

DO WE NEED MORE IMMIGRANTS AND BABIES?

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The purpose of this lecture is to consider the issue of optimal population growth and population density in general and in the UK in particular. My starting point is the often heard assertion that the rich developed world faces a problem of population slowdown and population aging, and that in the face of it we need either an increase in the birth rate – more babies perhaps stimulated by new pro-natalist policies – or more immigrants. Two closely related but still distinguishable arguments are made in support of that assertion:

- First, that we need more babies or immigrants over the long term because otherwise we face a dependency ratio problem in supporting an increasing population of elderly people.
- Second, that in the short and medium term we need more immigrants because otherwise we face a shortage of workers; we face manpower and skill gaps that need to be filled.

I will consider these assertions, and also consider the wider issue of whether we can say anything in general about optimal population density or optimal population growth. And to give away the punch lines up front, I believe in relation to the UK that these often-made assertions are broadly untrue, and to make that case I will consider four sets of issues in turn. **[Slide 1]**

1. First, arguments relating to dependency ratios, which I believe are greatly overstated, because they fail to take account of important adjustment mechanisms and offsetting factors.
2. Second, arguments relating to a “shortage” of workers, where I will argue that arguments expressed in terms of “shortage” and “need” are in most

cases economically illiterate, focusing on meaningless assertions about quantities rather than on price adjustments: price adjustments which are likely to mean that more immigrants are likely to benefit some people in the labour market but harm others, but with both the benefits and the harm very small over the long-term.

3. Third, arguments related to the welfare consequences of population growth and population density which go beyond either dependency ratio or labour market price effects, which I shall argue are more important than either of those effects, and which suggest that something like population stability will be desirable
4. But fourth, I will argue that there can be a strong moral case for high immigration, which relates not to the benefit of immigration to the receiving country but to the immigrants themselves. And I will consider how far that moral case should influence policy.

There are however several immigration related issues which I will not talk about this evening.

I will not talk at all about the cultural issues involved in the integration of immigrants. These may or may not be important, and they could be positive (the benefits of diversity) or negative (the difficulties and costs of integration) but they are not my concern tonight.

Nor is this lecture focused on the pros and cons of the recent surge of eastern European immigration, other than as providing an empirical record from which we might be able to draw some implications for the future. While significant over the last few years, that surge of immigration does not in itself amount to a major increase in population, and it is a done deal. The issue for this lecture is instead whether looking forward a similar pace of immigration sustained over many decades would be desirable or not.

And/or whether an increase in the birth rate would be desirable. Because for the purpose of tonight's lecture, the distinction between more immigrants and more babies is not essential, and the conclusions I will reach will apply equally to the attractiveness of policies which, over the long term, stimulate or allow more immigration, or stimulate the birth rate. An immigrant for tonight's purposes is a new entrant to the population who just happens to be born on average at an age in their mid 20s, rather than in the case of a baby at the age of zero.¹ Now, of course, at a second order level, this difference in the age of

¹ E.g. of A8 migrants registering under the WRS scheme, 44% were aged 25-34 and 39% aged 25-34. (Home Office Accession Monitoring Report, November 2005)

entry between immigrants and babies does have some short term economic consequences. And it may also be the case that immigrants have on average different skill profiles than non-immigrants, either more or less skilled. And there are some important welfare and distributional consequences arising from the fact that immigrants do not usually bring with them inheritance rights to the privately owned part of the existing capital stock, while new-born babies on average do. And I will comment on some consequences of these second order differences. But they are second order not primary. The key issue tonight is whether looking forward say 20 to 30 years we would like to have somewhat more working aged people than might otherwise be the case; and when answering that question, immigrants and new born citizens are more similar than different.

Finally, on geographic coverage. In terms of the figures I refer to, I'm going to focus primarily on the UK, with some reference also to U.S. data. I will not look in detail at countries which face more extreme demographics than the UK – much lower birth rates. The issue of more extreme demographic cases was however one which I addressed in a lecture I gave earlier in the autumn to the World Demographic Association.² **[Slide 2]** In that lecture I argued that the problems created by aging in the rich developed world are hugely overstated and that the problems created by rapid population growth in much of the developing world are too often ignored or downplayed. That lecture is available on www.wdassociation.org and should be treated as a companion to this one.

So these **[Slide 1]** are my four main theoretical topics. But before diving into them, it would be useful to establish the facts, or rather the best estimate projections, of what might happen to UK demography over the next 50 years, and in doing so to introduce a particular measure which helps frame the questions I wish to pose.

The big picture is that latest UK demographic projections do not show a decline in the population but quite a rapid rise from 61 million today to perhaps 75 million by 2050. And that these projections have changed very significantly over just the last three years.

When the Pensions Commission was modeling the affordability of UK pension provision in the run up to our 2005 report, we based our analysis on Government Actuary's Department's 2003-based Principal Projection. That suggested **[Slide 3]** that fertility, having declined over the last 40 years, would

² *Population ageing or population growth what should we worry about?* World Demographic Association, 2007. The first section of that lecture covers much of the same material as the first section of this one, but Section 2 addresses issues relating to developing world demographics which are not covered here.

stabilise long-term at about 1.75 children per woman. It assumed **[Slide 4]** that life expectancy would increase more rapidly than in previous estimates. And **[Slide 5]** that net immigration, which had risen significantly over the previous ten years, would stabilise at about 130,000 per annum. Together **[Slide 6]** these assumptions resulted in a population projected to grow from 61 million in 2005 to 66 million by 2050.

And it's worth being clear why the population in those 2003 Principal Projections was growing, despite a fertility rate below the replacement level. There were two reasons.

- First, the impact of increasing longevity. With increasing longevity, you can have a growing population even if the fertility rate is below the replacement level, and even if net immigration is nil. In rich developed countries, a birth rate of something like 2.05 children per woman is required for each generation to be the same size as before.³ But with steady increases in life expectancy, fertility at this level would still produce a steadily rising population, and the fertility rate consistent with population stability is a bit below two. In the UK, the population would stay roughly stable if there were zero net migration and if the fertility rate was somewhere around 1.9.
- But net immigration is not zero. In the 2003 projections it was assumed to run at 130,000 per annum. And that means that what I label the "Combined Replacement Rate" in the 2003 projections was not below but clearly above replacement level. What I mean by the "Combined Replacement Rate" is what the fertility rate would be if instead of immigrants we had the equivalent number of additional babies. To calculate it, you gross up the total fertility rate by births plus immigrants over births. **[Slide 7]** If this ratio is over about 2.05 the population will rise over the long-term even if there is no longevity increase. In the 2003 Principal Projections the Combined Rate at 2.08 was above the replacement rate. This would have driven slow population growth even if longevity had not been increasing. With longevity increase in addition, 10% growth over 45 years results.⁴

³ It is slightly above 2 for two reasons: (i) the fact that slightly less than half of all babies born are girls, and (ii) the fact that even in rich developed countries there is a small incidence of infant and child mortality, so that not all girls reach childbearing age.

⁴ Over the medium term of course, e.g. over 2-3 decades, significant population growth can be driven not by a current fertility above 2.05 but by the fertility rate which existed a few decades ago, since this determines the number of women of child bearing age. Thus, even if the fertility rate is presently well below 2.05, so that the generation of children is smaller than the generation of say 20-40 year olds, population growth may still continue for several decades if the generation of 20-40 year olds is itself bigger than the previous generation of 20-40 year olds, due to past fertility rates.

Since then however, the population projections produced by GAD have increased dramatically **[Slide 8]** from 66 million in 2050 to 75 million. A small element of that increase derives from the fact that life expectancy forecasts have been pushed still higher, **[Slide 9]** but the major reason is that both elements within the Combined Rate have increased **[Slide 10]**

- The long-term fertility assumption has been nudged up from 1.74 to 1.84, reflecting an observed increase in fertility over the last several years.
- And assumed net immigration has been increased from 190,000 to 300,000, so that the Combined Rate now stands at 2.28, well above the replacement level and therefore bound to produce quite rapid population growth.

The essence of the UK's demographic outlook under the Principal Projection can therefore be summarized as follows:

- The non-immigration drivers of population are roughly in balance. The long-term fertility rate of 1.85, though below 2, is not far off the 1.9 or so which combined with life expectancy increases would produce population stability. A fact illustrated by GAD's zero net immigration scenario **[Slide 11]** which shows total population falling gradually if there were no longevity increase, but roughly stable once we allow for projected life expectancy increases.
- But with the population projected to rise quite rapidly because once you allow for immigration, the Combined Replacement Rate is not 1.84 but about 2.28.

Those then are the Principal Projections, the best estimates from GAD. And let me stress before anyone says it, that I am well aware that these are only projections and could be wrong. It may be that net immigration will be less than in the projections – in particular we do not know how many recent immigrants will stay permanently versus how many return home. Or immigration could be higher. And the impact of high immigration could be offset by further unanticipated falls in fertility, or accentuated by an unanticipated increase. But that uncertainty has no implications for my lecture tonight, which aims not to predict what will happen but to ask whether we can say anything about the optimal level of the Combined Replacement Rate and the optimal rate of population growth or decline. In essence, my questions are:

[Slide 12]

- Is the latest Combined Replacement Rate of 2.28 better or worse for human welfare than the 2.08 projected in 2003? And would a still lower CRR of, say 1.9 or 1.7, be better or worse (irrespective of the mix of fertility and immigration in any given CRR)? To answer these questions I will treat the 2003 based Principal Projections as the base case.⁵
- And do we in any meaningful sense “need” at least a certain level of CRR – a certain combined level of fertility and immigration below which we face severe problems?

Those are the questions I’m seeking to answer. So let me turn to them.

1. Dependency ratio arguments greatly overstated

I begin with arguments relating to pensions and the dependency ratio. The conventional wisdom statement of the problem is familiar, so I will go through it quite fast.

- Life expectancy is increasing and fertility has fallen, to or below replacement level. And the combined impact of those two demographic trends [**Slide 13**] is that the age structure of the population changes quite significantly – a change which we can summarise as being from triangular or pyramid like structures to columns with small pyramids on top. But with the possibility if the Combined Rate settles permanently below 2, that the column tapers towards the bottom. When you look at actual figures for a developed country, the pattern is less dramatic and more complex than the simple theory suggests, both because the move from pyramids to columns began a century ago, and because the actual pattern carries within it the history of short term mortality and fertility fluctuations (war and post-war baby boom). But the broad tendency is still apparent from the UK figures for 1965 [**Slide 14**] and 2002 [**Slide 15**]
- This change in the age structure clearly changes the ratio of people above some defined “retirement age” (say 65) to those of some defined “working age” (say 20 to 65) so that the ratio A to B on **Slide 13** is bound

⁵ The 2003 Principal Projections is taken as the base case since this was the projection used by the Pensions Commission when we modeled the affordability of future state pension provision for the Pensions Commission Report. A higher rate of population growth will make the fiscal strain of state pension provision more affordable than in Report projections; a lower rate will make it less affordable.

to increase, producing an increase in what is often labeled the “old age dependency ratio” **[Slide 16]**.

- And this rise in the dependency ratio can then create difficulties for pension systems. Most obviously in the case of pay-as-you-go systems, funded by national insurance or tax contributions, where the ratio of recipients to contributors increases. But also – at least within a closed economy or at the level of the whole world – in the case of funded pensions, where both rising longevity and lower fertility can produce problems through capital return and capital asset price effects.⁶
 - Thus, if people try to compensate for longer life in retirement by saving more, that will, everything else being equal, tend to produce a higher capital/output ratio and a lower return on capital, at least in part offsetting the benefit of higher savings.
 - And if Generation 1 is followed by a smaller Generation 2 (or by a Generation 2 which is smaller relative to Generation 1 than G1 was to G0) then the attempt of Generation 1 to sell its accumulated assets to fund retirement will in part be offset by falling prices for accumulated capital assets.
- Finally therefore the conventional wisdom suggests we must not merely reform pensions systems, but also try to adjust our demographic destiny, restoring the population pyramid via more babies or more immigrants, so as to keep stable the ratio A to B. This then produces the mechanistic calculation that in the absence of a birth rate rise, the UK or Europe “needs” X million or Y million immigrants, a calculation frequently seen in discussion of immigration issues. **[Slide 17] [Slide 18]**

Mechanistic calculations of this sort are however valueless contributions to a serious debate about optimal immigration policies. Of course it is true that demographic trends will tend, with an unchanged retirement age, to increase the ratio of A to B, and it is important for pension reform commissions, like the UK Pensions Commission, to set this out as a spur to sensible pension reform. But it is vitally important to distinguish inherent problems from those which simply result from bad policy, and to recognize important offsetting benefits of lower fertility which have direct positive consequences for the affordability of pension provision.

