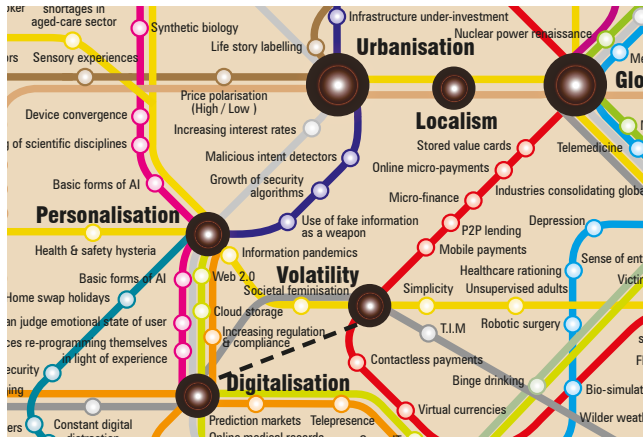


Towards 2020 and Beyond



Overview

POST is the UK Parliament’s in-house source of advice on research evidence, using academic literature and expert opinion to analyse key policy areas. This note focuses on policy drivers leading towards 2020 and beyond. It looks at the relationship between UK policy and the following drivers: people (demographics), technological change, climate change, resource security and sustainability, inequality, and governance issues.

Background

The objective of this note is to set out a number of overarching trends (Box 1) in a globalised and rapidly changing world that are likely to be of legislative importance towards 2020 and beyond. It focuses on:

- People – the projected increase of the population, both in the UK and globally. There are also trends towards increasing longevity, resulting in an ageing population and a larger proportion of people above retirement age.
- Technological change – for example the ongoing rise in computing power and the growth in the number of devices that are connected to the internet, which have helped to fuel a massive rise in data collection and use.
- Climate change – the increasing impacts of rising greenhouse gas levels in the Earth’s atmosphere is projected to cause more extreme weather patterns both in the UK and globally.
- Resource security and sustainability – increasing pressure on natural capital (such as land and water) and rising demand for resources such as food and energy.
- Inequality – variations in the measures of income inequality, and its impact across a range of policy areas including education and health.
- Governance issues – such as new global tensions, the future of the UK, its relationship with the EU and changes in the way that public services are delivered.¹

Box 1. Drivers, Trends and Issues

Horizon scanning uses terms like ‘drivers’, ‘trends’, ‘issues’ and ‘risks’. While there are no agreed definitions for these terms, one shared feature is their inter-connectedness. They can affect policy in their own right but also be affected by changes in policy. For example, global climate change affects policy areas such as agriculture, water management and health; but it is also driven by policies in the energy and agricultural sectors and by land use decisions. Similarly, rising inequality in the UK affects policy areas such as health and education services but is itself driven by fiscal policy and immigration.

This briefing examines these factors and highlights the issues they might raise for UK parliamentarians in the years ahead. It concludes by examining unpredictable risks that are more difficult to characterise.

People

Global trends in population growth

People – how many there are, how long they live and where they live – will have a profound impact on the issues facing policy makers around the world in the next 5-10 years. Experts agree that the current global population of around 7.2 billion will rise to 7.7 billion by 2020. What happens thereafter is a matter for debate;^{2,3} all population projections are subject to uncertainties because they depend on assumptions made about net migration, fertility rates and longevity (see [POSTnote 438](#) and Figure 1). While the first two of these vary greatly from one region to another, there is consensus that longevity is likely to continue to rise in most regions leading to an ageing world population.⁴

UK population trends

Similar trends are projected for the UK. The UK population currently stands at around 65 million people. It is projected to rise to over 67 million by 2020 and over 73 million by 2037. This overall trend masks other changes (see Figure 2). For instance, compared to 2012, by 2037 the number of people of state pension age could rise by 31%, with the over 80s doubling in number. People living in cities may rise by 5.2 million, with London and the South East expected to be the fastest growing areas.

