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Why immigration is vital to innovation

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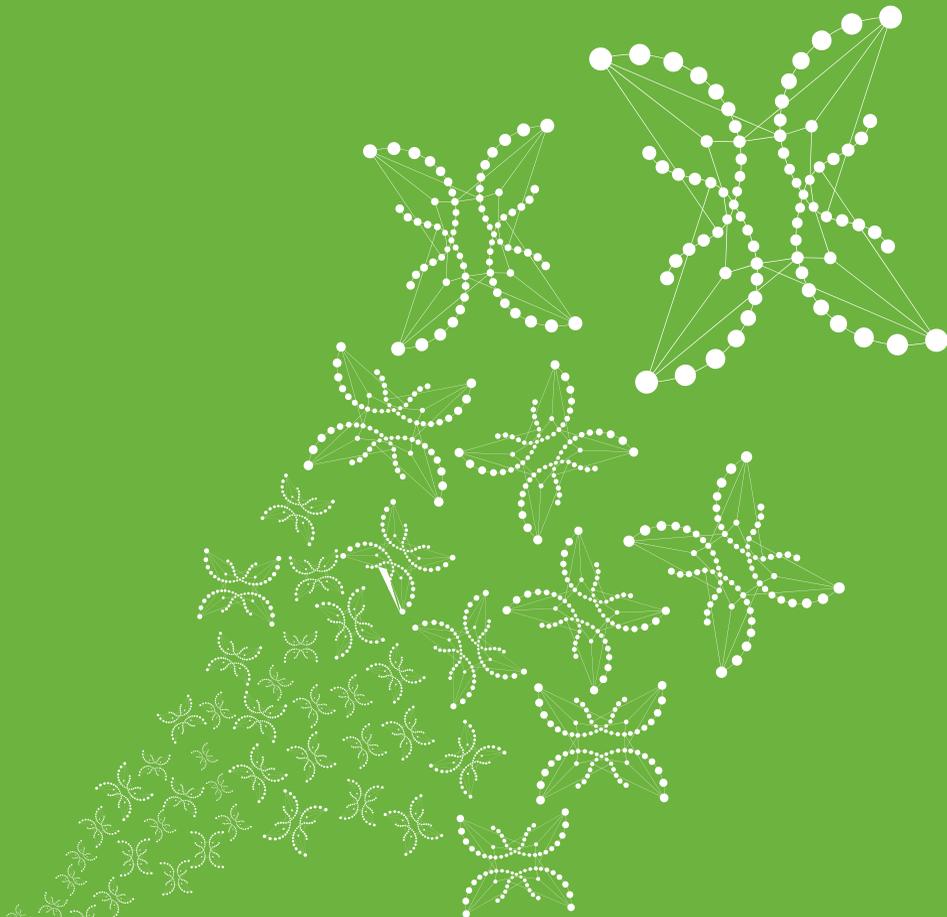


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Contents

How to miss a Black Hole	4
The Ins and Outs	7
The Innovation Benefits of Immigration	10
A long-term bet	15
Investing in connections	16
Making the most of our differences	18
Endnotes	21

NESTA is the National Endowment for Science, Technology and the Arts. Our aim is to transform the UK's capacity for innovation. We invest in early-stage companies, inform innovation policy and encourage a culture that helps innovation to flourish.

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How to miss a Black Hole

On the late afternoon of Friday January 11th 1935, a brilliant, diminutive, 26 year old Indian physicist unveiled to the British scientific elite a radical theory that would revolutionise our understanding of how the universe works: the idea of the black hole.¹

That evening in 1935 Subramanyan Chandrasekhar dared to challenge the conventional wisdom that stars die by being reduced to a core of dead rock. He told the elite at the Royal Astronomical Society the gravitational forces unleashed when a star dies could be so great that it could consume itself and so it would disappear into a 'black hole'.

Chandra's mentor Sir Arthur Eddington (then the senior professor of astrophysics at Cambridge) had not discouraged him from pursuing the idea, yet when Eddington rose to respond he tore into the young Indian. Eddington ridiculed the idea of a black hole as "stellar buffoonery". Naively Chandra had imagined his fellow scientists would welcome his contribution for opening up new horizons for research. Yet unwittingly he had presented the establishment with a double whammy. To admit a black hole was possible would have entailed their rethinking many of the theories on which their careers had been built. To be forced to do so by a young Indian, at a time when the Raj still ruled India, would have been regarded as a humiliation. The old guard rallied around Eddington even

though he presented little evidence to suggest Chandra was wrong.

