument that, under the right conditions and with suitable policies, countries and regions outside of the two dominant AI stacks can also build environments to allow for innovation and effective competition.

5. Proposed diffusion strategies: Better policies, alternative 'stacks' and DPIs

There are competing views about how to reduce global inequalities in the development and diffusion of AI. One view rests on the notion that existing concentrations of data and computing power need to be competed with by establishing alternative national, regional or global sites and systems, sometimes called 'sovereign' data systems, also called 'stacks'. Digital Public Infrastructure (or DPI) as applied to countries such as India and Brazil can be a subset of such a stack.

The idea of sovereign digital stacks rests on the notion that a separate system which includes capacity for software, the cloud, data and energy could facilitate the generation of AI-related industries and the adoption of AI in parts of the world other than the US and perhaps China which is where such stacks currently exist. In Europe there are calls for 'digital sovereignty' arising from the apparent failure of European regulation such as the General Data Protection Regulation (GDPR) and the Data Act to have the desired impact on the use of AI (Bria et al, 2025; Zenner et al, 2025). This approach can include the wide adoption of open-source systems that would democratise access to AI in regions outside of the two dominant players, and well beyond the EU through cooperation with other sovereign stacks such as Brazil and India (in this example). DeepSeek, Meta and ChatGPT 5 have partly or completely open-source systems (Lazar, 2025; Metz, 2025).

In India and Brazil, systems have been built around digital public applications. India and Brazil are not separated from existing global networks but within those they have established massive domestic public applications which represent a degree of autonomy (Teevan et al, 2025). They have sought to promote digital public infrastructure as a developmental tool and this is reflected in G20 processes.

The 2023 G20 New Delhi Leaders' Declaration stated as follows:

> Technology can enable rapid transformations for bridging the existing digital divides and accelerate progress for inclusive and sustainable development. Digital public infrastructure (DPI), as an evolving concept and as a set of shared digital systems, built and leveraged by both the public and private sectors, based on secure and resilient infrastructure, and can be built on open standards and specifications, as well as open-source software, can enable delivery of services at societal scale. In our voluntary efforts to make digital public infrastructure interoperable, we recognize the importance of data free flow with trust and cross-border data flows while respecting applicable legal frameworks (Government of India, 2023).

In 2024, the declaration of the G20 Summit, hosted by Brazil in Rio de Janeiro, included paragraph 29 on DPI, which began as follows:

> We commit to harness the potential of digital and emerging technologies to reduce inequalities. We recognize that digital inclusion requires universal and meaningful connectivity and that digital government solutions are key to improve people’s lives while protecting privacy, personal data, human rights and fundamental freedoms. We acknowledge the contribution of digital public infrastructure to an equitable digital transformation and recognize the transformative power of digital technologies to bridge existing divides and empower societies and individuals including all women and girls and people in vulnerable situations (Brazil, 2024).

The term DPI first described India's public-use technological stack after the introduction in 2009 of the Aadhaar Unique Identification Number (ID) system, an ambitious project designed to encompass the country's population of nearly 1.5 billion. This initiative evolved into what has become known as the 'India Stack', a set of digital platforms once summarised as ‘digital identity, data exchanges and financial plumbing’ (Eaves, 2023). Brazil has several similar systems, but the most striking one is Pix, Brazil's instant payment system, launched by its Central Bank in 2020. Pix allows users to make fast, 24/7, low-cost transfers between individuals and businesses. It has quickly become the most popular payment method in Brazil, surpassing even cash (Kennedy, 2025).

The African Development Bank (2025) has proposed a continental interoperable digital system that would enable the application of AI to raise productivity levels in key economic sectors.
Designing better regulation can complement or substitute for a digital sovereignty strategy. Some current attempts to regulate market power in the information technology sector appear to be difficult to implement and are not effective at achieving their objectives. Evidence suggests that following the enactment of 101 EU digital laws, European firms lost ground to the global majors, and startups were especially hampered (Van Alstyne et al, 2021; Zenner et al, 2025).

