HAYS Recruiting experts worldwide

CREATING JOBS IN A GLOBAL ECONOMY 2011-2030

The Hays/Oxford Economics Global Report
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In partnership with:

OXFORD ECONOMICS

Contents

CREATING JOBS IN A GLOBAL ECONOMY

Foreword by Alistair Cox Chief Executive, Hays plc

Global labour markets are set for an unprecedented upheaval in the next two decades. Employers and governments that fail to recognise this face hardship and instability. That is the stark conclusion of our new worldwide employment report "Creating Jobs in a Global Economy", researched and written in conjunction with Oxford Economics.

The statistics tell their own story. Whilst the world's labour force will increase by more than a fifth by 2030, or by more than a billion people, all of that growth will occur in developing economies. The workforce in most developed economies will plateau, decline and age.

That implies an enormous shift in economic power from the developed to the developing world as that new workforce is put to work and generates wealth. For those of us who have seen the economic shift towards China and South East Asia in the past two decades, all I can say is – you haven't seen anything yet.

And this is the most optimistic scenario where that vast new labour force finds work. The potential political and civil instability that would be caused by unemployment on this scale is hard to contemplate.

At the same time the ageing population in the developed world and their attendant healthcare needs, the anticipated vast spending on infrastructure in developing countries, the continued growth and increasing sophistication of the financial services industries and the shift towards green energy will create huge demands for new skills and specialisms that current educational establishments will struggle to meet. But those with the appropriate skills will find themselves in demand around the globe.

Hays commissioned this research after listening to our clients, from SMEs to multinationals, and their concerns about the continual struggle they already face to secure staff with the appropriate skills. All of them face the same fundamental challenge – a shortage of the right people and skills in the right parts of the world – a world with almost seven billion inhabitants, and with many countries already at record unemployment levels.

This survey suggests that unless governments and international organisations act, those imbalances may worsen. The ageing, developed world may become chronically short of health workers for example, if it continues to impose barriers to the movement of skilled workers whilst the developing will have to compete in a world market for professionals with the experience and knowledge to build their infrastructure.

So today we make a series of recommendations to avert this potential global dislocation of skills and employment. We accept that governments and international organisations are aware of this enormous issue, but too often the policy response is short-termist, piecemeal and parochial. We accept that these recommendations are far easier to make than to act on, but we feel unless there is a vigorous debate on this critical world issue we will continue muddling our way towards crisis and will not exploit the potential that this new workforce represents.

It is one of my favourite facts that the Chinese ideogram for crisis contains the symbols for both danger and opportunity. In the changing shape of the world's labour markets we have a prime example that involves governments, employers and employees alike. Let us all ensure we seize the latter and avoid the former.

HAYS' FIVE POINT PLAN

As a result of the findings of this report, and the pending vast and imbalanced growth in employment over the next 20 years, we propose a five point plan for governments, international bodies and multinational companies to consider in their policy development. We appreciate these things are far easier to say than to do but we feel that unless governments and businesses approach this issue strategically, the opportunities will be lost and the difficulties will be magnified.

1. **Keep national borders open for the movement of skilled labour**
   This report demonstrates there needs to be a massive transfer of skills and labour between the developed and developing worlds, in both directions. The developing world will need thousands of skilled engineers from US and Europe whilst there will be huge demand for health workers in the other direction. Labour protectionism will only cause hardship and ultimately stunt world economic growth.

2. **Agree an international code to facilitate employee migration**
   At present policy on skill migration is decided on a national or at best regional level, despite the fact that these are global trends. This creates a piecemeal, and often infuriatingly complex and inefficient set of rules governing the movement of labour. We would like to see these issues debated on a world scale, through the G20 or similar body to agree a code to govern the enormous cross-border flows of skilled labour that this report predicts.

3. **Invest in training and education**
   This report shows that the world's labour market will become increasingly 'hour glass' shaped, with semi-skilled workers becoming squeezed out of an automated workplace. To alleviate that trend all governments and companies need to invest in equipping people with relevant skills for our future industries.

4. **Create employment opportunities in the developing world**
   In the past 20 years, there has been enormous growth in employment in China, as the population there has increased rapidly. But the number of people of working age in China will reach a plateau in the next 20 years and attention must move elsewhere, to the Indian subcontinent, Latin America and Africa. This vast new workforce represents a huge opportunity for those who can tap into it, or potential dissatisfaction and unrest if it is left idle.

5. **Retain older people in the workplace**
   Over the next 20 years developed economies will become increasingly reliant on the contribution from workers aged 60 or over. Many countries such as Britain have already passed anti-discrimination legislation to enable older people to stay at work and remain productive, but there is more to be done. Given the dependence many countries will increasingly have on an ageing workforce, governments should consider tax incentives, retraining, and other provisions to persuade people to extend their working lives. Employers need to consider how they can best take advantage of the years of valuable experience older employees bring, whilst ensuring their skills are kept up-to-date as industries develop.

For employees our message is simpler – be flexible. Be prepared to reskill throughout your career to address the rapidly changing environment and be willing to relocate, potentially overseas, to find the best market for your skills. And plan on a longer working life – the days of automatic retirement at your 60th or 65th birthday may soon become a thing of the past.

EXECUTIVE SUMMARY

Structural shifts

- The market for skilled labour is set for a major transformation between 2010 and 2030. A number of structural shifts in demographics, macroeconomics and technology pose threats and opportunities to governments and firms in developed and developing countries.
- Over the next 20 years the working age population will increase by 21%. Developing countries will see an increase of 931 million workers or 24%, but the workforce in the developed world will contract by one million. This will increase the economic power of developing countries.
- This shift in the balance of power will be reinforced by a structural shift in employment away from agriculture towards manufacturing and services. As these are higher productivity sectors, it will boost developing countries' share of world output.
- The increase in globalisation over the next 20 years is expected to expose more markets and products to competition. This is likely to lead to more jobs being displaced from high-wage to low-wage economies.
- Globalisation also offers opportunities to developed economies. Exporters of goods and services have access to more and larger markets with rapidly growing income per capita. Increased trade should also boost demand for intermediary services.

Skills in demand

- The increasing importance of some developing economies' skilled labour markets will be given a further stimulus by increases in the number of people with higher level qualifications.
- Despite the growth in their working populations, the switch to more productive sectors and increase in skilled labour, developing economies may still be hindered by a lack of experienced skilled workers in the short term. High quality university education means developed countries will remain key suppliers of skilled labour.
- Technological change and computerisation will create an 'hour glass' labour market. Demand for high- and low-skilled occupations is likely to expand, but semi-skilled jobs will be lost.
- Larger emerging economies are likely to increase infrastructure investment. This will boost demand for skilled construction workers and labour in the engineering and mechanical goods manufacturing sector.
- Demand for financial service workers over the next 20 years is forecast to grow most rapidly in those countries that already have large financial sectors. The sharpest growth will be in UK, US and Australia.
- Climate change will create demand for skills in green energy production, designing environmental taxes and regulations and improving infrastructure. Evidence indicates this will offset jobs lost in industries closely associated with fossil fuel production and usage.

The ageing challenge

- Older workers are likely to constitute a larger proportion of the working population in many industrialised countries particularly in Europe.
- Older workers exhibit different characteristics from their younger counterparts. They have a greater tendency to be self-employed, part-time or temporary workers. It is not yet clear whether this reflects their preferences or is driven by what employers want.
- Older workers tend to change jobs and employers less frequently and are less likely to be geographically mobile. This may add to a skills mismatch over time.
- While older workers have acquired skills over time, there is a risk they have become outdated with negative impacts on innovation and productivity. A principal policy issue is the need to maintain the relevance of older workers' skills.
- Ageing populations in many developed countries are likely to increase the demand for healthcare workers over the next 20 years. As the ratio of workers to the elderly declines this will increase pressure to recruit from abroad.

1. A TALE OF TWO WORLDS

Key points

- The next 20 years will see an increase of more than 20% in both the world's total population and in the number of those of working age – the productive population.
- But the growth will be wholly confined to the less and least developed countries, which will see their populations grow by 534 million and 398 million respectively between 2010-30. Developed countries will see a one million decline.
- This will increase the relative economic importance of developing countries.
- This shift in economic power will be supported by a structural shift within developing countries away from agriculture towards industry and services. As these sectors have high productivity levels, this will further enhance developing countries' economic power.
- This transition needs to be supported by investment in infrastructure and skills.
- Developing countries are overtaking developed nations in terms of numbers of university degrees but doubts over the quality of education means many will still look to the West to fill skills shortages.

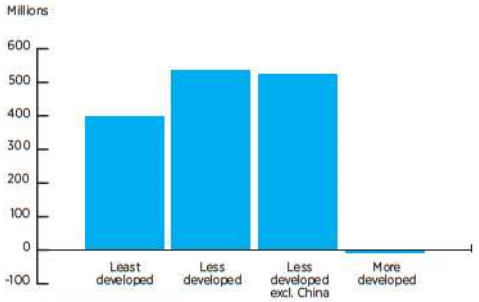
CHANGES IN THE GLOBAL POPULATION MIX

1.1 How will labour markets change between 2011 and 2030?

The world's population is set for rapid expansion. The United Nations projects the number of people will increase to 8.3 billion by 2030 from 6.9 billion in 2010, a rise of just over 20% or 1.4 billion. The population of working age is also predicted to grow, by 21% or 931 million people between 2010 and 2030. But this expansion in the productive population will not be evenly spread around the globe. More than half of the increase in working age population, or 534 million people, will come from less developed countries while 398 million are expected to come from least developed nations.

While two groups will account for an increase of 932 million, the size of developed economies' population of working age will stagnate – in fact contracting by one million people. This in turn means there will be a dramatic shift in the global distribution of labour that will increase the long-term economic importance of the developing economies.

Chart 1-1: Change in working age population between 2010 and 2030



Source: Oxford Economics and UN

But this conceals equally dramatic shifts in population within both the developed and developing worlds. Within the developed world some countries will see falls in their working age population while others will see rises over the coming 20 years. Helped by immigration and relatively high birth rates, developed countries such as the US will see their working age populations rise by 18.1 million.[1] Others in contrast will see their populations shrink, with some of the greatest falls predicted for Japan (13.0 million people or -16%) and Germany (8.1 million people or -15%).

The disparate demographic trends in the developed world can also be found in the developing world. India (up 241 million people), Pakistan (up 62 million) and Nigeria (up 54 million) are forecast to experience the sharpest increases (Table 1-1). In contrast, developing nations such as the Russian Federation (down 16 million), Ukraine (down six million) and Romania (down 1.7 million) will see their populations contract significantly over the next 20 years (Table 1-2).

