

Global Economics Paper No: 132

GS GLOBAL ECONOMIC WEBSITE Economic Research from the GS Institutional Portal at https://portal.gs.com

60 Is the New 55: How the G6 Can Mitigate the Burden of Aging

- Population aging is a well-known story and, on the surface, a rather depressing one. Working-age populations are peaking across the G6, suggesting that the window in which demographics are most conducive to growth is closing. But the gloom about the impact on economic growth may well be overdone.
- One solution to the challenge of an aging workforce is to 'make 60 the new 55'. Higher employment participation rates among older workers and delayed retirement could significantly improve workforce growth rates, trend GDP growth and income per capita over the next two decades, most notably in Europe.
- Under a scenario of higher participation rates among older workers, the EU-4 could grow by 5% over the next 20 years, rather than decline by 7%. In the US, the workforce could grow by 17%, up from 10%. In Japan, the workforce would still decline, but by 9% rather than by 15%.
- This would raise trend real GDP growth rates over the next 20 years by 0.6ppt in Europe, 0.5ppt in the US and 0.3ppt in Japan.
- G6 citizens would be considerably richer as a result. Income per capita would be 12%-16% higher than otherwise across the EU-4, 11% higher in the US and 7% higher in Japan.

Important disclosures appear at the back of this document

Thanks to Dominic Wilson.

Sandra Lawson, Roopa Purushothaman and David Heacock

28th September 2005

60 Is the New 55: How the G6 Can Mitigate the Burden of Aging

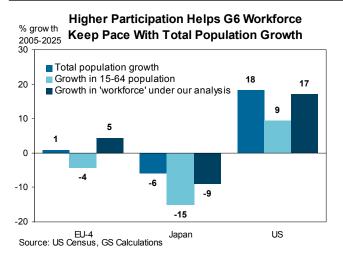
The sorry state of demographics throughout the G6 is a well-known story. It is also a fairly depressing one, at least on the surface. Populations are aging and fertility rates, other than in the US, have been below replacement rates for three decades. The result is that the working-age share of the population is either already declining (in Japan, Germany and Italy) or will peak by 2010 (in the US, the UK and France). The decline in the working-age share is likely to constrain real GDP growth and growth in income per capita in coming decades. As we have shown in our work on the BRICs, demographics also play a key role in the shift of economic power from the G6 towards the faster-growing economies of Brazil, Russia, India and China.

Most demographic analysis presents this gloomy outlook for the G6 as a fixed picture of inevitable decline. Demographic trends do adjust slowly, and obvious solutions to the problem of aging—higher fertility and increased immigration—run counter to prevailing social and political trends.

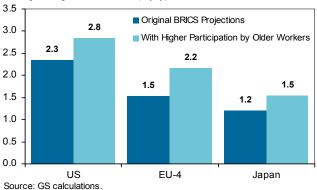
Yet there is one fairly simple shift that could make an important difference: longer working lives. Life expectancy in the G6 has increased dramatically over the past half-century, but retirement ages have not risen in tandem—in fact they have generally fallen. This makes little sense from a national perspective and will increasingly make less sense from an individual perspective. As people live longer and enjoy better health—and as public pension systems come under increasing strain—there are few reasons why they should not work longer.

One plausible solution to the demographic challenge is to 'make 60 the new 55'. G6 countries can raise the number of people actually employed, by boosting participation rates among older workers and by extending the working lifespan to 70. Although this would certainly entail some political and social pain, the payoff would be significantly higher trend growth and therefore higher income per capita.

In Europe, where this proposal yields the best results, raising participation rates among older workers would allow the workforce to grow by 5% over the next two decades, outstripping both the fall in the traditional working age population (-4%) and the overall population growth (1%). In Japan, the workforce will still shrink, but our proposed reforms would help to keep the workforce more in line with the overall population decline (-9% vs. -6%). In the US, our reforms would allow the workforce nearly to keep pace with the overall population growth (17% vs. 18%).







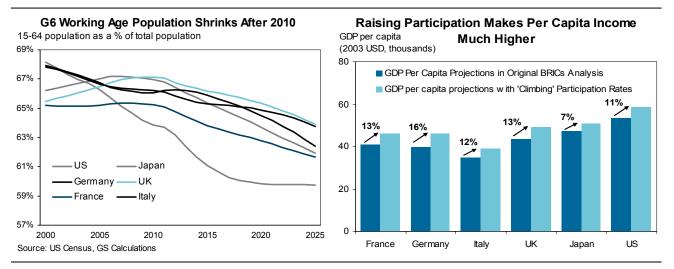
Higher workforce growth means that trend GDP growth rates would be higher across the G6 over the next 20 years. The biggest gain would be realized in Europe, where trend growth would be 2.2%, 0.6ppt higher than otherwise (rounding accounts for the 0.7 ppt increase on the chart on the previous page). In the US, trend growth would be 0.5ppt higher, at 2.8%; in Japan, it would rise 0.3ppt to 1.5%. As a result, by 2025, living standards would rise significantly, with income per capita 12% or more higher than otherwise in Europe, 11% higher in the US and 7% higher in Japan. Higher participation rates would also help the G6 to keep pace with the BRICs: by 2025, the EU-4 combined would be 13% larger than China, rather than slightly smaller.

'Making 60 the new 55' is a fairly simple solution to the problem of an aging workforce. We think it is a feasible one: the scenario outlined below calls for a gradual, 20-year transition to participation rates that seem quite reasonable. To some extent, this change is likely to occur naturally, as individuals recognize and respond to the compelling economic case for working longer. Indeed, there is some evidence that it may already be underway in several G6 countries, notably in the US and the UK. Governments can facilitate the process by adjusting their pension and tax systems, and by shifting expectations about retirement. This will be especially important in Europe, which stands to gain the most from these reforms. If the trend of working longer does take hold across the G6, then much of the consensus gloom could turn out to be overblown.