Three factors are absent from the mechanistic calculation.

⁶ For detailed description of the effects created by changing dependency ratios in funded pension systems, see A. Turner *The Macroeconomics of Pensions*, lecture to the Institute of Actuaries, September 2003.

Proportionally rising ages of pension receipt

The first is the potential for average retirement ages and ages of pension receipt to rise. The conventional wisdom, reflected in charts shown in numerous documents and lectures, takes the ratio of say 65+ to 20-65 year olds and labels this “the old age dependency ratio”. But this is only a sensible measure and an accurate description if we assume that in the face of gradually rising longevity the average age of retirement stays unchanged. That is an absurd base case assumption. A more sensible base case assumption is that as people live longer, they could divide the extra years of life between extra work and extra retirement leisure so as to keep roughly stable the proportions of adult life spent working and in retirement⁷. And when we shift to that more sensible assumption at least in the UK a full half of the apparent rise in the dependency ratio between now and 2050 disappears. That is true whether we look at the 2003 based Principal Projection or the 2006 based.⁸ **[Slide 19]** **[Slide 20]** And beyond 2050, there would be no further rise in the dependency ratio as long as we continue to apply the principle of proportionally rising retirement ages, and as long as there is no further decline in the fertility rate from the 1.74 assumed in these 2003 based figures shown in Slide 21 (or the 1.84 assumed in the 2006 Projections). Long-term stabilization of the ratio does not require a reversal of the shift to lower fertility, but simply an end to its decline.

So, we are hugely overstating the challenge – in the case of the UK exaggerating the challenge by a factor of two, simply by using a dependency ratio based on the unreasonable assumption of unchanged retirement ages.

Two counter arguments to this case are often made.

⁷ Any old age dependency ratio calculation (e.g. the often used 65+: 20-64 or 65+: 15 to 64 ratios), ignores the complexity that individual people enter and leave the work force at a variety of ages, that exit can be fulltime or part time, and that the age of pension receipt may be different from the age of retirement. And 65 has often been used as an assumed retirement age in standard measures of the old age dependency ratio, despite the fact that average ages of retirement have tended to be lower. An old age dependency ratio calculated using a slowly rising retirement age does not therefore assume that all people will retire at that age, nor start drawing pensions at that age, nor that it is necessarily the average age of retirement. It reflects instead the assumption that over time the average effect of changes in many different pension receipt ages and retirement ages will be in proportion to the effect which would arise if all people today retired at 65 and in future at the gradually rising ages assumed.

⁸ For the 2003 based projection, we assume that the SPA rises to 68.5 by 2050, in line with government plans to introduce it to 68 in 2045, and as needed to keep the proportion of life in retirement roughly stable. For the 2006 based projection which now projects significantly higher life expectancy, the SPA needs to rise to 70 in 2050 to implement the proportional principle.

- First, that people cannot retire later because they will be too old to do the jobs available.
- Second, that in actual fact people are not on average retiring later, indeed if anything the trend till recently was to retire earlier.

Neither of these counterarguments is convincing.

In relation to the first, the crucial issue is whether ageing is healthy or unhealthy, whether we are talking about more years of frailty and infirmity, or more years of healthy life, with people not only living longer, beyond say 65 or 70, but at 65 or 70 on average enjoying the same physical and mental alertness which 50 years ago was typical for people several years younger.

While the evidence base on this issue is thinner than one would ideally like, the balance of available evidence points overwhelmingly and increasingly towards the conclusion that aging is on average healthy.

Ideally, in order to address the specific issue of the feasibility of increases in retirement age, we would look at evidence setting out trends over time in the average health of people aged around typical past and future possible retirement ages, say 60 to 70. Such evidence needs to be based not on surveys asking people how healthy they feel, which are subject to the extreme methodological problem of changing expectations⁹, but on concrete measures of physical stamina, physical dexterity and mental capacity. Newly established studies, such as the English Longitudinal Study of Ageing, will over the time deliver such insights, but it will take many years before trends can be described with confidence¹⁰. However evidence from studies of more extreme disability, together with advances in theory, make it close to certain that average health at any given age is increasing rapidly.

- Extensive research in the U.S. in particular illustrates that the prevalence of significant disability has declined markedly over the last several decades, at both “old old” ages [e.g. over 85] and “young old” ages [e.g.

⁹ Trends in Self Reported sickness (by age band) are for instance reported in the “Living in Britain” survey, and these have sometimes been used to calculate “Healthy life expectancy”, which on this basis has increased but not as rapidly as total life expectancy. The inherent methodological flaw in these surveys is that as people have got healthier their expectation of what constitutes healthy life has changed.

¹⁰ The first year’s results of the English Longitudinal Study of Aging were produced in 2004.

65-75], and at an accelerating pace over time¹¹. “Active life expectancy” at old ages is according to Manton and Lamb’s analysis increasing more rapidly than life expectancy, with an increasing percentage of older years spent in reasonably good health. While this research has tended to focus on the tail of clear disability, rather than on average health, and therefore on issues relating to the affordability of health and residential care expenditures rather than on the feasibility of increases in retirement age, it is difficult to imagine a theory of aging in which declines in this tail of significant disability would not be matched by improvements in average health at each age.

- New theoretical understanding of the nature of aging, meanwhile, is illustrating that neither in relation to progress towards death nor towards ill health is it a “strict clock driven progress” but one in which “there is plenty of scope for non genetic factors to affect how fast or slowly the burden of molecular and cellular damage builds up during our lives”¹². A multitude of changes in diet, lifestyle, the nature of work, and healthcare technology, have therefore been able to deliver rapid improvements in later life expectancy [e.g. life expectancy after 70] which arise not only from medical interventions at older ages “but in large part also due to the fact that in today’s Europe older citizens are reaching advanced old age in unprecedented bodily health”. The new biological theories of aging therefore support the observation of the French historian Patrice Bourdelais, who has argued that we need to recognize the extreme elasticity of the aging process, with, by his calculations, the average Frenchwoman of 77 today equivalent, in terms of health and fitness, to the average woman of 62 in 1900.¹³
- The overwhelming probability is therefore that aging is on average healthy; and it is almost certain that aging could be healthy for the vast majority of people. Very large differences between different socioeconomic classes in physical and mental health at any given age are concerning from a social equity point of view, but illustrate the large potential to make aging healthier via better diet, exercise (physical and mental), better occupational health practices, and better preventative medical interventions during youth and middle age. This illustrates the importance of policies designed to ensure that aging is healthy for as

¹¹ See K. Manton and X. Gu “Changes in the prevalence of chronic disability in the United States black and white population above age 65 from 1982 to 99”, Centre for Demographic Studies, Duke University (2001). David Cutler “The reduction in disability among the elderly” PNAS, June, 2001 for a survey of research findings to that date. K. Manton and V. Lamb “U.S. mortality, Life Expectancy and Active Life Expectancy at Advanced Ages: Trends and Forecasts” (2006).

¹² See Professor Tom Kirkwood, Director, Institute of Ageing and Health, Newcastle University, “Changing expectations of Life”, April 2007 See Professor Tom Kirkwood, Director, Institute of Ageing and Health, Newcastle University, “Changing expectations of Life”, April 2007.

¹³ Patrice Bourdelais *Demographic age: a notion to revisit*, *The History of the Family* 4(1), 1999

many people as possible, but also clearly supports the belief that there is no inherent reason why the average retirement age should not rise in line with adult life expectancy. Calculations of old age dependency ratios should therefore make the base case assumption that such a rise can occur.

But if people can work longer, why are they not doing so? Why instead did we see in many developed countries a fall in average retirement age from 1950 to the mid 1990s? **[Slide 21]** Why indeed have we seen the percentage of adult life spent in retirement, increase even more than it would have if the average retirement age had simply stayed stable? **[Slide 22]**

The answer seems likely to be twofold.

- The first is that countries and companies have, in their pension system design, created economic incentives for people to retire early and disincentives against working later.
 - Most state pension systems have failed until very recently to adjust “standard ages” of pension receipt in line with rising life expectancy. Many have failed to allow people who wish to work beyond the “standard age” to defer their pensions and receive a higher pension at a later age. Several in addition have continued to levy employer and/or employee contributions on earnings after the “standard age” even though no further pension rights are accrued. And many have provided options for people to retire early on a more than actuarially fair basis. As a result, the effective marginal tax rate imposed on earnings resulting from delayed retirement has in many systems been in excess of 60%.¹⁴
 - Where companies play a significant role in pension provision, their practices have created similar disincentives. Normal pensionable ages within defined benefit pension schemes were largely unchanged until the last few years. Such schemes did not typically allow the option of accruing further pension benefit beyond normal pensionable age, or of receiving a higher pension at a later age. And in many cases, sloppy accounting rules and actuarial practices made generous early retirement

¹⁴ See e.g. J. Gruber and D. Wise and “*Social Security and retirement: an international comparison*”, American Economic Review 88.

packages an apparently costless way for companies to pay redundancy; such packages were therefore used extensively in corporate restructuring. In addition, in both the private and public sectors, people have until very recently not been given the option of working beyond “normal retirement ages”.

- Evidence from the UK Pensions Commission illustrates that the incentives people face have a significant influence on average retirement ages; people in defined contribution pension schemes for instance typically retire later than those in defined benefit schemes because they face a clear incentive – work till later and achieve a higher pension. **[Slide 23]**

In almost all developed countries, therefore, there is a vital need for pension system reforms which remove barriers to later working and create attractive incentives. In many countries indeed such reforms are now in hand. Once they are in place it is likely that average retirement ages will rise in line with the inherent potential created by healthy aging. Indeed in the UK, the average retirement age, having reached a low point in the mid 1990s, is now rising rapidly. **[Slide 24]**

- But there is probably a second reason why people have been devoting an increasing percentage of adult life to retirement, and this reason may continue to apply in the future. It is that people may simply choose to take some of the benefit of rising productivity and rising real wages in leisure rather than increased consumption. If this preference is general, its expression will mean a slightly lower GDP per capita than would otherwise be attained, but if that is most people’s choice, then welfare is maximized by allowing it to be expressed. In a world of growing life expectancy and growing productivity per hour worked, people can choose to take the benefit of those two positive developments in consumption or in extra leisure. But the fact that some may choose to take the benefit in more leisure, and lengthen their retirement, does not change the fact that the only sensible measure of old age dependency – the measure of the burden of the dependency rather than of the choices people freely make, is one which assumes that retirement ages could rise in line with life expectancy and would do so but for changing income/leisure preferences.

So I have a very specific recommendation to make about how the debate about dependency rates should be conducted. Which is that nobody should be allowed to put up a slide of the ratio of over 65 year olds to 20 to 65 year olds, or any other variant which assumes a fixed age of retirement, and call it “the old age dependency ratio.” The preferred language should instead be as here illustrated on the UK figures. **[Slide 25]**

- The upper line labelled “the dependency ratio which would apply if we followed silly policies.”
- And the lower one labelled “the underlying dependency ratio if sensible policies are pursued”.

Pension reform and manageable burdens

Those sensible policies include changing the parameters of state P.A.Y.G. pension systems so as to reflect rising life expectancy. This can be achieved in two ways.

- By continuing to fix a “standard age” of state pension receipt, but increasing this standard age in line with increasing life expectancy, while also allowing people the option of deferring the pension till later in return for an actuarially fair increase in pension received.
- By moving to a notional defined contribution system (such as Sweden’s) in which people choose when to convert their accumulated balance into an annuity, with the annuity rate offered at any given age falling as life expectancy rises.

In the UK option 1 is now being pursued, with the State Pension Age due to rise from 65 today to 68 in 2045, an increase roughly proportional to rising life expectancy. After 2045 further increases in line with life expectancy are likely.¹⁵

This policy alone, in the UK context, deals with half of the problem of future fiscal strain. **[Slide 26]**

- The top line on Slide 27 shows what would happen to UK public expenditure on state pensions as a percent of GDP (under the 2003 Projection), if we raise the pension in line with average earnings while maintaining an unchanged pension age of 65 after the equalization of

¹⁵ The latest life expectancy projections in the 2006-based figures indeed mean that the State Pension Age will need to rise slightly faster than presently planned if the “proportional rise” principle is to be pursued. An SPA of about 70 in 2050 is now needed to keep the proportion of adult life spent receiving a state pension stable at the 2007 level.

men and women's age at 65 in 2020¹⁶. Public expenditure would increase from 6.2% to 9% of GDP.