Impact of population trends

If realised, these global and UK trends would have huge implications for policy makers across a wide range of policy areas including housing, healthcare, education, poverty, pollution, crime, work and pensions. For instance,

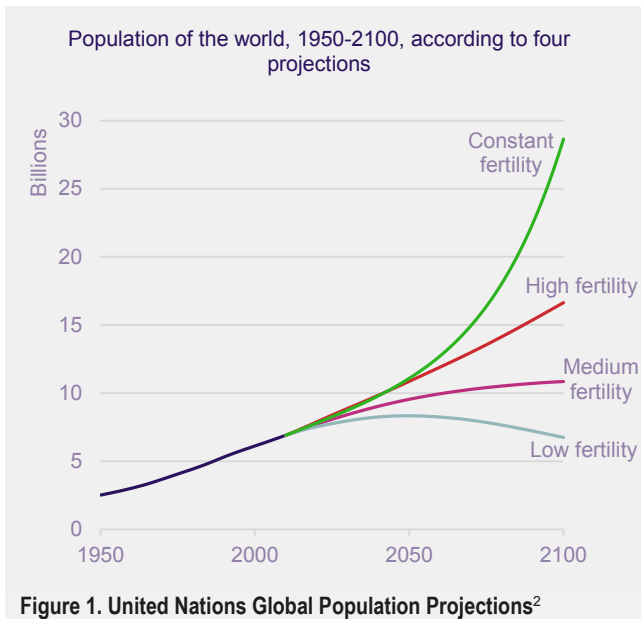


Figure 1. United Nations Global Population Projections²

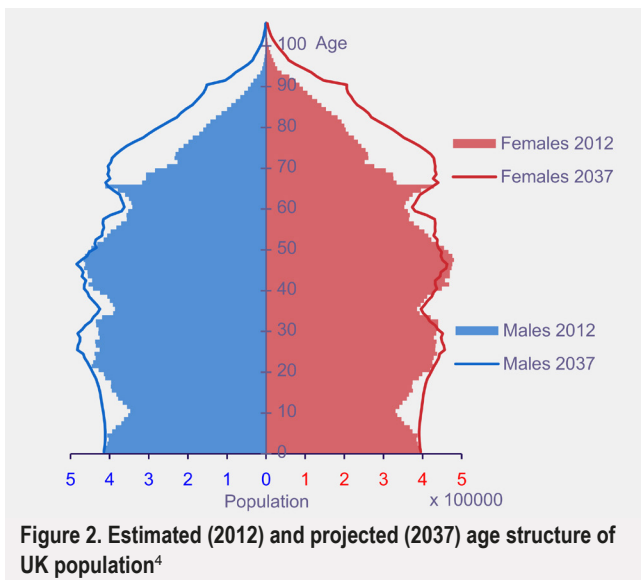


Figure 2. Estimated (2012) and projected (2037) age structure of UK population⁴

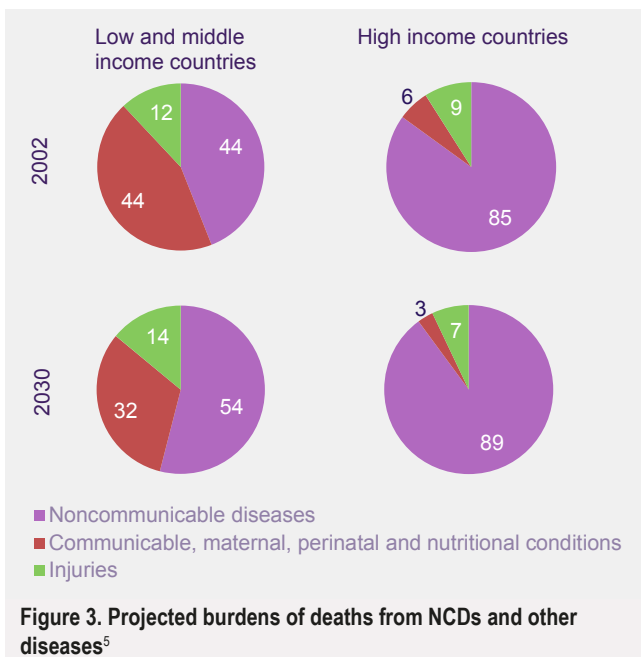


Figure 3. Projected burdens of deaths from NCDs and other diseases⁵

Box 2. Non-communicable diseases (NCDs)

NHS spending on treating non-communicable diseases (NCDs) such as obesity and type 2 diabetes is escalating and this trend is likely to continue as the UK population ages. For instance, the NHS currently spends around £10 billion a year treating diabetes, largely resulting from the increasing numbers of obese and overweight people in the UK population. This cost is projected to double by 2035 on current trends. Such conditions can largely be prevented through changes to diet and patterns of physical activity. Realigning healthcare systems to place greater emphasis on preventing disease will be a key challenge facing the new Parliament.