Table 1-1: The 25 countries forecast to experience the fastest growth in population of working age between 2010-30

RANK	COUNTRY	PEOPLE (000S)
1	India	241,116
2	Pakistan	62,930
3	Nigeria	54,330
4	Bangladesh	34,850
5	Ethiopia	34,591
6	Indonesia	31,770
7	DR of Congo	28,953
8	Philippines	23,648
9	Egypt	20,675
10	Tanzania	19,774
11	Brazil	18,412
12	US	18,132
13	Uganda	17,435
14	Kenya	16,177
15	Sudan	14,339
16	Iraq	13,911
17	Mexico	13,309
18	Afghanistan	13,282
19	Turkey	11,296
20	Yemen	11,089
21	Iran	10,699
22	Vietnam	10,452
23	China	9,944
24	Nepal	9,124
25	Niger	8,915

Source: Oxford Economics and UN

Table 1-2: The 25 countries to experience the sharpest falls in population of working age between 2010-30

RANK	COUNTRY	PEOPLE (000S)
1	Russian Fed	-16,997
2	Japan	-13,037
3	Germany	-8,124
4	Ukraine	-6,071
5	Poland	-3,967
6	South Korea	-3,723
7	Italy	-3,014
8	Romania	-1,677
9	Belarus	-1,154
10	France	-1,061
11	Bulgaria	-1,059
12	Cuba	-792
13	The Netherlands	-676
14	Hungary	-675
15	Czech Rep	-604
16	Portugal	-526
17	Georgia	-522
18	Rep of Moldova	-489
19	Greece	-448
20	Lithuania	-411
21	Croatia	-396
22	Bosnia & Herz.	-388
23	Austria	-387
24	Slovakia	-386
25	Singapore	-338

Source: Oxford Economics and UN

Size does matter: changes in working age population can be an important factor in boosting economic growth. Countries with growing populations offer a larger pool of labour, and a bigger potential consumer demand.

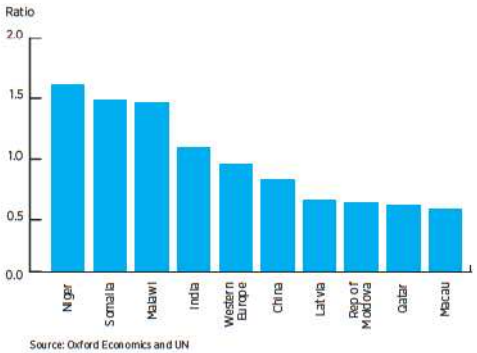
1. The working age population of the US is forecast to increase by 8.5% over the next 20 years.

1.2 Hatches, matches, dispatches: the factors behind the numbers

The driving force behind these contrasting changes in population is the outlook for birth rates in these countries. In Europe the fertility rate – the number of live births occurring in a year per 1,000 women of child-bearing age – peaked after the Second World War and has been falling ever since. This has two impacts on the size of the working population. The first is that the number of people joining the workforce will decline. In Eastern Europe the pattern is particularly noticeable. Here the ratio of children (5-14 year olds) to younger workers (15-24 year olds) is around 0.7, which implies that the number of new workers entering the labour force will decline significantly over the next ten years.

As Chart 1-2 shows, there is a markedly different pattern in Sub-Saharan Africa where the ratio is well above 1, with new entrants driving the expansion of the working age populations in these countries.

Chart 1-2: Ratio of children (5-14 years old) to young workers (15-24 years old) in 2010

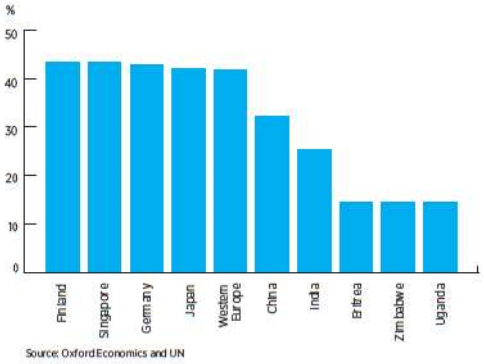


Source: Oxford Economics and UN

India will continue to experience a demographic boom. The number of new entrants to the workforce will continue to rise (the ratio of children to young workers is 1.06) and the working population will expand by 241 million to reach over one billion by 2030.

Falling fertility rates will also have the effect of reducing the ratio of the working age population to those of pensionable age. This is particularly the case in developed countries where life expectancy is on the increase. In Western Europe a very high percentage of the working age population will retire over the next 20 years. As a result, 42% of the current working age population will retire in or before 2030 (Chart 1-3). In contrast, in India the share is 25% and in Sub-Saharan Africa it is around 15%. This highlights the fact that shrinking labour forces in the developed world will primarily be caused by the retirement of the 'baby boomer' generation, who will leave a big gap in the working age population.[2]

Chart 1-3: Share of working age population that is 40-64 years old in 2010



Source: Oxford Economics and UN

One child fits all: China's unique profile

China's demographic experience over the next 20 years will be unique. While it is a developing country with relatively low per capita income, it shares many of the demographic characteristics of Western Europe and North America. The imposition of the One Child Policy in 1978 has resulted in the number of new entrants to the labour market falling in each generation. This will continue over the next decade (the ratio of children to young workers is 0.8). Coupled with improvements in living standards it has also generated a relatively large group of potential retirees, with 32% of the current labour force expected to retire over the next 20 years. China's working age population is expected to peak in 2025 and number around one billion in 2030.

2. This trend will be at least partially offset by rising retirement ages in the developed world.

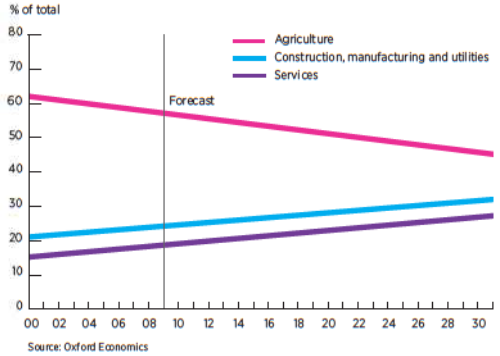
1.3 Structural changes

The two-speed growth rates in working age populations in the developed and developing worlds raise important questions about the sort of work this larger workforce will do. Globalisation has already seen profound changes in working patterns. In the developed world most workers are employed in the services and high value-added manufacturing sectors, but this is still not the case in developing countries. Although industrialisation in China and India is happening at a rapid pace, agriculture still accounts for 15% and 17% of GDP respectively.[3] The primary sector – which includes natural resources, forestry and fishing as well as farming – still takes up a large share of workers in developing countries because of low levels of productivity. For example, almost six out of ten Indians (58%) are employed in these primary industries.

There is clearly a large potential for major structural changes over the coming two decades. Investment in infrastructure and closer integration of rural areas into national economies should deliver improvements in agricultural productivity. More workers will leave the land as food security becomes less of a problem and increased wealth levels will open up opportunities in manufacturing and services. As these are higher productivity sectors, it will boost these countries' share of world output.

In all newly industrialised economies, infrastructure investment is the key to sustaining the pace of transition from an agrarian to an industrial economy. Using Japan and South Korea as a guide, one can expect agriculture's share of GDP and employment to decline rapidly over the next 20 years in those countries that make those investments.[4] However the pace and smoothness of the transition will be determined by governments' ability to upgrade their infrastructure. India, for example, is being held back by its poor provision of transport, power and telecommunications. The high levels of investment being undertaken to rectify this (see box below) will create opportunities for both individuals and multinational firms. Chart 1-4 outlines how this investment is likely to engineer a shift of employment out of farming and into industry and services.

Chart 1-4: Sectoral shares of total employment in agriculture, construction, manufacturing, utilities and services in India



Source: Oxford Economics

Unfortunately the African continent is not expected to mirror the performance of East Asia. Ongoing civil disputes, weak governance, poor infrastructure and high levels of corruption will limit the ability of Sub-Saharan Africa to fully participate in the global economy in the next 20 years. Africa may boast the raw population but, without infrastructure and good governance, it will be difficult to leverage economic growth. As a result, foreign direct investment will continue to be limited and most of their rapidly expanding workforce will be confined to the primary sector. There are exceptions however: South Africa and Botswana have performed relatively well in the recent past, and as a result both have lifted themselves into the upper middle income group of countries.

Infrastructure investment in India

More than any other developing economy, India's poorly developed infrastructure has placed a significant drag on economic growth in recent years. The government has prioritised investment in transport, energy generation, telecommunications and water management to fully integrate the economy and allow all members of society to benefit from economic growth.

- During the current (11th) five-year plan covering 2007-2012, the government aims to invest $500 billion (7% of GDP) through public-private partnerships in infrastructure.
- The bar for the next five-year plan (2012-2017) has been raised even higher, with the government aiming to double the amount invested to $1,000 billion.

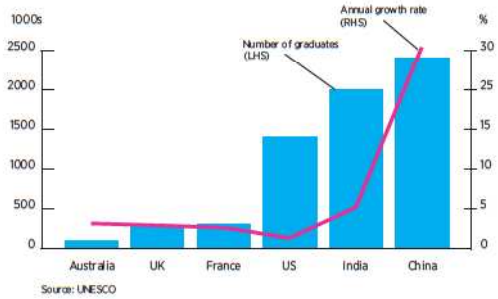
3. In contrast, agriculture accounts for less than 1% of output in the developed world.
4. A. Singh (2007) 'Globalisation, industrial revolutions in India and China and labour markets in advanced countries', Policy Integration Department, ILO, WP No. 81.

1.4 Skilled labour markets

This combination of a growing workforce and a shift into more advanced economic activities raises the question of whether developing countries can ensure that their workers have the skills needed to compete in the global economy. Defining and measuring skills is very hard, especially when trying to take into account the so-called 'soft' skills such as teamwork and the ability to communicate that are just as important to productivity, but even more difficult to quantify.

One method is to look at the number of university degrees awarded. The figures in Chart 1-5 show that the trends in population growth in developed and developing countries are mirrored by the number of people gaining a university education, with the developing nations pushing ahead in terms of the absolute number of degrees awarded. In 2006 China and India awarded 2.4 million and two million degrees respectively, compared to 1.4 million in the US and 275,000 in the UK.