Better regulation might focus on insisting on open source and interoperable systems. Policy to avoid increased market concentration and entrenched market power could 'encourage AI adoption by smaller firms going forward – which in turn can be achieved through a combination of competition policy, financial liberalization, training programs, and suitable industrial policy to ease firms' and workers' access to data and computing power' (Aghion et al, 2025).

While there are several global initiatives on AI governance, according to UNCTAD (2025) they have lacked inclusiveness and impact. In the current geopolitical climate agreement may seem out of reach, but an institutionally supported, inclusive global pact on AI development, diffusion and adoption could reduce some of the constraints of the effective harnessing of the power of the new technologies to raise global productivity and, especially in DEs, the wider spread of prosperity.

6. Demographic change

In more than half of the world's countries, hosting two-thirds of the global population, the fertility rate has dropped below the replacement rate of 2.1 children per woman. Globally, the fertility rate averaged 2.3 children per woman in 2023, just over the replacement rate. Over the past quarter century, the fertility rate has declined in 90% of the world's countries. Over the next quarter century, only in Africa between the tropics are fertility rates likely to surpass the replacement rate (Madgavkar et al, 2025).

At the same time, life expectancy is growing in nearly all countries. The combination of declining birth rates and rising life expectancy leads to a fundamental shift in the dependency ratio – the ratio of those who are of working age to those who are too old or too young to work. This demographic transition will be delayed in most of Africa, but only until the latter half of this century.

Focusing on the ageing population, the ‘support ratio’ is the ratio of those of working age, between 15 and 64, to those over 65. The global support ratio in 1997 was 9.4, in 2025 it is 6.5 and in 2050 it will be around 3.1. From 9.4 workers, on average, supporting 1 old person in 1997 to 3.1 in 2050 – one-third of the support (Madgavkar et al, 2025). The result of the huge rise in dependency ratios, *ceteris paribus*, will be a sharp deterioration in income and retirement norms in affected countries.

Older people in AEs consume more than they receive in the form of government pensions. The difference is made up of in-kind payments and income from private savings, and for those who still work, from their earnings. In OECD countries, men are spending 18 years in retirement and women 23 years, compared with 11 and 15 years respectively in the early 1970s (Madgavkar et al, 2025).

Older people also consume more government services than they contribute as taxes. For example, in Spain in 2023, seniors contributed 12% of total tax revenues but consumed more than 40% of government spending, mostly in the form of pension payments and healthcare. Spaniards aged 36 to 45 years delivered 25% of all tax revenue and accounted for just 9% of government spending (Madgavkar et al, 2025).

As the proportion of the population of retirement age grows, the demands on government pension systems and on private savings steadily increase. While the current generation in AEs has benefited from asset growth through house prices and equity investments, there is no guarantee that these markets will continue to be as favourable for future generations. Indeed, housing markets outside of metropolitan cities could stagnate or weaken as populations decline, as in Japan for example (Hashimoto et al, 2020). Moreover, in some AEs assets are very unequally distributed and poorer old people will not have assets to cover the cap between government provision and their spending needs.

One way of limiting or delaying the profound fiscal implications of these trends is to delay retirement. China’s legacy system that allowed men to retire at 60 years and women between 50 and 55 years was overhauled last year, increasing the retirement age for men to 63 years and for women to 58 years. Sweden raised the retirement age and will link it to life expectancy gains. France has tightened early and minimum retirement ages. The age requirements for pension eligibility range from 62 years in Colombia, Luxembourg and Slovenia to 70 years or more in