Looking wider afield, NCDs – not just diabetes but also cardiovascular disease, heart disease, many types of cancer, degenerative diseases and mental health disorders – have replaced infectious diseases as the main global causes of death. Again, such conditions are largely preventable through population-wide interventions to improve diet and physical activity, reduce smoking and alcohol consumption, and lower blood pressure. Reducing the health impacts of NCDs will be a key feature of the sustainable development goals (Box 8).

estimates of the number of new houses that will be needed to meet demand vary between 200,000 and 300,000 per year; currently just over 100,000 new homes are completed each year.⁶ The forthcoming Housing Bill is likely to prompt discussion on how to increase the provision of affordable homes. Ageing populations are also associated with higher rates of chronic and degenerative disease, collectively known as non-communicable diseases (NCDs, see Box 2). Globally, NCDs are replacing infectious diseases as the main cause of death, not only because of ageing but also because of lifestyle factors such as diet and physical inactivity, and this trend is projected to continue (Figure 3).

Technological change

Trends in technology

Moore’s law, first formulated in 1965, is the observation that the number of transistors on a chip – and thus computer performance – doubles every two years. Researchers have long predicted that the rate of increase in computing performance will eventually decline, but there is no sign of that happening to date (see Figure 4). Indeed, computers are more than doubling in performance every two years because of the introduction of microprocessors that are capable of parallel processing. This trend is set to continue throughout the new Parliament and beyond.

Alongside the upwards trend in computer performance is an increasing number of devices connected to the internet (see Figure 5). Estimates vary, but at some point in the last few years this exceeded the number of people on the planet. By 2050, the number of internet-connected things is projected to have grown to about 50 billion devices. These will not just be computers and laptops, but will also include mobile devices, household devices (such as central heating controls) and wearable devices (such as watches or sensors that monitor, for example, heart rate).

In combination, these trends have led to a massive increase in the amount of data being collected. Figure 6 shows this rise in zettabytes (1 ZB = one thousand billion billion pieces of data). Technological developments in other areas have

Box 3. Technology changing the face of conflict

As technology becomes more accessible, more states are developing advanced military capabilities which previously were only accessible to a small number. At the same time, sub-state or terrorist groups can cause widespread disruption with relatively unsophisticated weapons such as improvised explosive devices.

The nature of conflict is increasingly moving towards 'remote warfare'. One aspect is the increasing use of unmanned vehicles for intelligence, surveillance, reconnaissance and combat purposes. In the longer term, technology could allow such vehicles to have a greater degree of autonomy. This has the potential to reduce cost and risk to personnel. However, the use of such vehicles in combat is highly controversial and raises a number of legal and ethical issues. The UK Government has stated that 'the operation of weapons systems will always remain under human control'. The All Party Parliamentary Group on Weapons and Protection of Civilians argues that the UK should support the development of new international law to prohibit the development and use of fully autonomous weapons systems.

Cyber attacks are another aspect of remote warfare. They can cause mass disruption and are increasingly used in conflicts. Many media and NGO reports have claimed that Russia used cyber attacks as part of its strategy in the Ukraine in 2014.

Box 4. The proliferation of data

Technological changes such as the rise in computing power, the network of internet-connected devices (the internet of things), the rising pervasiveness of social media and the plummeting costs of gene sequencing have led to a dramatic increase in the amount of data being collected. For instance, NHS England's 100,000 genome project will generate whole genome sequence data for tens of thousands of NHS patients over the next few years; and commercial companies are constructing detailed online identities of individuals as consumers of goods and services.