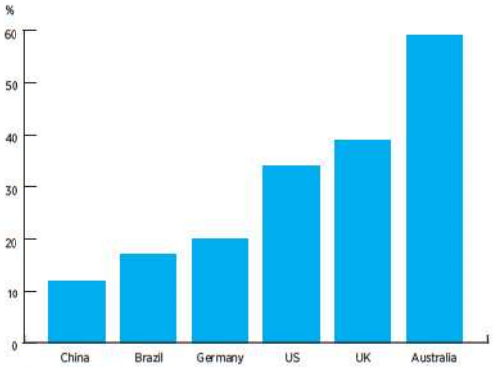
Chart 1-5: Number and growth rate of graduates in 2006 over previous ten-year period



Source: UNESCO

The rapid growth rate in the number of graduates in India and China over the last ten years is also expected to continue into the next two decades. As Chart 1-6 highlights, just 12% of school leavers in China go on to become university graduates (in contrast to almost 60% of young people in Australia). The shares in Chart 1-6 suggest that there is significant scope to increase the number of graduates in East Asia, and the increase in skilled labour in these economies will increase their attractiveness to multinational firms from the West.

Chart 1-6: University graduates' share of their age cohort in 2005[5]



Source: UNESCO

University challenge

The Times Higher Education ranking of universities for 2010 is dominated by America; of the top 200 universities 72 are located in the US. In contrast to this, just six universities in China made it into the top 200. As a result of the higher quality of research, it is likely that the degrees awarded in Europe, North America and Australia and New Zealand will be more highly regarded than in China and India. As a result, graduates in the West (including foreign students who study there) are highly sought after across the world.

This observation also applies to firms; many new start-ups in India and China do not have enough experience to produce the necessary goods, and as a result companies and their skilled labour forces will increasingly be drawn away from the developed world to fill the gap. Over the medium-term this will become less of a problem. To fully compete with universities in the developed world, both in terms of teaching and research, universities in developing countries will have to improve their standards, helped by the expansion of overseas campuses of Western universities.

Whilst the dramatic rises in the number of graduates in India and China suggests that they should be able to satisfy their demand for skilled labour domestically, the quality of the degrees awarded may result in short-term skill shortages in these economies. The UNESCO data that underpin Chart 1-6 assume the quality of degrees to be uniform around the world. This is unlikely to be true. Developing economies will need to make major investments in higher education to close the gap with the West.

However, over the next ten years at least there will be a shortage of experienced skilled labour in developing economies despite the growing number of new graduates. This higher education divide will reinforce the drive of multinationals into developing economies. For governments in developing economies this may raise questions about migration laws. Acute shortages of experienced skilled labour could limit the potential for growth and development, and governments across the world will need to ensure that their migration laws allow the right kind of skilled labour to enter their economies and contribute to its prosperity. Developing countries will see a marked increase in the size of their working age populations while developed countries will stagnate. This will bolster the growing importance of developing countries in the global economy. This trend will be reinforced by a structural shift in employment in those economies away from agriculture towards manufacturing and services. As these are higher productivity sectors, it will boost these countries' share of world output.

1.5 Conclusion

The developed and developing worlds will face different challenges over the next 20 years. Whilst developed economies face a declining worker population, many developing countries will see a significant increase in worker populations which will help their shift to more productive sectors. However, their economies may be hindered by a lack of experienced workers, at least in the short term, and they will continue to look to the developed economies to meet their skills shortages. At the same time, the developing economies will see an increase in the number of people attending university as they seek to plug their advanced skills gap over time.

5. The figure for Germany is very low, but this is due to the differing definitions of a degree across countries, and the variable length of time taken to complete the qualification.

2. GLOBALISATION

Key points

- The post-war era of globalisation has seen large swathes of industries and jobs move from West to East as emerging economies take advantage of lower wages and technological innovation.
- Further advances in technology, increased mobility of capital and closer economic integration are likely to mean that more jobs will be displaced from high wage to low wage economies in the future.
- However, globalisation combined with population growth offers opportunities to developed countries. Rising levels of population and average earnings in the developing world will create expanded markets for consumer goods and services.
- Increased trade should also boost demand for intermediary services that are mostly based in the developed world.
- Developed countries will continue to have the competitive advantage over developing economies in high value added sectors such as pharmaceuticals, aerospace and sophisticated financial services.
- Occupations at the very high-skilled and low-skilled ends of the labour market will expand in terms of jobs and wages but the 'squeezed middle' of semi-skilled workers will contract, leaving rich countries with an 'hour glass' economy.
- Governments must respond to the challenges and threats from globalisation by focusing education and training on high skill sectors while ensuring that workers in declining industries receive support to help them move to new sectors.

A THREAT AND AN OPPORTUNITY

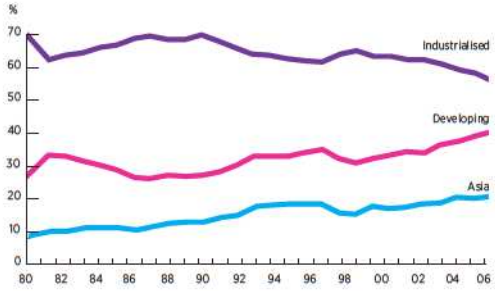
2.1 Rising competition from East Asia

The last chapter showed how emerging and developing economies are set for a massive increase in their populations and a heightened focus on economic activities traditionally dominated by the West. But this transition is only the latest stage in a major structural shift in the make-up of the global economy that has been going on since the end of the Second World War.

At the heart of this transformation is globalisation. Low skilled manufacturing industries such as iron and steel production have all but disappeared from the developed world in the face of intense competition from developing economies, led by countries in South and East Asia. At the same time the Japanese economy has developed and expanded rapidly, overtaking the US in productivity terms in industries such as electronics and car manufacturing. The growth of the Japanese economy facilitated the transfer of technology to lower wage economies in Asia.

The net effect was to fuel a boost in the export capacity of these countries. The share of world exports produced by developing countries has risen significantly over the last few decades, from 27% in 1980 to 41% in 2007 (Chart 2-1). Within developing nations, Asian countries are responsible for most of the growth in their market share. Asia's combined share of exports increased from 9% to 21% over the period, whilst the rest of the developing markets' share has remained relatively constant.

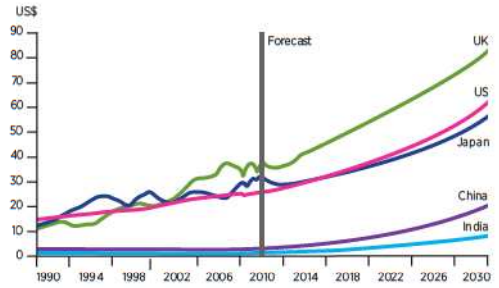
Chart 2-1: Share of world exports



Source: IMF Direction of Trade Statistics

Despite the shock to world trade from the financial crisis, globalisation looks set to be the dominant economic trend over the next two decades, so labour-intensive manufacturing will continue to move to low-wage economies. As Chart 2-2 shows, countries such as China and India are likely to maintain their competitive advantage over the rich countries in terms of wages over the forecast period.

Chart 2-2: Average wages per hour (US$)



Source: Oxford Economics

As China and India invest more in education and training and skills levels rise, they will be better equipped to compete for advanced manufacturing and services not only with the East Asian tiger economies but increasingly with developed countries. One needs look no further than the software industry to see this shift in action. In India, IT development and support already accounts for annual revenues of $73 billion. Over the next decade, growth rates of over 10% per annum will see this rise to $225 billion by 2020, which will make India a global leader. Similar shifts are also happening in China. While low-skill manufactured goods are still the biggest exports, firms are beginning to move up the value chain and out-compete firms in Korea and Taiwan.[6]

This will have a knock-on effect throughout the developing world. China and India are taking advantage of lower wage levels than those seen in the East Asian tigers, allowing them to undercut their rivals to take a greater share of the export market for goods and services. As this success is passed on in the form of higher wages – and there are signs of this shift currently taking place in China – this will allow other economies chiefly in Africa to in turn undercut China and India on wages for lower skilled work. Having said this, it will be a slow process, and given the structural and institutional problems endemic in Africa, China and India will remain comparatively cheap locations for production for the foreseeable future.

6. Cui, L. & M. Syed, (2007), 'The shifting structure of China's trade and production', IMF Working Paper, No. 07/214.

2.2 Developed economies must act to stay competitive

This shift clearly poses a threat to economic growth and employment in developed countries, just as the first waves of globalisation did. But it is important to remember that globalisation offers great opportunities to Western companies. Some industries and jobs will inevitably be lost to low wage economies, but others will grow in importance. It is therefore crucial that governments adopt policies that ensure they are best placed to take advantage of the opportunities.

There are two aspects to this. The first is to ensure that they continue to move up the value chain. Chapter 1 showed how the US, UK and other advanced economies have significant competitive advantage in higher education. Continued investment in this area is vital to ensure that countries continue to nurture the skills needed to compete in the globalised economy.

Europe and North America already have a dominant position in several high value-added sectors. Financial services, information technology, R&D, pharmaceuticals research and aerospace engineering are just a few sectors where the developed world out-competes countries in East Asia. By adopting and adapting to the latest technology and employing highly skilled labour, firms in the developed world will continue to be global leaders in these industries. The reality for newly industrialised economies is that they will find these well-established industries harder to enter, as the experience built up over a number of years of production cannot be immediately undercut by cheaper labour.

The second positive aspect for advanced economies is that globalisation, industrialisation and population expansion in China and India offer many opportunities. This combination will increase the number of potential customers developed countries' firms have access to. Moreover, in many of the developing countries per capita incomes are rising, enabling large numbers of people to afford new products for the first time. This is in stark contrast to saturated developed markets that are still struggling to emerge from recession.

The increasing integration of the global economy will require rising levels of intermediation, to ensure that expectations of both producers and consumers are met in spite of any differences in location. This will result in increased demand for services such as banking, law, consultancy and accountancy, as multinational firms increasingly need to understand how to efficiently move goods and services between their producers and final consumers.

2.3 Technological change, globalisation and the 'hour glass'

The dual package of threat and opportunity that globalisation will bring over the coming two decades will be exacerbated by technological change. In the last 20 years the computer revolution has changed the workplace almost beyond recognition, and this trend will continue over the next two decades. So far, technological change has mostly affected the manufacturing sector, with jobs that involve repeated, routine actions, such as assembly line construction, being replaced by automated machines and robots. Routine service sector jobs, such as bookkeeping, data processing and call centre operation, are also under threat from automation.