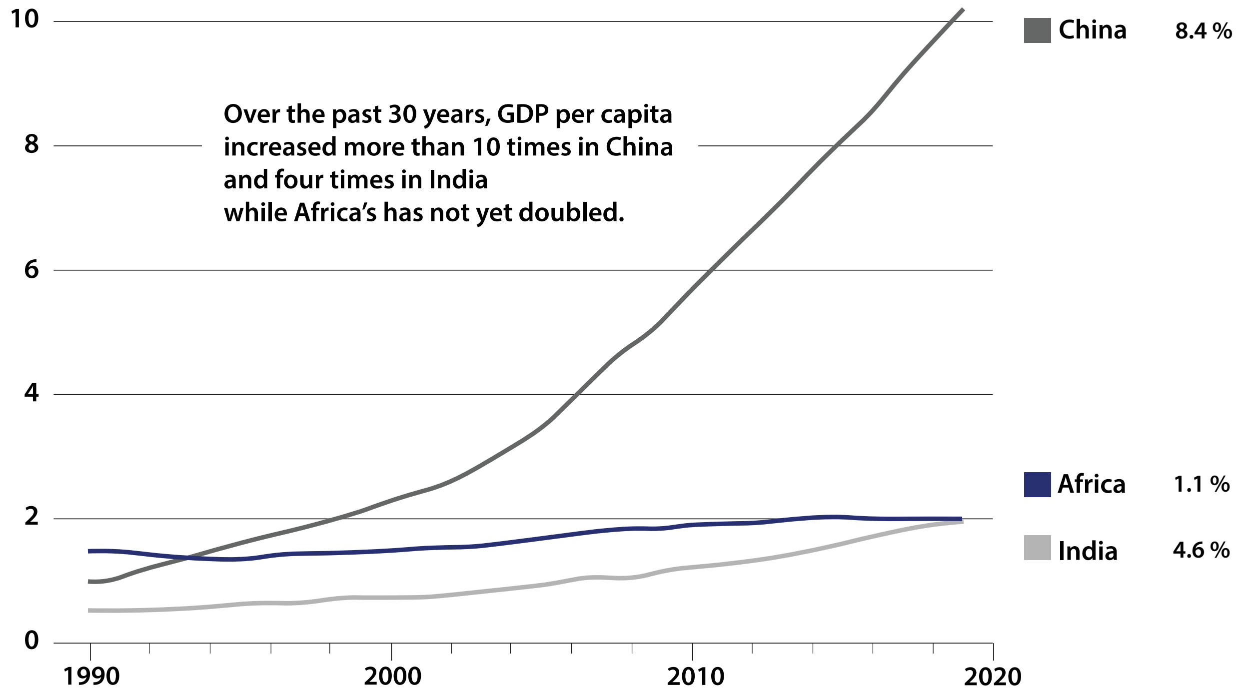
Denmark, Italy and the Netherlands (Madgavkar et al, 2025). But these reforms have limits and ultimately will not sufficiently counteract the effects of rising support ratios in the AEs.