So called 'big data' can be used in many ways. On the one hand, big datasets such as financial transactions, medical records or genome data may be used by governments, public sector services and the private sector to inform decision-making, for research, for law enforcement (for instance under the forthcoming Investigatory Powers Bill) or to deliver more targeted services. On the other hand, risks arise from the use of data for the purposes of criminal activity, such as theft, fraud and for other negative behaviours such as online harassment, which an individual may not otherwise have engaged in in real life. Even individuals who do not use new technologies or social media (through choice, digital exclusion or lack of skills) may nonetheless find themselves involved. For instance, they may be referred to by others, who may share their images without their knowledge or find themselves included in big data sets held by large organisations. Overall, the boundaries between public, professional and private identities online are becoming increasingly blurred, with implications for privacy, anonymity, discrimination and free speech.

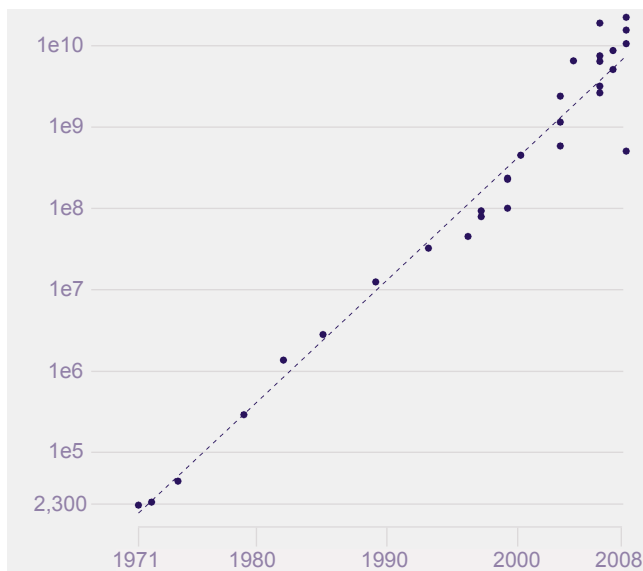


Figure 4. The rise in computer performance⁷

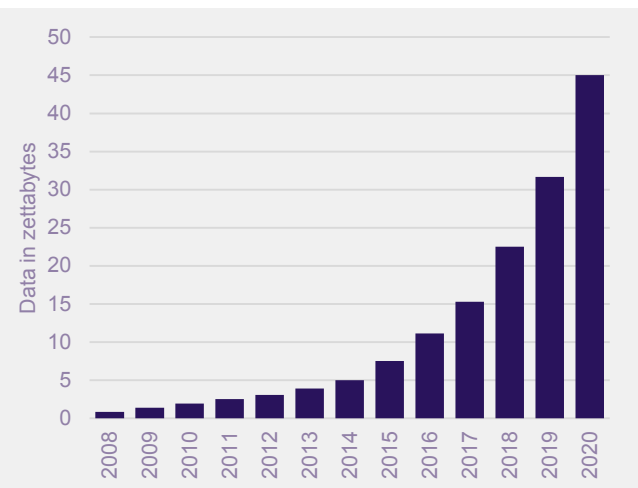


Figure 6. Rise in the amount of data collected⁹

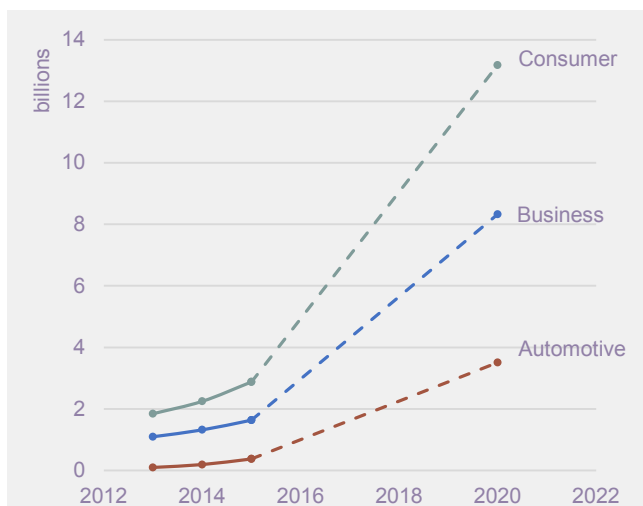


Figure 5. Number of devices connected to the internet⁸

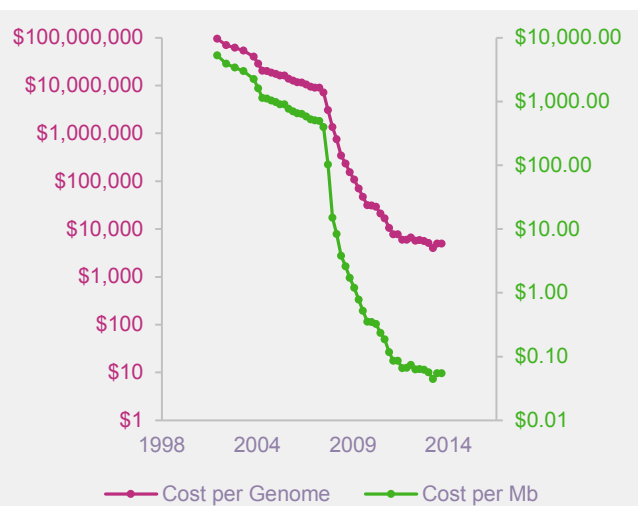


Figure 7. The plummeting costs of gene sequencing¹⁰

helped fuel this proliferation of data (Box 4). For example, the cost of gene sequencing has plummeted (Figure 7) and is now approaching the point where healthcare providers such as the NHS are considering whether large-scale sequencing might prove clinically useful.

Implications of technology trends

Such trends have wider implications. For example, they have the potential to effect the way that public services are provided and may also affect the employment market, both in terms of the number of jobs available and in terms of the skills needed to do those jobs. Robotics and artificial intelligence may make it possible to automate an increasing number of tasks, which could lead to the loss of some jobs and the creation of others. Low-skill and low-wage roles, as well as high-skill but repetitive jobs, may be more susceptible to automation. Those requiring social or creative skills may be affected less. However, these effects may not be evenly distributed: people may lack the skills required to access public services online, be unable to afford new services or lack access to the infrastructure needed for (say) superfast broadband. Finally, technology is already changing the face of conflict (see Box 3) with a trend towards cyber conflicts blurring the boundaries between civilian, military and terrorist actions.