The event cast a long shadow over Chandra's career. He was never offered a full-time position at Cambridge and eventually emigrated to the US where he spent most of the rest of his life at the University of Chicago. It took 40 years for astrophysicists to catch up with Chandra's theory and establish how black holes worked. Forty-five years after giving his initial lecture Chandra was awarded the Nobel Prize for physics.

The story of Chandra's treatment at the hands of the Royal Astronomical Society highlights three critical connections between immigration, innovation and creativity. First, immigrants are outsiders who can often challenge the establishment with ideas that might have huge potential value. The diversity of ideas and insights that immigrants bring make a society richer. Second, closed and homogenous societies – in this case a single scientific society – can become myopic and prejudiced and so fail to spot vital ideas that come from unusual sources. Even a society full of very bright and able people can behave very stupidly. Third, how the UK makes the most of the diverse talents of its population will be critical to innovation. Even though much has changed in Britain since the 1930s, there are few grounds for complacency. Yet the truth is that in almost all areas of the UK's economy, immigrants have

made a critical, often highly innovative, contribution.

Consider these greats of UK industry. Triumph, the classic car company, which made cars with names like Stag and Spitfire, was founded by Siegfried Bettman, born in Nuremburg in 1862. ICI was created by Brunner, a Swiss and Mond, a German. GEC was founded by two Bavarians. Jacob Schweppes started making his fizzy tonics at a factory in Drury Lane in 1792. Belfast is synonymous with the Harland and Wolff shipyard which was founded by Germans. Thousands of weddings are kitted out by Moss Bros, founded by immigrant Isaac Moses and his brother. Shami Ahmed (the founder of Joe Bloggs jeans) arrived in Burnley at the age of two. Gulan Kaderbhoy Noon, the inventor of the Bombay Mix, arrived in the UK from Rajasthan in 1969 and went on to make Noon products one of the major suppliers of ready-to-cook Indian food. Hotel chains like Stakis (Cypriot) and Forte (Italian) were created by immigrant families.²

Immigrants have also left their mark on the creative and cultural industries. Madame Tussauds, one of London's greatest tourist attractions, was started by Marie Grosholtz, a refugee from the French Revolution. Granada was created by Sydney Bernstein, in memory of a holiday in Spain, and ITV was shaped by the Winogradsky brothers from Odessa, better known as Leslie and Lew Grade. Even Audrey Hepburn, the epitome of English chic, was half-Dutch. British

theatre and film is a roll call of immigrant creativity.

Despite all this, immigration has become the most visceral and controversial political issue of our times. Hardly a day goes by without a newspaper story suggesting the number of immigrants has been underestimated and questioning whether they are entitled to be in the UK. In the past year, immigrants have been blamed for taking jobs from native applicants, claiming excessive benefits, swamping public services, unpicking the social fabric, undermining our national identity and posing a threat to security (in part because London's private security industry seems to employ thousands of illegal immigrants). The debate has touched whether the English football team would be improved by quotas imposed on the number of foreign players in the cosmopolitan Premiership.

Our lives are more open than ever to foreign influences, especially in cities, where we can sample music, food, culture and style from all over the world. And yet the physical presence of foreigners proves deeply unsettling to many people. We enjoy what immigrants produce, including many basic and personal services that UK citizens value but do not themselves want to work on. Yet many Britons are not so sure about immigrants.

The insistent note of anxiety that drums out the rhythm for the immigration debate is sustained by a paucity of dispassionate analysis compared with other equally complex issues. The growing consensus about the threat of

global warming was created by detailed studies such as the Stern Report and the Intergovernmental Panel on Climate Change. In 2005 the Turner Commission explained the looming pensions crisis and what should be done about it. Sir Derek Wanless has led two extensive inquiries into long-term trends for spending on health and social care. In contrast, the debate about immigration is conducted in a thick fog of prejudice, anecdote and rumour.

A 'Reader's Digest' survey in 2001 found that two-thirds of Britons thought there were too many immigrants. The survey respondents thought immigrants made up about 20 per cent of the population; the true figure was 4 per cent. Another poll found the average Briton believed the country was taking 25 per cent of the world's refugees when the true figure was 2 per cent. In late 2006 the Government acknowledged its figures for the number of immigrants at work in the UK were inaccurate.