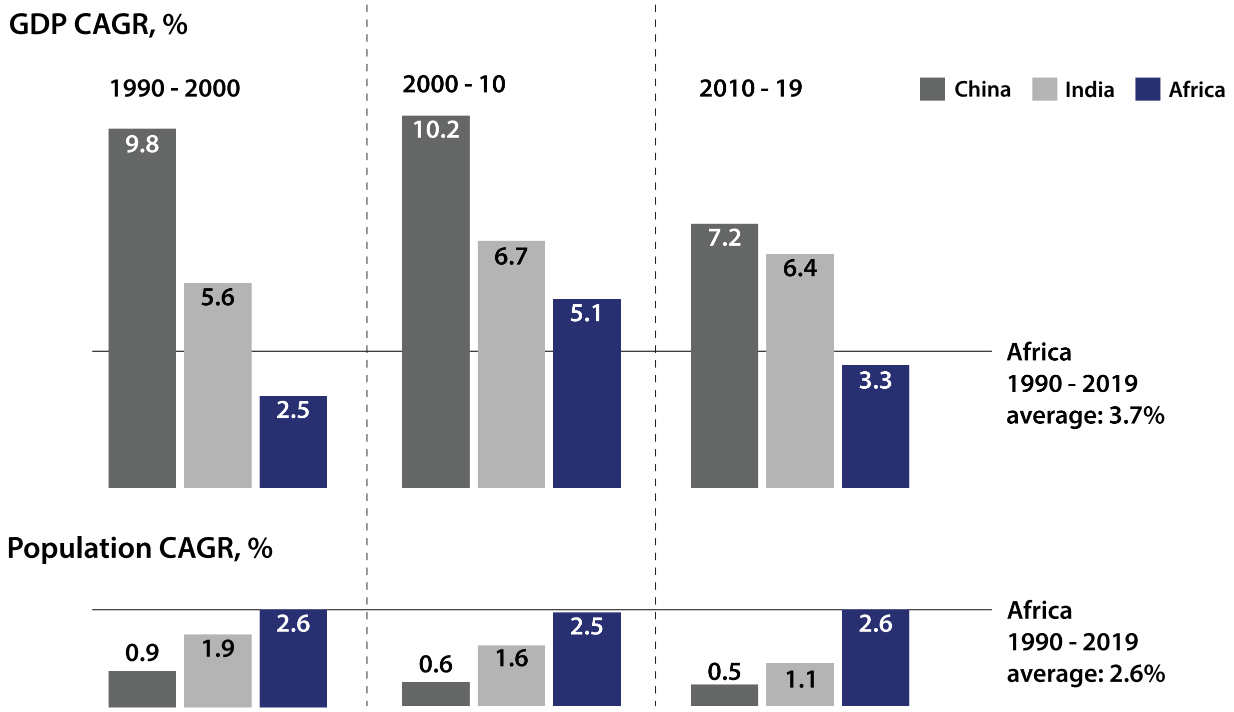
Population ageing also has global distributive effects. Due to patterns of accumulation and the inverted age pyramid in AEs, the larger than previous inheritances bequeathed and gifted by the wealthier in the boomer generation are likely to benefit an even smaller proportion of the global population. In a study of the UK, it was also found that those pensioners with the highest lifetime incomes, who are likely to transfer considerable wealth to the next generation, are also ‘many times more likely to have inherited hundreds of thousands of pounds’ (Hood and Joyce, 2017).

Some DEs are also faced with the challenge of rising life expectancy and an ageing population profile. India’s fertility rate is already below the 2.1% replacement rate at 1.98 and Türkiye’s is 1.63. Fertility rates in Latin America and the Caribbean stand at 1.8 on average, and each of the region’s six biggest economies – Argentina, Brazil, Chile, Colombia, Mexico, and Peru – has a fertility rate below 2.0. By 2050, fertility rates will drop below the replacement rate in 32 more countries in later wave regions, according to UN projections. Africa South of the Sahara will have an average fertility rate of 2.9, exceeding the replacement rate of 2.1, but even there, fertility is falling in many countries (Madgavkar et al, 2025).

In developing economies, the broad economic challenge to living standards is low productivity. Low employment, underemployment, informality and poverty continue to characterise many DEs, especially in Africa. In the demographic context, low productivity presents as a double jeopardy. While living standards are already low for most people in DEs in the current era, there is an imminent threat to the era following the demographic transition. If DEs cannot build relatively wealthy economies during the period of demographic dividend, resources will be inadequate to support the growing population of elderly people later. Indeed, it is already the case in many countries, especially in Africa, that life expectancy is growing in parallel to GDP growth, alongside high rates of fertility, which is why relatively strong growth rates by global standards do not translate into significant per capita income growth. The average growth rate for the continent from 2000–2020 was around 4.2% whereas the average annual per capita growth rate over the same period was only 1.1% (Kuyoro et al, 2023).

Figure 6: Africa's real GDP per capita growth from 1990 to 2000 in comparison to India and China





Source: Kuyoro et al (2023)

While skill levels, infrastructure and governance quality mitigate against investment in productivity enhancing investments in many DEs, the constraints on the diffusion of the new technologies discussed in 2.2.3 above are also constraints on productivity growth in DEs. While improvements in the overall conditions for investment through investment in human capital, infrastructure and trusted institutions is a critical precondition for stronger investment and growth in poorer DEs, constraints on the diffusion of the new technologies to these countries must be addressed too.

7. Addressing the consequences of the demographic transition

There are potentially five ways to address the macroeconomic challenges of demographic trends which would be beneficial to all economies, advanced and developing.

