

# The macroeconomic impact of international migration

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Net inflows of migrants have accounted for the majority of UK population growth over the past decade. Migrants who travel to the United Kingdom to work increase the supply of labour to UK companies, and indirectly encourage them to invest in more machinery and equipment, thereby boosting the supply capacity of the economy. Migrants also add to the level of demand in the economy. The issue for monetary policy makers tasked with maintaining control of inflation is how migration affects the balance between demand and supply, and that is likely to depend on the nature of the migrant inflow. Recent migrant inflows appear to have had a slightly larger impact on supply than demand, and may therefore have depressed inflationary pressures in the economy.

## Introduction

Every year hundreds of thousands of people migrate into and out of the United Kingdom. The balance between those two gross flows — the net inflow of migrants — is rather smaller. But it has nevertheless accounted for the majority of UK population growth since 1999. This article discusses the likely impact of migrant flows on the UK macroeconomy.<sup>(1)</sup>

This article begins with a discussion of the estimated size and composition of recent migrant flows into and out of the United Kingdom. These flows are difficult to measure accurately, and the limitations of the various sources of data on international migration are discussed in the box on page 49. The article then reviews the economic reasons why individuals choose to migrate, before discussing the macroeconomic impact of migration. International migration appears to have increased in scale in recent years, perhaps in response to a reduction in the legal or financial barriers to migration. The article ends with a discussion of how increased exposure to migration could have affected the UK economy.

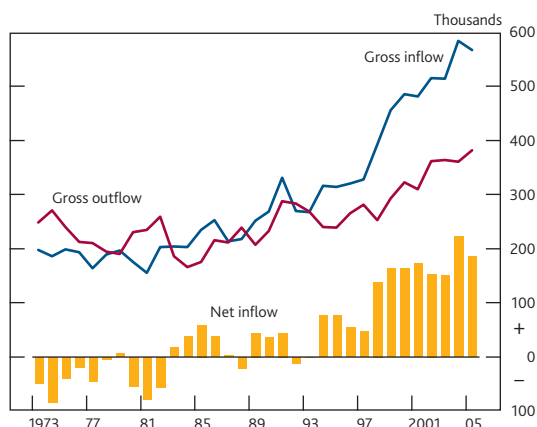
## Data on UK migrant flows

A large number of people travel into and out of the United Kingdom each year. But only a fraction of these individuals fall under the ONS definition of a migrant — that is, an individual who changes their country of usual residence for a period of at least a year.<sup>(2)</sup> Although this official definition is appropriate for measuring the long-run impact of international migration on the population of the United Kingdom, it may be too restrictive when thinking about the economic impact of migration. Large numbers of individuals enter the country to study or to work for a period of weeks or months. These

'visitors' will not be captured in the official migration statistics, but they may contribute to the level of demand and supply.<sup>(3)</sup>

The official data suggest that the net inflow of migrants has increased over the recent past. There was a net inflow of 185,000 migrants into the United Kingdom in 2005 (the latest full year for which data are available), and in the preceding

**Chart 1** Migrant flows into and out of the UK population<sup>(a)</sup>



(a) Data before 1991 do not include migrant flows between the United Kingdom and the Republic of Ireland, or flows of asylum seekers and their dependents, and have not been adjusted to account for inaccuracies in the IPS data on intended duration of stay.

- (1) A box on page 24 of the November 2006 *Inflation Report* also discusses the macroeconomic impact of migration. For more details on the economic characteristics of migrants see Saleheen and Shadforth (2006).
- (2) This definition is consistent with the United Nations Organisation's definition of a long-term migrant; that is: 'A person who moves to a country other than that of his or her usual residence for a period of at least a year (twelve months), so that the country of destination effectively becomes his or her new country of usual residence'. See United Nations (1998) for more details.
- (3) These individuals will be recorded in the data collected by the Civil Aviation Authority, the Department for Transport, and Eurotunnel and Eurostar are discussed in the ONS' monthly 'Overseas travel and tourism' First Release.

## Data on international migration

The ONS receive information on the total number of people who enter and exit the United Kingdom each year via airports or sea ports and the Channel Tunnel from the Civil Aviation Authority (CAA), the Department for Transport (DfT) and Eurotunnel and Eurostar respectively. The ONS use the International Passenger Survey (IPS) to estimate the fraction of the overall traffic of people into and out of the country that reflects migrant flows. The IPS is a survey of one in every five hundred individuals who enter and leave the country through the main UK air and sea ports and the Channel Tunnel.<sup>(1)</sup> Official estimates of the total number of migrants who enter and exit the United Kingdom each year are therefore based on two data sources: information from the CAA, DfT and Eurotunnel and Eurostar on the gross flows of people into and out of the country, and IPS estimates of the fraction of those flows that are migrants.<sup>(2)</sup>

There are a number of sources of uncertainty around these official estimates of the number of migrants entering and exiting the country, and they primarily relate to the role played by the IPS in the construction of the data. One source of uncertainty lies in the fact that the sample of people who are interviewed for the IPS may not be representative of the population of travellers. If the survey sample is not representative then the IPS cannot be relied upon to give a reliable estimate of the proportion of those travellers who are migrants. The sample may not be representative on account of sampling error — the sample is chosen at random, so it cannot be expected to reflect the underlying population of travellers perfectly.<sup>(3)</sup> Another reason why the IPS sample may not be representative lies in the voluntary nature of the survey. Around one in five travellers who are asked to participate refuse to do so. Unless migrants and visitors are equally likely to refuse to participate in the survey, the IPS sample will provide unreliable estimates of the migrant share of the overall population of travellers.

Another IPS-based source of uncertainty around the official migration reflects the fact that the survey respondents cannot be relied upon always to give accurate information. Individuals are identified as migrants only if they report that they intend to stay in the country for over a year. If people's intentions are not a reasonable guide to their actual duration of stay these estimates may not accurately reflect the true migrant flows.<sup>(4)</sup>

There are a range of other data sources which provide additional information on the size of the gross inflow of immigrants into the United Kingdom, such as the number of: Work Permits issued by the Home Office, applications for National Insurance numbers or registrations at GP surgeries. The advantage of these administrative data sources is their

accuracy, because they tend to have near 100% coverage of the subset of the population they are trying to measure. But they cannot be used to corroborate official estimates of the net inflow of migrants because they do not provide any information about the gross outflow of emigrants.