- The lower line shows the impact of the new policy (reflected in the 2007 Pensions Act). With the pensionable age rising proportionally in line with life expectancy the public expenditure burden rises from 6.2-7.7% of GDP¹⁷. Half of the fiscal strain disappears, because in the UK case half of the apparent problem arises from rising life expectancy, and rising life expectancy is not a problem unless we make it one by bad policy.

But even the problem that remains is in the UK's case, clearly manageable. Faced with this potential increase in pension expenditure, the UK has two options.

- One would be to increase the state pension age still further. If the SPA were increased to about 72 by 2050, no increase in pension expenditure as a percentage of GDP would be required. While such an increase would be politically difficult, and create some welfare loss, it cannot be considered impossible, since it would only return the SPA to the same relationship to life expectancy in old age which actually attained in 1970s, catching up, as it were, for our failure to adjust pensionable age in line with life expectancy over the last 3 decades.
- The other is to accept either that total public expenditure as a percentage of GDP will increase, or that other elements of public expenditure will be reduced. In the context of an economy likely to grow at 1.5%-2.0% per capita per annum as a result of productivity growth, either or some mix of these variants is clearly possible.

The idea that we “need” higher fertility or immigration to cope with the burden of a rising dependency ratio is therefore simply wrong, a polemic argument rather than a reasoned and fact based contribution to the debate. In theory of course, political economy should always be about choices and trade-offs rather than supposed necessities, but if the scale of the required adjustments were far larger, then the language of “need”, though imprecise, might in practice be justified. If, for instance, the Combined Replacement Rate were below 1.0 and the required long-term increase in UK public expenditure on state pensions (even with a proportionally rising retirement age) were something like from 6.5

¹⁶ At present the UK has a state pension age of 60 for women and 65 for men. This anomalous distinction was introduced in the 1940s: prior to that an age of 65 applied for both men and women. Women's state pension age will rise from 60 to 65 between 2010 and 2020.

¹⁷ See UK Pensions Commission Second Report (2005) chapter 5.4, and chapter 6. Note that the estimates made in that report were based on Government Actuary's Department's 2003-based principal projections.

to 20% of GDP, more babies or immigrants might indeed be the only really feasible solution given the political impossibility of gaining agreement to such a huge increase. But given the actual figures for the UK (even on the 2003 Projections let alone the 2006 Projections) the issue is clearly one which should be debated in terms of trade-offs and opportunity, not of “need”. If we have higher fertility or immigration than assumed in the 2003 Projection, we will not need to face all of the 1.5% increase in the share of GDP devoted to pensions, and could have lower taxes or higher public expenditure on other desirable objectives. But we clearly do not “need” more immigrants or babies, and we cannot assume that welfare would be higher if fertility or immigration rose, since these potential costs of lower fertility have to be balanced against potential benefits.

Beneficial impacts of lower fertility: youth dependency and increased inheritance

There are two ways in which lower fertility increases the economic resources available to the working generation, thus offsetting the burden of increased transfer payments to retirees.

- The first and obvious benefit is that lower fertility means a lower youth dependency rate, which partially offsets the problem of rising old age dependencies. **Slide 27** shows the correctly defined old age dependency ratio in the UK, the youth dependency ratio, and the combined dependency ratio, measured here as the sum of people aged under 20 plus those aged over state pension age (SPA) to those aged between 20 and SPA. In 2050 this combined ratio will be only slightly higher than it is today, and will actually be lower than it was in 1970.¹⁸ Lower youth dependency means lower public expenditure on education for any given level of education participation and quality. And smaller families mean that people can on average afford a higher rate of tax/contributions to pay for pensions without sacrifice of personal non-child related consumption.
- The second benefit – greater inheritance of capital stock – is less immediately obvious, and is often ignored in discussions of demographic

¹⁸ Despite the total dependency ratio shown here being lower than in 1970, however, it is likely that the costs of dependency (i.e. of nonworking members of the population) will be higher for two reasons: (i) the fact that youth dependency (childhood, education expenses) may be less expensive per capita than old age dependency (pensions and healthcare); (ii) the fact that higher education participation rates have increased considerably in the last 35 years, with young person (e.g. 16 to 22 year olds) workforce participation rates falling as a result. But the principle remains that a lower fertility rate produces a youth dependency benefit which partially offsets old age dependency disadvantages.

burdens and pension system reform, but is in many countries even more significant.

The lower the birth rate, the greater per capita is the capital stock inherited from the previous generation and therefore the lower the need to accumulate capital stock via foregone consumption, i.e. savings. One can think about this effect both at the macro and micro level. **[Slide 28]**

- At the macro level, if Generation 2 is smaller than Generation 1, it will, everything else equal, have to pay a higher tax rate to deliver any given level of generosity of PAYG pensions. But it will also, everything else equal, need to save less to achieve any given target of capital/labour ratio, and thus productivity, and this lower required savings rate offsets at least to a degree the impact on consumption of higher tax.¹⁹
- The easier way to think about the effect, however, is probably at the micro, i.e. household level, and to think about the main asset which households own directly – their homes. Simply put, if average family size is two children not four, people on average will inherit $\frac{1}{2}$ of a house not $\frac{1}{4}$, and a couple will on average inherit one house not one half of a house. People can take the benefit of this inheritance in one of two ways: either accumulating less housing assets during working life in the knowledge that they will inherit one to live in during retirement, or accumulating a housing asset during working life and using an inherited housing asset to fund pension provision²⁰. In practice, the complexities are significant – there are distributional issues, issues relating to real house price inflation and issues relating to the tax treatment in inheritance.²¹ But these complexities do not change the fundamental fact that the lower the birthrate, the higher the per capita inheritance of already existing housing assets, an inheritance which on average reduces the need to accumulate savings to support pensions in old age. And the figures are very significant. In the UK, at end 2003 all funded

¹⁹ The scale of this benefit is likely, while significant, to be less than simple gross figures might suggest. This is because there are limits to the extent to which economy can rely on inherited capital stock without suffering a productivity penalty, since new capital investment incorporating latest technology may in some categories (e.g. much plant and equipment) be crucial to productivity improvement. For other categories of long lasting capital (e.g. roads, bridges, ports, power stations, water and sewage systems and residential houses), however, the capital inheritance benefit is largely undiluted by this effect.

²⁰ Other possibilities include that people, especially those who are childless and who thus have limited bequeathal incentives, may liquidate housing assets in retirement via equity release mortgages and other devices. Given that low fertility rates typically arise from a combination of lowish fertility among those who have any children, and a significant (e.g. 20% plus) level of childlessness, this is a nontrivial possibility.

²¹ See Appendix A of my lecture to the World Demographic Association for discussion of these complexities.

pension assets amounted to about £1.3 trillion. Net housing equity, after mortgage debt, was about £2.25 trillion pounds.

It is therefore crucial to take the inheritance of housing or of other capital assets into account in optimal pension system design. In the UK, the Pensions Commission concluded that while distributional complexities make it unwise to treat housing inheritance as a complete substitute for pension provision, it is nevertheless the case that **[Slide 29]** *the greater the inheritance of housing assets, which will be greater per capita the lower the birthrate, the lower is the replacement rate of earnings which pension policy should aim to achieve through the combination of the P.A.Y.G. and the compulsory or encouraged funded elements of the system.*

The general implication of this is that pension policy reform should not take as given the objective of maintaining the pension replacement rates relative to earnings (often in the 65-75% range) which were set in the past, at a time of larger family size, less widespread wealth ownership, and lower average inheritance. The specific implication of this for pension system reform differs between countries according to their starting point.

- In the UK, which has had in the past both a very limited PAYG state pension and only a limited degree of compulsion in funded pension provision, the Pensions Commission believed that the issue was not whether this low level of mandatory/encouraged provision should be reduced, but how much it should be increased to create an adequate base load of assured pension provision. The Commission quite explicitly, however, rejected the idea that the target mandatory/encouraged replacement rate should be as high as the 65-70% sometimes set as a benchmark, recommending instead a target of 45-50%.
- But in the many PAYG systems which under present rules do achieve a 60-70% replacement rate for the vast majority of the population, it may well be appropriate for parametric reform to include not only increases in standard ages of pension receipt, but also reductions in the replacement rate delivered, particularly for middle rather than low income earners.²²

²² A high replacement rate for low income earners from the mandatory system is required both to ensure that absolute poverty in retirement is avoided, and because low income earners are less likely on average to accumulate or inherit housing or other assets.

As a result, the fiscal strain on PAYG systems should in principle (i.e. in terms of welfare optimisation)²³ be manageable not only in the UK, but in many other countries with larger absolute pension expenditures. In the UK, starting with an expenditure of 6.2% of GDP, it is manageable simply to accept the required increase of 1.5% of GDP devoted to pensions. Countries with similar demographics but starting with double the expenditure level (say about 12%) would face a more difficult increase, e.g. 2.5-3.0% of GDP, if they attempted to maintain the replacement generosity unchanged. But they can appropriately limit this increase by reducing replacement rates, without this implying a reduction in relative pensioner living standards once capital inheritance offsets are taken into account.

The overall conclusion on dependency ratio arguments is therefore that the conventional argument that derives a “need” for higher fertility or immigration from an unadjusted old-age dependency ratio and from the mechanistic assumption that this ratio must remain unchanged, is woefully inadequate and should have no role in this debate.

At least in the UK, and taking the 2003 Projections as a starting point, we do not “need” more babies or immigrants to support an ageing population. Even when focusing solely on issues of economic dependency and inter-generational transfer, we need to recognize a trade-off between the disadvantages and the advantages of lower fertility. **[Slide 30]** And a full analysis of whether higher fertility or immigration would be optimal needs also to consider the wider welfare implications of population growth, which I will cover in Section 3. But before that, let me turn to the second argument often covered in the language of “need” – the idea that we need immigrants to avoid “shortages” of workers.

2. A shortage of workers: quantities and prices

The idea is that we can face a “shortage of workers” and that a rise in the number of immigrants is the solution. In essence of course this is not an entirely different assertion from the dependency ratio argument, which also suggests a deficiency of working age people, but the “shortage of workers”

²³ While there is a robust welfare optimization case for target replacement rates within PAYG systems being adjusted down as capital ownership and inheritance becomes more widespread and extensive, there may still be strong political opposition to such adjustments from groups which see themselves as enjoying accrued rights, and which do not face the costs of funding those rights. The political challenge of achieving pension reform can therefore be considerable even when in principle reform is welfare maximising.

argument focuses on a different aspect of shortage and over a different time period. Whereas the focus of the dependency ratio is on the long-term and on the ratio of workers to retirees, the “shortage of workers” argument asserts that specific jobs vacancies will remain unfilled in the short to medium term. And because its focus is on the short to medium term (over which increased fertility cannot deliver more working age people) it tends to focus on immigration alone, while the dependency ratio argument is indifferent as between immigration and fertility.

So the question for this section is: do we in any meaningful sense “need” more immigrants to cope with a shortage of workers? Clearly many people believe that we do, and in particular businesses and business lobby groups. The U.S. Chamber of Commerce’s 2006 report stated that “we are staring right in the face of severe worker shortage as 77 million baby boomers prepare to retire in the next few years – with a fewer number of young workers available to replace them.”²⁴ And the House of Lords Select Committee on Economic Affairs, which is currently investigating the economics of immigration, has been presented with evidence from industry sector groups which clearly believe that immigration is essential to fill gaps in their area of the labour market, referring not only to the demographic impact of an ageing population, but also to the fact that these are jobs which British workers do not want to do. Journalistic accounts of the issue often use the language of “shortage”, “unfilled vacancies” and “gaps”.

But equally there are many people who believe the precise opposite – that immigration will create unemployment, that far from being there not being enough workers for jobs, there will not be enough jobs for workers.