As a result, the debate over immigration polarises. Those who defend the rights of immigrants to seek a better life argue we should welcome hard-working people who have chosen to come to the UK to fill vital skills gaps and take low skills jobs others do not want. Much more vociferous is the growing clamour of unease that immigrants are taking more than their fair share of public services, stretching the bonds of society, taking jobs away from local workers and adding precious little to the society that hosts them.

What is lacking from this debate is a framework for assessing the costs and benefits of immigration. That calculation only becomes manageable once it is broken down. So this pamphlet looks at just one issue: when and why immigration is good for innovation.

The Ins and Outs

The main focus for the immigration debate is whether there are too many immigrants for society to cope with, as if they are like water filling up a vessel with a fixed capacity.

The Office for National Statistics estimates about 510,000 migrants came to the UK for a stay of at least 12 months in 2006, while 400,000 people left, a net inflow of about 110,000. A more detailed report prepared for a House of Lords inquiry into immigration found that from mid-2005 to mid-2006, about 385,000 people left the UK while about 574,000 entered.³ The report estimates that, long-term, the net inflow of migrants is likely to run at about 190,000 a year.

Critics of immigration say this amounts to the population of a reasonably sized town; others point out it amounts to little more than 0.3 per cent of the population. These trends are affecting most developed economies. In the UK, France, Ireland, the US, Sweden and Germany the immigrant share of the working age population has risen from a range between 2 per cent - 6 per cent in 1960 to between 10 per cent - 14 per cent by the year 2000.⁴

The current wave of immigration, however, is just part of something much larger: greater global mobility. Cross-border tourist arrivals rose 17-fold from the mid 1950s to 2004, to stand at close to 800m a year. The United Nations estimates the numbers of people living

abroad has risen from 75m to close to 191m in the last three decades. The modern world may not be threatened by massive, world wars, but the rise in the number of protracted smaller civil wars has led to more people being displaced as asylum seekers and refugees. The UNHCR estimates 17m displaced people are living outside their homelands.

Britons are taking advantage of these trends. More than half of the 400,000 people who left the UK in 2006 were UK-born migrants to Australia and New Zealand, France and Spain. More Britons are becoming what they also fear: immigrants. Nor is this new. Between 1961 and 1981, when opposition to immigration began to rise, the main feature of the flows into and out of the country was the number of people leaving: a net outflow of about 1m British citizens over 20 years. When people from the UK become immigrants to France, Australia or Spain it sounds daring and exciting, the prospect of starting a new life and being welcomed by a local community. A slew of day-time television shows cater to people who want to sell their houses in the UK to buy a home abroad.

This rise in global mobility is being fed by global labour markets that stretch from football to finance. The City of London's success in the past two decades has rested on its cosmopolitan mix of talent. Yet global labour markets

are not confined to City high-flyers. They also operate in health, social care and education. In 2003 the NHS had 42,000 foreign nurses. One London trust calculated it had nurses from 68 countries. In 1991, about 227 foreign-born social workers were at work in Britain; a decade later it was 1,175. Higher Education is well on the way to becoming an international business. In 1950 the six major recipients of university students – Australia, Canada, France, Germany, the UK and US – hosted 57,000 foreign students, about 2 per cent of the student population. By 1990, it was almost 800,000 or about 4 per cent of the student population. Estimates suggest 2.8m students will study abroad in 2010 and that by 2025 it will be 4.9m.

These global flows of people and skills are changing the character of immigration. The stereotype immigrant is a low-skilled and able-bodied labourer emigrating from a less-developed country in the hope of making a better living while sending money back home. After arriving in a poor neighbourhood, probably inhabited by waves of previous immigrants, the aspirant immigrant moves upwards economically and slowly assimilates into society.

Modern immigration is less a transfer from one country to another and more an experience of living in two worlds at the same time. One measure of this is the trend to offer immigrants dual citizenship. In the 1970s, only 10 per cent of states offered forms of dual citizenship; now more than 50 per cent do. More people have complex affiliations and multiple allegiances to people, places, religions and traditions that lie beyond the boundaries

of the nation state.⁵ The experience of being ‘transnational’, living as part of a diaspora detached from a homeland, used to be confined to communities fleeing persecution. Now it is much more commonplace.