Information collected under the Worker Registration Scheme (WRS) is an example of this kind of administrative data source. The WRS has tracked the number of nationals from eight of the former Accession countries who have found work in the United Kingdom since 1 May 2004.<sup>(5)</sup> These data provide timely estimates of the number of migrants from these countries who have found work. But it is difficult to draw direct conclusions about the gross inflow of migrants from these countries because the data only cover people who have found work, and because some of these individuals may have already been in the country before 1 May 2004 or may have subsequently returned home.

Surveys of the household population — like the Labour Force Survey (LFS) — can provide more detailed information on the characteristics of immigrants. However, these data cannot be used to corroborate the official estimates of the size of the immigrant population. Estimates of the migrant share of the population based on the LFS are subject to the same uncertainties that affect the IPS: the LFS sample may not be representative due to sampling error and non-response bias, and the information households provide may not be accurate. And even if the LFS could provide a reliable estimate of the number of migrants in any given survey sample, that information is not sufficient to measure the number of migrants living in the United Kingdom more accurately because there is also uncertainty around the size of the total household population.<sup>(6)</sup>

One key disadvantage of many of these data sources is that they are published with a significant time lag. And that is why the intelligence gathered by the Bank's regional Agents on the impact of migration is particularly valuable. The Agents' contacts have consistently reported that migrants have helped ease labour shortages (see Bank of England (2005, 2006)).

(1) Around one in ten people who travel into or out of the United Kingdom are not covered by the survey, because interviewing is suspended at night or because their particular route is not covered.

(2) The ONS supplement these data with estimates of the inflow of asylum seekers and their dependents, and the flow of migrants between the United Kingdom and the Republic of Ireland.

(3) The scale of this uncertainty around the total migrant flows can be gauged from the estimated confidence interval around the official estimates. The ONS estimate that 518,100 people migrated into the United Kingdom in 2004. But they also estimate that there is a one in twenty chance that the actual inflow was either less than 479,300 or greater than 556,900 — or, in other words, the inflow could have been up to 7.5% lower or higher.

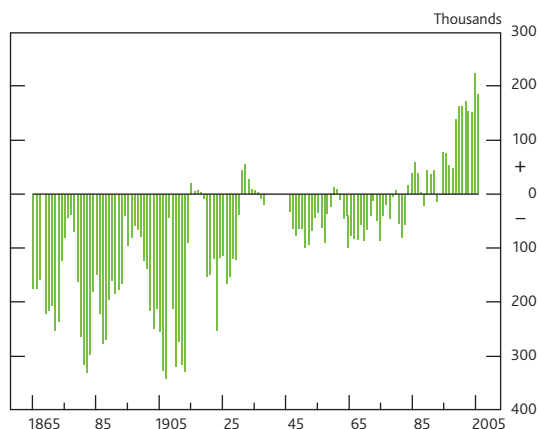
(4) The ONS try to correct the raw IPS data to account for these sorts of problems. See ONS (2006), *International migration (MN Series)*, Issue 31.

(5) The WRS covers nationals from the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

(6) The benefits and limitations of these data are described in more detail in Saleheen and Shadforth (2006).

year, the net inflow was 223,000. Those net inflows were large, by historical standards (Chart 1). Between 1998 and 2003 the net migrant inflow averaged around 150,000 people a year, and there was a net outflow of migrants from the United Kingdom as recently as 1993. And before the Second World War the gross flow of migrants out of the United Kingdom was almost always larger than the gross inflow (Chart 2). Migration to the United States accounted for a large part of that net outflow.

**Chart 2** Estimated annual net migration to the United Kingdom<sup>(a)</sup>



Sources: *Board of Trade Journal*, Ferenczi and Willcox (1929), Mitchell (1988) and ONS.

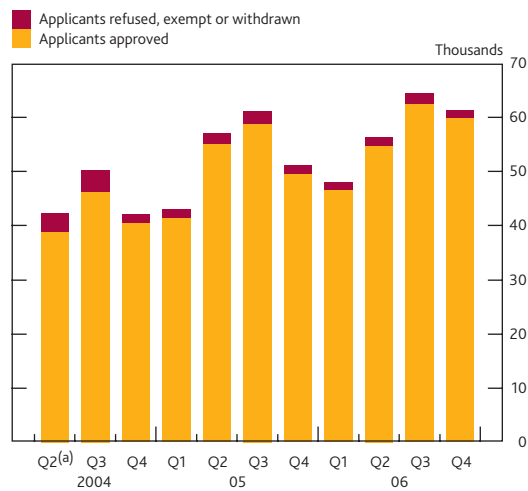
(a) Data from 1855–1924 in *International Migrations*, Vol. 1, 1929, edited by Willcox, W F (with introduction by Ferenczi, I), New York, National Bureau of Economic Research; data from 1925–64 in *Board of Trade Journal*, © Crown Copyright 2007. Both cited in Mitchell, B R (1988), *British historical statistics*, Cambridge University Press, pages 77–80.

The pickup in the net inflow of migrants in 2004 and 2005 was driven in part by the enlargement of the European Union. Since 1 May 2004 nationals from eight countries in Central and Eastern Europe have gained the right to live and work in the United Kingdom. Administrative data from the Worker Registration Scheme (WRS) indicate that several hundred thousand individuals from these countries have found work in the United Kingdom since enlargement (Chart 3).

Net inflows of migrants have accounted for the majority of UK population growth over the past decade and will continue to do so in the near future according to the latest set of ONS population projections (Chart 4).<sup>(1)</sup> And in terms of the stock, inflows of overseas residents (and net outflows of British residents) have also raised the fraction of the UK population that was born abroad (Chart 5).