1. Older workers work longer, voluntarily or by raising the retirement age

As already discussed, this strategy has limits practically and politically, and older workers generally lack the strength and stamina needed for many labour-intensive, non-repetitive occupations that will remain with us for the foreseeable future.

2. AI, robotisation and digitalisation of production and services leading to higher levels of productivity

The new technologies will raise productivity in the AEs, but the rate of productivity growth is and is likely to remain slow until systems of production are developed which can fully integrate the current generation of technological advances. Authorities in development economics and computer science believe full integration is decades away (Acemoglu, 2025; Narayanan and Kapoor, 2025).

3. More remote work is enabled by the new technologies, and in new fields

The range of remote work, including that which can be outsourced to workers in DEs is steadily expanding. It is difficult to predict where and how far this trend will go. But there are myriad activities in care, health, other services and construction and maintenance that cannot be outsourced in the foreseeable future.

4. Temporary migration especially in lower-skilled work areas such as personal services, care, catering, construction, farming

Circular migration was common before restrictions emerged in the 1970s (De Haas, 2023). Some AEs have expanded the recruitment of temporary or circular migratory labour in relatively low-skill sectors such as agriculture and construction in recent decades. One of the best-known examples is the Canadian Temporary Foreign Workers Program. Spain has similar initiatives, and the Gulf States draw heavily on circular migrants in lower-skilled occupations. Other AEs and more developed DEs also have systems to manage temporary migrants. Some of these programmes have been criticised for exploitative practices but these are not necessarily a part of the system which can be mutually beneficial and may also benefit source countries.

5. Targeted permanent migration especially of higher skilled workers such as nurses and doctors, and IT/software experts

Despite antipathy towards immigrants exhibited in different ways in many countries, it is not unusual for countries to have selective systems for recruitment permanent migrants, largely targeting those with skills in great demand. Some of these are passive systems such as points awarded to potential migrants to see if they qualify for permanent residence or they are lists of occupations which qualify. Other countries have more active programmes to recruit desired migrants. In recent times there have been more bilateral agreements which facilitate the recruitment of key skills from another country often accompanied by commitments, for example to contribute to further training for such skills in the origin country.

These responses are not alternatives, but are all potentially relevant and could complement each other. The last two examples are explored further in the next section in the context of broader migration trends.

8. Migration

There are frequent references to a migration crisis, mostly in AEs. The current rate of global migration is around 3.7%. The migration rate measures people born in one country and living in other countries as measured in censuses and related statistical exercises (UN, 2026). 3.7% is somewhat above the global average migration rate over the past 150 years or so, of around 3%. Some economic historians believe the rate of migration was greater than current rates in the latter half of the 19th century (De Haas et al, 2020).

It is true that the global rate of migration has accelerated in recent decades and that in some countries the increase in rate of migration has been high, and this is one reason why there is a perception of a migration crisis. Another reason is that standards of living have stagnated in many parts of the world in recent years. There are housing shortages and job quality and the quality of public services have deteriorated for many, leading the belief that the rise in migration is the cause of the current social and economic malaise.

The result has been the elevation of restrictions on migration in various ways in various countries which are destinations for migrants by governments of all political colours.

Yet, as we have established, migration will necessarily be one of strategies to compensate for ageing populations in DEs, both for skilled workers in occupations of high demand (e.g. IT and health) and low-skilled workers in jobs that cannot be done by machines.

New modalities of migration are emerging, referred to as ‘talent partnerships’ or ‘skills partnerships’. Several countries facing skills shortages have developed schemes to attract suitably skilled migrants, in the health and IT sectors, for example, for controlled migration. Often these partnerships, which are formalised through bilateral agreements, entail training, including language training (Hirsch, 2024).

There are also schemes for lower skill workers which may be temporary or circular migration. As earlier noted, many of the jobs that will grow most rapidly in the medium term are in non-repetitive lower skill sectors such as farmworkers, delivery service drivers and builders. In the not-so-distant past when migration rules were more flexible, foreign workers in these sectors were often voluntarily circular migrants (De Haas, 2023). In some countries these circular systems currently operate but under strict rules. Such systems may be increasingly widely applied if the political climate allows.