Lump of labour and shortage of workers: mirror image fallacies

But these assumptions cannot both be true at the overall economy wide level, and indeed over the medium term and provided the labour market is sufficiently flexible both are either wrong or meaningless. The “more workers than jobs” argument is the long familiar “lump of labour” fallacy, which fails to recognize the potential of a dynamic economy to create more jobs to match increased labor supply. Criticism of this fallacy does not deny that sudden surges of labour supply can create transitional unemployment problems; nor that more sustained unemployment might be created by a surge in labour supply if wage rates were inflexible. But it does assert that over the medium term and in a

²⁴ Cited in Richard Freeman *Labour Market Imbalance: Shortages or Surpluses or Fish Stories*, Boston Federal Reserve Economic Conference, June 2006

flexible labour market, extra labor supply will induce endogenous responses which create jobs to match. And the empirical evidence from flexible labor markets such as the U.S. or the UK supports this. There is no sign that the surge in U.S. immigration from 1970s onwards has increased the equilibrium rate of unemployment. And estimates of the employment consequences of the recent surge of immigration into the UK are consistent with the theory that those consequences should be small and transitory.²⁵

But if the “lump of labour” theory is a fallacy, in a flexible labour market the “shortage of labour” argument must also be false. A sudden withdrawal of anticipated labor supply could produce a literal shortage of labour in the very short term (i.e. jobs simply not done, buses for instance not running because of staff shortage), but over the medium term, tightness in a particular sector of the labour market should produce a relative price adjustment that produces a new equilibrium. The adjustment could result in movement of labour between sectors, substitution of capital for labour, or changes in the precise mix of products and services demanded and supplied and in the location of their production. If we had fewer immigrants, the average wage rate of an office cleaner might be a bit higher, and businesses would either pay the extra charge, clean the office less frequently, or use more efficient vacuum cleaners, but we would not have some offices cleaned precisely as now and others not cleaned at all. If we had fewer immigrants working in horticultural harvesting, some mix of two adjustments might occur. Wages might rise sufficiently to pull native workers into this activity; or production might shift abroad. In either case, the price of food might rise slightly, but our supermarket shelves would not be bare. And while there might be a small net aggregate income loss if production does move abroad, it would be a small fraction of the gross value of the production shifted abroad, the figure on which business sectoral lobby groups often focus.²⁶ Finally, the idea that a shortage of workers will result in generalised inflation is wrong, provided other elements of economic policy are sound. Just as in a flexible labour market relative wage flexibility ensures that additional labour supply need not result in additional unemployment, so conversely relative wage flexibility and well rooted inflationary expectations can ensure that specific transitory labour shortages do not produce generalised wage or price inflation.²⁷

²⁵ See e.g. Gilpin et al, *The impact of free movement of workers from Central and Eastern Europe on the UK labour market*, Department of Work and Pensions, Working Paper 29. Also Kirby, Mitchell and Riley evidence to the House of Lords Select Committee on Economic Affairs (2007)

²⁶ The idea that a production shift abroad produces a national income loss equal to the gross value shifted is a mercantilist fallacy. The aggregate national income loss would in fact depend upon (i) the ease with which the factors of production other than immigrant labour (capital and non-migrant labour) were redeployed to other sectors and the prices for these redeployed factors; (ii) the increase in the price to consumers resulting from foreign rather than domestic production; (iii) the marginal exchange rate movement resulting from the marginal shift in the balance of payments at the existing exchange rate.

²⁷ What may be true is that higher immigration itself makes the labour market more flexible (and conversely its absence makes it less flexible) since workers and trade unions are afraid of unemployment

In general, therefore, the language of an absolute “shortage” of workers, of a “need” for immigrants to fill gaps in the labour market, plays little useful role in the immigration debate, and in most cases is simply economically illiterate. It is worth considering, however, whether there are some extreme cases where it might be reasonable to talk in such quantitative (rather than price adjustment) terms. Earlier I suggested that, while in theory economics should always be about trade-offs, rather than supposed absolute needs, there might be a CRR so low (e.g. below 1.0) that it was legitimate to use the language of “need” (for higher fertility or immigration) since the scale of adjustment required to cope with no increase in the CRR was almost impossibly difficult. Are there any equivalent special cases in relation to the short-term shortage of labour argument?

Special case sectors where quantitative shortage is meaningful?

The argument for a special case is most often made in respect to social care of the elderly in nursing or residential homes. In essence, it is argued that there are such strong non-wage preferences discouraging an adequate supply of native labour in this sector that the wage required to attract adequate native labour would be so high that the consumer (often local authorities) could not afford to pay. In addition, this service is close to inherently untradable, so that unlike with horticultural harvesting, we cannot import the good/service from overseas. Therefore Britain “needs” Filipino nurses and other categories of immigrant labour to work in elderly care. In theory, of course, the key issue is still one of price adjustments and trade-offs: the argument is effectively that the wage rate at which immigrants are prepared to work is so much lower than that at which native labour will work, that a significant aggregate income benefit to the existing population of consumers will arise from immigration. But it can perhaps be conceded that in sectors such as these, the use of the term “shortage” might be an acceptable shorthand for the more precisely correct statement that the sector faces extreme price inelasticity of native worker supply in a situation where it is impossible to import the service, and where it is extremely difficult to substitute capital for labour. But, in most of the sectors where large numbers of immigrants are employed – such as food processing, hospitality, cleaning, catering, security – these special circumstances do not apply. In these, lower immigration would produce a different equilibrium but a clearly feasible one, and the shortage of labour argument should be clearly rejected.

and thus less able or willing to maintain wages above a market clearing level. Higher immigration might therefore reduce the “natural” rate of unemployment, while also making wages (among the relevant skill groups for whom immigrants are competitors) slightly lower than would otherwise be the case. See D. Blanchflower and C. Shadford “*Fear, unemployment and migration*” evidence submitted to the House of Lords Select Committee on Economic Affairs, October 2007.

While therefore both rapid labour supply increases or unanticipated labour supply constraints can produce temporary policy challenges, we should recognize that as statements about the medium and long-term both the “lump of labour” theory and the “shortage of labour” theory are fallacies. Indeed they are mirror image fallacies – both imagining medium term quantity effects rather than price adjustments.

The real issue is therefore relative price and income effects: relative wages by skill category, relative returns to capital and labour, and aggregate income effects for all factors considered together. What are the effects and are they relevant to the desirability or otherwise of, in the short term, more immigrants, and in the long-term more immigrants or more babies? Until recently most of the analysis of those issues focused on the US, simply because immigration has played a greater role for longer in US demographics. So I will first consider the US debate and evidence, before turning to analysis of the UK’s recent immigration surge.

The impact of immigration in the US

Paul Samuelson, the eminent neoclassical economist, certainly believed in 1964 that higher immigration would have significant relative price effects, noting that **[Slide 31]** “After the First World War, laws were passed severely limiting immigration. Only a trickle of immigrants has been admitted since then... By keeping the labor supply down, immigration policy tends to keep wages high.”²⁸ It was an interesting time to say those words, for the U.S. was just about to reform its immigration rules, letting the trickle return to a fast flowing stream. If we track **[Slide 32]** immigrants in each decade as a percentage of the U.S. population, we see a U shape – high in the late nineteenth and at the start of the twentieth century: then collapsing for 40 years, then growing again. And unlike in the UK until recently, that immigration had a clear skew towards the unskilled.

At the macro level there is at least a prima face case that this fall and then rise in immigration has been associated with major swings in the relative prices of different factors of production. The early twentieth century was a great time to be a capitalist or high skilled professional, with high returns to capital and very wide income relativities. The 40 years from 1920 to 1960 saw a major compression of relative incomes. The last thirty years have seen a resurgence of inequality in the U.S. The share of national income flowing to capital has

²⁸ Paul Samuelson, Economics 1964.

risen to a 50 year high **[Slide 33]** and unskilled workers have received no real wage increase over the last 25 years, while much of the benefit of a growing economy has flowed to the top 20% of the population, and disproportionately to the top 1%. **[Slide 34]** Nobody would suggest that immigration is the only factor at work: globalization of trade, technological changes, changes in institutional structure such as the decline in trade union power, and indeed changes in cultural norms may all have played a role.²⁹ But the hypothesis that the resurgence of immigration may have been a contributory factor is certainly worth investigating.

The detailed academic investigation of the last 40 years of US immigration has however produced contested results. **[Slide 35]** David Card in particular has argued that “the evidence that immigrants have lowered the opportunities of less educated natives is scant”.³⁰ He and other economists who have used area analysis approaches (investigating whether the evolution of the wages of the native unskilled varies according to the percentage of immigrants in the local labour market) have produced results which suggest that a 10% increase in the fraction of immigrants in the population reduces native wages by at most 1%.³¹ But to some economists these findings have seemed to contradict the basic economic theory of supply and demand. George Borjas, using techniques which focus on national level aggregates, reaches the quite different conclusion that “immigration lowers the wage of competing workers: a 10% increase in supply reduces wages by 3% to 4%.” And he has titled one of his articles “The labour demand curve is downward sloping” to signal that this empirical finding also accords better with what theory would predict.^{32 33}

A case can be made, however, that the divergence of these empirical results is less surprising than it seems once we allow for the different methodologies being used.

²⁹ Changes in institutional structures in the labour market, such as a decline in trade union power, may of course themselves be the endogenous result of forces such as immigration or trade globalisation which make workers and trade unions more aware of the dangers that alternative labour could replace them, and therefore less willing to push wage claims .

³⁰ D. Card *Is the new immigration really so bad?* The Economic Journal 115, 2005

³¹ See R. Friedberg and J. Hunt *The Impact of Immigrants on Host Countries Wages, Employment and Growth*, Journal of Economic Perspectives, Vol. 9, Spring 2005.

³² G. Borjas *The labour demand curve is downward sloping: re-examining the impact of immigration on the labor market*, The Quarterly Journal of Economics, November 2003. See also Borjas *The labor market impact of high-skilled immigration*, NBER Working Paper No. 11217, 2005. And G. Borjas and L. Katz *The evolution of the Mexican born workforce in the US*, NBER Working Paper No. 11281, 2005

³³ Almost all of the literature has focused on the impact of immigration rather than on changes in fertility. Since changes in fertility also produce changes in the supply of labour (about 20 years later), theory suggests that fertility changes might also produce changes in the relative returns to labour and capital. One of the few analyses of this issue finds that the entrance of a large cohort into the labour market in the short term depresses both the employment levels and wages of that cohort, and in the long-term depresses their wages. (See F. Welch *Effects of Cohort Size on Earnings*, Journal of Political Economy, 1979)

What theory predicts

To understand what might be going on, we need first to be clear on what theory would predict. Five sets of theoretical insight are relevant.

1. First, the basic theory of relative prices of factors of production. [Slide 36]

If we have three factors of production, capital, skilled labour and unskilled labour, then:

- If we add more labour in the same skill proportions as before, returns to capital will increase and the wages of both skilled labour and unskilled labour will fall.
- If we add more unskilled labour alone, both capital and skilled labour will gain, while unskilled labour will suffer declining wages.
- While, obviously, if we increase all factors proportionally, nothing will happen to relative returns, and the economy will simply get bigger.

2. Second, the fact that immigration is a form of international market liberalization and therefore has consequences for both aggregate net income and for the distribution of income which are analogous to those produced by trade. [Slide 37] Essentially we can think of immigrants as being equivalent to a supply of labour located in another country with whom we have now decided to trade; the fact that the labour supply moves rather than the goods being shipped does not change the fundamental economics of the relationship.³⁴ The key findings of comparative advantage trade theory are therefore directly relevant to the economics of immigration. These findings state that,

- If there are two countries which start with a different mix of factor endowments (e.g. one has relatively more unskilled labour and the other more skilled labour), and therefore different relative prices between these factors and the goods produced...
- ... then the introduction of trade between them increases aggregate income in both countries, with each country specialising in the

³⁴ What is different with immigration is that it makes it possible for this “trade equivalent” to occur in what would otherwise be untraded sectors of the economy. For instance residential health care, or waiter service cannot be traded by the import of goods/services but they can via immigration.

production of goods where its factor endowment gives it comparative advantage...

- ... but with movements in relative prices for goods and factors which result in losses for some factors and gains for others, e.g. unskilled workers in countries where unskilled workers are in relatively limited supply will tend to lose, while skilled workers tend to gain.
- In aggregate therefore income rises in both countries, making it possible for all to be better off, but only if the losses suffered by particular groups of workers are offset by redistribution from the gainers.

In sum, therefore, trade theory predicts both a “comparative advantage” effect (net aggregate income gain from liberalization) but also a “distributional effect” (gains and losses for particular groups). And it is important to understand that the one cannot occur without the other, since it is through the movement in relative prices, and the changes in factor employment thereby involved, that the comparative advantage gain arises. If there is no movement in relative prices and distributional effect, there will be no comparative advantage effect. Two countries with identical factor endowments (the same relative mix of skilled and unskilled labour and of capital) gain no comparative advantage benefits from trade,³⁵ and no distributional consequences occur when free trade is established between them.