The Sorry State of Demographics in (Most of) the G6

Aging is a global phenomenon, but its impact is felt most acutely in the developed countries.¹ Over the past half century, the developed world has seen a significant jump in life expectancies and an even more dramatic decline in fertility rates. As a result, the populations of Japan, Germany and Italy will begin to decline in a decade—a forecast that has received much attention. While overall population decline is certainly eye-catching and politically important, from the standpoint of economic growth, the real problem lies elsewhere.

One critical constraint on economic growth in the G6 in the future—even in countries that will see continued population growth—will be the decline in the share of the working-age population. The share of those aged 15-64 (the widely used definition of working age) has already peaked in Japan, Germany and Italy, and it will peak in the US, the UK and France by 2010. In absolute terms, the working-age population is forecast to shrink more than twice as fast as the overall population in the next 20 years in Japan, Germany and Italy; in France,



1. Most of the demographic projections in this paper draw on data from the US Census Bureau, which was also the source for demographic data for our BRICs research. Historical data is primarily from the UN Population Division. Data on participation rates are from national sources.

A Demographic Spectrum Across the G6

Within the G6, the **US** has the best demographics—the youngest population, the highest fertility rate and the smallest share of people over 65. In terms of labor force growth, the US even compares favorably to the more dynamic of the BRICs countries: the US working-age population is forecast to grow faster than Brazil's in about 20 years and faster than India's in about 30. In 2050 the US will have three workers for each retiree—a dependency ratio roughly half that of Japan or Italy. But aging will be a burden even in the US: over the next two decades, the 65+ age bracket is slated to grow four times as fast as the overall population, and the dependency ratio will increase by nearly 60%.

Japan is by far the hardest hit of the G6. In absolute terms, Japan's population is forecast to shrink by 6% from current levels in the next two decades, but its working-age population is forecast to fall by 15%. In fact, in terms of labor-market growth, aging will hurt Japan more than HIV/AIDS will hurt Africa, where even the hardest hit countries will still post labor force growth of more than 2% until 2025. On current forecasts, Japan will have an almost unimaginable one retiree for every two workers within 30 years, and two retirees for every three workers in 2050.

Europe falls between the US and Japan, but there is sharp demographic divergence here as well. The **UK**, at the most favorable end of the scale, is generally the 'runner-up' to the US across most demographic variables. In some areas it fares even better: after 2010, the working-age share will be higher in the UK than in the US. At the opposite end of the spectrum is **Italy**, which resembles Japan in the age of its population, its pace of aging over the next 50 years and its soaring dependency ratio. **France** and **Germany** fall in the middle, with France faring slightly better than Germany on most measures. The most significant difference is in fertility rates, which are significantly higher in France, suggesting better growth prospects in future decades. Elsewhere, even the 'new Europe' is old, and so EU expansion in 2004 did little to improve the region's demographic prospects. Although the 10 new EU members do have a considerably higher working-age share today, these countries account for only about 15% of the total EU population, meaning that their boost to the EU-wide working-age share is less than 1ppt.

% of 65+ in

Total Pop

30

28

26

24

22

20

18

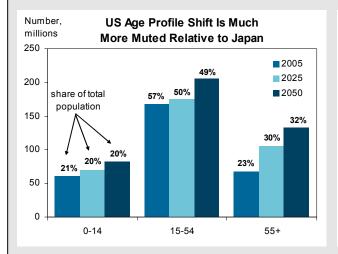
16

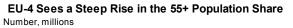
14

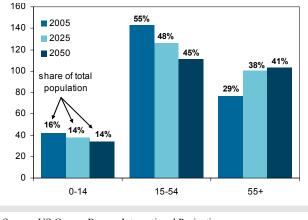
12 10 8

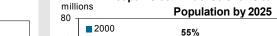
15-25

Number,









25-35

35-45

EU-4 2005

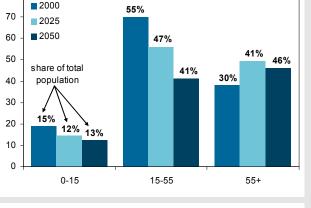
FU-4 2025

Japan 2005

Japan 2025

US 2005

US 2025



US 65+ Population Share in 2025

Looks Like the EU Profile Today

Japan's 65+

population

grows by 50%

in next 20

45-55

Japan's 55+ Bracket Grows to 41% of the

55-65

65+

Source: US Census Bureau International Projections.

Europe: Demographic Suicide or Harbinger of the World's Future?

In a development that is historically unprecedented—and probably historically unimaginable—fertility has been below replacement rates for 30 years across much of Europe. The decline in fertility has been most acute in countries experiencing social, political and economic transition. Between 1985 and 2000, fertility fell by 40% in Russia and by 25% or more in Eastern Europe. Spanish fertility is still just half what it was in the last years of Franco's rule. But countries with more stable recent histories have also seen fertility fall well below replacement rates, including Belgium, Denmark and Switzerland.

Demographic projections from two and three decades ago assumed that below-replacement fertility was a temporary aberration that would quickly correct. Europe's experience has forced demographers to change their assumptions, however. Although fertility has rebounded off its lows in some countries (notably France, Italy and Spain), below-replacement rates across the continent are projected to persist for the foreseeable future. By 2050, the US Census Bureau expects fertility rates in five of the G6 (except the US) to be at 1.7; the UN Population Division sees a relatively rosy 1.85. The UN projects that European fertility will not return to replacement levels until about 2075—a full century after it first dropped below replacement.