These diasporas are very diverse, embracing corporate executives, engineers and technicians, academics, entrepreneurs, unskilled labour, students and refugees.⁶ They often have their own social structure and organisation. The dynamism of immigrant entrepreneurs in Silicon Valley is due in large part to the self-organising networks among Indian and Chinese software engineers and venture capitalists.⁷

Countries that sent immigrants to the developed economies in the 1970s are increasingly receiving them as well. People flows are increasingly two-way. Non-resident Indians are playing a central role in India’s economic resurgence. In 1970, for example, Indians working abroad sent back \$80m in remittances. By 2003, the figure was \$14.8bn.⁸ Younger people in India and China now emigrate expecting to return; something their parents and grandparents did not aim to do.⁹

The UK’s ‘immigration problem’ is but one feature of a world in which many more people are more mobile – from students and tourists, to entrepreneurs and financiers – and more people have a foot in two cultures at the same time. The diasporas they create form vital bridges between economies and cultures, with money, ideas, information and people circulating in both directions. Immigration

into the UK is rising because the UK is open to the world economy, in which more people have become more mobile and labour markets are taking on an international dimension.

This kind of circulating immigration brings substantial benefits to the UK's capacity for innovation.

The Innovation Benefits of Immigration

The stereotype of innovation is that it emerges in a series of steps as scientific research is translated into technological innovation which in turn produces new products. The reality is very different.

Innovation is increasingly collaborative and networked; it depends on interaction with consumers and often involves new business models – like low cost airlines – that are not driven by technology, still less basic research. Market ‘pull’ is often more important than science ‘push’; R&D spending is not a full measure of investment in innovation capacity; most successful innovation depends on social and business adaptation as well as new technology. Innovation does not just come from especially brainy people working in research labs. It comes from many different sources, especially in services. Immigration makes several critical contributions to our capacity to innovate.

The skills infusion

The consensus among economists seems to be that there is little evidence that immigration is bad for the wages or unemployment rates of native-born workers.¹⁰ Indeed, immigration seems to have fuelled economic growth, by expanding the labour supply, helping to suppress inflation, providing much needed skills (immigrants often work in jobs they are over-qualified for), raising

the productivity of domestic workers they work alongside and often being more mobile and entrepreneurial than their native counterparts. All these benefits get larger the more economically integrated migrants become, seemingly as their language skills improve.

Immigration provides the UK with access to skills that matter, particularly to more traditional science- and technology-based innovation. That is the primary rationale for the points-based systems for controlling immigration to be introduced in 2008 – to attract skilled people while controlling the inflow of the less skilled.¹¹ In the 1980s and 1990s, many countries, including the Netherlands, Taiwan and Singapore, set out to attract highly skilled immigrants and returnees to kick-start innovation strategies. These policies include more relaxed entry requirements, tax breaks and scholarship programmes.

High-skilled immigrants can be a vital source of innovation and entrepreneurship. AnnaLee Saxenian’s research on Silicon Valley, for example, found that more than half of the high-tech firms founded there had at least one immigrant founder, including Intel and Sun Microsystems.¹² While the foreign-born account for just over 10 per cent of the US working population, they represent 25 per cent of the US science and engineering workforce and nearly 50 per cent of those with doctorates. Researchers from ethnic minority

backgrounds have made an exceptional contribution to US science as measured by Nobel Prizes, election to the National Academy of Sciences and patent citation counts. In some engineering schools, foreigners account for four-fifths of doctoral students.¹³ A string of other US studies have shown that highly skilled migrants accelerate technical progress.¹⁴ A recent study found that a 10 per cent increase in the share of foreign graduate students was correlated with an increase of 4.8 per cent in US patent applications and a 6 per cent rise in patent grants earned by universities.

Diverse people and mindsets

Increased diversity should also feed innovation. Innovation invariably stems from the combination of different ideas to create a new idea. One of the first ice cream cones was created when an ice cream seller at the 1904 St Louis World Fair ran out of paper cups. The waffle seller at the next door stall started rolling waffles to put the ice cream into. Thus the ice cream cone was born. Cirque du Soleil, the Belgian-Canadian circus troupe, plays to millions of people each year with a mixture of rock opera and circus. There is nothing new in either rock opera or circus but when they are combined in the right way it creates a new form of entertainment.

When a population, a company or a city acquires more diverse ways of seeing problems, identifying opportunities and devising solutions, it should become more innovative as a result. The underlying explanation of how diversity fuels

innovation has been explored in detail by Scott Page, a professor of complex systems at the University of Michigan.¹⁵ Page used sophisticated computer models to explore why groups with diverse skills and outlooks can come up with smart solutions more often than groups, like the Royal Astronomical Society of 1935, which comprise very clever people who share the same outlook and skills. Groups of people who think in different ways can trump groups who are very bright but alike, so long as they are organised in the right way, Page argues.