The official migration data also provide information on the economic characteristics of the net migrant inflow.<sup>(2)</sup> Migrants are predominantly young people, and almost exclusively of working age (Chart 6a). The most frequently cited reason for migration was to study (Chart 6b). Although large numbers of people report migrating into the United Kingdom for 'work-related' reasons, these migrants account for little of the net migrant inflow.<sup>(3)</sup>

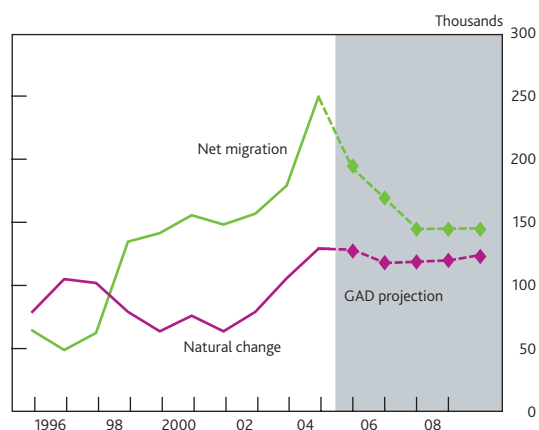
**Chart 3** Applicants from eight of the Accession countries, by quarter applied



Source: *Accession Monitoring Report*.

(a) Data for May and June 2004 only.

**Chart 4** Source of UK population growth: past, present and future<sup>(a)</sup>



Sources: Government Actuaries Department (GAD)/ONS and Bank calculations.

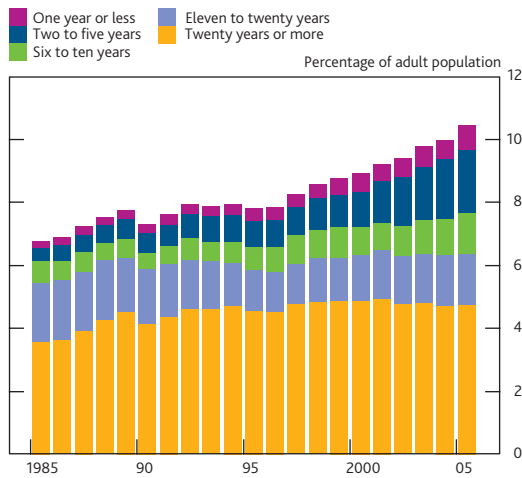
(a) These data refer to growth in the overall population. For a comparable chart documenting the sources of growth in the adult population see Chart 2 on page 61 of Barwell et al (2007).

## Why do people migrate?

Migration is not costless. Migrants face the direct costs of travel and relocation of property. And they may not start working as soon as they arrive in a new country, so the costs of migration also include the foregone income that they could have earned during that time if they had been working in their home country. There may also be social costs arising from the loss of contact with family, friends and the local community.

- (1) More youths have become adults than children have been born over the recent past so the pace of natural change has been larger for the adult population than for the population as a whole. Migration therefore accounts for a correspondingly smaller share of growth in the adult population.
- (2) Saleheen and Shadforth (2006) examine the characteristics of immigrants in more detail.
- (3) Only those individuals who have a definite job to go to are classified as migrating for 'work-related' reasons; those coming to look for work are classified as 'other'. For information on the breakdown of the total inflow of migrants see Saleheen and Shadforth (2006).

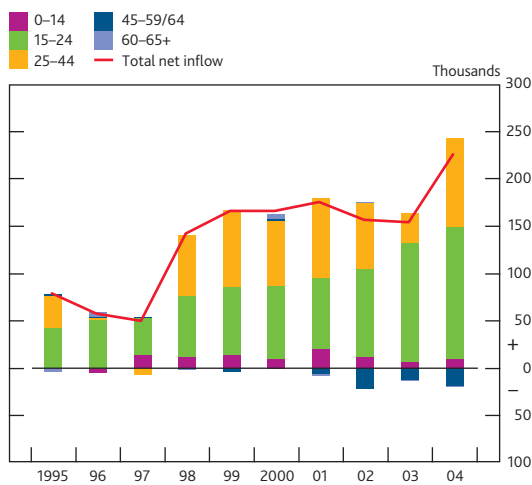
**Chart 5** The foreign-born share of the adult population, by time of arrival



Source: Labour Force Survey (LFS) microdata.

**Chart 6** Decomposing the UK net migrant inflow

(a) By age group



(b) By main reason for migration



When people choose to migrate they will tend to weigh these costs against the potential benefits. Those benefits may not be financial: individuals may migrate to be reunited with family members; to study; to experience foreign cultures; or to flee persecution. This article focuses on the economic rationale for migration: the opportunity to achieve a higher standard of living by earning a higher real wage or having a better chance of finding work (see Hicks (1932)). These benefits are often uncertain: migrants may not know for sure how much they will earn in the host country. So if people are risk-averse — that is, if they value the relative certainty of their current earnings — then people may not choose to migrate if they believe the benefits from migration are only marginally higher than the costs.<sup>(1)</sup>

An economic decision to migrate will reflect a comparison of perceived living standards in the host and source countries. In the case of migrants from developing countries, the motivating factor is more likely to be the higher level of UK real wages. In the case of migrants from countries with a standard of living similar to the United Kingdom’s such as the United States or most members of the European Union, the motivating factor is more likely to be cyclical movements in wages and the probability of finding work. Understanding which of these forces motivated people to migrate to the United Kingdom is important because it sheds light on the amount of time these individuals are likely to remain in the country. Migrants motivated by cyclical differences in living standards may be less likely to remain indefinitely. And, as this article will go on to explore, the amount of time migrants plan to remain in this country shapes the impact of a given migrant inflow on the balance between demand and supply in the UK economy.

### The macroeconomic consequences of migration

A net inflow of migrants will affect the level of both aggregate demand and supply in the economy. What matters for monetary policy makers focused on controlling inflation is the scale and speed of the stimulus to demand and supply that migration generates, because that determines whether migration increases or reduces inflationary pressures in the economy.

#### Migration and aggregate supply

The supply capacity of the economy depends on the amount of labour and capital employed by companies and the efficiency with which companies can combine that labour and capital to produce output. In theory, an inflow of migrants could affect all three of these.

(1) Even large and persistent expected differences in living standards across countries do not guarantee flows of workers, as many countries impose restrictions on the number of immigrants that they accept.

## Migration and labour supply

What matters to companies is how easily job seekers can fill vacancies — so the supply of labour to companies will depend on whether and how effectively each individual searches for work, as well as how many people are looking for work. The aggregate supply of labour to companies will therefore reflect the total size of the UK population, the incentives for each individual to search for work, and the effectiveness of that searching.