This has led critics to dismiss Europe as committing 'demographic suicide'. But Europe may simply be the first region in the world to feel the full effects of the transition to a post-industrial economy. Very long-term estimates by the UN suggest that fertility rates will fall below replacement (though not as low as in Europe) in all major regions, including Asia and Latin America from 2015 and even Africa after 2050. As in Europe, fertility in these regions is forecast to remain below replacement rates for about a century.

the working-age population is projected to decline despite overall population growth. Even in the US and the UK, which have the best demographics among the G6, a falling working-age share will still pose obstacles to growth. Over the next 20 years, the working-age population will continue to grow in both countries—but much more slowly than the overall population.

Aging will weigh heavily on public pension systems. In less than 30 years, there will be roughly half as many people over the age of 65 as there are of working age in Japan and much of Western Europe. In other words, there will be just two 'workers' (who may or may not be working) for each person past the current retirement age. Even in the US, the ratio will be three to one—an enormous jump on today's ratio of five to one. For the G6, the 'demographic window', in which demographics provides the most support for economic growth, is closing.

A Bleak Picture...But Not a Fixed One

Current projections are undoubtedly bleak—but they are not set in stone. They highlight the acute need for an effective policy response—as well as the likelihood that one will materialize. After all, it is hard to imagine that Japan will simply sit by until 2050 as its total population shrinks by one-fifth and its working age population by nearly twice as much. Or that Europe will be able to sustain current levels of social security obligations as the share of people over 65 rises from less than 20% of the total today to nearly 30% by 2050. It is also difficult to imagine that individuals across the G6 will fail to recognize the strains that demographics will place on public pensions and living standards.

There are three ways in which countries can improve their demographic profiles: increasing fertility rates; allowing more immigration; and raising labor-force participation rates. All will be politically challenging, but the first two are especially difficult, as we discuss in the box on the next page. The best solution for countries wishing to improve their demographic prospects seems to be making the most of what they currently have. In practice, this means raising labor-force participation rates—getting more people older than 55 to work, and for longer.

Despite continued advances in life expectancy and health care over the past half century, older people are generally less inclined to work today than in previous

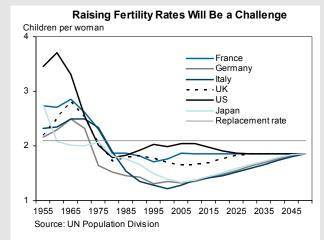
Neither Higher Fertility Nor Migration Can Solve the Demographic Challenge

Raising fertility rates and increasing net migration are two obvious solutions to the challenge of aging. But neither is likely to be a viable solution in the G6.

Higher fertility will be important over the long term, but it will not make much difference to the labor force over the next 20 years. At a minimum, the impact of higher fertility will not be felt for 15 years, when children formally enter the workforce. In practice, the trend toward longer education means that the impact will be further delayed.

More importantly, most G6 countries are likely to struggle to raise fertility to levels that would meaningfully affect current demographic projections. This is because current projections already incorporate a sharp improvement from today's well-below-replacement levels in Europe and Japan. Raising fertility rates further will be even more difficult. A handful of governments, including those in Scandinavia, France and Singapore, have experimented with efforts to boost fertility rates. Typical measures include direct cash transfers, tax incentives, state-subsidized child care, and regulations or incentives for the private sector to offer longer parental leave and more flexible working policies. Academic studies find that these programs—particularly direct transfers and tax credits—have had a small positive impact on fertility. Research also suggests that childbearing decisions are affected by a range of institutional policies and social attitudes, and that total fertility may not rise significantly until there is a broader social shift that sees childbearing as a benefit for society at large rather than for just individual parents.

Migration has obvious advantages as a strategy for bolstering the working-age population, both immediately and over the longer term. Most migrants are of working age, and most actually work, meaning that they help to raise participation rates. Moreover, migrants to developed countries typically have higher fertility rates than the native-born populations, so they provide an additional boost to the labor force in decades ahead.



But migration poses its own challenges. The biggest is the sheer scope of what would be needed to offset aging. Our estimates indicate that migration would need to rise significantly in much of the G6 just to keep the share of the

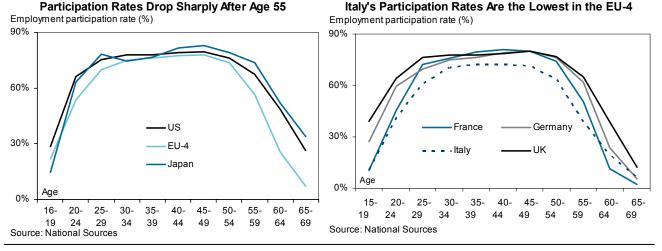
working-age population in 2025 at roughly current levels.² In the US and the UK, migration would need to increase by a challenging but still-plausible 30%, but elsewhere the figures are preposterously high. Migration would need to be roughly twice current levels in Germany and Italy, nearly three times current levels in France and nine times current levels in Japan.

Even where the numbers seem plausible, migration will pose a political challenge. Genuine integration is difficult and apt to be expensive, with pressure on governments to fund language classes, low-cost housing and job training. And in today's global security climate, the trend is generally running against immigration rather than for it. So while migration can provide some offset to aging, it alone cannot solve the developed world's problems.

decades. In the US (the only country for which we have extensive historical data), participation rates among workers 65 and older fell from 23% in the 1950s to a trough of 10% in the 1985. Though they have ticked up over the past 15 years, they remain well below the peak. Effective retirement ages have fallen significantly even as life expectancy has risen—meaning that 'retirement' typically lasts 20 years rather than the 13 that was the norm in the early 1950s.