Page's explanation is that the more vantage points there are from which a complex problem is seen, the easier it is to solve. A group of experts who think in the same way may be no better at devising a solution than just one of them: adding more people who think in the same way is unlikely to improve the group's ability to come up with different solutions. Groups who think the same way can often find themselves stuck at the same point – akin to the peak of a foothill in a mountain range – unable to see the higher peaks that lie beyond.

A group that thinks in diverse ways, in contrast, will address a problem from many angles. As a result it is less likely to get stuck and more likely to find a way out if it does get stuck. People with diverse viewpoints are also likely to evaluate solutions by considering a wider range of evidence. The right perspective can make a difficult problem seem easy. As Thomas Edison is said to have put it:

“We have found 1,000 ways not to make a light bulb.”

Bugs in a software programme often become apparent only when the programme is tested in many different settings. Better 1,000 people making different tests at the same time, than a single person making 1,000 tests one after the other. That explains why open source programmes are often more robust than proprietary software: they are tested by a wider group of users.

The larger the group and the more diverse perspectives, tools and skills there are, the greater the benefits from combining them. Take five people, each with a different skill. That creates ten possible pairings of skills. Add a sixth person with a different skill. That does not create 12 pairs but another five possible pairings. A group with twenty different tools at its disposal has 190 possible pairs of tools and more than 1,000 combinations of three tools. A group with 13 tools has almost as many tools – 87 per cent – as a group with 15 tools. Not much of a gap. But if a task requires combining four tools it is a different story. The group with 15 tools has 1,365 possible combinations of four tools. The group with 13 tools has 715, or about 52 per cent. Groups with larger sets of diverse tools and skills are at an advantage if they can combine effectively to take on complex tasks.

One of the leaders in the field of diversity science is Norman Johnson, a researcher at the Los Alamos National Laboratory in the US, who set up an experiment to see how people navigated their way

through a maze. When each individual attempted it they had nothing to go on but their own hunches. When Johnson added together their choices and created a simulated collective intelligence it found a way through the maze by the shortest possible route. His explanation is that the diversity of the group, its ability to think differently, was critical. Johnson concluded: “The reason for increased performance in the maze was the ability of the diverse contributions of the group to find short cuts they could not find on their own. This is especially true when individuals habitually solve a changing problem, one where new options arise but old choices are selected.”¹⁶

A living example of this diversity at work at the heart of the UK economy is the City of London, which unlike other financial centres around the world has been refreshed by waves of foreign talent over many centuries. Ten per cent of the capital that founded the Bank of England in 1694 came from 123 Huguenot merchants. The accounting firm Deloitte was created by the grandson of a French Count who arrived in Hull after fleeing the French Revolution. The City is a roll call of immigrant endeavour: Warburg, Cazenove, Barings, Hambro. Much of the pukka British financial establishment started as immigrants, seeking new ways to finance business and so aligning themselves with entrepreneurs outside the social mainstream.

One such innovator, who spotted the potential of new communications technology to animate business, was Paul Reuter, who had created the Aachen

telegraph and pigeon post before setting up his news bureau in London in 1852. Even the bank notes that bear the Queen's head are the work of immigrants. Much of the paper they are printed on comes from Portal's in Hampshire, a firm created by Henri Portal, a Huguenot refugee who arrived in the UK floating in a barrel.

Diverse markets drive more innovation

Immigration matters not just to the supply of knowledge and skills but to the market pull of innovation as well. Radical innovation often starts in marginal, non-mainstream markets, where consumers have 'extreme' needs unlike those of the mainstream population. Immigrant communities provide just these kinds of niche markets which can eventually spread to the mainstream.

Something like this has happened to sushi. Twenty years ago there were no more than a handful of Japanese restaurants in London serving mainly expat Japanese workers in the City of London. The idea of eating raw fish made many British people squirm. Now sushi can be bought at many railway stations and supermarkets. It has become mainstream food. Immigrants can create market niches which provide the test bed for innovations that eventually go mainstream.