On the other hand, non-routine jobs have generally benefitted from the new technology in both high- and low-skilled sectors. Professionals such as managers, doctors and consultants have become more productive and valuable over time. Improvements in technology have taken away many of the routine aspects of occupations that require constant decision-making and analysing information, leaving them more time for the non-routine analysis.

At the same time, demand for labour in routine low-skilled occupations that computers and machines cannot replace, such as cooking, cleaning, building, driving, home maintenance and hairdressing, has increased. Indeed, technology has in some cases enabled them to increase their productivity, such as the computerisation of restaurant bills.

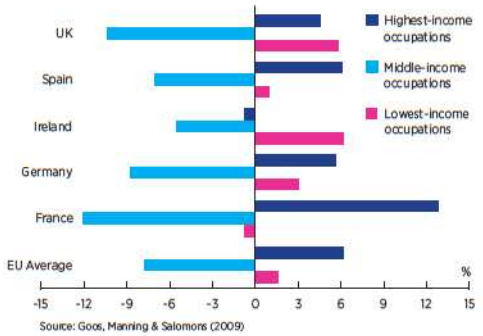
The same will apply to non-routine occupations where face-to-face contact cannot be replaced with a machine, such as in healthcare and education, and so cannot be outsourced. However, while these jobs cannot be moved offshore, recent decades have seen a trend of migrant workers from poorer countries moving to rich countries to take up jobs in sectors such as building, catering and local transport. Assuming that globalisation will not be reversed, this trend is likely to continue.

In the developing world, more advanced emerging economies will continue to attract non-routine occupations such as software support from Europe and North America. As income and skills levels rise in those economies, workers will be less willing to carry out routine assembly line jobs, which workers in poorer developing countries will be well placed to take on, in turn fuelling their economic development.

2.3.1 The 'hour glass' phenomenon: how the middle gets squeezed

The combination of increased employment at the top and bottom ends of the skills ladder will create an 'hour glass' economy, where low skilled and high skilled workers squeeze out the middle group of semi-skilled workers whose job can be outsourced. In the middle are those occupations where computers or machines can perform relatively intricate processes that were typically done by people, such as fitting a car engine. These shifts have already resulted in a hollowing-out of the labour market in the developed world. As Chart 2-3 shows, workers in occupations which placed them in the middle third of the income distribution in the 1990s have seen their share of hours worked fall, whilst conversely the bottom and top thirds have gained.

Chart 2-3: Change in share of hours worked between 1993 and 2006[7]



Source: Goos, Manning & Salomons (2009)

This trend also has implications for relative wage levels across groups. Those occupations that have remained at the top of the income distribution have seen their wages rise relatively quickly over the last decade. However, the middle group in particular has seen stagnation – and even falls – in real terms. The 'hour glass' pattern seen in terms of job numbers is reflected by a similar pattern in terms of earnings growth.

2.4 Onus on governments to act

These trends in the labour market have profound implications for governments in developed economies. Firms in the developed world will increasingly have to compete with developing countries, and innovate to overcome the competitive disadvantage of higher wages. By adopting the latest technologies and employing workers with high levels of skill, the West can still compete, but action is needed from governments to ensure this continues.

Political leaders must act swiftly to ensure that their workforces can both withstand the challenges and take advantage of the opportunities. There are important steps they can take:

- New entrants to the labour force should be encouraged to join industries where technology improvements increase productivity rather than ultimately replace workers.
- Focus on sectors where developed nations have an advantage (such as pharmaceuticals and business services) or that involve face-to-face contact (such as healthcare and education), as these cannot be outsourced to developing nations.
- Workers that are left behind by technological innovation and outsourcing need to have access to retraining and be encouraged to move into industries with a more viable long term future.
- Review the need for social safety nets in the intervening period for affected workers.

This cocktail of technological innovation and globalisation will also have implications for developing countries and particularly for fast-growing emerging economies. On the positive side, the wage differential between East and West will enable East Asian countries to continue to capture service sector activities that can be outsourced. On the other hand, while their development has typically been built on capturing routine assembly line occupations from the West, falling capital costs mean machines can out-compete even the cheapest sources of labour for routine assembly line work that has hitherto underpinned their economic development. Governments in India and China in particular will need to plan for this, and encourage workers to move into more sustainable industries.

2.5 Conclusion

Globalisation is both a threat and an opportunity to developed countries' labour markets. It offers low wage economies greater scope to use wage differentials to attract routine work. But it also offers access to very large markets, where incomes are growing. The growth in trade also offers developed economies' financial and business service firms significant opportunities for expansion.

The policy response by developed economies to globalisation and technological change must be to focus on education and vocational training. This should offer workers the opportunity to acquire the right skills in dynamic changing economies. Social safety nets and retraining opportunities may also be needed to assist workers through that painful transition.

7. Goos, M, Manning, A and Salomons, A, (2009), 'Job polarization in Europe', American Economic Review, Vol 99, pp. 58-63.

3. MIND THE GAP

Key points

- Older workers will constitute a growing proportion of the working population in many industrialised countries. The UN predicts the share of over-55 year olds in the population of working age will increase from 18.2% in 2010 to 20.2% in 2030 in industrialised countries, and in Europe from 17.9% in 2010 to 21.5% in 2030.
- Older workers exhibit different labour market characteristics than their younger counterparts.
- Older workers have a far greater tendency to be self-employed, part-time or temporary workers; tend to change jobs and employers less frequently; are likely to stay in a job for longer; but tend to be less willing to move home or change their job.
- While they have built up skills and knowledge over their careers, there is a risk that their skills become increasingly dated with negative impacts on innovation and productivity.
- It will be very important that older workers have sufficient opportunities to develop new and updated skills. This is likely to require considerable training efforts and investment by both government and employers.

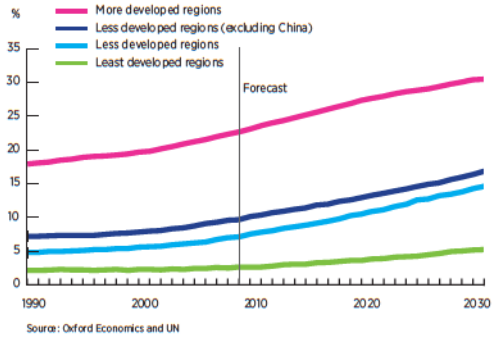
HOW AGEING POPULATIONS OFFER CHALLENGES AND OPPORTUNITIES

3.1 An ageing population

The world's population is not only set for rapid expansion, it is also ageing very fast. This phenomenon is taking place across all types of economy albeit at different paces. Between 1990 and 2009, the percentage of people aged over 55 years old increased in developed economies by 5.0 percentage points (pp) to 27.9%, rose 2.6 pp to 12.4% for less developed economies and by 0.4 pp to 7.6% for the least developed economies (Chart 3-1).

Forecasts suggest this trend is likely to continue. The UN forecasts show the share of the population over 55 years old increases by 7.1 pp between 2010 and 2030 for the more developed economies, 6.7 pp for less developed economies and 2.5 pp for the least developed economies. This reflects two factors. First, people are living longer thanks to advances in medical technologies, improvements in diets and working conditions and, particularly in developing countries, higher standards of sanitation and water quality. Second, fertility rates have declined due to higher standards of living, education and healthcare.

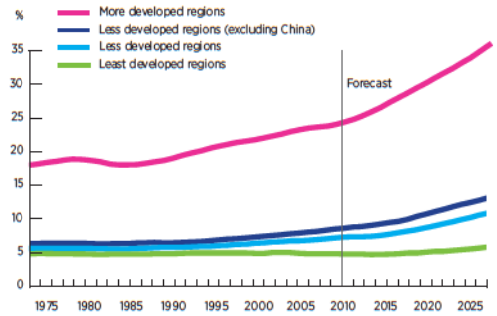
Chart 3-1: Share of population over 55 by economy type



Source: Oxford Economics and UN

One of the consequences of the growing numbers of older people is an increase in the age dependency ratio (Chart 3-2). This is the ratio of people aged over 65 to those of working age (defined using the UN data as 15 to 64 years old). This has adverse implications for the affordability of public sector financed pensions. It explains why various countries have announced increases in the age at which people become eligible for state pensions and reductions in their generosity in real terms (Table 3-1).

Chart 3-2: Ratio of over 65s to 15-64 year olds



Source: Oxford Economics and UN

Table 3-1: Current and announced changes to future retirement ages

COUNTRY	CURRENT RETIREMENT AGE	FUTURE RETIREMENT AGE
France	60	62
Germany	65	67
Italy	60 for women (private sector), 65 woman public sector and 65 for men	Increase of +3 years for each category
United Kingdom	60 for women and 65 for men	66 and 68 in 2044
United States	65	No specific announcements to date
Canada	65	Plans to eliminate mandatory retirement age
Japan	65	Introduced in 2006
Australia	65 men and 63.5 women	Incremental increase to 67 from 2017
New Zealand	65	To follow Australia's example with 67
Brazil	65 men and 60 women	Brazil increased its retirement age in 2003. No further announcements made to date
China	60 for men and 50-55 for women	Consideration of increase in 2035
India	60	Active consideration to increase to 62
Russia	60 men and 55 women	Future consideration to increase the retirement age, 65 for men and 60 for women

Source: Individual country sources

While much of the focus of the debate is on the ratio between workers and pensioners, these trends of greater longevity and longer working lives will have a major impact on the market for active workers. The increase in retirement ages and growing number of older people is likely to increase the share of older people in the labour force. This in turn is likely to impact the skilled labour market as older workers exhibit different labour market characteristics than younger workers. While all countries can expect to see their workforces become tilted more towards older workers, the changes will affect some countries more dramatically. As with the other population patterns, the changes are likely to be largest in developed countries because of the demographic factors outlined in Chapter 1.

3.2 Ageing will have varied impacts on different countries

To give an indication of which countries will be most affected by having a high percentage of older workers, the analysis uses the UN population forecasts for 2010 and 2030 to show the countries with the highest proportion of people of working age who are over 55 years old. As Table 3-2 shows, most of the 25 countries with the largest shares of older workers will be in Europe.

By 2030, the UN forecasts that 26.5% of Italy's potential workforce will be between 55 and 64 years old. Germany, Spain, Greece, Portugal, Austria, Bulgaria, the Netherlands, the Czech Republic, and Denmark are also forecast to appear in the top 25 countries. The average for Europe is forecast to be 21.5% by 2030.

The only region that is forecast to exceed Europe in the proportion of its potential work force over 55 is Eastern Asia at 22.6%.[8] Six out of the seven component countries (excluding Mongolia) are forecast to appear in the top 25 countries by 2030. Of these, three (Japan, Macau and South Korea) appear in the top ten. The clear implication is that the skilled labour markets in the countries identified in the table will change to reflect the higher percentage of older workers.