Participation rates among older workers have been able to fall for several reasons. At an individual level, people have been able to retire early because public pension systems offer a reliable cushion. High asset returns in recent decades might also have played a role, since the expected rate of return on savings should affect the expected retirement age. The ongoing bull market in asset prices may well have become deeply embedded in workers' expectations—though this confidence may be unwarranted for younger workers.

^{2.} Making the Most of Global Migration, Global Economics Paper No. 115, 6 August 2004.



At a broader level, low participation rates among older workers have not had a significant impact on the overall labor force, for two reasons. The first is the structural shift toward higher participation by women at all ages since the mid-1960s. The second is the post-war baby boom. Because older workers have accounted for only a small fraction of the labor force in recent decades, their falling participation has not significantly affected the overall rate. But this is set to change as the baby boom generation enters the ranks of older workers.

60 Is the New 55

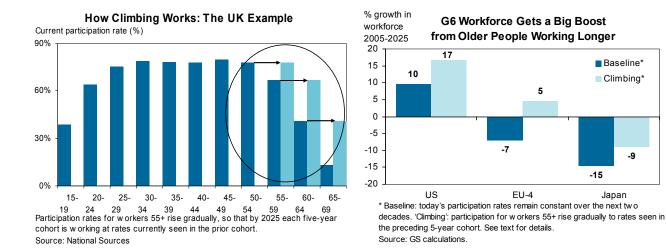
If older people are healthier, live longer and consider themselves to 'be' younger, why should they not work like younger people do?

Higher participation rates beyond age 55—even beyond age 65—will be critical to keep the overall workforce from shrinking in Europe, and to mitigate (though not prevent) its decline in Japan.

We construct two alternative scenarios for the G6 workforce over the next two decades. Each looks at the 15-70 age bracket—a working lifetime that seems more sensible to us than the traditional definition of 15-64. We define 'workforce' as the number of people actually working, calculating it by multiplying specific population shares by the employment participation rates for those age groups. This allows us to capture both the impact of demographic trends and the variations in employment rates across countries and age groups. Thus our results turn on two factors: the change in participation rates, and the change in the number of people in each age bracket.

- Our baseline case holds today's participation rates constant to evaluate the impact of broader population aging on the workforce. Because participation rates among older workers are lower in Europe than elsewhere, aging takes a particularly sharp toll. At current participation rates, the EU-4 workforce is projected to fall by 7% by 2025, considerably worse than the 2% decline in the full 15-70 age bracket. In Japan, the pressures of aging mean that both the workforce and the overall 15-70 population are projected to shrink by some 15%. The US workforce is projected to rise by 10%, lagging the 13% increase in the 15-70 population.
- As an alternative, we assume that '60 is the new 55' across the G6. In this 'climbing participation' scenario, participation rates for workers 55 and older rise gradually over the next two decades, so that by 2025 each five-year cohort is working at rates currently seen in the immediately preceding cohort. Thus, in 2025, people aged 55-59 work at rates currently seen among 50-54-year-olds. People aged 60-64 work at the rate of 55-59s today. People aged 65-69 work at

-9



the rates of 60-64s today. We have stopped this exercise at age 70-though advances in life expectancy may well mean that people in their 70s are fit to work more by 2025. Because this shift is phased in over a full 20 years, it would not entail a dramatic shock to older workers' current expectations.

Under our climbing scenario, the biggest gainer is Europe, where the EU-4 workforce grows by 5% over the next two decades rather than shrinking by 7%. The US also gets a substantial boost: the workforce grows 17% rather than our baseline 10%. In Japan, the workforce is still projected to shrink—but by 9% rather than by 15%.

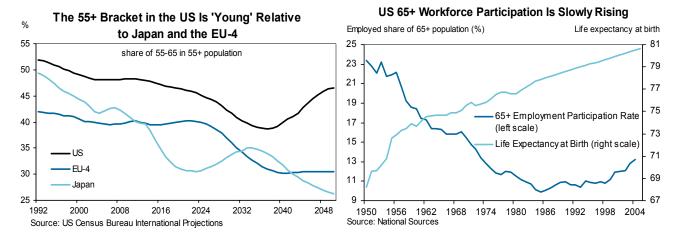
Europe: Biggest gain, hardest challenge? Europe stands to gain the most from our exercise, largely because its older population currently works the least.³ Although participation rates currently peak at slightly higher levels in the EU-4 than in the US or Japan, they fall off more sharply thereafter. Across the EU-4, participation rates for workers above 55 have averaged only 30% in recent years, against 54% for Japan and 48% for the US. Participation rates among younger workers are roughly equivalent to US rates but are lower than those in Japan. The notable exception is Italy, which has significantly lower participation rates among all except the very oldest age groups.

As noted above, our climbing scenario swings the EU-4 labor force from a decline of 7% over the next 20 years to an increase of 5%. Germany gets the biggest boost from higher participation: rather than declining by 11%, its workforce instead grows by 1%, slightly ahead of the 2% decline in the overall population. In France and the UK, the workforce grows nearly twice as much as the overall population. In Italy, changing participation rates is not enough to offset the overall aging trend, and the workforce still declines by 1% over the period. But even this is an improvement on the 3% decline in the overall population.

To see if Europe could realistically improve further, we added another element to the calculations. Employment rates among older workers still 'climb', as before, while participation rates among younger workers across the EU-4 rise to levels currently seen in the UK. This is quite a challenge in Italy but is more manageable elsewhere. When combined with our climbing analysis, this boosts the EU-4 workforce growth rate over 20 years to 10%-a dramatic improvement on our baseline of -7%.