Immigrants also introduce tastes and fashions which are at odds with mainstream society. Often ignorant of dominant social mores, immigrants often introduce ideas that the establishment

might not have countenanced. That is why immigrants have been particularly important to market-driven, services innovation in areas such as culture, retailing, fashion and entertainment. Ice creams are sold from vans playing gaudy music because ice cream was first brought to the UK by Italian immigrants who distributed it using teams of boys playing barrel organs they towed around on barrows. That is why ice cream and music go together. One of several industries revolutionised by the Huguenots fleeing persecution in France was fashion. Huguenots brought new techniques for making silk, velvet, taffeta and brocade, techniques then largely unknown in the UK. Marks and Spencer was founded by two Polish Russian Jews; Burton by Montague Ossinsky.

Immigrants bring new tastes and demand that create new markets that in turn spur innovation.

Immigration, innovation and cities

Immigration and innovation are largely city-based phenomena. Very few immigrants to the UK get beyond the main cluster of economic activity in the South East. A study of the destinations of immigrants in the final two decades of the 20th century found that only 0.7 per cent went to Northern Ireland, 2.2 per cent to the North East and 2.5 per cent to Wales. The overwhelming majority stayed in the South East and most of those in London. The demand from, and supply of, immigrants is vital to creative cities.¹⁷ Peter Hall's magisterial survey 'Cities and Civilisation'¹⁸ found that one

of the key features of innovative cities, from ancient Athens through to Los Angeles and Hollywood, was the role of ambitious immigrants, often excluded from the business establishment, who had little option but to operate outside the mainstream and promote innovation that would challenge the status quo.

John Quigley's research has found that firms producing non-standard goods and innovative services were often drawn to cities because they were more likely to find the complementary skills they needed to make differentiated goods, for example to turn crayfish and rice into Cajun prawns or Dublin Bay scampi. In large cities, diversity of production and demand reinforce one another.

Cities are good for consumers because they are more likely to find just the product that they want while producers are also likely to find just the matching skills and resources they need. Cities allow diversity to operate at scale.¹⁹ That is why cities with diverse populations tend to have more diverse consumer markets, which in turn attract more people to their quality of life. Cities are increasingly important to economic growth and diversity is vital to make cities dynamic.²⁰

As two Italian economists, Gianmarco Ottaviano and Giovanni Peri, put the contribution of foreign-born residents to US cities: "Who can deny that Italian restaurants, French beauty shops, German beer, Belgian chocolates, Russian ballets, Chinese markets and Indian tea houses all constitute valuable consumption amenities that would be inaccessible were

it not for the foreign-born residents of US cities?" Ottaviano and Peri found that cities with more diverse populations paid higher wages and higher rents than more homogenous cities for US- and foreign-born alike.²¹

There is nothing new in this. Alexander Herzen, the Russian radical, described life in London as waves of refugees arrived in the course of the mid-19th century: "What amazing types of people are cast down by the waves. What must be the chaos of ideas and theories in these samples of every moral formation and reformation, of every protest, Utopia, every disillusionment and every hope, who meet in alleys, cook-shops and pot houses in Leicester Square?"

A long-term bet

Diversity can feed innovation but it is neither essential nor a guarantee that innovation will emerge. Several highly innovative countries, which have among the highest rates of patenting in the world – South Korea and Finland for example – have low rates of immigration and highly homogenous populations.

Plenty of diverse cities and organisations are not particularly innovative (one of the most ethnically diverse organisations in the world is the US Army). Diversity creates costs as well as benefits; it can hinder innovation as well as helping it.

It takes time for the benefits of diversity to show through. Diverse groups might well fare worse than relatively homogenous groups when urgent action is required. A US study, for example, found that heterogeneous groups were more creative and performed better the longer they had to work together, but groups made up of people with similar backgrounds found it easy to take action fast. The costs of coordinating a homogenous group were much lower at the outset. But over time heterogeneous groups became more and more effective as they found ways to cooperate and combine their diverse skills.

Short-run estimates of the value of immigration highlight the costs while the benefits may take time to show through. This is born out by the history of immigrants in British business: often

their impact was not felt until the second generation. In the 1890s about 150,000 Jews arrived in the UK fleeing Tsarist persecution. Many of those immigrants lived hard, competitive and sometimes brutish lives in London's East End. Many of their children, however, lacking financial capital, studied and converted their knowledge into other forms of capital: Olympic champion Harold Abrahams, parliamentarian Manny Shinwell, the creator of the Belisha beacon, Lord Hore-Belisha and industrial magnates such as Arnold Weinstock, were all second generation products of this wave of immigration. Marcus Samuels immortalised his father's business – trading in shells – by helping to create an oil company of that name. Dozens of artists sprang from similar backgrounds: Harold Pinter, Muriel Spark, Peter Sellers, Jonathan Miller, Siegfried Sassoon. Immigration is a long-term bet.