An individual's decision over how many hours they are willing to work each week (if any) will depend on a range of factors (Pencavel (1986)). People work to earn money to pay for consumption, so their labour supply decision will reflect both the wage they can earn and the other resources they have at their disposal to fund consumption. An individual's post-tax hourly wage determines the amount of consumption that each hour of work can provide and will depend in large part on their characteristics, such as their qualifications and their physical health. The higher the wage an individual can earn, the more likely they are to want to work. But if individuals can fund significant consumption out of wealth or non-labour income then they may be less likely to want to work. Labour supply decisions will also reflect individuals' preferences over consumption and leisure — that is, how much consumption they are willing to sacrifice for an extra hour of leisure. Those preferences will also vary according to people's characteristics, for example whether they have to care for members of their family.

The effectiveness with which people search for work is also likely to depend on their characteristics. In order to be able to search effectively for work, people need to be able to access and identify relevant vacancies and they also need to be attractive to potential employers when they apply for jobs. So search effectiveness will depend on the knowledge, skills and characteristics that individuals possess.

A net inflow of migrants will therefore affect labour supply in two key ways. First, it will increase the size of the population and therefore boost the aggregate supply of labour to companies. Second, migrants may have a further impact on labour supply if they differ from the average UK resident in terms of their job search behaviour — that is whether and how effectively they search for work, or the number of hours they want to work.

## Migration and job search

Migrants search may differ from the average UK resident on account of differences in the characteristics of these two groups. Employment rates tend to vary systematically by age (Barwell (2000)); in particular, people are less likely to search for work once they reach retirement age. So recent inflows of migrants could have further boosted aggregate labour supply because a far larger share of the migrant inflow is of working

age compared with the current UK population. But some migrants may have a limited grasp of English when they first arrive and that may limit their ability to search effectively for jobs in the short run.

Job search among migrants and UK residents may also differ on account of differences in the circumstances these two groups face. Migrants may not be entitled to the same level of government benefits as UK citizens. And they may not have access to credit on the same terms as UK residents. Without these alternative means of funding consumption, migrants may be more likely to search intensively for work.

The reason why individuals chose to migrate to the United Kingdom may also shed light on their search effectiveness. People who have paid the costs of migration to have the opportunity to earn higher wages are likely to search intensively for jobs. According to data from the IPS, large numbers of migrants report entering the United Kingdom to study, which could imply that a relatively small proportion of the inflow will actively search for work. But a considerable proportion of the current (adult) student population are also employed, and it is unclear why foreign students would behave differently.

Migrants may not search effectively for jobs when they first arrive in the United Kingdom, on account of their inexperience in the UK labour market.<sup>(1)</sup> Some migrants will have already arranged a job when they arrive in the country, but many will have to start looking for work once they have arrived. New migrants will have to learn where new vacancies are advertised and how to identify suitable openings from the large stock of available vacancies.<sup>(2)</sup> But migrants' knowledge of the UK labour market will improve over time, helping them to search more effectively for work.

Data from the Labour Force Survey (LFS) suggest that migrants are more likely to be employed than not, but on average, are less likely to be employed than those who were born in this country (see the annex of this article for more details). That may reflect the fact that a relative large proportion of migrants are in full-time education or caring for family members (**Chart 6b**). But the majority of these individuals arrived in this country many years ago (**Chart 5**), and they are less representative of more recent migrants. To

(1) Frijters *et al* (2005), report evidence that is broadly consistent with this hypothesis. They find that 'immigrant job search appears to be less effective than that of equivalent UK born job seekers'. In particular, differences in the probability of these two groups being able to find work cannot be explained by differences in the method those groups use to search for work. The authors also find evidence that migrants may become more effective at searching for work the longer they have been in the country.

(2) This process of job search may also involve a period of trial and error. Migrants may have to sample a number of jobs — accepting a job offer and then quitting when it proves a bad match — before they happen upon a vacancy which suits their particular characteristics. This process of job-shopping is one explanation why new entrants to the labour market (like youths and in principle migrants too) might suffer relatively high unemployment rates (Johnson (1978)).



the extent that recent inflows have contained large numbers of working-age adults who have come to this country to work, then they could have had a larger impact on UK labour supply. Saleheen and Shadforth (2006) discuss this in more detail.

### *Migration and desired working hours*

Migration could have boosted the supply of labour to UK companies by affecting the average number of hours individuals are willing to work, as well as the total number of people searching for work. Workers will tend to respond to a temporary increase in their wage by working longer hours, because that allows the possibility of working shorter hours over the rest of their working life and enjoying more consumption. Migrants who relocate to a high-wage economy like the United Kingdom may work relatively long hours while they remain in the country. Migrants may also prefer a different balance between work and leisure than a typical UK resident, if they use part of their income to support family and friends abroad who may have a lower standard of living. LFS data are consistent with these hypotheses: when they are employed, migrants do appear to work longer hours than individuals who were born in this country (see the annex for details).

The supply capacity of the economy depends on the quality as well as the quantity of labour employed by companies.<sup>(1)</sup> If the workforce becomes more productive then that should lead to an increase in output. Labour quality is not directly measurable but can be indirectly proxied by the average level of educational attainment of the workforce. There is mixed evidence on whether immigrants tend to be better or less educated on average than individuals born in this country.<sup>(2)</sup> But the impact of a net inflow of migrants on overall labour quality in the United Kingdom also depends on the qualifications of emigrants, about which very little is known, so it is very difficult to know whether migration has affected UK labour quality, and in which direction. It is also possible that any impact of migration on labour quality may vary over time. In the short run, migrants may not be fluent in English and may have difficulties in searching effectively for vacancies. So migrants' qualifications may overstate their contribution to the quality of the workforce in the short run.

### *Migration and the capital stock*

A net inflow of migrants will tend to increase the size of both the population and the workforce. Both of these factors will tend to raise the value that companies attach to new capital goods. A larger population will demand a larger volume of goods and services, which will indirectly boost companies' demand for capital and labour. And a larger workforce will tend to raise the amount of output that can be produced from an additional unit of capital, further boosting businesses' demand for capital goods. So a net inflow of migrants should raise companies' expectations of the stream of revenue that a

new capital good can generate and that should stimulate spending on capital goods in the long run; although that higher investment may take some time to materialise. So an inflow of migrants should eventually lead to an increase in the size of the capital stock and therefore the supply capacity of the economy. Past episodes of mass immigration have certainly coincided with periods of rapid capital accumulation.<sup>(3)</sup> What is less clear is the timing and scale of the increase in investment.