On the one hand, these trends can give policy makers new tools with which to deliver public services and address policy problems. For instance, telehealth and telecare (see [POSTnote 456](#)) have the potential to provide the NHS with a cost-effective means of managing patients with long-term conditions. Moreover, the dramatic increase in the amount of data being collected (Box 4) may enable better informed decisions by policy makers and citizens alike.

On the other hand, the trends in technology also raise opportunities for new criminal activities. As more public and private services move online, and greater numbers of systems and devices become connected, fears are raised about security, how to protect people's privacy and how to protect against cyberattack. There are also concerns that the increasing amounts of data being collected could result in discrimination (see [POSTnote 468](#)).

New technologies are cutting across traditional political borders. This means that international agreement on the form and use of technology is important for maximising its utility and reach. Technologies currently being debated internationally include developments in:

- new mobile phone technology (5G, expected from 2020) and a new identification and location system to allow devices to connect to the internet (IPv6)
- gene editing techniques and synthetic biology which have led to calls for responsible innovation ([POSTnote 497](#))
- robotics and autonomous systems such as cars ([POSTnote 443](#)) and drones ([POSTnote 479](#)).

Climate Change

Trends in climate change

The International Panel on Climate Change (IPCC) has projected temperature increases out to 2100 based on climate modelling of a range of scenarios.¹¹ While subject to uncertainty, Figure 8 shows the best (blue line) and worst (red line) case scenarios with a projected range between 1.0°C (with effective mitigation of climate emissions, see Box 5), and 3.7°C (without mitigation). Warming could be accompanied by global sea level rise, a reduction of glaciers, ice sheets and sea ice and an increased frequency of extreme weather events, resulting in increased flooding and droughts. Effects on natural systems include ocean acidification and the melting of Arctic permafrost. It is likely to slow economic growth, erode global food security,

Box 5. Minimising greenhouse gas emissions (GHGs)

The future evolution of energy use in the UK will be influenced by factors related to energy security, affordability, changes in the economy and environmental protection. By 2020, the UK aims to reduce its greenhouse gas (GHG) emissions by 34% from 1990 levels and supply 15% of its energy (for heat, transport and electricity) from renewables. The Government is expected to publish draft legislation on carbon budgets for the period 2028-2032 in 2016.