Japan: Aging is inescapable. In Japan, even our best efforts still produce a fairly gloomy outlook. Japan already has the highest participation rates among

^{3.} Our European economists have conducted a related analysis, looking at the implications for savings. See 'Lisbon Agenda Crucial to Combat Ageing,' Euroland Weekly Analyst, 1 April 2005.

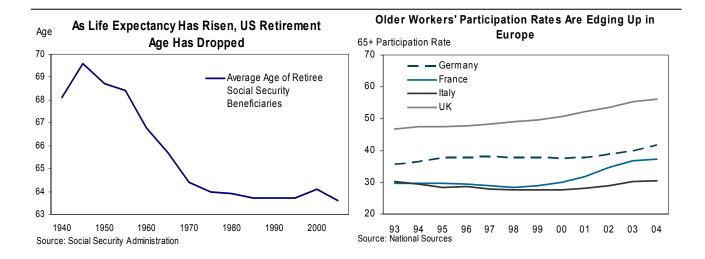


older workers, and its older workers are already 'older', clustered in the 65+ segment. This means that our climbing scenario can make only a small dent in the country's rapid aging trend, cutting the decline in the workforce from 15% to 9%. The workforce will still shrink more rapidly than the overall population, which is forecast to decline by 6%. Japan could get a small boost from higher participation rates among older female workers (which are lower than elsewhere in the G6), but even this would only add about one percentage point to the workforce growth rate.

US: Picture is brighter, but aging is still a burden. The US doesn't 'need' higher participation as acutely as Europe and Japan do. Higher rates of fertility and net migration, as well as a younger population, mean that aging takes a smaller toll on the US workforce. Our baseline case shows the workforce growing at a more-than-respectable 10% by 2025, well ahead of our best case in either Europe or Japan.

But the '60 is the new 55' argument applies to the US as well. Why shouldn't older people work more, and longer? Aging will be a burden even if the US workforce grows by 10%, given that the total population is forecast to grow by a much more robust 18%. The 17% workforce growth generated by our climbing scenario would help to offset the increase in the population share above 65.

Higher participation is also important because there is a risk that the recent improvement in participation rates among older workers may be temporary. Today's older workers are relatively 'young', with the baby boomers clustered at the lower end of the 55+ bracket. This creates a bulge that accounts for about



half the increase in the participation rate among 55+, and it should continue to fuel participation rates for the next five years. But beyond 2010, as the baby boomers move to the older side of the 55+ cohort, their participation rates could fall back to early-1990s levels.

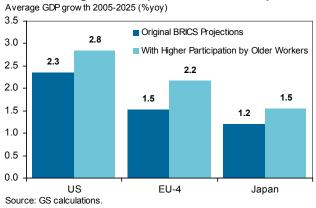
The Payoff: Higher Growth and Per Capita Income

The payoff from having older people work longer is higher trend growth and higher per capita income. To identify how much economic growth our scenarios can generate, we return to the basic model of growth that we used in our BRICs analysis.⁴ In this model, GDP growth is a function of three components: growth in employment, growth in the capital stock and growth in technical progress, or total-factor productivity. In our original BRICs analysis, we held growth in the capital stock and in TFP constant for each of the G6. Thus demographics (specifically, growth rates in the 15-60 age bracket) were entirely responsible for the divergence in trend real GDP growth paths (2.3% in the US, 1.5% in the EU-4 and 1.2% in Japan) over the next 20 years.

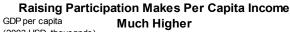
To quantify the impact of higher participation rates and longer working lives, we have re-run this model using the results of our 'climbing' scenario to 2025. Although we use a bigger pool of working-age people (15-70 rather than 15-60), this does not throw off our comparisons, since we are interested in the growth rates in these population shares rather than the absolute numbers.

The results suggest that changing participation rates and expectations about retirement is well worth the effort:

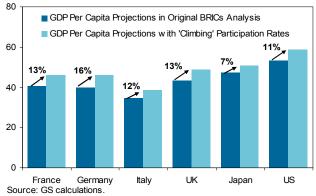
- Trend growth over the next two decades is higher than in our original projections by 0.6ppt in Europe, 0.5ppt in the US and 0.3ppt in Japan.
- Within Europe, Germany sees trend growth nearly three-quarters of a percent higher over the next 20 years, with a significant acceleration in the decade after 2015. Trend growth is 0.6ppt higher in both France and the UK. In Italy, potential growth gains more than half a percentage point—more than the US.
- If we extend the growth projections out to 2050, keeping participation rates constant at the new levels after 2025, trend growth over the whole period is nearly 0.3ppt higher in Europe and 0.2ppt higher in the US and Japan.



G6 Trend GDP Growth Gets a Significant Boost From Higher Participation in Older Groups



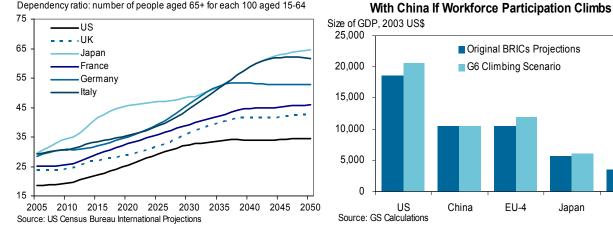
(2003 USD, thousands)



4. Dreaming With BRICs: The Path to 2050, Global Economics Paper No. 99, 1 October 2003.

India

The Largest Economies in 2025: EU-4 Could Switch Places



The Burden of Aging Is Inescapable Dependency ratio: number of people aged 65+ for each 100 aged 15-64

Higher trend growth makes G6 citizens richer. Again, the impact is felt most dramatically in Europe. Per capita income is 16% higher than under our original projections in Germany, 13% higher in the UK and France, and 12% higher in Italy. This pushes Germany slightly ahead of France. In the US, per capita income is 11% higher, and in Japan 7%.