It is unlikely that companies will begin to invest as soon as migrants arrive in the United Kingdom. Increased spending on new capital goods is likely to be funded out of the higher profits that companies may earn if the net inflow of migrants temporarily depresses wages. And wages are unlikely to fall as soon as migrants arrive because migrants will only gradually boost labour supply. Moreover, companies are unlikely to respond immediately to an increase in their profits. There are sunk costs in investment: companies cannot recoup the full costs of unprofitable capital goods, so they will tend to delay spending on capital goods if they are uncertain about the potential returns from investment. So there could be a significant delay between the arrival of migrants and expenditure on new capital goods by UK companies.

The extent of the increase in the capital stock may hinge on the characteristics of the migrant inflow. Highly skilled workers are likely to be able to produce more output from complex machinery than those with relatively few skills. Companies' investment decisions may therefore be affected by the balance between skilled and unskilled workers in their local labour market. So a net inflow of migrants can therefore affect the incentives for companies to introduce new capital-intensive technologies if migration affects the skills mix of the UK population (Lewis (2005)).

### *Migration and technology*

Technical progress captures improvements in the efficiency with which capital and labour are combined to produce output. An inflow of migrants could encourage technical progress, but the extent of any improvement will depend heavily on the composition of the migrant inflow. The rate of technical progress depends in part on the amount of resources devoted to Research and Development (R&D). So migration could encourage technical progress if the inflow contains

(1) Changes in the skill mix of the workforce could also have implications for the quantity produced and (relative) price of different goods and services. These issues are beyond the scope of this article; for more details see Rybczynski (1955).

(2) For more details on the qualifications of migrants relative to people born in this country see Dustmann, Fabbri and Preston (2005) and Saleheen and Shadforth (2006).

(3) Most of the empirical analysis of the impact of mass migration on the capital stock has focused on the Israeli economy. Cohen and Hsieh (2000) report that the absorption of over 710,000 Soviet Jews into the Israeli economy in the early 1990s (which boosted the working-age population by 15%) led to a sharp increase in the rate of return on capital and a sustained increase in investment in machinery and equipment. See Ben-Porath (1997) for a discussion of similar periods of rapid capital accumulation in response to earlier waves of immigrants into Israel.

highly skilled individuals who are capable of innovative work in the R&D sector.<sup>(1)</sup> Migration could have a more direct impact on technical progress if migrants bring valuable knowledge with them about production techniques overseas, which could improve the efficiency with which UK companies combine capital and labour.

### Migration and aggregate demand

An inflow of migrants will boost the level of demand, as well as supply. The previous section discussed how an inflow of migrants can lead to an increase in the size of the capital stock. And as companies purchase those additional capital goods they will boost aggregate demand. This section explores how migration affects another key component of demand: consumption.<sup>(2)</sup>

### Migration and consumption

An inflow of migrants will boost the level of consumer spending. Migrants will have to consume essential goods and services like food and accommodation, and that will add to the overall level of spending in the economy.<sup>(3)</sup> UK households spend money on a wide range of other consumer goods and services, as well as on these essentials. The impact of a net inflow of migrants on the level of consumption will therefore hinge on the extent to which migrants spend money on these non-essentials, over and above that spent on essentials.

One reason why migrants might significantly boost consumer spending is their potential desire to build up their stock of durable goods rapidly. Durable goods such as furniture, clothing and white goods provide households with a flow of services that they consume over a long period of time (see Hamilton and Morris (2002)). Migrants are unlikely to bring many durable goods with them, so they may want to build up their stock of these goods quite rapidly.<sup>(4)</sup> Migrants tend to be relatively young so they can expect to enjoy the flow of services that durable goods provide over a long period of time, and that is also likely to boost their demand for these goods.

But there are also reasons to suspect that migrants might spend rather less than UK residents. Migrants may plan to return home at some point in the future, so they may save a large fraction of their income to allow greater consumption when they return home (where the cost of living may be lower). And many migrants send part of their income back home to support family and friends: that should further reduce migrants' spending in this country.<sup>(5)</sup>

Migrants' spending behaviour is likely to hinge on how long they expect to remain in the country, and the level of prices and wages in the United Kingdom relative to that in their home country. People tend to smooth their consumption — that is, they save money when their earnings are temporarily

strong, and run down savings when their earnings are temporarily weak. Those migrants who can earn higher wages in this country but do not intend to remain for a long period of time are likely to save a relatively large fraction of their income.<sup>(6)</sup> But if migrants plan to stay until they retire, and then return to their country of birth, they may save a relatively small fraction of their income. These migrants will face a relatively lower cost of living in retirement so they may need to build up a smaller stock of savings than those workers who intend to remain in the United Kingdom. The spending behaviour of German immigrants suggests that migrants are more likely to save income if they plan to return home (Merkle and Zimmermann (1992)).

Consumption by UK households could also be affected in the short run by an inflow of migrants. An inflow of migrants will tend to put upward pressure on house prices, given that the UK housing supply is largely fixed in the short run. An increase in house prices generates housing equity for homeowners, which they can use as collateral to borrow funds at a relatively low interest rate. Consumption could temporarily rise if that increase in housing equity leads to an increase in borrowing, or if the opportunity to borrow at a cheap rate leads homeowners to save a smaller fraction of their income.<sup>(7)</sup>

### Migration and the balance between demand and supply

The above analysis suggests that an inflow of migrants will boost the levels of both aggregate demand and aggregate supply. Likewise, an outflow of emigrants will reduce both demand and supply. The key issue for monetary policy makers focused on controlling inflation is how the net flow affects the balance between demand and supply — that is, whether it adds to inflationary pressure in the economy.