3. Third, given points 1 and 2 above, the impact of immigration should vary according to the skill mix of immigrants and mobility of other factors of production between national economies. **[Slide 38]** Thus:

- If the skill mix of immigration is in the same proportions as in the native population, and if capital is fully mobile across frontiers, and the national economy small in relation to the whole world economy,³⁶ then immigration will have neither a comparative advantage effect nor a distributional effect. There will be no impact on the relative prices of different factors, and no impact either negative or positive on the total income received by all already present native factors of production. The case is analogous to trade between two countries with the same factor

³⁵ In fact there is of course large trade between countries of roughly equivalent income and factor endowment, e.g. the countries of the European Union. This is because there is a quite separate rationale for trade relating to economies of scale and specialization. It is the simple comparative advantage effect which is however relevant to the immigration debate.

³⁶ This “national economy is small” condition is required in order to be able to assume that import of capital from overseas has no impact on the global cost of capital.

endowments: no corporative advantage gains from trade and no distributional effect.

- But if either of the other factors of production is immobile, and/or the skill mix of immigrants is different from that of the native population, then immigration will, through comparative advantage, increase both the income of the immigrants themselves³⁷ and the aggregate income of already present native factors of production, but with some of those native factors gaining while other lose. For example,
 - If immigrants are predominantly unskilled, but capital is internationally mobile, then unskilled immigration will depress the wages of the native unskilled and increase the wages of the skilled, but with the gains of the latter exceeding the loses of the former.
 - While if capital is also not fully internationally mobile, returns to capital will also increase, and unskilled wages will fall further still, but with the total gains to capital and skilled labour combined exceeding the loses of the unskilled.³⁸

4. Fourth, that within a national economy similar considerations determine whether the impact of immigration is regionally differentiated: [Slide 39]

- If non-immigrant factors of production are not mobile between regions, relative factor price changes should be greatest in regions or cities with the highest immigrant share in the population. The impact of immigration should then be empirically observable from investigation of differences between regions.
- While if non-immigrant factors of production are mobile (whether because capital and skilled labour flows into the regions where unskilled immigrants congregate, or because unskilled native workers move out of those regions) then there would be no regional variation in the impact of immigration, which could then only be identified by national level analysis.

³⁷ The issue of how far public policy in the receiving country should attach weight to the income gain achieved by the immigrants is considered in Section 4.

³⁸ Note also that if capital/entrepreneurialship is not fully mobile, but skilled labour as well as unskilled is, then all of the net benefit will flow to capital with all skill categories of labour losing. See Section 3 for the impact of distinguishing a fourth factor of production, i.e. land, which is immobile and in constrained supply even if all other forms of capital are mobile and augmentable.

5. Fifth, and consequent from points 1 to 3 above, the fact that the scale of impact of immigration must be dependant on the extent to which trade and the investment of capital have already been liberalised. [Slide 40]

- Thus if two countries were already linked by free trade in all goods and services and free movement of all other factors of production (capital and skilled labor) the subsequent introduction of free migration of unskilled labor should have no measurable impact (it would make no difference, for instance, whether American capital and skilled labour combines with unskilled labour in Mexico or in Texas). Immigration in this scenario would have no incremental impact on relative factor prices, nor would it generate any aggregate income benefit to already present factors of production, since total free trade and free movement of capital would already have exhausted all the potential gains and produced all the required movement in relative prices.
- But if there are limits to free trade or if other factors of production are to a degree immobile between countries, then unskilled immigration can have an impact on the relative wage rates of unskilled labour which is over and above that already produced by free trade, and conversely can increase the aggregate net income of already present native factors of production.

The implication for empirical analysis is that if the liberalisation of immigration flows occurs in a period which also sees the liberalisation and rapid development of trade flows and capital flows, it will be very difficult to distinguish the impact of immigration from that of the other liberalisations. Market liberalisation and globalisation (i.e. the intensification of trade and capital flows) will in total produce both aggregate income effects and distributional effects, but distinguishing the precise impact of each different strand of liberalisation will be not only empirically but conceptually difficult (since any one strand of liberalisation could be considered as redundant if all the other strands were already in place)

US empirical findings compatible with theory?

A crucial implication of the theory is that the expected impact of immigration depends on the mobility, both internationally and within a country, of other factors of production and on the degree to which trade is liberalised. During the last 30 years of rising immigration in the US, it is reasonable to conjecture that the following conditions have applied. **[Slide 41]**

- First, that capital and skilled labour is to a degree but not perfectly mobile within the US, moving to combine with immigrant labour.³⁹
- Second, that capital is to a degree mobile internationally, but not perfectly so.
- Third, that the return to high immigration has occurred simultaneously with a liberalisation of world and regional trade (e.g. NAFTA) and a significant intensification of US external trade links, e.g. US trade (exports plus imports divided by 2 as a percentage of GDP) has increased since 1960 from 5% to 12%.

Given the theory and these conditions, the empirical findings from US analysis make sense.

- Analyses, such as David Card's, which attempt to use the regional dispersion of immigrants to identify differential impacts on native unskilled wages, suggest small effects. This is what theory predicts if factors of production are significantly mobile within the US. Almost all of these analyses, it is important to note, suggest some negative impact: but not a very large one.
- Analyses such as Borjas and Katz's, however, which seek to infer the impact from national data, produce larger estimates.
- But even these larger estimates of the impact can only account for a small proportion of the total increase in inequality which has accrued in the US over the last three to four decades, suggesting that immigration, while present as a factor, is less important than either the globalization of trade or technological developments. The emergence and liberalization of China and India in particular, have produced a dramatic increase in the globally relevant supply of unskilled and also to a degree skilled labour, not yet matched by an increase in the global capital stock. And that, as Richard Freeman has argued, can be expected to have depressed the equilibrium real wages of unskilled workers in developed countries, and shifted factor income shares in favor of capital.⁴⁰ While immigration will slightly intensify this effect, calculations by the IMF

³⁹ There has been considerable focus in the US debate on whether area based analyses produce small estimates of impact because native workers tend to move out when immigrants move in (see e.g. D. Card and J. Di Nardo *Do immigrant inflows lead to native outflows*, AEA Papers and Proceedings, Vol. 90, No. 2). But it is important to realise that movement of capital and skilled labour into a region (e.g. a manufacturer sets up a textile plant in an area of migrant labour with fly-in / drive-in management) can also mean that there will be no observable regional impact, but a national impact, since the ratio of capital and skilled labour to unskilled labour across the whole of the rest of the economy will be marginally reduced.

⁴⁰ See Richard Freeman *The Great Doubling: America in the New Global Economy*, Usery Lecture, April 2005.

presented in the April and October 2007 World Economic Outlooks, suggest that the globalization of trade effect is bigger, and indeed that technology and institutional change are still more important factors.⁴¹

- Finally, note that this implies that Paul Samuelson was right in what he said in 1964 given the specific time period to which he referred. The U.S. between 1920 and 1964 was not nearly as open to global trade as it is today, indeed for much of that period it had high industrial tariffs. Capital was less internationally mobile, and the U.S. economy was so large in relation to the global economy, that the assumption that capital could be imported at an inelastic price did not apply. Given the circumstances, continued mass immigration into the U.S. between the 1920s and 1960s probably would have depressed the labour share of income, and mass unskilled immigration probably would have depressed unskilled wages relative to skilled. The closing of the door to mass immigration in the 1920s may therefore have played a role in the compression of income inequality that occurred between then and the 1960s.

UK empirical findings: small benefits, small harm

The empirical analysis of immigration into the UK is far more limited than in the US. That reflects both the fact that net immigration from the mid 1970s to mid 1990s was much smaller as a percentage of population, and the fact the immigration flows were not strongly skewed to the unskilled, making both comparative advantage and distributional effects likely to be small. Over the last ten years however, immigration has grown significantly, and there has been a significant skew towards the unskilled in terms of employment (even if not necessarily a skew in terms of inherent skills).⁴² As a result there has been increasing interest in gauging the impact of this immigration on the employment and wages of the already present native population. The balance of this evidence is reasonably in line with what theory would predict. Overall, it suggests that both the comparative advantage benefits of immigration and its distributional effects have been relatively small. Thus **[Slide 42]**

- Analyses of the consequences for employment rates by Portes and French in 2005, and Gilpin et al in 2006 have found (consistent with

⁴¹ See IMF World Economic Outlook, April 2007, chapter 5: "The globalisation of labour". October 2007, chapter 4: "Globalisation and inequality".

⁴² In relation to A8 inflows in particular, there is evidence that the average inherent skill level of the immigrants is higher than the average skill level of the jobs in which they are employed. This makes it more likely that either (i) the immigration will be temporary, with people returning to do higher skilled jobs in their countries of origin as those economies develop; (ii) some recent A8 immigrants who do stay permanently may move over time to higher skilled jobs in the UK. For data on educational level and occupational mix, see e.g. Dustmann, Frattini and Preston *A study of migrant workers*, Low Pay Commission, 2007.

theory in a flexible labour market) that there have been only very small adverse impacts on employment rates for native workers.⁴³

- One of the major analysis of wage impacts, by Dustman, Frattini and Peston, finds that a 1% increase in the proportion of immigrants within the population may produce a 0.6% increase in the wage rates of people in the middle of the income distribution, but a fall of 0.5% in the wages of bottom decile workers. This is consistent with the theoretical prediction that immigration which is skewed to low skills (or at least to low skilled jobs) should produce a net comparative advantage benefit for all workers combined, but with a distributional effect which harms existing unskilled workers.⁴⁴

Overall, however, these impacts are fairly limited. And there are good theoretical reasons for believing that the effects, both positive and negative, will diminish over time. **[Slide 43]**

- The longer the time period, the more that other factors are likely to adjust. Over the long term we could choose to make immigration skill based rather than skewed to unskilled. Over the long-term international capital flows will likely even out any variations in the capital/labour ratio between countries. Over the long-term immigrants who come with low skills may acquire high skills. And in the long term we are likely to move to still greater liberalization of trade in both goods and services.
- This implies that in the long term both the small comparative advantage benefit of immigration to the already existing native population, and the initial adverse distributional impact of unskilled immigration on existing unskilled workers, are likely to diminish over time

Summing up on “shortage of workers”

The overall conclusion on “shortage of worker” arguments can therefore be summed up as follows:

- The idea that there can be a meaningful “shortage” of workers and a “need” for immigrants to fill gaps in the labour market is a mirror image of the “lump of labour” fallacy and has little useful role in this debate.

⁴³ Portes and French: *The impact of free movement of workers from Central and Eastern Europe on the UK labour market: early evidence* (2005). Gilpin et al (2006) *op cit*.

⁴⁴ Dustman, Frattini and Peston (2007) *op cit*.

- The real issue is the impact of immigration on the relative prices of different factors of production. Theoretically this depends on the skill mix of immigration, the mobility of other factors of production, and the degree of liberalization of trade already achieved.
 - Under some conditions it can be shown that immigration has a net beneficial impact on the aggregate income of already present factors of production, but this is if and only if there are also distributional effects with some workers losing and some other workers or capitalists gaining.
 - In the short term it is likely that the UK's recent surge in immigration has benefited capitalists and skilled workers and disadvantaged unskilled worker, with a small net benefit to all UK native factors combined.
 - But over the long-term it is unlikely that either the aggregate beneficial effects of immigration or the potentially adverse distributional consequences are large enough to be the major determinants of an optimal immigration policy.

Or to be briefer still: it is wrong to say we need more immigrants, and it is clearly wrong to say that everyone gains from immigration, and the net aggregate incremental benefit of immigration is probably very slight, but so too in the long-term (though not in the short) is the adverse impact of immigration on the wages of unskilled workers.

The more important pros and cons of immigration lie elsewhere.

2A. Integrating Sections 1 and 2: Quantitative Economic Effects

Let me sum up the argument so far, and be clear about what these arguments imply for measured economic aggregates such as GDP and GDP per capita, before introducing some wider welfare issues not captured in standard national income account measures.