However it is not just a question of time and patience. A summary of academic studies of the impact of diversity on teams²² found that half reported increased emotional conflict and reduced performance as a result. The problems encountered in more culturally diverse work groups included reduced interaction within the group, more conflict over the allocation of tasks, higher turnover and absenteeism, and reduced cooperation, cohesiveness and commitment.²³ The costs of diversity need to be well managed to make sure the benefits come through.

Investing in connections

Diversity counts for little unless different ideas are brought together to cross-pollinate. A community where the diverse parts live in separate enclaves will not be creative. People with different ideas must find a way to connect and communicate with one another.

Diverse groups can be much more difficult to coordinate than homogenous groups. Miscommunication and misunderstanding are more frequent, especially if not everyone is equally fluent in one language. Innovation often stems from the combination of different ideas. If members of a diverse team cannot communicate it is very difficult for them to share ideas. The problems, however, go deeper than simply miscommunication and lack of a shared language.

Diverse groups produce innovation because they bring together people who think in different ways. Yet people often think in different ways because they have different values; what matters to them differs. Someone who sees the world through art and images will acquire skills – drawing and painting – which make it easier for them to express themselves. Someone who sees the world in numbers and money is more likely to become an accountant, to use a calculator rather than a paintbrush. A large tool box that includes both calculators and paintbrushes, artists and accountants, is good for innovation. Yet people with

different values often cannot agree on what they should do and why. They produce lots of ideas but find it hard to agree on a common direction. That is why diverse communities often find it more difficult to agree on how to provide public goods, such as health care, welfare benefits and social housing.

So diverse groups are innovative only when they also have some powerful common ingredients: shared goals, values, language, processes or identity. When diverse groups lack this glue they do not just fail to innovate, they can descend into conflict, undermining the trust that is required for innovation. Innovation only emerges when people can trust one another to share ideas and build upon one another's contributions. Diverse groups often fail to build up that kind of trust. That is the conclusion of research led by the US social capital theorist Robert Putnam comparing ethnically diverse neighbourhoods in the US.²⁴

Putnam found that in the short run more ethnically diverse neighbourhoods were more likely to have lower social capital and trust, and experience more conflict over resources, especially levels of tax, access to welfare and other public goods. When diverse groups are brought into contact with one another, initially, that fosters a tendency for each to keep to their own and to trust the 'others' less. People might be very engaged within their own community but not in civic life

in general. At best it seems to produce a sense of anomie and social isolation.

Worryingly, Putnam found that in highly diverse areas people seemed unwilling to engage in just the kind of shared activities needed for innovation. Expectations that others would cooperate to solve dilemmas of collective action were low; there was less likelihood of people working together on a community project; people spent more time in their very tight-knit family networks. Comparing two equally poor districts, Putnam argues, the more ethnically diverse one will tend to have lower levels of cooperation and trust and so in the long run less economic dynamism.

However in the long run communities can learn to make the most of their differences, Putnam argues: “In particular it seems important to encourage permeable, syncretic, hyphenated identities; identities that enable previously separate ethnic groups to see themselves, in part, as members of a shared group with a shared identity.”

Making the most of our differences

Immigration feeds society's cultural diversity, which is a particularly valuable asset when a society faces complex challenges that need creative responses. Diversity adds to the stock of tools, insights, skills and points of view that can be brought to bear to tackle problems. The more combinations of these tools and insights that can be found, the richer the range of solutions available. The benefits of diversity, however, take time to work through.

Initially, homogenous groups often perform better, especially when more routine tasks and challenges are involved. In these settings the costs of diversity – miscommunication, misunderstanding, distrust, declining social solidarity, conflict over shared resources – can outweigh the benefits. Diversity does not benefit all equally. Cities and industries where there is a high pay-off to creativity and innovation will really benefit from diversity; in a small market town which has no desire to be at the cutting edge of innovation the short-run costs of diversity might outweigh the benefits.

There are four main implications for policymakers keen to maximise the impact of immigration on innovation.