■ Higher growth also helps the G6 to narrow the gap with the BRICs, though it is not enough to counteract the BRICs' rise over the long term. In 2025, the EU-4 combined is 13% larger than China, rather than slightly smaller. China still overtakes the EU-4 before 2050, however.

How to Make 60 the New 55

Given the large boost to long-term growth and income that higher participation could generate, we believe making 60 the new 55—or, better yet, making 60 the new 50—should be a key objective across the G6.

To some extent this transition should happen naturally. Retirement may be enjoyable, but it can also be expensive. As asset returns fall and pension promises (both public and private) come under pressure, people may decide that they simply cannot afford to retire as early as they do now. Others may wonder what they would do all day for the next 20 or so years. Better physical health, desk jobs and a reluctance to become 'old' may convince many baby boomers to continue working well into their 60s. The recent rise in participation rates among older workers in the US and the UK provides some evidence that this trend may be taking hold.

G6 governments can do much to facilitate this shift by improving the financial incentives for people to work longer. This would be especially helpful in Europe, where it is difficult to imagine significantly greater participation rates under current incentive systems. Higher employment is an explicit goal of the EU, which set ambitious employment targets as part of its Lisbon Strategy in 2000. In an effort to make the EU the 'most dynamic and competitive knowledge-based economy in the world', the EU is seeking to raise the average employment rate from 61% in 2000 to 67% in 2005 and to 70% by the end of the decade. Progress toward this ambitious target has been slow, with the employment rate reaching just 64.4% in 2004. Although EU national governments, most notably France and Germany, have taken some steps to reform their labor markets, these steps have been tentative and have fallen far short of what would be needed to increase employment to the Lisbon levels.

Throughout the G6, the obvious step would be to raise the age of eligibility for public pensions, bringing it more in line with modern life expectancies. Although some developed countries have raised their eligibility ages in recent years, formal retirement rates still fall well short of where they 'should' be. For example, the age at which people can receive full pension benefits in the US held steady at 65 from the inception of the program in the 1930s until just a few years ago. It is now rising gradually, but only to 67, and with a 25-year phase-in period. Yet the US Social Security Administration itself estimates that increases in life expectancy already make 71 the appropriate retirement age.

Other governments have also taken steps to extend the age at which people receive public pensions. Eligibility ages have risen or will rise to 65 from 60 in Japan and for men in Germany and women in the UK. But the age is still 60 in France and for women in Italy, despite significant increases in health and life expectancy.

Raising the age at which (reduced) benefits are first available would also help, not least because it would signal that retirement ages across the board should be higher. So would other financial incentives, including true actuarial fairness in state pensions, and tax and benefit reforms to ensure that people who continue to work while receiving pensions are not penalized.

Governments can also do their part to change expectations about retirement. Higher pension-eligibility ages are a key part of this. Other steps could include stiffening restrictions on age discrimination; requiring flexible working conditions for older workers; offering tax credits to firms hiring older workers; reducing individual income tax rates for older workers; and funding job retraining programs. Older workers might also benefit from broader labor-market reforms in continental Europe that encourage firms to hire casual workers.

Aging Is Inescapable...Flexibility Is Key

Changing expectations about retirement will not be easy. Structural reform is always difficult, and voters' appetite for painful change is limited. But the potential gains of higher living standards in the future should make trying worthwhile, and growing concern about the reliability of public pensions should help to make the case. The burden of aging will be significant even in the best case. Dependency ratios will soar in the G6 over the next 20 years, straining pension systems and national savings. In this respect, the upward trend in older workers' participation in the US and the UK is encouraging. Flexibility—in working lifetimes, pension systems and, most importantly, in expectations will be essential if G6 countries are to meet the challenges of their own demographics.

Recent Global Economic Papers

Paper No.	Title	Date	Author
131	Is Foreign Direct Investment An Engine for Economic Grow th?	16-Sep-05	Binit Patel, Mónica Fuentes and Anna Stupnytska
130	What Italy Needs to Do	14-Sep-05	Kevin Daly and Inês Calado Lopes
129	China and Asia's Future Monetary System	12-Sep-05	Jim O'Neill
128	The Impact of Pension Reform on the Capital Markets	8-Sep-05	Dambisa F. Moyo
127	The "ABC" of Asia's FX Regime Shift	1-Sep-05	Sun-Bae Kim and Tetsufumi Yamakaw a
126	Europe: Challenged by Globalisation	13-Jul-05	Erik F. Nielsen and Nicolas Sobczak
125	Inflation Targeting — The Case for More?	15-Jun-05	Jim O'Neill
124	Merging GSDEER and GSDEEMER: A Global Approach to Equilibrium Exchange Rate Modelling	16-Apr-05	Jim O'Neill, Alberto Ades, Hina Choksy, Jens J. Nordvig and Thomas Stolper
123	Africa's Long Road Ahead: Laying Dow n the Potential	14-Mar-05	Carlos Teixeira, Roopa Purushothaman and Mike Buchanan
122	Germany Profits From Restructuring	24-Feb-05	Dirk Schumacher
121	The Lisbon Strategy and the Future of European Grow th	21-Jan-05	Kevin Daly
120	Thoughts on Social Security Reform	18-Jan-05	William C. Dudley, Edw ard F. McKelvey and Jan Hatzius
119	Can the G7 Afford the BRICs Dreams to Come True?	30-Nov-04	Jim O'Neill
118	The BRICs and Global Markets: Crude, Cars and Capital	14-Oct-04	Dominic Wilson, Roopa Purushothaman and Themistoklis Fiotakis
117	US Consumers: Living Beyond Their Means	1-Oct-04	Jan Hatzius
116	Bush vs. Kerry: Budget Deterioration Limits the Scope for New Policy Initiatives	17-Sep-04	William Dudley, Ed McKelvey, Alec Phillips and Chuck Berw ick
115	Making the Most of Global Migration	6-Aug-04	Sandra Law son, Roopa Purushothaman and Sabine Schels
114	House Prices: AThreat to Global Recovery or Part of the Necessary Rebalancing?	15-Jul-04	Mike Buchanan and Themistoklis Fiotakis
113	South Africa: Capital Controls Constraining Grow th	15-Jul-04	Carlos Teixeira, Rumi Masih and Jim O'Neill
112	The G8: Time for a Change	3-Jun-04	Jim O'Neill and Robert Hormats
111	Introducing the Goldman Sachs China Financial Conditions Index (GS China-FCI)	19-May-04	Sun-Bae Kim, Hong Liang and Enoch Fung
110	Central European Fixed Income: New High Yield Opportunities within the EU	12-May-04	Jens J. Nordvig
109	India: Realizing BRICs Potential	14-Apr-04	Roopa Purushothaman
108	The Choice of Central Bank Policy Regimes: Markets Have a View	7-Apr-04	Andy Bevan and Jim O'Neill
107	Sw eden's Long Term Grow th Prospects — the Good and Bad New s	2-Apr-04	Binit C. Patel