The irrelevance of total GDP

And to begin with one obvious point about what the appropriate measures should be. Higher fertility or higher immigration will both over time increase growth in total GDP, but that is irrelevant to whether higher fertility or immigration are good things. It is such an obvious point that it is surprising one needs to make it, but we have to since the positive impact on total GDP has been quoted as if it is relevant to this debate. If you believe absolute GDP matters you would prefer a scenario in which the population triples and income per capita stays stable to one in which the population stays stable but income per capita doubles. To most people that is nonsensical. What matters in measured national account terms is not absolute GDP or even GDP per capita, but consumption per capita after necessary savings. And what may matter to the already present population is not even aggregate national consumption per capita, but their own specific consumption per capita, i.e. the consumption per capita of the already present population excluding new immigrants.

Looking at these more relevant measures, the key conclusions which can be drawn from sections 1 and 2 are that:

- All the quantitative effects (positive or negative) are relatively small.
- The only long-term benefit of higher immigration is a lower dependency ratio⁴⁵, with trade equivalent effects tending to zero over time.

Small and offsetting impacts: trade effects tend to zero

1. Dependency ratio effects

In Section 1 I dealt with issues relating to the dependency ratio and to intergenerational transfer of either income or capital. I suggested the balance shown on **Slide 31**. A high CRR is beneficial because it reduces even the correctly adjusted old age dependency ratio: but with the higher fertility rate element of a higher CRR carrying the disadvantage of higher youth dependency and reduced per capita inheritance.

In terms of GDP per capita and consumption per capita effects this balance has the following implications. **[Slide 44]**.

⁴⁵ Note also that a long-term benefit to the dependency ratio cannot be achieved by either a one-off period of significant immigration, non even by an increase to a new higher but stable level of immigration (e.g. 190,000 per annum) versus 130,000 per annum previously) since over the long-term immigrants will themselves grow old. For immigration permanently to increase the dependency ratio, it has to be at a steadily increasing level over time. If policy (whether of higher immigration or higher fertility) seeks permanently to prevent a decline in the ratio of A:B in slide 14, it must accept a permanently growing population; if it does not accept/assume a permanently growing population, it will simply delay the move to a higher dependency rate, and increase the population level at which that higher dependency rate occurs.

- A higher CRR will usually tend to have a mildly positive effect on GDP per capita. This will be true if the beneficial impact on the old aged dependency ratio is a bigger effect than the negative effect on the child dependency ratio. If this is the balance then the proportion of the population of working age increases and for any given level of productivity per worker, that will increase GDP per capita.
- But the benefit of this to consumption per capita is somewhat offset by the fact that if the higher CRR reflects higher fertility, this generates a lower capital inheritance per capita and thus a higher required savings rate.

The overall impact of these offsetting effects would be different for different combinations of fertility and immigration, and different according to the proportion of adult life spent working which is accepted as reasonable and kept constant over time. Detailed modeling work could help identify the possible size of the effects under different scenarios. But order of magnitude calculations (see the end of this Section) show that the scale of any net potential benefit is slight.

2. Trade equivalent effects: comparative advantage and distribution Here I identified that higher immigration could have an impact analogous to trade liberalisation, producing: **[Slide 45]**

- An additional benefit, over and above the dependency ratio benefit, with a net aggregate gain for already present factors of production (the “comparative advantage” effect)
- But also a simultaneous “distributional effect” with some existing workers gaining while other lose.

The net comparative advantage benefit does not however mean that GDP per capita will necessarily increase, since GDP per capita can also be pulled down by a “compositional effect” if immigration is skewed towards the unskilled. The already present factors of production gain in aggregate, immigrants also gain because they earn more in this country than in their country of origin, but UK measured GDP suffers because there is, at least for a period of time, a higher proportion of low paid workers in the economy.

In addition, the impact of immigration on the consumption of existing workers could be effected by fiscal transfers between the already present

and new immigrant population. If already present workers gain in pre-tax income due to comparative advantage effects, it could still be the case that they lose after the impact of net fiscal transfers to lower income immigrants since low income people pay less tax relative to public services received, and may receive direct transfers via for instance working tax credits. Fiscal redistribution effects could therefore outweigh the comparative advantage benefit to already present factors of production. In fact the best estimates appear to suggest that this is not the case, and indeed that the short term fiscal balance effect is slightly beneficial to the existing population. This is because the income distribution effect is more than offset by the fact that the recent immigrant population has a considerably higher percentage of workers and a lower percentage of dependent pensioners or children.⁴⁶

3. Non-dependency ratio effects tending to zero in the long-term. While there are therefore some important short-term effects of immigration which are not related to old-age dependency, these are relatively small and there are good reasons for believing that they will become smaller over time.
- Section 2 has already set out the reasons for believing that the small “comparative advantage” and “distributional effects” will tend to zero over time, if capital can flow into the UK, if the skill mix of immigration can change, and if immigrants once in the country can progress in skills and occupational status.
 - If these effects are at work, moreover, the “compositional effect” will also tend to disappear.
 - Finally, while some evidence does suggest a fiscal benefit to the existing population in the short-term, it is relatively small and is likely to tend towards zero over the long-term, as immigrants themselves have children and subsequently become retirees. Over the long-term with which this lecture is concerned (i.e. several decades), the best assumption is that the fiscal balance effect (whether positive or negative) is trivial.⁴⁷

⁴⁶ A Home Office paper in 2002 estimated that recent immigrants paid £31.2bn in taxes and received £28.8bn in benefits and state services. See e.g. C. Gott and K. Johnston *The migrant population in the UK fiscal effects*, Home Office RDS Occasional Paper No. 77.

⁴⁷ Even over the short-term the fiscal benefits of immigration are contested. There is some evidence that immigration is beginning to impose significant resource needs on the schools system, and that these resource needs can be greater per child than for the non-immigrant population because of e.g. lower English language proficiency. See e.g. evidence presented to the House of Lords Economic Affairs Committee, 27th November 2007. More controversially, Professor David Coleman has suggested that the estimate of the fiscal balance should also allow for costs (e.g. of crime) arising from the difficulties of integrating some immigrants. Whether these effects (or offsetting positive effects of diversity) exist is not covered in this lecture. But if they do exist, the conclusion that over the long-term they are likely to reduce and tend to zero could also apply. See D. Coleman, evidence to the House of Lords Select Committee on Economic Affairs, November 2007.

Over the long term, therefore, there is a good case to be made that all of the effects arising under the “shortage of labor” heading – the comparative advantage benefits, the potential adverse distributional consequences, the compositional effect, and the net fiscal transfers to or from the already present population will tend to zero.

In the only long-term benefit of higher immigration is therefore the beneficial reduction in the old age dependency ratio, a benefit also achievable via high fertility, but in that case with the disadvantage of higher youth dependency and reduced per capita inheritance. The scale of this beneficial effect, even before the offset of inheritance effects, is likely however to be relatively small. One measure of this effect in 2050 has already been set out in Section 1, where it was noted that the additional transfer required from the working population to the retired to provide state pensions could mount to 1.5% of GDP in 2050.

A feel for the magnitude of effects in the shorter term can be gauged from calculations by Kirby, Mitchell and Riley of the NIESR. Their model **[Slide 46]** shows an initially negative impact of recent immigration on GDP per capita as a result of the “compositional effect”. Over time however this effect diminishes, as also do distributional effects arising from short-term imperfect mobility of capital, and over the middle to long-term the dominant factor at work is simply the dependency ratio effect. By 2015 this is adding 0.3% to GDP per capita. Over the longer-term, with more immigration, this might increase but comparison of the dependency ratios for 2050 under the 2003 and 2006 based Principal Projections suggests that the long-term benefit impact of higher immigration for GDP per capita in 2050 is unlikely to exceed 1.75%.⁴⁸ This benefit must be balanced against the wider welfare disadvantages of population growth to which I will now turn.

⁴⁸ The 2003 based Principal Projection adjusted old-age dependency ratio is 37%; the 2006 is 34% (calculated on SPA+ : 20-SPA). If we assume that the youth dependency (<20 years) is common at 35% in 2050 and that the productivity of the working (20 – SPA) population is also the same in both cases, the GDP per capita is 1.75% higher in 2050 under the higher immigration scenario. Note moreover that unless immigration is maintained to a sufficiently high rate to maintain population growth in the second half of the twentieth century at the same pace as in the first half, this gain will subsequently be lost. A one-off rise in immigration cannot permanently avoid the dependency ratio effect; a permanently rising level of immigration is required.

3. Wider Welfare Issues: The costs of population density

The issue is what we can say about optimal population growth. And for now let us assume that a country has a right to think about optimal population growth in the light of the welfare of the people already present in the country – returning later in Section 4 to the issue of how far the welfare of those who are not presently citizens, i.e. of future potential immigrants, should enter the calculation.

The factors I have considered so far do not establish a clear case for or against some level of population growth. The arguments of Section 1 suggests that a rapidly declining population could be a problem, but they could be compatible with the conclusion that optimal population growth lies anywhere between slight decline and something like growth in line with the 2006 projections.

To decide where within this range optimality lies, we need to introduce a wider set of issues. We need to recognize some other factors which can indirectly affect measured GDP per capita and consumption per capita figures, and we need also to recognize that not all factors relevant to human welfare are caught in GDP per capita figures, a fact obvious from the well known lack of correlation between GDP per capita and measures of human happiness once GDP per capita reaches a certain threshold. **[Slide 47]**

Environmental and congestion externalities

Environmental congestion effects in particular can impose both measurable GDP per capita penalties and unmeasured welfare detriments, implying an adverse welfare consequence of rising population density above some threshold.⁴⁹

The perception of that adverse consequence is reflected in the common description of the UK and in particular of southern England as a “crowded” island. The UK’s population density is for instance seven times that of the U.S.

⁴⁹ Professor David Coleman’s submission to the House of Lords Select Committee on Economic Affairs (2007) argues that in addition to uncosted externalities of population growth (applying equally whether the growth derives from fertility or immigration), that there are also uncosted externalities specific to immigration arising from difficulties in integration. Whether or not these exist, they are not the subject of this lecture.

(excluding Alaska), and England's is over twice that of the most crowded region of the U.S., the eastern seaboard states. England is almost four times more densely populated than France, and has a similar population density to the Netherlands. **[Slide 48]**

High and increasing population density in rich developed societies imposes a number of adverse economic and welfare consequences.⁵⁰ **[Slide 49]**

- It means greater competition for land space between competing uses: and in particular between housing and the amenity of open and unspoiled countryside. This implies either smaller building plots and smaller gardens, or more destruction of visual amenity, less peace and quiet. A person of any given income in much of France or much of the U.S. can afford a larger house, a larger plot of land, and easier access to open countryside than someone of the same income in the UK. That is a clear economic benefit of low population density, measurable through analysis of house prices, but not one taken into account in GDP per capita calculations.
- It means greater conflict between transport demands and environmental concerns. Physical mobility (more road, rail and air journeys) is a highly income elasticity demand: richer people travel more. But so too is the demand for peace and quiet, for the preservation of countryside. Higher population density makes it more difficult to have both.
- And it means more crowded amenity space. More crowding in areas which people visit for their beauty and tranquillity, (e.g. the Lake District); more crowding and longer queues at major cultural sites; more crowded beaches; and at the European level more crowded skiing slopes. Even in the U.S., the experience of the great National Parks, the beauty and peace which people go to enjoy, is being steadily degraded by the very fact that there are more people trying to enjoy that experience. In the UK, with higher population density, the pressures are far greater.

Faced with these pressures, different people will want to make different tradeoffs. Some will argue for more housing development (and more spacious developments) at the expense of unspoiled countryside: some for tight controls. Some for more road building even at the expense of increased noise pollution; some for constrained road building even the expense of congestion. Higher population density makes the trade-off more difficult.

⁵⁰ The issue of whether population density and population growth is negative or positive for economic growth and human welfare in developing societies still striving to obtain rich country GDP per capita is covered in my lecture *Population Ageing or Population Growth: what should we worry about?*, World Demographic Association, 2007.

Whether this more difficult tradeoff results in measured GDP impacts or in unmeasured detriments to welfare, depends on the rules governing compensation to existing property owners in the face of new development. **[Slide 50]** A new transport development (whether road, high speed rail, or airport) typically has an adverse impact on some local house prices. If society pays for full compensation to the affected homeowners, or spends more on impact mitigation measures (e.g. more tunnelling for high speed rail lines), then the direct financial cost of transport development rises in line with population density. But if society does not pay full compensation, what it is choosing to do is to let the adverse welfare consequences of the development fall on a specific minority of people.