Table 3-2: The 25 countries forecast to have the highest percentage of people of working age (15-64) that are between 55 and 64 years old in 2010 and 2030

RANK	COUNTRY	2010	2030
1	Italy	18.8	26.5
2	Cuba	14.8	26.4
3	Japan	23.0	26.1
4	Macau	14.1	25.9
5	N. Antilles	16.5	25.2
6	Germany	18.4	25.1
7	South Korea	14.2	25.0
8	Singapore	18.1	24.9
9	Channel Islands	19.2	24.7
10	Spain	16.1	24.4
11	Greece	18.2	24.3
12	Portugal	18.0	24.0
13	Austria	16.9	23.5
14	Bulgaria	20.3	23.4
15	Hong Kong	16.8	23.4
16	Romania	17.5	23.0
17	Slovenia	19.2	22.8
18	Barbados	16.1	22.7
19	Martinique	16.9	22.4
20	The Netherlands	19.6	22.3
21	China	13.7	22.3
22	Bosnia & Herzegovina	17.1	22.1
23	North Korea	11.6	22.1
24	Czech Republic	20.1	22.0
25	Denmark	20.1	21.9

Source: Oxford Economics and UN

3.3 Older workers will offer employers a different mix of skills

Many countries, particularly in Europe, will see a significant ageing of their workforce. But what does that mean for employers and policymakers seeking to exploit the opportunities of globalisation and cope with its challenges? This will become more important as the percentage of older workers in the labour force increases over time.[9] Data suggest older workers exhibit a number of different labour market characteristics from younger ones:

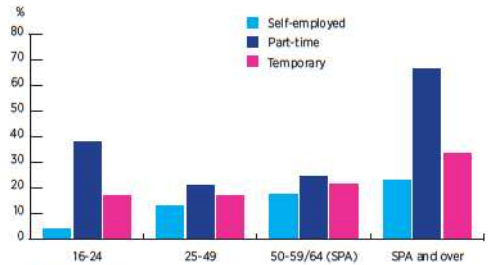
- They have a greater tendency to be self-employed and a lower tendency to be employees.
- The distribution of older workers across industries differs from the rest of the workforce.
- They have a greater tendency to be part-time or work on temporary contracts than other workers.
- Older workers tend to remain with an employer for longer periods of time than other workers.
- Involuntary separations are lower for older workers than younger ones.
- If older workers become unemployed, they tend to remain jobless for longer durations than other workers.

It is worth examining each of these phenomena in detail as they contain different lessons for employers seeking to get the most out of their available staff.

3.3.1 Self-employed vs employees

Research shows self-employment rates increase with age, rising sharply after the age of 60 years old.[10] This is confirmed by official data for the UK that show 22.8% of those over the state pension age (SPA) are self-employed compared with 12.7% of those aged 25 to 49 years old (Chart 3-3). This may be explained by the self-employed not adhering to normal retirement age practices common amongst employees, or that significant numbers of ex-employees become self-employed after retiring from their employee jobs.

Chart 3-3: Percentage of all people who are in employment who exhibit certain characteristics in the UK in 2009 Q2



SPA is State Pension Age
Source: ONS

Older workers' greater tendency to be self-employed may reflect their skill sets and resources. It may only be possible for people to go self-employed when they have accumulated sufficient human and financial capital. The human capital is likely to include both the technical skills to produce a product or service that customers want and the managerial ability to run a business. These skills take time to accumulate.

Older workers may also prefer being self-employed, as it can be a more flexible way of working. It offers the ability to work fewer hours (consistent with older workers' greater tendency to work part-time) and the choice of when to work. This may also reflect a preference for a staged retirement – with people reducing the hours they work as they get older, rather than switching from full-time employment to retirement.

It is worth pointing out that the impact on employers will vary depending on whether the decision is one that tends to be taken by the worker (supply-led), or is one which is guided by what businesses want (demand-led). If older workers' greater tendency to be self-employed is supply-led, it is likely to reduce the supply of skilled labour available for businesses to recruit. However, if it is demand-led then it is a sign that older workers will change their work patterns to fit employers' needs. As of now, it is unclear which factor is dominant.

8. Eastern Asia includes China, Hong Kong, Macau, S. Korea, Japan, Mongolia, and N. Korea.

9. For an excellent overview of the impact of population ageing on the labour market see Dixon, S, (2003), 'Implications of population ageing for the labour market', Labour Market Trends, Office for National Statistics, February.
10. Weir, G, (2003), 'Self-employment in the UK labour market', Labour Market Trends, Office for National Statistics.

3.3.2 Differences across sectors

Older workers are more likely to work in health and community services, education and government and administration. Research by the New Zealand Department of Labour showed the share of older employees working in those sectors was 4pp higher than for all employees.[11] Older workers were less likely to work in retail, hotels and catering, and finance and insurance. In fact, the share of older workers working in the retail sector was 5pp less than all workers. As the share of older workers in the labour force grows, it is these private sector industries that are likely to feel the significant changes in labour supply.

3.3.3 Greater tendency to work part-time or temporary

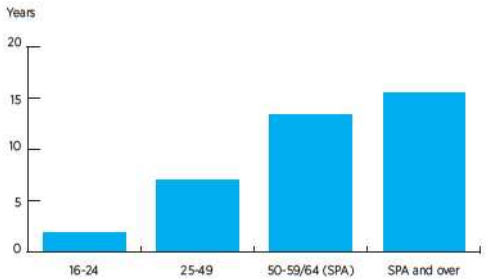
Official data suggests older workers have a greater tendency to work part-time or work on temporary contracts than other workers. Chart 3-3 showed that 25% of people with a job aged between 50 and the SPA were employed part-time. This rose to 66% for employees above the SPA. These compare with 21% for those employees aged 25 to 49.

Just over a fifth (21%) of people with a job aged between 50 and the SPA were employed part-time. This rose to a third (33%) for those beyond the SPA, compared with 17% for those aged 25 to 49. Again, the implications for employers will vary depending on whether this trend is driven by workers' desires or by businesses' needs. If it is supply led, it could be a sign that workers wanted staged retirement to help alleviate pension worries. If this is the case, then the availability and range of part-time and temporary employment opportunities will become increasingly important as populations age.

3.3.4 Older workers have greater loyalty

Older workers tend to remain with an employer for longer periods of time than other workers. Official UK data shows that the average time in current job is 15.5 years for those employees over the SPA and 13.4 years for those between 50 and SPA (Chart 3-4). This compares with 7.1 years for those employees between 25 and 49 years old. The New Zealand data show mean job tenure was about twice as long for older employees compared with prime-aged employees.

Chart 3-4: Average length of time UK employees have been in current job by age group



SPA is State Pension Age
Source: ONS

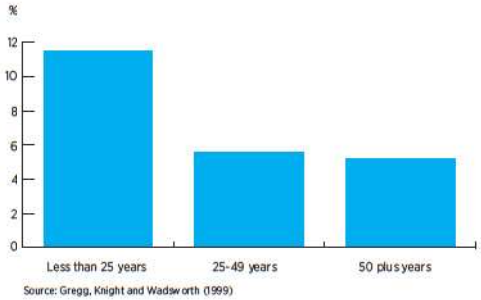
There are both positive and negative reasons why older workers may typically remain with the same employer for a longer period of time. On the plus side, older workers are more likely to have found a good match between their skills and the job through career changes earlier on. Economists believe another reason is that many employers, often in large organisations, remunerate employees according to tenure or seniority in order to retain workers and reduce turnover costs.[12] One form of remuneration that may be particularly important in incentivising older workers to remain with their current employer is a good pension scheme. On the other hand, the reason may be that the costs of voluntary redundancy increase over time, making it more expensive to dismiss older workers.

This tendency to stay with an employer feeds through to lower rates of geographical and occupational mobility. Research has shown that regional migration rates decline with age, peaking among young adults and typically decline with age until retirement.[13] Job changes incur costs (for example, moving home) which older workers have less time to recoup than younger workers. Lower voluntary separation rates may also reflect the difficulties older people have relative to younger workers in getting jobs (discussed in 3.3.6).

3.3.5 Involuntary dismissal or redundancy is less common

The rate at which older workers leave their existing employer because of redundancy, dismissal or termination of a temporary contract declines with age (Chart 3-5).[14] This may also reflect the higher costs of dismissing older employees with many years of service compared with younger ones, as many redundancy schemes are linked to years of service. It may also be that firms value some of the characteristics that older workers exhibit (for example, lower absenteeism) and so select other workers for redundancy.

Chart 3-5: Rate at which workers in different age groups lose their jobs through redundancy, dismissal or termination of temporary contract per year in the UK (1991-1996)

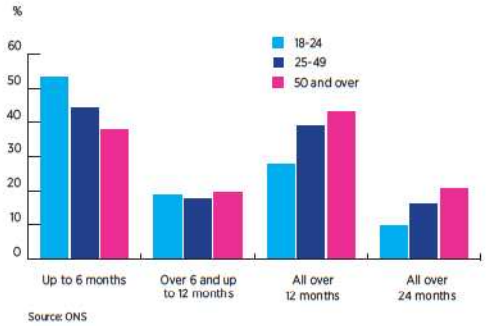


Source: Gregg, Knight and Wadsworth (1999)

3.3.6 Jobless older workers take longer to find new work

If older workers are made unemployed, they tend to remain unemployed for longer durations than other workers. Official UK data shows the share of each group of unemployed people who have been unemployed for various lengths of time (Chart 3-6). The 50 and over age group has the highest share of people who have been unemployed for over 12 months and 24 months. It has the lowest share of the two durations of unemployment under a year.

Chart 3-6: Unemployment durations in the UK by age group in October to December 2010



Source: ONS

There are a number of possible reasons why older workers struggle to get back into the labour market:

- Employers hiring new staff incur considerable training costs, which they have less time to recoup from an older worker.
- If older workers prefer part-time employment, they may find that jobs that require team working cannot accommodate part-time workers.
- As stated above, older workers tend to be less occupationally and geographically mobile, and so less willing to move to secure a job.

These disadvantages are offset by some of the merits of hiring older workers already discussed. Although they have fewer expected years on the job, they have lower propensity to voluntarily separate from the firm. Older workers will be best placed to compete against younger ones where technology changes rapidly. As a result, the skills required can be acquired and depreciate relatively quickly, so older people's shorter employment time frame is less important.