Whether or not the outcome for source countries of such schemes is net negative or net positive is a matter of debate, but it appears that it depends, in part on the circumstances of the source country. Recent literature leans towards the positive impact of migrant labour for source countries (Batista et al, 2025; Khanna et al, 2024), while impacts for host countries is widely known to be positive, in general, too. Khanna and colleagues show, deploying fine-grained econometric evidence drawn from the Philippines, that the emigration of skilled workers can have a beneficial impact on development in through remittances and increasing the incentives for education in the source country. Batista and colleagues (2025), after reviewing and sifting a large set of studies, concluded that

> the weight of the evidence suggests that migration opportunities often increase human capital stock in origin countries and produce downstream beneficial effects through remittances; foreign direct investment and trade linkages; transfers of knowledge, technology and norms; and return migration.

Work by Bahar et al (2025) shows that returning emigrants can significantly boost the export performance of their home country after they return. Bobie et al (2024) showcase an interesting example in the Ghanaian fashion industry.

In their survey paper, Batista and colleagues (2025) note that the policy environment in the home country, its capacity to expand skill development, relations with the diaspora and domestic conditions for business development all are important factors contributing to the developmental long-term impact of emigration. They note that more research is needed on the policy mix needed to ensure a beneficial effect from emigration and on the impact of emigration on smaller, more vulnerable countries, which are currently less studied.

9. Implications of policy inaction

Unless diffusion and integration of the new technologies is successful, per capita growth will continue to be slow and may even start to decline. Financial instability will be at risk if the macro-economic disruptions caused by rising dependency ratios are not countered.

Unless governments and their partners support the safe diffusion, adaptation, adoption and integration of the new technologies in small as well as large businesses and also in countries currently on the periphery of the new technology revolution, the outcome will be the continuation of slow growth in many parts of the developed and developing world and growing global inequality.

Unless voters and governments agree to a significant measure of managed migration as another part of the response to the macroeconomic effects of the inverted demographic pyramid in AEs, living standards are likely to fall, probably leading to the greater popularity of extremist politics.

In current circumstances, with the growth of global markets stagnating, with rising protectionism, and with very uneven access to the new technologies, the prospects for growth and improved welfare are remote for many developing countries and especially for LICs.

10. Some policy inferences

Rising dependency ratios, deriving from a growing proportion of old people to those who can work, due to lower fertility rates and higher life expectancies raise concerns that growth could slow and living standards could fall in many parts of the world. There are several ways of mitigating this outcome including increasing fertility, encouraging greater participation of women in the labour market, later retirement and healthy ageing, deploying AI and related technologies to raise productivity, and developing new, acceptable forms of skills partnership migration and circular migration. All these approaches may be relevant depending on the circumstances in the countries concerned.

Countries need to plan for deepening fiscal challenges that threaten the quality and availability of government services. Cooperation and the exchange of information on macro-economic reforms will help to address these growing challenges.

The diffusion of the new technologies in most DEs is currently limited by the concentration of access to digital infrastructure, skills and data, among key factors, in a few countries. There is an imminent risk of increasing global inequality due to the slow spread and adoption of the new technologies in DEs, and especially in LICs, unless digital infrastructure, digital ready skills, access to data and levels of investment are significantly improved.

Trends in the development, diffusion, adoption, integration and impact of the new technologies need to be measured globally to understand progress, risks, including macro-economic risks, and development gaps.

Appropriate mechanisms could facilitate the sharing of knowledge on government policies and practices through providing access to knowledge on the optimal deployment of the new technologies, and how policies and practices can be transformed to take best advantage of the opportunities provided by the new technologies in AEs and DEs. They can also share knowledge on how governments can guard against new risks generated by the deployment of the new technologies.

New modalities of migration and remote work are inevitable consequences of current technological and demographic trends. Suitable policies, rooted in evidence, can enable the emergence of new modalities which are mutually beneficial for origin and destination countries.

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