Rational and legitimate nimbyism

An absence of full compensation for the house price consequences of new housing or transport development makes it rational for those affected to oppose the development. “Nimbyism” (not in my back yard) is often attacked as unacceptably selfish, but it is actually the legitimate and completely predictable consequence of less than full compensation combined with rising population density. If society decided to raise additional tax revenue by raising the tax rates only of some arbitrarily defined minority of people, we would consider it neither unexpected nor unacceptably selfish if that minority vigorously opposed the policy. Nimbyism is as justified and rational. And the fact that it is a much more powerful factor in the politics of England than of France or the U.S., is a direct and predictable consequence of higher population density. The channel tunnel rail link from Paris to Calais was completed far more rapidly and at less cost than the Folkestone to London link. This, contrary to some assertions, **[Slide 51]** is not the result of a planning system which is cumbersome for no logical purpose, but the inevitable consequence of the fact that southeast England is much more densely populated than northern France.

It is therefore clear that there are welfare detriments (uncosted negative externalities) arising from increasing population density in already rich and already densely populated countries. But it is also clear that some people care about these factors while others do not. I think it will be obvious that I care, that I attach value to such factors, and it would be unreasonable for me to argue that policy should reflect my preferences if others did not share them. The key issue in terms of welfare maximization is how widespread these preferences are. In fact there is plenty of evidence that these preferences are widely held. House prices in spread out leafy suburbs are much higher than house prices in more crowded suburbs; house prices in unspoiled countryside are higher than those close to roads or to other housing development. House prices are lower

in areas adversely affected by aircraft noise. And if we took all of the effects which we can measure through house prices, if we added up all the house price premiums which clearly result from environmentally desirable locations, we would have an enormous figure.

The widespread presence of these preferences is also confirmed by more qualitative attitudinal data. Anecdotally many people argue against immigration on the ground that the UK is “too crowded”. And there is considerable anecdotal evidence that among the reasons for the large outward migration from the UK is a desire to move to less crowded regions of Europe. In the UK that is, as far as I know, anecdotal finding only, but more rigorous analysis conducted by Van Dalen and Henkens in the Netherlands does indeed find that emigrants cite environmental factors as reasons for wishing to move.⁵¹ **[Slide 52]** They conclude that: “Our results suggest that modern day emigrants forsake their home country because of the poor quality of the perceived public domain and that they long for what Dutch consider the Good Life: nature, space, and less populated surroundings”. More nature and space, lower population density and less noise pollution are the factors where potential emigrants expect there to be the biggest difference between their preferred country of destination and the Netherlands.

Fixed supply land, house prices and distributional effects

One way of understanding what is going on here is to return to the analysis of Section 2 which considered how the impact of immigration varies according to the mobility of other factors of production. In Section 2 I referred to the three factor model – capital, skilled labour and unskilled labour. In that model, the assumption that capital is internationally mobile is key to the finding that immigration does not necessarily reduce the income of all labour relative to capital.

But land is not internationally mobile, and if we think of land as a fourth factor of production, (where production should be interpreted as including the provision of a flow of amenity benefits), then it is clear that a rising population could be detrimental to all factor providers other than landowners. **[Slide 53]** This in turn implies that increasing population density, along side having an aggregate adverse effect on welfare, will also have major distributional effects, since the price of land and houses in general, and of locationally desirable land and houses in particular, can be expected to grow more rapidly than would otherwise be the case. If the latest 2006 based projections turn out to be

⁵¹ H. Van Dalen and K. Henkens: *Longing for the Good Life: Understanding Emigration from a High Income Country*, Population and Development Review, No. 33(i), March 2007.

correct, the implication is that house prices are likely to rise more rapidly than under the 2003 projections.

Work by the National Housing and Planning Advice Unit **[Slide 54]** suggests that the price of houses for people on relatively lower earnings, which has already increased from four times to seven times earnings, could rise to ten times earnings by 2020, driven by an increase in the number of households in the face of constraints on new house supply.⁵² Half of that increase in the number of households derives not from population growth but from declining average household size **[Slide 55]** but half of the increase to 2020 derives from increasing total population, and beyond 2020, as household fragmentation reaches a natural limit but the population continues to grow, population growth will be the predominant driver of house price rises, creating affordability problems for many new entrants to the housing market.

One response to those problems of affordability would be to release more land for housing, increasing house building targets, and that is indeed the overt aim of current government policy. But increased house building will be opposed by rational and legitimate “nimbyism”. To the extent such nimbyism is overcome, a welfare detriment will result for the people affected: to the extent that it is not, rapid house price appreciation will continue. Policy can affect the precise form of the adverse impact arising from increased population density, but not the fact that some significant adverse impact is bound to occur.

If opposition to housing development is not fully overcome and house price rises are given further impetus by population growth, complex distributional effects will result, making some people winners from rising population while others lose. To understand that it is important to distinguish:

- The aggregate welfare detriment from increasing population density that arises from falling space per capita (people on average have to make do with smaller plot sizes and less open countryside)
- The distributional impact of more rapidly rising prices of houses. Rising house prices do not deliver either an aggregate increase or decrease in welfare: and in national income accounts they are quite rightly not counted as an increase in national savings. Instead they represent a windfall gain in wealth for those who currently own (or have an inheritance claim to) existing housing assets and a windfall loss for those

⁵² *Affordability Matters*, National Housing and Planning Advice Unit, 2007

who do not.⁵³ Within a closed economy the winners and losers must balance, but if UK house prices are driven higher by population growth relative to houses elsewhere (e.g. in Spain, Italy or France) British homeowners could on average gain provided they value the option of selling their UK house and buying in such countries.

Increased house price inflation therefore creates a complex pattern of distributional gains and losses from population growth, in addition to the underlying aggregate welfare detriment. The pattern reflects both people's initial ownership rights and their preferences. Thus for instance,

- People who already own houses (or have an inheritance claim) and who are not significantly concerned about increased congestion while they live in the UK, and who are truly happy to sell and move internationally to regions with lower house prices, can gain.⁵⁴
- People who do care about congestion effects and who are unwilling to move, suffer a welfare detriment even if they have an established ownership claim.
- People who have no established ownership or inheritance rights lose. This typically of course includes most immigrants.

For some people therefore, the distributional impact of rising house prices will mitigate and in some cases exceed the underlying welfare detriment: in some it will exacerbate it. In total the distributional impact might be positive for a higher population growth country because of the creation of options to trade down internationally. But conversely it can be argued that the creation of matching winners and losers is in itself welfare destructive: in common sense terms, losers are more upset than winners are happy; in formal economic theory terms, matching gains and losses are negative for aggregate utility because increased financial resources deliver declining marginal utility. Overall therefore it seems unlikely that we can assume a net positive welfare impact from rising house prices, and the dominant effect to be considered is the aggregate loss of welfare directly resulting from the congestion effects of increased population density.

⁵³ The windfall loss rises because the price that non-owners will have to pay to enjoy a given level of housing services has increased.

⁵⁴ Note that the fact that people actually move abroad and realise the value of their UK housing asset does not in itself prove that this was their first preference and that all such people must logically favour the higher population growth which drives house price increase.

And those crowding and congestion effects could be very significant. If the 2006 Projection is correct, the UK population could grow by 25% in the next 43 years, and the English population by about 30%.⁵⁵ And, if as is likely, there is some concentration towards the south of England, population growth in southern England could be higher still. These would be very significant changes over the course of just half a typical lifespan, with major implications for how crowded an already densely populated region will feel.

Congestion arguments: Coded racism, fuzzy irrationalism or coherent utility preferences?

I believe the adverse consequences of increased population density are highly relevant to the debate about optimal population growth and therefore optimal immigration policy. But some participants in the immigration debate disagree.

Four arguments against attaching significant weight to congestion concerns have been made. **[Slide 56]** None is convincing.

1. Coded racism. The first is that people who express concerns about population density and congestion effects are really concerned about the colour, religion or culture of the additional people. Philippe Legrain in his in some ways compelling contribution to Centre Forum's pamphlet "Globalisation: A Liberal Response"⁵⁶ writes that "Psychological studies confirm that opposition to immigration tends to stem from an emotional dislike of foreigners. Intelligent critics then construct an elaborate set of arguments to justify their prejudice"⁵⁷. Expressed concerns about the impact of new housing development on countryside may thus be just clever ways of disguising ethnic prejudice. As someone who cares about countryside loss in Southern England but who does not believe himself racist, it is difficult not to find this argument offensive, but in some cases it is probably valid; sometimes the language of crowding sits alongside concerns about cultural change. But in some cases it is clearly not true. If Britain's population does rise in line with the 2006 projection, governments will propose more release of green field land for housing, more airport expansion than would otherwise be required, and more road building. Those developments will be opposed vigorously by many environmental pressure groups. But if we were to analyse the political sympathies of the

⁵⁵ In GAD's 2006 Principal Projection, the population of England is projected to grow from 51.1 million in 2007 to 66.5 million in 2051.

⁵⁶ Philippe Legrain's essay on "Migration" in *Globalisation: A Liberal Response*, Centre Forum 2007. See Section 4 for the points which Legrain makes with which I agree.

⁵⁷ Footnote??

most energetic environmental activists, we would not find significant overlap with right wing cultural nationalism. And if immigration fell to zero but the 2006 projection for the total population was still correct because fertility rose, the scale of opposition to new housing and transport developments would not be significantly reduced. There is a significant body of opinion which is concerned about the consequences of population growth for non-racist reasons, and the analysis of writers like Legrain is severely hampered by their failure to recognise this fact.

2. Irrational failure to look at the facts. The argument here is that any argument that Britain is overcrowded is nonsense since three quarters of the UK land area is agricultural land, so that more houses, more roads and more airports could of course be fitted in. Or, as Philip Stephens put it in a recent Financial Times article, that Britain cannot be overcrowded since the Netherlands population density is higher still and the Netherlands is still a functioning, rich society. And as with argument 1, there is a grain of truth here: arguments that Britain is in some absolute sense “full up” are in the same category of exaggeration as those which assert we have an absolute “need” for more immigrants or babies. But as an argument against the existence of welfare detriments arising from new development, the “there’s still plenty space left” argument is woefully inadequate. The fact that there is still plenty of land on which to put new housing doesn’t change one iota that fact more people means more demand for flights and road development, therefore more noise pollution over an area which is a huge multiple of the acreage actually placed under concrete. And the fact that the Netherlands is still not in any absolute sense full up doesn’t change one iota the fact that the Netherlands has far less unspoilt countryside than France, or van Dalen and Henkens’s finding that significant numbers of Dutch people find the idea of emigration attractive precisely because the Netherlands is more densely populated than some of the countries to which they plan to move.
3. “I love New York/London” reveals a preference for higher density. The third argument advanced notes that some very highly prized residential locations, e.g. Manhattan, are far more densely populated than London, and indeed that people vote with their feet to live in densely populated areas. As Legrain writes: “Most British people do not appear to think that a high density of population is a bad thing: young Scots go to live in Glasgow rather than the Grampians; young English people in London rather than Lincolnshire.” As someone who has lived in New York and loves the city, and who was brought up in rural Scotland but chooses to live in South-east England, I would appear to be a prime exhibit in Legrain’s array of evidence.

The answer is no, because Legrain's argument, and that of others who cite New York as proof that England is not densely populated, fails to think deeply enough about the diversity of individual preferences, the definition of the living space which people feel they inhabit, or the importance of options which people may wish to exercise at different points in their lives.

- The fact that Manhattan is very densely populated in no way invalidates the argument that England is far more densely populated than the US and that that explains why concerns about crowding and nimbyism opposition to development are far less prevalent in the US than in the UK. People who live in Manhattan are a self-selecting minority of the US population, and those born there who do not like it have the option of moving to less densely populated areas. Overall, the movement of US population is towards the less densely populated states, with rapidly growing populations in the west and south-west. On average, Americans display a very strong preference for spread out suburbs and exurbs. If all of the US were as densely populated as the area round New York City, nimbyism would be as present in the US as it is in England.
- Even many of those who live in Manhattan, however, inhabit an effective living space which in total is less densely populated than south-east England. High income earners have the option of second houses within easy reach of New York, in much less densely populated areas than within easy reach of London: the correct definition of their living space includes not just Manhattan itself, but much of the countryside of New Jersey, New York and Connecticut. High and middle income earners have, and often exercise, the option to move out to spacious suburbs when they get married and have children.
- And the fact that people find attractions in a great city, which necessarily implies some critical mass of population density, in no way makes it illogical for them to regret further increases in the population of the wider region beyond that critical mass. For many people London and South-east England is indeed a more desirable place to live than rural Scotland, but if the population increases further, the incremental benefits may be minimal (since London is already large enough to deliver all the cultural and entertainment advantages of a great world city) but the adverse environmental effects significant. Both at the individual level and in aggregate for society, there can be a range of increasing density

across which perceived welfare increases but with welfare falling after some optimal level is reached.