3.4 Conclusion

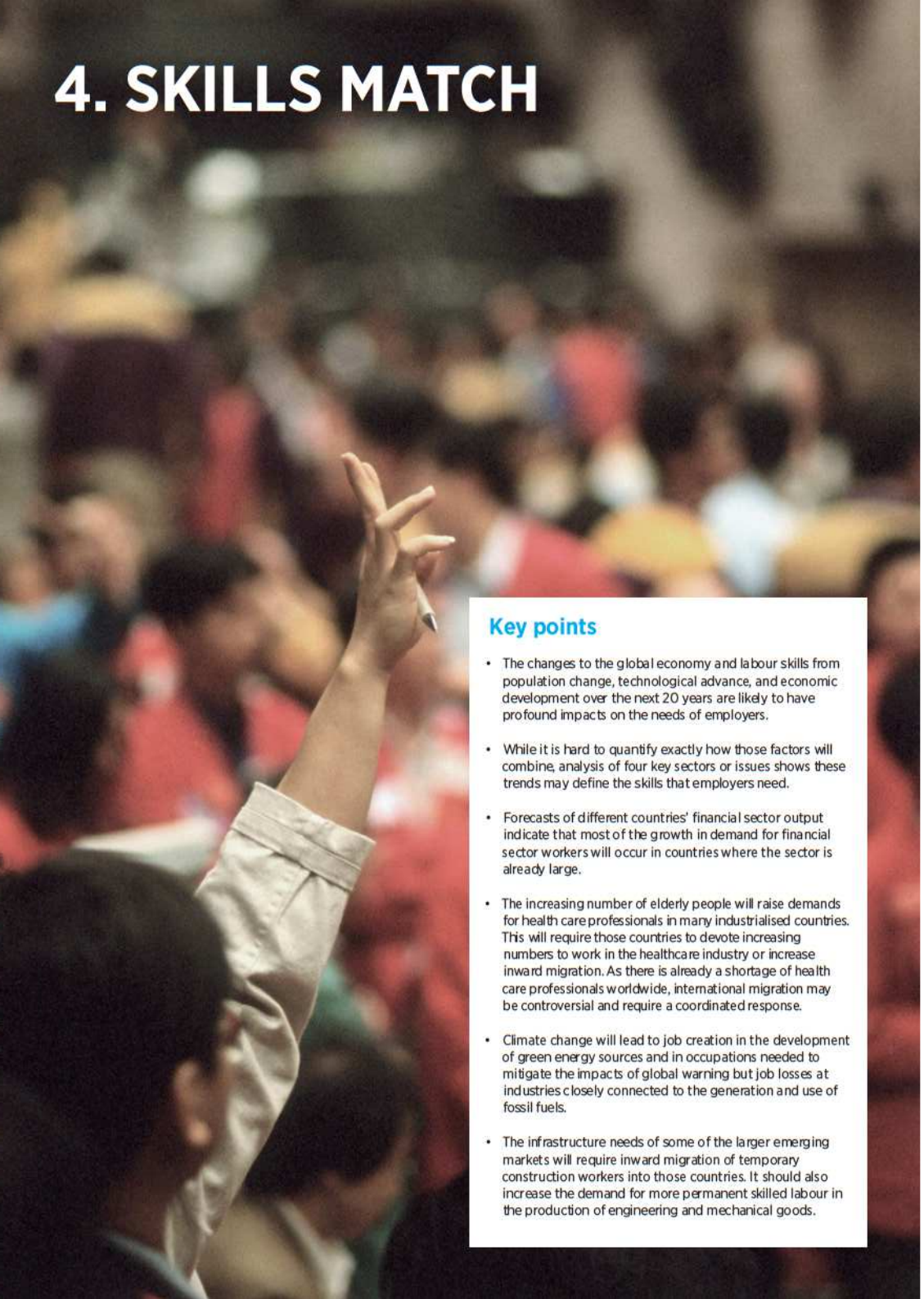
The productive population is becoming increasingly old, especially in Europe where a fifth of workers will be aged 55-64 by 2030. Older workers exhibit different labour market characteristics than their younger counterparts. They have a far greater tendency to be self-employed, part-time or temporary workers; stay with an employer for longer; and are more likely to work in public services than in the private sector. While they may build up skills and knowledge over the years there is a risk these skills are obsolete and the costs of retraining will be discouraging to employers.

The challenge for the economy, businesses and policy makers is to understand why older workers are over-represented amongst the self-employed, part-time and temporary workers. If it reflects older workers' preferences, the challenge is to ensure the labour market delivers sufficient range and quality of part-time and temporary roles. If it is demand-led, the issue is how to prevent the mismatch between older workers wanting to work in full-time permanent jobs, yet only being offered part time or temporary roles.

It will be very important that older workers have sufficient opportunities to develop new and updated or up to date skills. This should lower skills mismatch and foster occupational mobility. This is likely to require considerable training efforts and investment by both government and employers.

11. Department of Labour, (2009), 'The working patterns of older workers, New Zealand Government.
12. Groot, W, and Verberne, M, (1997). 'Ageing job mobility and compensation'. Oxford Economics Papers, 49, pp380-403.
13. Champion et al. (1998), 'The determinants of migration flows in England: A review of existing data and evidence', Report for the Department of the Environment, Transport and the Regions.
14. Gregg, P, Knight, G, and Wadsworth, J. (1999) 'The Cost of Job Loss'. In The State of Working Britain, edited by Gregg, P and Wadsworth, J.

4. SKILLS MATCH



Key points

- The changes to the global economy and labour skills from population change, technological advance, and economic development over the next 20 years are likely to have profound impacts on the needs of employers.
- While it is hard to quantify exactly how those factors will combine, analysis of four key sectors or issues shows these trends may define the skills that employers need.
- Forecasts of different countries' financial sector output indicate that most of the growth in demand for financial sector workers will occur in countries where the sector is already large.
- The increasing number of elderly people will raise demands for health care professionals in many industrialised countries. This will require those countries to devote increasing numbers to work in the healthcare industry or increase inward migration. As there is already a shortage of health care professionals worldwide, international migration may be controversial and require a coordinated response.
- Climate change will lead to job creation in the development of green energy sources and in occupations needed to mitigate the impacts of global warning but job losses at industries closely connected to the generation and use of fossil fuels.
- The infrastructure needs of some of the larger emerging markets will require inward migration of temporary construction workers into those countries. It should also increase the demand for more permanent skilled labour in the production of engineering and mechanical goods.

FOUR SECTORS AT THE HEART OF THE DEBATE

4.1 Introduction: adapting to change

The fundamental changes in the world's productive population over the 20 years to 2030 outlined in this report will have profound effects on businesses. The sheer scale of the growth in numbers, the shift in the balance of power towards emerging and developing economies, and the ageing of the working population in Europe and Asia are major challenges for employers.

But these changes will be magnified by changes that are likely to take place in individual arenas. Consumer tastes will alter, business systems will change, technology will alter how much labour is needed to produce output, and government regulations and taxation regimes will change. These changes in demand will alter output, which in turn will change the skills that employers need.

This chapter looks at four areas where these structural changes are likely to combine: financial services; healthcare provision for the elderly; adaptation to climate change; and infrastructure needs in emerging economies. In all four cases demand for employees and for skilled workers will increase. The four issues selected will obviously not be the only issues or changes to impact on the skilled labour market over the next 20 years. But they give good guides to what skills will be needed and how governments and employers can ensure businesses' needs are met most efficiently.

4.2 Case study one: financial services

This sector fuelled much of the growth during the boom of the early years of the last decade and faces an uncertain future after the crisis of 2007/8, the public sector rescue packages and possible regulatory responses. The outlook for this sector is unlikely to be uniform. The dependency of economies on financial services, the impact of the crisis on output and employment and degree of regulatory reform will vary from country to country.

Since not all countries collect data on employment, the best alternative is to look at output. The Oxford Economics' Global Macroeconomic Model shows growth in financial services output in absolute terms will be greatest in the countries that already have a large share of financial output. This will give a better idea of which countries' financial sectors are likely to grow and therefore whose demand for financial workers is predicted to increase most rapidly.[15]

The fastest growth in output is predicted to occur in the UK ($129 billion), followed by the United States ($127 billion) and Australia ($71 billion). For every $1 billion of financial services output a country produced in 2010, it is predicted they will generate an extra $241,000 over the next 20 years. The sharpest growth rates relative to where output levels are now will be in emerging market countries. The financial sectors in Bulgaria, Malaysia, the Philippines, Poland and Thailand are all forecast to grow by over 5% a year. Russia and Indonesia's financial services sector are predicted to grow by 4.7% and 4.6% each year, respectively.[16]

Table 4-1: The 25 countries forecast to experience the largest growth in financial services output 2010 to 2030

RANK	COUNTRY	GROWTH IN THE FINANCE SECTOR'S CONTRIBUTION TO GDP BETWEEN 2010 AND 2030 (US$ BILLIONS IN 2005 PRICES AND EXCHANGE RATES)	GDP CONTRIBUTION FROM THE FINANCE SECTOR IN 2010 (US$ BILLIONS IN 2005 PRICES AND EXCHANGE RATES)
1	UK	129.2	164
2	US	126.8	273
3	Australia	70.7	107
4	South Korea	68.9	69
5	France	39.7	106
6	Spain	39.7	58
7	Italy	33.3	89
8	Russia	30.7	33
9	Poland	28.2	20
10	Germany	25.0	144
11	The Netherlands	23.3	51
12	Singapore	21.9	20
13	Malaysia	17.3	15
14	Switzerland	16.5	43
15	Ireland	15.3	19
16	Denmark	13.8	15
17	Austria	13.2	19
18	Belgium	9.9	21
19	Taiwan	9.7	30
20	Portugal	9.7	12
21	Sweden	7.6	17
22	Norway	7.5	12
23	Bulgaria	7.2	3
24	Indonesia	6.9	7
25	Hong Kong	5.4	38

Source: Oxford Economics

This scenario indicates that the demand for skilled staff will continue to be strongest in the countries that are already centres for financial services. This in turn implies that the regulatory and political response to the 2007/8 crisis will not be severe. On that basis it is not likely that there will be a large-scale migration of firms that deal in the wholesale market to jurisdictions with less onerous tax or regulatory regimes.