There is little academic research which can shed light on this issue. Most of the research that has been done has analysed how migration affects outcomes in the labour market, such as

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- (1) There is evidence that highly skilled migrants can encourage technical progress. Zucker, Darby and Brewer (1998) document the important role played by what they call 'star scientists' in driving growth in the American biotechnology industry. Stephan and Levin (2001) find that a disproportionately large share of those individuals who have made exceptional contributions to science and engineering in the United States were migrants.
  - (2) A net inflow of migrants could also affect the other components of demand. Migration could affect the pattern of government spending (see Gott and Johnston (2002)). And it is even possible that a net inflow of migrants could affect the demand for UK exports. For example, the exchange rate may respond to any increase in the flow of income that migrants send abroad (see Amuedo-Dorantes and Pozo (1994) for evidence of how these flows can affect the exchange rates of the source country).
  - (3) These expenditures do not rely on migrants having found work. Spending may be funded out of wealth that migrants bring with them or via credit arrangements.
  - (4) In some cases the alternative to purchasing durable goods — that is, purchasing the flow of services that durable goods provide — is expensive (for example, eating out at a restaurant rather than cooking food at home), and in others no genuine alternative exists (for example, clothing).
  - (5) According to the United Kingdom's Balance of Payments (*The Pink Book*) the annual flow of migrant remittances amounts to several billion pounds.
  - (6) These migrants will also not want to spend large sums of money building up a stock of durable goods that will be difficult to sell when they leave the country.
  - (7) See Benito *et al* (2006).

the path of nominal wages or the unemployment rate.<sup>(1)</sup> The majority of that literature has focused on the microeconomic impact of migration — that is, whether inflows of migrants affect the wages and probability of finding work of residents with similar characteristics — rather than the impact on aggregate wages or unemployment.<sup>(2)</sup> And the academic research that has concentrated on the macroeconomic impact of migration has largely focused on the Israeli economy which has experienced several episodes of mass immigration.<sup>(3)</sup> But it is unclear what lessons can be drawn from those episodes given the unique circumstances in which the migrant flows took place.

The net inflow of migrants into the United Kingdom has increased over recent years (Chart 1). This article has outlined two key factors which are likely to have played a key role in determining how that higher migrant inflow has affected the balance between aggregate supply and demand. First, the characteristics of the migrant inflow, which determine both the absolute size of the impact of migration on the supply capacity of UK companies and the speed with which it affects capacity. Second, how long migrants expect to remain in the country which shapes their decision to spend or save income and perhaps the scale of any increase in investment by UK companies.

Data from the WRS testify to the speed with which recent migrants have entered the labour market. Reports from the Bank’s regional Agents paint a similar picture. Recent migrant inflows appear to have had a significant impact on UK labour supply. There is also some evidence that migrants have helped to ease recruitment difficulties, allowing companies to expand employment without having to bid up wages (see King (2004)).<sup>(4)</sup>

Data from the International Passenger Survey indicate that the majority of migrants intend to stay in the country for a relatively short period of time (Chart 7). If the majority of

migrants do intend to return home in the near future, it is likely that they will try to save a large fraction of their income. So recent inflows may have had only a muted impact on aggregate demand.

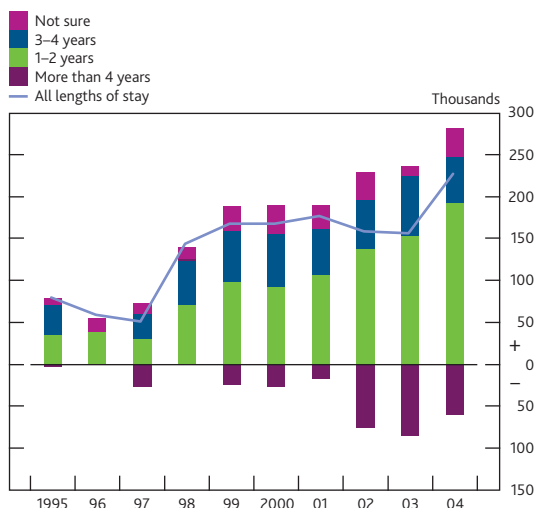
On balance, recent inflows of migrants have probably had a larger impact on aggregate supply than demand (see November 2006 *Inflation Report*). So migration has probably helped to ease inflationary pressures in the economy, at least temporarily.

### The impact of a decline in the barriers to migration

The official data suggest that there has been a pickup in the gross flows of migrants into and out of the United Kingdom in recent years. The United Kingdom’s experience does not appear to be unique (OECD (2006)): there appears to have been a global increase in the scale of cross-border migration. That might reflect a decline in the direct costs of travel, the removal of legal restrictions on migration or the growth of employment agencies which source UK companies with foreign labour.<sup>(5)</sup> This section of the article discusses the likely impact on the UK economy of a reduction in the barriers to migration.

If the barriers to migration have fallen, then changes in UK wages will tend to generate larger flows of migrants into and out of the country. Companies will find it easier to vary the size of their workforce in response to changes in demand without having to make large adjustments to their wage rates. That makes production costs less sensitive to the level of activity, and as a result, companies will have less incentive to change their prices in response to temporary shifts in demand. So at the aggregate level, movements in output around its sustainable level will generate less pressures on prices, though inflation will continue to be determined by monetary policy in the medium term. In other words, a reduction in the barriers to migration will tend to flatten the structural trade-off between output and inflation, the short-run Phillips curve.

Chart 7 Intended length of stay in the country



(1) The labour market is not an ideal prism through which monetary policy makers can study the macroeconomic impact of migration. Outcomes in the labour market do not determine the path of output or inflation. If migration provides a sufficiently large boost to demand then companies may raise prices even if the outward shift in labour supply depresses wages as companies expand their profit margins. Alternatively, if migration provides little or no stimulus to demand, then output may fall even if employment increases as companies hire more workers at the lower wage.

(2) The literature has not arrived at a settled view on this question; see Borjas (2003) and Card (2005) for recent expositions of both sides of this debate.

(3) See Ben-Porath (1997), Eckstein and Weiss (2002), Hercowitz and Yashiv (2002) and the references therein.

(4) If migrants have helped to ease recruitment difficulties because they have particular skills or live in particular regions where the demand for labour is strong then they may have had a disproportionate impact on wage pressure. See Layard, Nickell and Jackman (1991) for more details on the importance of the mismatch between the demand and supply of labour in explaining wage pressure.

(5) These employment agencies reduce the uncertainty that individuals face about their income if they migrate to the United Kingdom because they provide migrants with a job guarantee. Reducing that uncertainty should encourage a larger flow of migrants if people are risk-averse.