To meet the above goals it is likely that there will be further policy on energy efficiency, investment in the first nuclear power plants since the 1980s, at least one demonstration plant fitted with carbon capture and storage technology and possibly the world's first man-made tidal lagoon. There could also be new policy to support the decarbonisation of heating. Low carbon vehicles and their associated infrastructure are set for growth. The global context for these changes will depend on the outcome of ongoing talks ahead of the UN summit to try and reach a global climate agreement in Paris in 2015. For example, this may affect future efforts to account for international GHG emissions from aviation and shipping. If the Paris talks fail to reach agreement, there may be increased interest in research into ways to remove greenhouse gas emissions from the atmosphere in order to avoid the worst effects of climate change. One such approach is the use of bioenergy alongside carbon capture and storage (see [POSTnote 447](#)).

Box 6. Adapting the UK to a Changing Climate

Climate change adaptation involves ensuring that infrastructure such as the UK transport system (roads, railways, bridges), power stations, water supply and flood defences are resilient enough to withstand the projected increased frequency of severe weather. The UK Climate Change Risk Assessment is a five-yearly Government assessment of the main impacts of climate change on the UK. The first assessment in 2012 identified the following likely impacts: increased flood damage and disruption; pressure on some water supplies; risks to health from hotter summers; and damage to ecosystems. However, the Environmental Audit Committee noted in its report on Climate Change Adaptation that England is "critically underprepared" and that the National Adaptation plan is too weak and uncoordinated to increase resilience. The Committee on Climate Change Adaptation sub-Committee has also highlighted that:

- the cumulative effect of new development on future flood risk is unknown and under-investment in flood defences is increasing potential avoidable flood damage
- while some sectors are investing in resilience, such as energy transmission and distribution, this is less evident in other sectors, such as ICT
- further action is needed to adapt the existing building stock and design new buildings to counter the effects of high temperatures on health and well-being
- the need for an effective emergency response capability will increase with climate change.

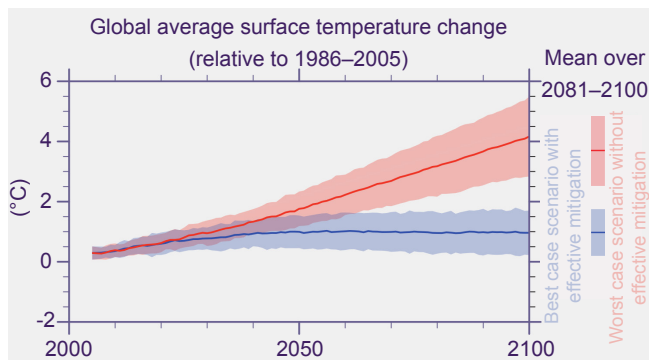


Figure 8. Projections of global average surface temperature change¹¹

Box 7. Food security

Food security describes a situation where all people at all times have access to safe, sufficient and nutritious food. A number of reports have suggested that the food system in its current form does not have the capacity to sustain the current trend in increasing food security (Figure 9) given the projected population growth (Figure 1),^{12,13} and that crop yields are reaching a plateau. A recent study has also suggested that the global food system is becoming increasingly susceptible to conditions of crisis. Agricultural productivity is limited by the increase in global water scarcity, the cost and availability of mineral phosphate for fertilisers (POSTnote 477), the widespread decline in soil fertility and the limited land remaining for cultivation. One suggested solution is ‘sustainable intensification’: the dual goals of increasing yields while decreasing environmental damage. However, production is only one part of the food system; the Environment, Food and Rural Affairs Committee has noted the need to reduce the high levels of food waste throughout the entire system.