	ad of Global Economic Research & Deputy Head of Global Economic Research
Global Macro &	² Dominic Wilson, M.D. & Director of Global Macro & Markets Research
Markets Research	Michael Buchanan, E.D. & Director of Global Macro & Markets Research
	¹ Francesco Garzarelli, E.D. & Senior Global Markets Economist
	 ² Sandra Lawson, V.P. & Senior Global Economist ¹ Dambisa Moyo, E.D. & Economist, Pension Fund Research
	¹ Binit Patel, E.D. & Senior Global Economist
	¹ Kevin Edgeley, E.D. & Technical Analyst
	² Jens J Nordvig-Rasmussen, V.P. & Global Markets Economist
	¹ Thomas Stolper, E.D. & Global Markets Economist
	¹ Hina Choksy, Associate Econometrician
	² Mónica Fuentes, Associate Global Economist
	¹ Fiona Lake, Associate Global Markets Economist
	¹ Michael Vaknin, Associate Global Markets Economist
	 ² Roopa Purushothaman, Associate Global Economist ² Themistoklis Fiotakis, Research Assistant, Global Markets
	² David Heacock, Research Assistant, Global Macro
	¹ Anna Stupnytska, Research Assistant, Global Macro
Americas	² William Dudley, M.D. & Chief US Economist
-	⁹ Paulo Leme, M.D. & Director of Emerging Markets Economic Research
	² Jan Hatzius, M.D. & Senior US Economist
	² Edward McKelvey, V.P. & Senior US Economist
	² Alberto Ramos, V.P. & Senior Latin America Economist
	⁸ Alec Phillips, V.P. & Economist, Washington Research
	² Andrew Tilton, V.P. & US Economist ⁸ Chuck Reputer Associate Washington Research
	 ⁸ Chuck Berwick, Associate, Washington Research ² Pablo Morra, Associate Latin America Economist
	² Sara Aronchick, Research Assistant, US
	² Avinash Kaza, Research Assistant, US
	² Malachy Meechan, Research Assistant, Latin America/Global Markets
Europe	¹ Erik F. Nielsen, M.D. & Chief European Economist
	¹ Ben Broadbent, E.D. & Senior European Economist
	³ Nicolas Sobczak, E.D. & Senior European Economist
	⁴ Rory MacFarquhar, E.D. & Economist
	¹ Javier Pérez de Azpillaga, E.D. & European Economist
	¹⁰ Dirk Schumacher, E.D. & European Economist
	istvan zsoldos, E.D. & European Economist
	 Inês Calado Lopes, Associate European Economist Kevin Daly, Associate European Economist
	¹ Neena Sapra, Research Assistant, Europe
	¹ AnnMarie Terry, Research Assistant, Europe
Asia	⁵ Sun Bae Kim, M.D. & Co-Director of Asia Economic Research
	7 Tetsufumi Yamakawa, M.D. & Co-Director of Asia Economic Research
	⁶ Adam Le Mesurier, V.P. & Senior Asia Pacific Economist
	⁷ Naoki Murakami, V.P. & Senior Japan Economist
	^o Hong Liang, V.P. & Asian Pacific Economist
	 Yuriko Tanaka, V.P. & Associate Japan Economist Enoch Fung, Associate Asia Pacific Economist
	 ⁵ Helen Qiao, Associate Asia Pacific Economist ⁷ Rie Kitagawa, Research Assistant, Japan
	⁵ Yu Song, Research Assistant, Asia Pacific
	⁵ Mark Tan, Research Assistant, Asia Pacific
	⁷ Daisuke Yamazaki, Research Assistant, Japan
	⁵ Eva Yi, Research Assistant, Asia Pacific
Admin	¹ Linda Britten, E.D. & Global Economics Mgr, Support & Systems
	² Melisse Dornier, V.P. & US Economics Mgr, Admin & Support
	¹ Philippa Knight, E.D. & European Economics, Mgr Admin & Support
Location	¹ in London +44 (0)20 7774 1160
	² in NY +1 212 902 6807
	³ in Paris +33 (0)1 4212 1343
	⁴ in Moscow +7 095 785 1818
	⁵ in Hong Kong +852 2978 1941 ⁶ in Singapore +65 6889 2478
	 ⁷ in Tokyo +81 (0)3 6437 9960 ⁸ in Washington +1 202 637 3700
	⁹ in Miami +1 305 755 1000
	¹⁰ Frankfurt +49 (0)69 7532 1210