The concept of a sustainable level of output begins to lose meaning if all barriers to migration disappear and there is a plentiful supply of potential migrants overseas. Any level of output may become sustainable if companies can vary the size of the workforce without any impact on their production costs. But companies need capital as well as labour to produce output and they cannot rapidly change the size of their capital stock in response to shifts in demand. Companies will need more and more workers to produce an extra unit of output if their capital stock is fixed, and as a result, production costs will rise even if companies can employ as much labour as they want at a given wage.<sup>(1)</sup>

A decline in the barriers to migration could also have an impact on the UK economy without any actual change in migrant flows. The possibility of migrant inflows means that UK workers know that their employers will find it easier to replace them, and that may restrain their wage demands. In other words, a reduction in the barriers to entry (and exit) could make the UK labour market more 'contestable'.<sup>(2)</sup>

This discussion assumes that there is an ample supply of workers overseas ready to migrate to the United Kingdom. That potential supply of migrant labour could eventually dwindle if the gap between living standards in the United Kingdom and the developing world narrows, or if the cyclical position of the UK economy deteriorates relative to its

major trading partners. That could have implications for UK wages and prices. So a reduction in the barriers to migration makes the UK economy more sensitive to developments elsewhere in the world.

## Conclusions

Net inflows of migrants can account for the majority of UK population growth in recent years. Migration affects the levels of both aggregate demand and supply. The issue for monetary policy makers is how migration affects the balance between them — that is, whether migrants stimulate or ease inflationary pressures in the economy. That depends, in part, on the nature of the migrant inflow. The speed with which migrants boost supply will reflect their characteristics and their motivation for travelling to this country. The speed with which that increase in labour supply transmits itself into wages and profits will affect the timing of any pickup in investment. How long migrants are expected to remain in the country will shape their decision to spend or save, and perhaps UK companies' decisions to invest in capital. How migration affects the balance between aggregate demand and supply is therefore ambiguous in theory. But in practice, recent migrant inflows have probably had a slightly larger impact on aggregate supply than demand, helping to ease inflationary pressures for a period in the UK economy as a whole.

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(1) In the long run the fixed supply of land is likely to impinge on production costs. That is, rental costs are likely to rise as companies expand the scale of production even if companies can costlessly increase the amount of capital and labour they use to produce output.

(2) See Baumol (1982) for a discussion of the theory of contestable markets in its original context — that is, the product market.

## Annex Comparing the labour market performance of migrants and individuals born in the United Kingdom

This Annex describes the results of some regression analysis of the labour market performance of migrants, relative to individuals born in the United Kingdom.<sup>(1)</sup> Regression analysis is a technique which can be used to quantify how the expected value of some variable of interest, such as the number of hours an individual works, depends on a set of explanatory variables, such as whether that individual was born in this country or not. But there are limits to the conclusions that can be drawn from this analysis. Regression analysis searches for evidence of stable relationships between variables; it cannot establish causal relationships between them. And the reliability of the results are contingent upon a whole set of assumptions being valid (Greene (1997)).

Data from the Labour Force Survey (LFS) provide information on the employment status and characteristics of around 100,000 people in the UK household population each quarter. These data can be used to assess how migrants fare in the UK labour market relative to individuals born in this country. A regression of an individual's employment status on a set of time dummies (which will capture variation in the state of the economic cycle) and a dummy variable which takes the value one if an individual is a migrant (and zero otherwise) offers a simple guide to whether migrants are more or less likely to be employed than those born in this country. If the coefficient on the migrant 'dummy variable' is positive and significant, then migrants are more likely to be employed.

The probability that an individual is employed is also likely to depend on their characteristics (age, gender, qualifications) and the local labour market in which they search. A series of controls are therefore included in the regression to isolate the impact of migrant status on employment status. The dependent variable in this regression can only take two values (people are either employed or they are not) so a logit regression is used in preference to a standard least squares regression.<sup>(2)</sup> These stylised regressions, which are estimated over LFS data from 1992 to 2005, indicate that migrants are on average less likely to be employed than those individuals born in the United Kingdom (Table A).<sup>(3)</sup> That does not imply that all migrants are less likely to be employed than those born in this country. For example, these results may not be representative of the labour market performance of the recent wave of migrants from the Accession countries if those individuals differ from the typical migrant in terms of their financial circumstances or their preferences between work or leisure.

**Table A** Logit regressions of employment status

Coefficient	-0.206	-0.560	-0.520	-0.486
Standard error	0.004	0.005	0.005	0.005
<b>Regression includes:</b>				
Time controls (macro effects)	✓	✓	✓	✓
Demographic controls	✗	✓	✓	✓
Qualification controls	✗	✗	✓	✓
Regional controls	✗	✗	✗	✓

A regression of an individual's usual working hours on a set of time dummies (to capture the trend in usual hours) and the migrant dummy variable described above offers a simple comparison of the working hours of migrants and those born in the United Kingdom. If the coefficient on this dummy variable is positive and significant that implies migrants tend to work longer hours. This regression can also be augmented with a set of demographic controls, since working hours may vary with age and gender, and arguably controls for the occupation and industry in which an individual works.<sup>(4)</sup> The LFS data on hours are censored from above and below (people cannot work less than zero hours, and all responses above 97 hours are recorded as 97) so a tobit regression is used.<sup>(5)</sup> Migrants appear to work longer hours when employed: the coefficient on the migrant dummy is positive and statistically significant across a range of specifications (Table B).<sup>(6)</sup>

**Table B** Tobit regressions of usual working hours

Coefficient	1.543	1.095	0.922	1.068
Standard error	0.045	0.040	0.038	0.038
<b>Regression includes:</b>				
Time controls (macro effects)	✓	✓	✓	✓
Demographic controls	✗	✓	✓	✓
Qualifications	✗	✗	✓	✓
Regional controls	✗	✗	✗	✓

(1) See Dustmann *et al* (2005) for a similar analysis of this issue.  
 (2) The fitted values of the regression describe the estimated probability that an individual with a given set of characteristics will be employed. The logit regression ensures that those fitted values lie between zero and one and can be interpreted as probabilities; the least squares regression does not impose this restriction (see Greene (1997)).  
 (3) The regressions suggest that the employment rate of migrants is several percentage points lower than that of similar individuals who were born in this country.  
 (4) The industry in which an individual works and their occupation are endogenous so it is not obvious that these controls should be included in the regression. Migrants could be more likely than those born in this country to choose to work in occupations and industries which offer unusually long or short working hours. If these controls are included in the regression then unless migrants work longer hours than other workers within those occupations or industries the results will imply that working hours do not vary systematically between migrants and those born in this country.  
 (5) The tobit model constrains the fitted values of the regression to lie between these upper and lower bounds (see Greene (1997)).  
 (6) The regressions suggest that migrants work about an hour longer than those individuals who were born in this country.