In the context of international development, ensuring food security is not merely a question of providing food aid. Rather it involves supporting appropriate and sustainable agricultural systems to produce sufficient nutritious food to meet local demand. However, this is difficult in an increasingly global and urbanising world where land and water are at a premium. Urbanisation – the trend towards more people living in cities – contributes to rising living standards and changes patterns of physical activity and dietary consumption (the ‘nutrition transition’). While this reduces the occurrence of famines, it leads to the emergence of chronic diet-related conditions such as diabetes and obesity, which require behavioural changes to manage.

Box 8. The Sustainable Development Goals (SDGs)

Important progress has been made in tackling absolute poverty over the past few decades. However this, along with the population and climate change trends described in the text, has put the environment under pressure. A key challenge for the SDGs will be to balance the need to tackle poverty and reduce inequalities with the need to protect the environment. The SDGs aim to be universal, tackling poverty reduction as well as sustainable development, and equally applicable to both developed and developing countries.

A draft set of goals was published in September 2014. They aim to address many of the social, health and environmental issues that feature in this briefing including poverty, hunger, poor nutrition, access to water and sanitation, inequality and climate change. Such aims are to be achieved by promoting policies in areas such as food security, sustainable agriculture, education, access to energy and resilient infrastructure. Each of the 17 goals is associated with specific targets (169 in all) to be achieved by 2030. Member States will discuss the draft SDGs at a UN summit in September 2015. The previous Government stated that there were too many goals and targets to be implementable and that the SDGs should focus more on tackling extreme poverty, rather than addressing both inequality and poverty.

increase global inequalities and adversely affect human health, particularly in developing countries. Taking “urgent action to combat climate change and its impacts” is one of the sustainable development goals (SDGs) currently being negotiated by the United Nations (see Box 8).

Projected UK impacts of climate change over the next 50 years include higher average temperatures, changing patterns of rainfall and more frequent extreme weather events such as drought, floods and freezing winters.¹⁴

Managing climate change in the UK

The main impacts of climate change may not be felt over the course of the next five years. However, this Parliament will face decisions on the balance between the two main approaches needed to manage climate change: mitigation and adaptation. Mitigation involves reducing greenhouse gas emissions from the main sectors producing such emissions; the electricity, heat and transport sectors (see Box 5). Policy measures to reduce emissions from these sectors also need to take account of other policy goals such as ensuring consumers have access to reliable and affordable energy supplies.

The second main approach to managing climate change is by adapting to its effects (see Box 6). For example, this may involve upgrading key infrastructure to withstand the main impacts of climate change such as floods, heatwaves and pressure on water resources. The Government’s National Adaptation plan for England (Box 6) has been criticised for being insufficient.

Resource security and sustainability

The use of natural resources is fundamental to human wellbeing, as recognised by the SDGs (Box 8). Natural resources include non-renewable materials such as fossil fuels and metals, and renewable resources such as biodiversity and soil. Resource security and sustainability is needed to maintain and enhance human well-being within finite natural resources. This may require more than just increased efficiency; resource use may have to fall while production grows.

Reserves of non-renewable materials are finite. Addressing supply risks such as scarcity, geopolitics and accessibility, does not limit environmental effects, such as climate change, of using non-renewable resources. Some renewable resources like agricultural land and freshwater are increasingly limited in some areas. Natural capital – the elements of the natural environment that provide valuable goods and services such as clean air, clean water and food – is in long term decline. Halting this requires approaches that manage interdependencies between the systems that support human wellbeing. For example, the food, water and energy systems are interconnected, so that optimising one may have adverse consequences for the others.

Food security concerns have created a global market for agricultural land involving at least 126 countries.¹⁵ Between

33 and 82 million hectares have been transferred from local landholders to foreign investors (0.75-1.75% of the world’s agricultural land). Food security is an issue for developed countries and developing countries. The UK food production to supply ratio, a broad indicator of the ability of UK agriculture to meet consumer demand for food has been falling (Figure 9). Food security (Box 7) involves tackling the entire food system as well as economic access.

Global freshwater withdrawals increased nearly sevenfold in the last century. As 95% of water use contributes to other products, understanding the interdependencies between food production, manufacturing, energy and water is key to achieving security of supply in all of these sectors (POSTnote 385). In England, drought occurs on average every seven years, but may be more frequent in the south and south-east with climate change. A range of measures to decrease water demand and increase supply in the UK have been suggested (POSTnote 419), but these have cost and social implications. They include water metering and retro-fitting of water efficient products on the demand side, and reform of the abstraction system and reusing effluent on the supply side.