GOLDMAN SACHS GLOBAL RESEARCH CENTRES

New York

Goldman Sachs & Co. New York Plaza, 47th Floor New York, New York 1000, USA Tel: +1 212 902 1000

London

Goldman Sachs International Peterborough Court 133 Fleet Street London, EC4A 2BB, England Tel: +44 (0)20 7774 1000

Paris

Goldman Sachs Inc et Cie 2, rue de Thann 75017 Paris, France Tel: +33 (0)1 4212 1341

Hong Kong

Goldman Sachs (Asia) L.L.C. Cheung Kong Center, 68th Floor 2 Queen's Road Central Hong Kong Tel: +852 2978 1000

Frankfurt

Goldman Sachs & Co. oHG MesseTurm D-60308 Frankfurt am Main, Germany Tel: +49 (0)69 7532 1000

Tokyo

Goldman Sachs (Japan) Ltd. Roppongi Hills Mori Tower 47th Floor, 10-1, Roppongi 6-chome Minato-ku, Tokyo 106-6147, Japan Tel: +81 (0)3 6437 9960

Singapore

Goldman Sachs (Singapore) Pte. 1 Raffles Place, #07-01 South Lobby, Singapore 039393 Tel: +66 889 1000

Washington

Goldman Sachs & Co. 101 Constitution Ave, NW Suite 1000 East Washington, DC 20001 Tel: +1 202 637 3700 Copyright 2005 The Goldman Sachs Group, Inc. All rights reserved.

This material should not be construed as an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. We are not soliciting any action based on this material. It is for the general information of clients of The Goldman Sachs Group, Inc. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Before acting on any advice or recommendation in this material, clients should consider whether it is suitable for their particular circumstances and, if necessary, seek professional advice. The price and value of the investments referred to in this material and the income from them may go down as well as up, and investors may realize losses on any investments. Past performance is not a guide to future performance. Future returns are not guaranteed, and a loss of original capital may occur. The Goldman Sachs Group, Inc. does not provide tax advice to its clients, and all investors are strongly advised to consult with their tax advisers regarding any potential investment. Certain transactions including those involving futures, options, and other derivatives as well as non-investment-grade securities give rise to substantial risk and are not suitable for all investors. The material is based on information that we consider reliable, but we do not represent that it is accurate or complete, and it should not be relied on as such. Opinions expressed are our current opinions as of the date appearing on this material only.

We endeavor to update on a reasonable basis the information discussed in this material, but regulatory, compliance, or other reasons may prevent us from doing so. We and our affiliates, officers, directors, and employees, including persons involved in the preparation or issuance of this material, may from time to time have "long" or "short" positions in, act as principal in, and buy or sell the securities or derivatives (including options) thereof of companies mentioned herein. For purposes of calculating whether The Goldman Sachs Group, Inc. beneficially owns or controls, including having the right to vote for directors, 1% of more of a class of the common equity security of the subject issuer of a research report, The Goldman Sachs Group, Inc. includes all derivatives that, by their terms, give a right to acquire the common equity security within 60 days through the conversion or exercise of a warrant, option, or other right but does not aggregate accounts managed by Goldman Sachs Asset Management. No part of this material may be (i) copied, photocopied, or duplicated in any form by any means or (ii) redistributed without The Goldman Sachs Group, Inc.'s prior written consent.

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs, and pursuant to certain contractual arrangements, on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs JBWere Pty Ltd (ABN 21 006 797 897) on behalf of Goldman Sachs; in Canada by Goldman Sachs Canada Inc. regarding Canadian equities and by Goldman Sachs & Co. (all other research); in Germany by Goldman Sachs & Co. oHG; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in Japan by Goldman Sachs (Japan) Ltd; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs JBWere (NZ) Limited on behalf of Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman, Sachs & Co. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union. This material has been issued by The Goldman Sachs Group, Inc. and/or one of its affiliates and has been approved for the purposes of section 21 of the Financial Services and Markets Act 2000 by Goldman Sachs International, which is regulated by the Financial Services Authority, in connection with its distribution in the United Kingdom, and by Goldman Sachs Canada, in connection with its distribution in Canada. Goldman Sachs International and its non-US affiliates may, to the extent permitted under applicable law, have acted on or used this research, to the extent that it relates to non-US issuers, prior to or immediately following its publication. Foreign-currency-denominated securities are subject to fluctuations in exchange rates that could have an adverse effect on the value or price of, or income derived from, the investment. In addition, investors in securities such as ADRs, the values of which are influenced by foreign currencies, effectively assume currency risk. In addition, options involve risk and are not suitable for all investors. Please ensure that you have read and understood the current options disclosure document before entering into any options transactions

Further information on any of the securities mentioned in this material may be obtained on request, and for this purpose, persons in Italy should contact Goldman Sachs S.I.M. Sp.A. in Milan or its London branch office at 133 Fleet Street; persons in Hong Kong should contact Goldman Sachs (Asia) L.L.C. at 2 Queen's Road Central; persons in Australia should contact Goldman Sachs JBWere Pty Ltd. (ABN 21 006 797 897), and persons in New Zealand should contact Goldman Sachs JBWere (NZ) Ltd. Persons who would be categorized as private customers in the United Kingdom, as such term is defined in the rules of the Financial Services Authority, should read this material in conjunction with the last published reports on the companies mentioned herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International on request. A glossary of certain of the financial terms used in this material is also available on request. Contact a Goldman Sachs entity in your home jurisdiction if you want to use our services in effecting a transaction in the securities mentioned in this material.

Goldman Sachs Research personnel may be contacted by electronic mail through the Internet at firstname.lastname@gs.com