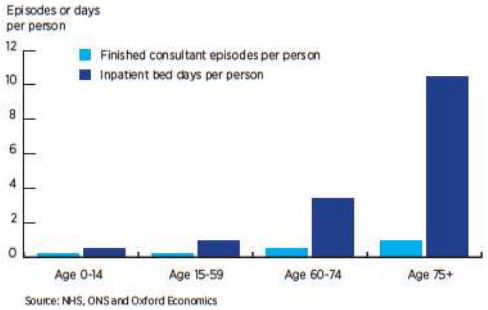
15. Even so, no data are available for some of the larger emerging markets.
16. No data are collected on China or India's financial service sector's output by their statistical agencies. So it has not been possible to generate forecasts.

4.3 Case study two: ageing populations and demand for healthcare workers

Ageing populations will put pressure on health services as demand for care for the elderly rises. Across the globe, the numbers of over 65s are forecast to increase by 446 million. Of these, 121 million (or 20%) will be located in China, 65 million (or 15%) in India and 32 million (or 7%) in the US. By 2030, Europe will be home to 44 million (or 10%) more people over the age of 65 years old (see Table 4-2).

Older people require more frequent treatments and longer stays in hospital than those even only marginally younger. Figures from the UK shown in Chart 4-1 indicate that people aged over 75 require inpatient treatment twice as often and spend almost three times as long in hospital as those aged 60 to 74.

Chart 4-1: Average inpatient finished consultant episodes and length of stay per person in England in 2009-10 by age group



Source: NHS, ONS and Oxford Economics

Clearly, this trend will increase the need for healthcare workers. However, the decline in fertility rates in advanced economies highlighted in Chapter 1 will reduce the number of indigenous workers available to fill those jobs. As Table 4-2 shows, certain countries will see a large increase in the number of over 65s as a share of their working age populations. Across the world, over 65 year olds are forecast to be 18% of the size of the working population (or one for every 5.6 people of working age) in 2030. However, in industrialised regions, this percentage rises to 36%. It is considerably higher in some countries, for example, Japan (53%), Germany (48%), Singapore (46%), Italy (44%), and France (41%).

Table 4-2: The 25 countries forecast to experience the largest growth in populations over the age of 65 years old from 2010 to 2030

RANK	COUNTRY	FORECAST CHANGE IN THE NUMBER OF OVER 65 YEAR OLDS BETWEEN 2030 AND 2010 (MILLION)	FORECAST OF THE NUMBER OF OVER 65 YEAR OLDS AS A SHARE OF THE POPULATION OF WORKING AGE IN 2030 (%)
1	China	121.2	23.7
2	India	64.8	12.2
3	US	32.0	31.7
4	Brazil	16.2	19.7
5	Indonesia	14.9	15.4
6	Mexico	8.5	18.3
7	Bangladesh	8.2	10.4
8	Pakistan	7.9	8.9
9	Japan	7.5	52.8
10	Vietnam	7.4	18.3
11	Russia	6.9	29.7
12	South Korea	6.0	36.1
13	Thailand	6.0	23.1
14	France	5.5	40.9
15	Philippines	5.5	11.6
16	Germany	5.2	47.6
17	Turkey	4.9	15.1
18	Egypt	4.6	11.5
19	Iran	4.5	12.7
20	Canada	4.3	37.1
21	Colombia	3.9	17.3
22	UK	3.9	33.6
23	Nigeria	3.8	6.3
24	Italy	3.6	43.9
25	Spain	3.5	35.9

Source: Oxford Economics and UN

Governments will need to plan now to ensure they can recruit sufficient numbers of workers to care for their ageing populations. For many countries the answer to this shortage will be to recruit healthcare staff from overseas. However, international migration of healthcare workers is already controversial because it is seen as adding to existing shortages in developing countries. For instance, the World Health Organisation says that of the 57 countries with a critical shortage, 36 were Sub-Saharan African countries.[17]

Migrant workers from developing countries already play a major role in healthcare provision in developed countries. Figures from the Organisation for Economics Cooperation and Development show that a third of all doctors in New Zealand, the UK and Ireland were trained abroad.[18] Similarly, 23% of the doctors in Australia and 26% of those in the United States were trained abroad in 2007. The bulk of inward migration into OECD countries by healthcare workers originates from developing and emerging countries. In 2000, for example, nurses born in the Philippines and doctors born in India were particularly prevalent.

The challenge for developed countries will be to find an equitable solution to their healthcare staff needs. There has been a debate over the balance between the negative impact of migration on poorer countries and the right of people to move for work. The WHO has introduced a code of practice on the international recruitment of health personnel.

One issue to bear in mind is how increased emigration would affect the relevant country. For example, outflows of health personnel from heavily-populated countries such as India and the Philippines remains low compared to the size of their total workforce. The situation is different in the case of some smaller countries and African countries, with expatriation rates of doctors above 50%.

Furthermore, WHO says healthcare shortages in these countries are driven more by low education and training capacity and poor retention rates than emigration. The answer may be a greater coordinated global focus on funding investment in education and training in developing countries to ensure the number of skilled health professionals matches the likely increase in demand.

4.4 Case study three: the impact of climate change on the demand for labour

Climate change is forecast to have potentially devastating impacts over the next 150 years in the form of rising temperatures, extreme weather, rising sea levels and the desertification of areas of fertile and inhabited land. Despite the long time horizon, governments will need to act now to prepare for the most damaging impacts.

In terms of employment, the largest impact will be on the energy sector as governments seek to move away from energy sources that generate carbon emissions and other harmful greenhouse gases towards more sustainable energy sources. This will lead to both job creation and job losses.

Policies designed to lower emissions and change consumer behaviour should cause a shift in demand, output and employment away from energy generation from fossil fuels. Sectors likely to see slower growth in employment or job losses are coal, oil and gas production, transportation and refining. Employment in electricity generation using fossil fuels is also likely to grow less rapidly and, in the longer term, decline. The scale of the impact on the skilled labour market is likely to be relatively small as these types of activities are very capital intensive, so are not large employers.

There are also likely to be fewer jobs needed in industries that are most reliant on fossil use, as they will be compelled by regulation, taxation and use of pollution permits to limit their energy use. The industries that are most reliant on fossil fuels for each unit of production are manufacturers of chemicals, resin, rubber and artificial fibres, government enterprises, and air transport. These industries will find the prices of their input costs increasing, which will reduce demand, with an adverse impact on their demand for labour.

However, new jobs will be created through the generation of electricity from renewables. In the short-term, this will include some increases in jobs to design, manufacture, install and operate the new renewable electricity generating plants. To date, these have been on a much smaller scale than fossil fuel plants, so sudden expansion may lead to a net growth in jobs as renewables replace fossil fuels.

Finally, as new fuels are developed, the technology will be used in a wider range of vehicles and consumer goods, which will require new production lines or the refit of existing ones. Its impact is likely to be felt in those countries that specialise in manufacturing. Jobs may also be created as part of initiatives to cut fuel usage. The most obvious area where this may be the case is the improvement of energy efficiency in homes and workplaces. This will create employment in the construction sector as insulation is retrofitted to existing buildings and inserted into new builds.

17. WHO, (2006), 'Working together for health', The World Health Report 2006.

18. OECD, (2010), 'International migration of health workers', Policy Brief, February.

Away from energy generation and use there are many activities aimed at tackling climate change and overseeing environmental regulations that have the potential to create jobs. These include:

- Construction and civil engineering and its supply chain
- Scientists with the skills to monitor and predict such weather events
- Emergency response equipment and teams
- Manufacture of rescue and temporary infrastructure equipment
- The design, manufacture and sale of insurance policies
- Public officials to design, implement and enforce new taxes or regulations
- Jobs at regulators and compliance functions of firms using fossil fuels

It is too soon to say whether efforts to tackle climate change and embrace new regulations and technologies aimed at controlling emissions will lead to a net creation of jobs. However, it is certain new skills will be needed. This will require training for new entrants while displaced workers may require retraining to gain employment in other industries.

4.5 Case study four: infrastructure needs of large emerging markets

The industrialisation of some of the larger emerging markets is likely to lead to the need for considerable infrastructure investment. This will include the building of roads, railways, ports, utilities, and housing as these countries switch from being primarily rural agricultural economies to largely urbanised, manufacturing and service-based economies. This will lead to a significant demand for skilled labour in the construction and engineering sectors.

Forecasts for construction output growth between 2010 and 2030 by Oxford Economics shows a sharp distinction between the developed world and larger emerging markets – Brazil, Russia, India, Indonesia and China (BRIICs). This is reflected in forecasts of faster annual output growth over the next 20 years. Construction output in India is predicted to expand by 18% a year (Table 4-3), followed by China at 17%. Growth in the other BRIIC countries is also predicted to be strong: 14% for Russia, 12% for Indonesia and 6% for Brazil. This compares with 2.8% for the G7 (Canada, France, Germany, Italy, Japan, the UK and the US).

Table 4-3: The 25 countries forecast to experience largest growth in construction output between 2010 to 2030

RANK	COUNTRY	US$ BILLIONS IN 2005 PRICES AND EXCHANGE RATES	ANNUAL % GROWTH IN CONSTRUCTION OUTPUT
1	China	872.2	17.0
2	US	571.2	6.5
3	India	327.5	18.1
4	Russia	117.1	14.4
5	Mexico	108.5	9.4
6	Indonesia	71.4	12.3
7	Canada	69.6	5.1
8	UK	68.9	2.7
9	Australia	68.5	5.2
10	South Korea	63.6	5.2
11	Brazil	59.5	6.3
12	Turkey	55.1	11.5
13	Japan	45.5	1.0
14	France	34.6	1.6
15	Poland	31.3	6.6
16	Germany	28.9	1.5
17	Spain	26.7	1.2
18	Romania	25.4	13.0
19	Senegal	23.0	15.5
20	Saudi Arabia	20.5	5.7
21	UAE	20.2	6.4
22	Italy	18.5	1.5
23	Chile	16.4	8.3
24	Egypt	15.5	10.9
25	South Africa	15.3	8.3

Source: Oxford Economics

How many jobs will 'green' energy create?

A number of studies have tried to estimate the employment impact of the building and operation of renewables electricity generation. One study argued that there was a potential for the creation of more than two million jobs in Europe by 2020, if the share of renewable energy in Europe increased to 20% of energy consumption levels.[19] The UK's Trades Union Congress argued that 117,000 new jobs would need to be created in the UK in renewables electricity generation if the country was to meet its 2020 renewables target.[20] These job estimates do not take account of the loss in jobs from fossil fuel electricity generators. A review of 13 studies on differing fuels and regions that took account of job gains and losses suggested that new jobs created at renewables generating plants would exceed those displaced from fossil fuel electricity generators.[21] It is also likely that considerable research effort will go into the development of new fuels and enhancement of existing alternatives to fossil fuels. This will boost the demand for scientists although it is unlikely to generate a large number of jobs.