## References

- Amuedo-Dorantes, C and Pozo, S (1994)**, 'Workers' remittances and the real exchange rate: a paradox of gifts', *World Development*, Vol. 32, pages 1,407–17.
- Bank of England (2005)**, *Agents' summary of business conditions*, December.
- Bank of England (2006)**, *Agents' summary of business conditions*, December.
- Bank of England (2006)**, *Inflation Report*, November.
- Barwell, R (2000)**, 'Age structure and the UK unemployment rate', *Bank of England Quarterly Bulletin*, August, pages 257–65.
- Barwell, R, Bell, V, Bunn, P and Gutiérrez-Domènech, M (2007)**, 'Potential employment in the UK economy', *Bank of England Quarterly Bulletin*, Vol. 47, No. 1, pages 60–69.
- Baumol, W (1982)**, 'Contestable markets: an uprising in the theory of industry structure', *American Economic Review*, Vol. 72, No. 1, pages 1–15.
- Ben-Porath, Y (1997)**, 'The entwined growth of population and product, 1922–1982', *Journal of Labor Economics*, Vol. 15, No. 1, pages 8–25.
- Benito, A, Thompson, J, Waldron, M and Wood, R (2006)**, 'House prices and consumer spending', *Bank of England Quarterly Bulletin*, Summer, pages 142–54.
- Borjas, G (2003)**, 'The labor demand curve is downward sloping: re-examining the impact of immigration on the labor market', *Quarterly Journal of Economics*, pages 1,335–74.
- Card, D (2005)**, 'Is the new immigration really so bad?', *Economic Journal*, Vol. 115, pages 300–23.
- Cohen, S and Hsieh, C-T (2000)**, 'Macroeconomic and labor market impact of Russian immigration to Israel', *The Hong Kong Institute of Economics and Business Strategy (HIEBS)*, Working Paper no. 1,014.
- Dustmann, C, Fabbri, F and Preston, I (2005)**, 'The impact of immigration on the British labour market', *Economic Journal*, Vol. 115, pages 324–41.
- Dustmann, C, Fabbri, F, Preston, I and Wadsworth, J (2005)**, 'Labour market performance of immigrants in the UK labour market', *Home Office Online Report*, Vol. 5, No. 3.
- Eckstein, Z and Weiss, Y (2002)**, 'The integration of immigrants from the former Soviet Union in the Israeli labor market', in Ben-Bassat, A (ed), *The Israeli economy, 1985–98*.
- Ferenczi, I and Willcox, W (ed) (1929)**, *International migrations*, Vol. 1, New York, National Bureau of Economic Research.
- Frijters, P, Shields, M and Wheatley Price, S (2005)**, 'Job search methods and their success: a comparison of immigrants and natives in the UK', *Economic Journal*, Vol. 115, pages 359–76.
- Gott, C and Johnston, K (2002)**, 'The migrant population in the United Kingdom: fiscal effects', *Home Office RDS Discussion Paper no. 77*.
- Greene, W (1997)**, *Econometric analysis*, Prentice Hall.
- Hamilton, R and Morris, B (2002)**, 'Durables and the recent strength of household spending', *Bank of England Quarterly Bulletin*, Summer, pages 186–91.
- Hercowitz, Z and Yashiv, E (2002)**, 'A macroeconomic experiment in mass immigration', *IZA Discussion Paper no. 475*.
- Hicks, J (1932)**, *The theory of wages*, MacMillan.
- HMSO (2007)**, *Board of Trade Journal*, © Crown Copyright 2007.
- Home Office, Department for Work and Pensions, HM Revenue and Customs and Department for Communities and Local Government (2006)**, *Accession Monitoring Report*, May 2004–December 2006.
- Johnson, W (1978)**, 'A theory of job shopping', *Quarterly Journal of Economics*, Vol. 92, No. 2, pages 261–78.
- King, M (2004)**, *Speech given at the Bank of England Court Dinner at the Eden Project*, 12 October, available at [www.bankofengland.co.uk/publications/speeches/2004/speech229.pdf](http://www.bankofengland.co.uk/publications/speeches/2004/speech229.pdf).
- King, M (2006)**, *Speech given at the Best of Black Country Awards*, 16 November, *Bank of England Quarterly Bulletin*, Vol. 46, No. 4, pages 432–33.
- Layard, R, Nickell, S and Jackman, R (1991)**, *Unemployment: macroeconomic performance and the labour market*, Oxford University Press.
- Lewis, E (2005)**, 'Immigration, skill mix and the choice of technique', *Federal Reserve Bank of Philadelphia Working Paper no. 05–8*.
- Merkle, L and Zimmermann, K (1992)**, 'Savings, remittances, and return migration', *Economic Letters*, Vol. 38, pages 77–81.
- Mitchell, B (1988)**, *British historical statistics*, Cambridge University Press.
- OECD (2006)**, *International Migration Outlook 2006*.
- Office for National Statistics (2006)**, *International migration (MN Series)*, Issue 31.
- Office for National Statistics (2006)**, *Overseas travel and tourism*, First Release.

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**Office for National Statistics (2006)**, 'United Kingdom balance of payments', *The Pink Book*.

**Pencavel, J (1986)**, 'Labor supply of men: a survey', Chapter 1 in Ashenfelter, O and Layard, R (eds), *Handbook of labor economics*, Vol. 1, pages 3–102.

**Rybczynski, T (1955)**, 'Factor endowments and relative commodity prices', *Economica*, Vol. 22, pages 336–41.

**Saleheen, C and Shadforth, C (2006)**, 'The economic characteristics of immigrants and their impact on supply', *Bank of England Quarterly Bulletin*, Vol. 46, No. 4, pages 374–85.

**Stephan, P and Levin, S (2001)**, 'Exceptional contributions to US science by the foreign-born and foreign-educated', *Population Research and Policy Review*, Vol. 20, No. 1, pages 59–79.

**United Nations (1998)**, *Recommendations on statistics of international migration*, Revision 1.

**Zucker, L, Darby, M and Brewer, M (1998)**, 'Intellectual human capital and the birth of the United States biotechnology enterprises', *American Economic Review*, Vol. 88, pages 290–306.