4. Real economics is about measured GDP, not environmental fluff. The final argument, rarely precisely expressed but implicit in many commentators' refusal to take the congestion argument seriously, is that concerns about environmental quality, about noise and visual pollution, about beautiful countryside or less crowded amenity space, are somehow inherently invalid or at least less important than the measured income and consumption effects.

But this argument is a perversion of good economics, which should be concerned with the preferences people actually have, not with a defined set of preferences which economists think they should have. It is perfectly rational in terms of a hierarchy of needs for people to value environmental and amenity factors, and indeed that the relative weight attached to them increases the greater the level of measured GDP per capita already achieved. Unspoilt countryside and uncrowded beaches or skiing slopes don't matter much to someone still trying to get from say £5000 per capita to £15,000 per capita, but above that they do and increasingly so as income rises.

That implies that much of the academic analysis on the economics of immigration, while addressing issues important in themselves, is focused on issues which in terms of long-term welfare optimisation are secondary. Concerns about "crowding" are not irrational nor a cover for racism but a non academic way of expressing completely rational and perfectly legitimate utility preferences which should be central to the debate about population policy given that:

- The long-term consequences of higher or lower population growth (a higher or lower CRR) for measured consumption per capita, and the long-term distributional and fiscal consequences, are a balance of offsetting factors and overall quite small.
- And the higher the GDP per capita already attained, the less important are further increments of measured GDP per capita to human happiness relative to other factors such as space, silence, countryside, or beauty which are not allowed for in GDP measures.

Sound rigorous economics therefore demands that the long-term consequences of population growth for "uncosted externalities", for amenity

benefits not captured in GDP statistics and for environmental sustainability should be not peripheral but central to population policy debates.

The global context: population *stability desirable*

That implies also that one's attitude to national population growth should logically be consistent with one's attitude to global population growth. If it is argued that the UK needs more babies or immigrants than in the 2003 Principal Projection or than in the 2006 zero migration projection, that means that the UK needs a growing population, and that a rich developed society cannot cope with population stability. It means that one believes that the shift from the left to the centre of Slide 13 is unsustainable, and that we must find ways to restore the population pyramid. And if that is true for Britain, it must logically be true for all countries and therefore the whole world. Which implies in turn that if the world population does approach stabilization [**Slide 57**] in the second half of this century, with fertility rates worldwide tending to 1.85 (as in the U.N.'s medium variant projection) then this will be a problem which the world will need to fix (by more babies of course since at the global level immigration is impossible). Indeed if you think that the UK needs the immigration of the 2006 Principal Projection, with the population growing 25% over 43 years, the logical implication is that the world will need to grow its population from 9.5 billion in 2050 to about 12 billion in 2100, and to about 15 billion in 2150.

I do not believe that. I do not believe that dependency ratio arguments require human societies to have permanently growing populations, nor that permanent growth in the world's population is likely to be optimal for human welfare. I think indeed that at some stage stability would be desirable. And if you believe that, at the global level, it should at least give you pause for thought as to whether the same argument should apply at the national level as well.

There are therefore I believe good arguments for believing that the optimal population policy for the UK, the one that would maximize the welfare of British people, is one which delivered rough population stability: that the optimal Combined Replacement Rate (fertility plus immigration together) is likely to be slightly below 2.0 rather than significantly above.

4. The moral case for immigration: immigrants gain a lot

But which British people? Should we mean the currently present British people (whatever their original geographical or ethnic origins), the British citizens who have a right to vote today, or should we also include in our welfare optimisation the welfare of future potential immigrants? So far my analysis has implicitly assumed that it is the former whose welfare should be maximised, that, for instance, it is relevant to look at the aggregate impact of immigration on the “already present” population. If instead the welfare of future potential immigrants were given equal weight very different conclusions would result, since the biggest beneficiaries from immigration are the immigrants themselves. If British policy were guided by a desire to maximize the welfare or happiness of all people wherever in the world, we would have a far more open immigration policy, and immigration would almost certainly be much higher than in the 2006 Principal Projection.

The case for such an approach can certainly be made, and has been by Philippe Legrain in his recent book *Immigrants: your country needs them*. Legrain’s argument is essentially two-fold.

- First, that the potential human welfare gains from allowing free immigration are huge.
- Second, that rich country immigration policy should be equally concerned for the welfare of both its citizens and non-citizens.

The first of these raises interesting questions relating to the relative potential benefits of free migration versus free trade; the second, while admirably idealistic, is highly contentious.

Huge gains from free migration?

Legrain quotes estimates suggesting that free global migration could more than double the size of the world economy. **[Slide 59]** This estimated impact is hugely higher than typical estimates of the welfare benefit of total global trade liberalisation, which most analyses have placed at around 0.3 – 3.0% of global GDP. This huge divergence is at first sight strange, given that migration and free trade are (as Section 2 set out) alternative forms of market liberalisation, which could be expected to have analogous “comparative advantage” effects. But there are two reasons why in principle free migration could be expected to produce a higher welfare benefit than free trade.

- The first is that migration extends the comparative advantage benefits of trade liberalisation to untradable sectors of the economy (e.g. retailing or social care)
- The second is that migration, up to a certain level, can deliver welfare benefits via more intensive utilisation of “intangible capital”. Earlier in this lecture (in Section 3) I argued that to understand the adverse welfare consequences of population density we have to extend a classic three factor model of production to four, recognising land/environmental quality as a fourth factor, and one which is immobile internationally and close to fixed in supply. To understand why migration may be so beneficial, however, we should probably add a fifth factor **[Slide 60]**, social and institutional capital and accumulated know-how. When migrants move to a new country (for instance the US) their labour is combined with America physical capital and land, but also with accumulated know-how within the context of a set of social, political and institutional arrangements (a rule of law, established markets, and political processes for resolving societal conflict without violence) which are more conducive to economic growth than those in the countries from which many migrants come.

This intangible capital is imperfectly mobile internationally since difficult for other countries to copy; that is why many institution-building foreign aid programs producing disappointing results. But within the host country intangible capital is extendable at nil or at least very low cost, at least up to some point. Rules and institutions exist independent of whether the population to which they apply is 200 million or 400 million.⁵⁸ As a result, third world labour combining with American capital and know-how in the US, through free migration, may well achieve higher productivity, and thus a higher welfare gain, than when American capital and know-how combine with third world labour in the third world. Migration may therefore be a more powerful driver of global welfare gains than free trade or capital flows.

⁵⁸ This must clearly be the case, however, only up to a certain pace of immigration. If America absorbs each year 1% of its total population in new immigration, it is likely that new immigrants will in general absorb the values and display the behaviours which nurture American’s institutional and social capital. If there were really huge immigration, or very large immigration to a particular region, the values and behaviours of the country of origin would probably dominate.

Citizens and non-citizens: whose welfare should be maximised?

Whether or not the welfare benefits of free migration amount to the doubling of world income which Legrain estimates, there are therefore good theoretical arguments for believing that they could be large, and much bigger than the gains attained either from free trade and capital flows or from foreign aid to developing countries. But it could also be the case that all of these benefits accrue to the immigrants themselves, or that the marginal comparative advantage benefits to the pre-existing population are more than offset by the negative externalities of increased population density. The issue of whose welfare we are seeking to maximise is therefore crucial.

Le Grain assumes that immigration policy in the UK (or other rich country) should place as much weight on the welfare benefit to future potential immigrants as on the welfare benefit or detriment to non-immigrants. But this is not a principle which the UK or any other state applies in any other area of policy. If we were equally concerned about the welfare of all the world's people, we would increase the health service element of our overseas aid budget to the point where the marginal benefit of the services we supported in poor African countries was as high as that provided in the national health service at home. The overseas aid budget would be not a fraction but a multiple of the health budget. No state in the world follows such a policy: all states work on the presumption that they have a greater responsibility for the welfare of their own citizens than for the welfare of others. If that is an acceptable moral stance in general, there is no reason why immigration policy should be made an exception.

But while states do not treat the welfare of citizens and non-citizens as of equal importance, rich countries do, and I believe should, place some weight on the welfare of others. They do and they should strike some balance between the selfish interest of their own citizens and a disinterested altruistic interest in human welfare generally. In immigration policy that could imply that we should pay the greatest attention to the welfare of immigrants in those cases where the immigrants are likely to gain the greatest benefit from leaving their country of origin.

One such category is asylum seekers, the vast majority of whom, contrary to some newspaper comment, are people with a justifiable fear of political persecution in their own country, or who are seeking to leave countries with such bad governments and economic prospects that moving to a developed

country represents a huge leap in human welfare, even if they face no immediate danger of political persecution in the strict sense of the word. Any one of liberal sentiment must feel concern about closing the door on people seeking to escape political violence or extreme poverty.

Openness to asylum seekers therefore strikes me as one way in which we should be willing to accept a level of immigration higher than would be optimal in terms of the welfare of the already present population. Let me suggest two other potentially good arguments for accepting higher immigration and thus a faster growing population than the arguments of Section 3 suggest would be ideal.

- One is that some significant level of immigration may be unstoppable, whether we like it or not. Though note that if we believe that, it could logically be a reason for making the policy towards legal immigration tighter than it should otherwise be.⁵⁹
- The other is geopolitics, and in particular the strong arguments for expanding the European Union to include new countries such as the Ukraine or Turkey, the latter a country with a still significantly expanding population. Such an expansion of the EU would at some time have to imply free movement of people, and could therefore produce a further surge of immigration, similar to that which occurred with the A8 accession countries. Even if that surge were likely to help drive the UK population to undesirably high levels, I would personally support it for geopolitical reasons: the potential gain of underpinning the success of a moderate and secular state with a majority Islamic population, and of tying it closer to Europe's values, being the overriding consideration.

But my rationale would be geopolitical not economic. It would be a vote in favour of Turkish accession despite the potential demographic disadvantages to Britain, not because of some supposed advantages. For to return to the question I initially asked "Do we need more immigrants and babies?" my summary conclusions are as follows.

- The dependency ratio arguments for a growing population are not compelling once one allows for rising retirement ages, changes in youth dependency and inheritance effects.

⁵⁹ The counterargument is that allowing legal immigration may reduce the level of illegal immigration. This will only be true, however, if the legal migration routes are available to the same categories of people who would otherwise arrive illegally.

- “Shortage of labour” arguments are in their most extreme form economically illiterate. The real argument is the potential “comparative advantage” benefits of migration, and potential distributional consequences. Both are likely in the long-run to be very small.
- Increasing population density in an already rich country has negative welfare consequences through environmental and congestion effects. These are likely to be large enough to more than outweigh either dependency ratio or comparative advantage benefits. A broadly stable population is therefore likely to be more favourable to the welfare of the already present population than one growing at the pace suggested by latest UK demographic forecasts.

What I accept entirely is that my third conclusion – that congestion and environmental detriments outweigh dependency ratio and comparative advantage benefits – is judgemental. It depends on the weight we attach to these congestion and environmental detriments, and different people with different preferences will attach different weights. But the fact that there is a trade-off to be struck is not disputable: nor the fact that any dependency ratio and comparative advantage benefits are sufficiently minor that it is perfectly feasible for a rich developed country to manage with a stable rather than growing population. The simple answer to the question “Do we need more immigrants and babies?” is therefore No.⁶⁰

⁶⁰ Given the strong arguments for answering this question “No”, it is perhaps surprising how much apparently well-informed commentary has asserted that the answer is yes, and that the balance of benefits and detriments is incontrovertibly positive. A suspicion which I have been left with after debates on these issues is that there is a significant body of people who recognise that the economic arguments for and against immigration are balanced, but who believe that (i) significant immigration is unavoidable; (ii) there is a danger of a misinformed and racist backlash against immigration; (iii) asserting that there is a strong economic case for immigration will help persuade people to accept something which is inevitable anyway. While I have some sympathy with the motivations inherent in this approach, it carries dangers. If the economic case for higher immigration is not strong, we should not pretend it is. If the real arguments in favour are ethical and geopolitical, it is on those bases that the argument should be made.