High growth rates in construction output in the BRIICs will increase demand for construction workers. In the skilled labour market, this will lead to inward migration of highly-skilled construction workers. These are likely to include architects, civil engineers and experienced trades people. Given the project-based nature of construction work, this is likely to be on temporary contracts (for the duration of the project), but once established the workers may undertake several projects within the same country.

Growth in construction will boost demand in the sector's supply chain. Infrastructure projects require significant inputs from the engineering and mechanical goods sectors such as construction vehicles and concrete products. Some of these will be made locally, lowering the need for transporting of larger pieces. While China, the US and Germany will continue to see the largest absolute increase in engineering and mechanical output over the next 20 years, emerging markets will see the fastest growth from current levels. As Table 4-4 shows, the fastest growth rates are in China (23% a year), Turkey (12%), Poland (11%), UAE (11%), South Africa (10%) and India (10%).

Table 4-4: The 25 countries forecast to experience the largest growth in engineering and mechanical goods manufacturing output between 2010 and 2030

RANK	COUNTRY	US$ BILLIONS IN 2005 PRICES AND EXCHANGE RATES	ANNUAL % GROWTH IN ENGINEERING OUTPUT
1	China	1,281.5	22.8
2	US	197.9	4.3
3	Germany	165.3	4.6
4	Japan	119.1	2.6
5	South Korea	74.6	7.1
6	Italy	53.5	3.3
7	UAE	52.3	10.8
8	India	48.9	10.3
9	Mexico	43.7	7.8
10	Poland	34.2	11.2
11	Turkey	31.3	12.2
12	Taiwan	27.9	8.8
13	France	27.8	3.0
14	Russia	25.8	7.0
15	UK	23.7	2.2
16	Brazil	21.4	5.5
17	Australia	20.7	4.9
18	Thailand	20.6	7.1
19	Austria	17.2	4.9
20	Czech	15.4	8.5
21	Canada	11.8	3.1
22	South Africa	11.6	10.8
23	Finland	11.0	5.9
24	Spain	10.3	2.5
25	Sweden	9.1	3.3

Source: Oxford Economics

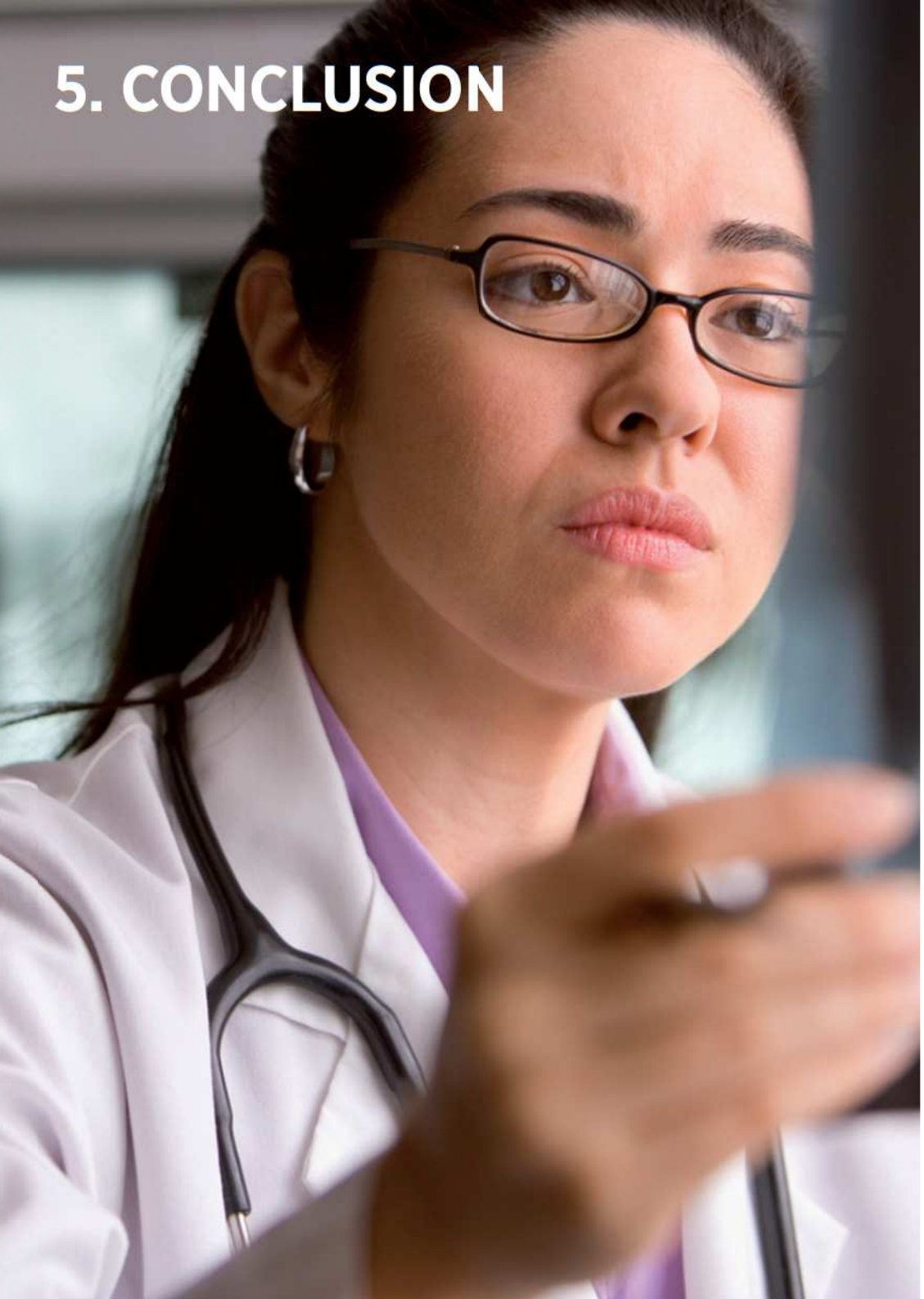
This output growth will lead to additional demand for labour. Unlike construction work, the engineering and mechanical goods manufacturing sector tends not to be project-based, so increased demand may lead to more permanent jobs.

4.6 Conclusion

Over the next 20 years, the skilled labour market will be affected by a variety of changes in demographics, technological change and economic development. The structural shifts will combine to drastically change the way that businesses operate. The four issues highlighted in this chapter – financial services, healthcare for the elderly, tackling climate change, and infrastructure in the BRIICs – show how demographic pressure, government interventions and changes in consumer tastes will lead to major changes in the types of workers and skilled professionals that will be needed to power the economy of 2030.

19 Renner, M., M. Ghani-Eneland, and A. Chawla (2009), "Low-carbon jobs for Europe: Current opportunities and future prospects", June 2009, World Wide Fund for Nature, Brussels.
20. Trade Unions Congress, (2005), 'A fair and just transition – Research report for greening the workplace'.
21. D M, Kammen, K, Kapadia, and M, Fripp (2004) 'Putting renewables to work: How many jobs can the clean energy industry generate?' RAEL Report, University of California, Berkeley.

5. CONCLUSION



The forecast growth in the world's population, and particularly in the numbers of working age, has huge implications for employers in both the developed and developing world. The 20% increase in the workforce, the fact that this is wholly confined to developing countries and the ageing of the population in the West will combine to alter the balance of global economic power.

In developing countries, rapidly expanding working age populations and structural shifts away from agriculture will increase their economic importance and power. China and India will lead the way, and by 2030 they will be challenging the US for economic pre-eminence. Continued globalisation and technological change will see emerging economies move further up the value chain.

The combination of population, globalisation and technological advance offers both threats and opportunities for governments and companies all over the world. Mechanisation and automation has resulted in a hollowing out of the labour market in the West, with semi-skilled routine manufacturing and service occupations (such as assembly line workers and book-keeping clerks) being outsourced or disappearing from the labour force. In contrast, non-routine occupations and jobs which require face-to-face contact have seen their share of hours worked grow both for skilled and lower skilled occupations.

Ageing populations will boost the number of older workers as a share of the workforce. Older workers have very different characteristics: they are more likely to work part-time, on temporary contracts or as freelancers. It is not yet clear if this is driven by their own choices or by the needs of businesses.

Companies in the West that move up the value chain will continue to outperform rivals in developing countries in sectors where costs of entry are high. These include industries such as financial services, pharmaceuticals, aerospace and research and development. Emerging markets will move into more value-added activities as wages rise in those countries, while developing economies, and especially Africa, will take advantage of wage differentials to take up lower-skilled routine work.

This will have implications for demand for workers. Although the number of newly-qualified highly skilled workers in the developing world is increasing rapidly, experienced skilled labour is still in relatively short supply. Coupled with the need for rapid investment in infrastructure in particular, skilled labour from the West is in high demand. The quality of university education in the West means that developing economies will continue to look beyond their borders for skilled professionals. These trends will create a need for effective international matching of skills for employers.

This is likely to be the case for infrastructure investment and climate change where skilled labour will be in demand both in existing areas of expertise and new sectors such as environmental regulation and green energy production. Demand for financial professionals is likely to be strongest in countries that are already leaders in financial services. Increased demand for healthcare workers to offer care services for the expanding number of elderly people is likely to require continued migration from developing to developed countries. This needs to be handed with care.

This report points to a number of areas where governments and employers in the developed world can take action to ensure their economies fully benefit from the increased standard of living that globalisation brings:

- Remain open to trade with the developing world even though this will result in some industries and occupations disappearing from their own economic map.
- Ensure that new and existing entrants to the labour force are fully equipped with the skills firms need to compete internationally and satisfy demand at home.
- Ensure that higher education and training is geared towards providing the skills needed for the high-value added sectors in which developed economies excel.
- Understand the different characteristics and needs of older workers who will make up a growing share of the workforce.
- Ensure the needs for healthcare workers can be met without causing hardship in developing economies by taking a coordinated approach to migration and investment in training.

Taking these steps will ensure that the West remains competitive in the high-tech industries it already dominates, while helping workers displaced from declining sectors find new roles and meeting the challenges presented by demographic, macroeconomic and technological change.

We propose a five point plan for governments, international bodies and multinational companies to consider in their policy development.

1. **Keep national borders open for the movement of skilled labour.**
2. **Agree an international code to facilitate employee migration.**
3. **Invest in training and education.**
4. **Create employment opportunities in the developing world.**
5. **Retain older people in the workplace.**

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