First, policymakers and public alike know far too little about how patterns of immigration impact innovation. A major public debate is being conducted which

could shape the UK's cultural identity for the next 50 years with little hard evidence or long-term perspective. The big pay-offs from the current wave of immigration might not become apparent for 20 years. The Government should consider an independent commission on immigration and diversity, akin to the review of evidence on climate change conducted by Sir Nicholas Stern or Sir Derek Wanless' reviews of the future of social care and health services. The ESRC could be asked to invest more in a multi-disciplinary approach to understanding the costs and benefits of immigration and diversity. Such a crucial and contested debate needs a much stronger evidence base.

Second, given how much of Britain's future economically and culturally depends on innovation and the vitality of our cities, it would be self-defeating to close our doors and turn our backs on immigration. At least a dozen UK towns and cities could have no single ethnic group in a majority within the next 30 years, according to researchers from the University of Sheffield. They predict that Leicester, Birmingham, Slough and Luton will become such 'super diverse' cities in the course of the next two decades.²⁵

Business, culture and politics in the UK have all been hugely enlivened by immigrants over several centuries. Many cherished UK institutions are immigrant creations. The more the UK's future relies on innovation and the more that will come

from creative cities, the more we will need a rich diversity of immigrants from many places. A crucial component of innovation policy – the kind of people, cultures and ideas we have available – is being shaped by a yearning for an imaginary ‘solid’ British identity that can be defined and closed off from outside influences. The triumph of British identity (and certainly the English language) has come from the very opposite: our ability to absorb and remix foreign influences.

Third, a points-based immigration system, designed to let in only skilled people, valuable for traditional, science and technology innovation, could prove to be a disservice to an economy which thrives on less obvious, ‘hidden’ forms of innovation in culture, entertainment, fashion, design, retailing and finance.

This system is in its early days, yet it seems to imply that the advisory body the Government has created – the Migration Advisory Committee – has good enough information about what skills will be needed in future that it can form a manpower plan from which it can then establish what gaps need to be filled by immigrants. This seems to fly in the face of evidence that the pace of change in many economic sectors, brought on by globalisation and new technology, is making it difficult to predict with accuracy the kinds of skills organisations will need in future. Instead employers seem to put more emphasis on a good mixture of basic skills and attitudes: flexible, entrepreneurial people who are good at working in teams and responding fast to changing demand. The points-based

system might exclude many of these types of people – the people that Britain’s creative, retail and service industries will need in future, people who have lots of creativity, drive and imagination but few qualifications or hard skills.

Put it this way: had the Migration Advisory Committee been sitting in the past it might well not have let through the qualification-less Henri Portal, Marks and Spencer, Isaac Moses, not to mention the Italians who created ice cream vans. People with skills and degrees are not necessarily the most innovative and entrepreneurial.

Fourth, we need to make the most of our differences. A grudgingly, reluctantly, broken up, diverse society might be the worst of all worlds: unable to benefit from the (perhaps short-term) benefits of homogeneity, unable to mobilise a cohesive response to shared challenges and unable to use its combined differences to be creative. Rather than rely on immigration controls to stem the flow it would be better to focus on establishing what a diverse society needs to share in common: shared goals and values; common procedures of fair treatment and due process; meeting places where ideas can be shared and cultures exchanged; and above all a shared language.

A diverse society becomes creative at the points where different ideas and cultures mix and mingle. Immigration will feed innovation only when it is matched by policies that promote interaction. Common language will be critical to that. The point of these measures is not to

enforce a fixed ideal of British identity and culture that immigrants must sign up to but to provide a common platform on which we can make the most of our differences. Assimilation to a single British identity would undermine precisely what makes immigrants so valuable: their difference.

The UK's history is a story of comings and goings, ideas absorbed and recycled from immigrants that in time become British. Our national religion, after all, traces its roots to the Middle East as does our Royal family. Our language has spread around the world by accommodating hundreds of foreign words. Even our precious gardens, our little patches of domestic bliss, are testimony to foreign influences – rhododendrons from the Himalayas, hebes from New Zealand, hostas from China. The waves of people coming in and out, what they bring and contribute, create and leave behind, are as much a part of British life as the gin and tonic, panto at Christmas, ice cream vans, suits from Moss Bros and the Bank of England.

Each wave of immigration over the last century has been accompanied by a clamour for control that has grown louder, the implication being that immigrants endanger British society. What stands out is the very opposite: how much richer, more creative and innovative Britain has become because of its ability to attract immigrants and absorb what they have to give us. For a society that will depend more and more on innovation, immigrants will be a vital source of dynamism. We shut them out at our peril.

Endnotes

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