UK security of electricity supply is forecast to be at its lowest in the winter of 2015 but improve thereafter (POSTnote 399). Reductions in demand at peak times from large consumers of electricity are expected to play an increasing

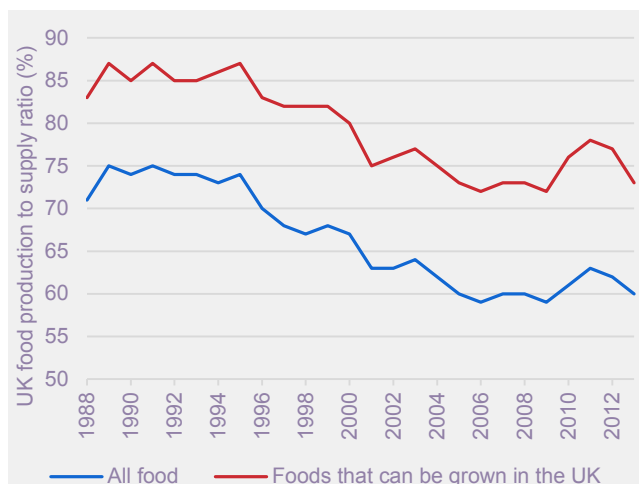


Figure 9. UK food production to supply ratio¹⁶

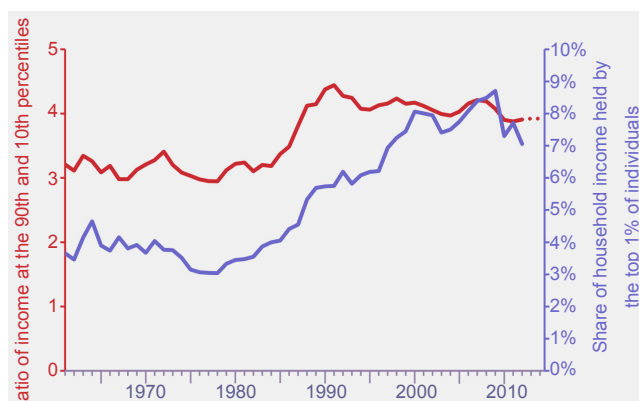


Figure 10. Trends in inequality in the UK¹⁷

role in energy security, with the potential for smaller consumers to contribute after the nationwide roll-out of smart meters between 2015 and 2020. The forthcoming Energy Bill will include measures to strengthen UK energy security by managing North Sea oil and gas resources.

Inequality

Inequality can refer to the distribution of resources within and between countries (such as developing and developed countries), and within and between groups based on factors such as ethnicity, gender, age, disability and location.¹⁸

Trends in economic inequality

In most OECD countries over the past 30 years, the gap between the income of the rich and poor has been rising, with the richest 10% of the population in the OECD area earning on average 9.5 times the income of the poorest 10% in 2014.¹⁹ Figure 10 shows two different measures of recent trends in inequality in the UK, with the blue line showing the proportion of income held by the top 1% of individuals and the red line the ratio between the top 10% and the bottom 10% of the population. Both show inequality increasing during the 1980s, tailing off thereafter and falling after the 2008 recession.¹⁷ However, there are other ways of measuring inequalities based on consumption rather than income (see POSTnote 491 for more details).

This overall picture masks other trends. For instance, higher private pensions, rising entitlements to state pensions and other benefits, and the fact that around 75% of pensioners own their own home outright mean that inequality between the young and the old has decreased over the last 20 years. By 2020, the Pensions Act 2011 will increase the state pension age to 66 for both men and women. Despite this increase, the ratio of people of state pension age and those of working age is projected to continue to rise. This is likely to place an increasing burden on the employed to generate sufficient wealth to support pensioners. There are also variations between regions due to differences in income levels and costs of living (including housing). Overall, analysis suggests that inequality between and within Britain’s regions is less pronounced than the gap between rich and poor across the UK as a whole.

Projections of future economic inequality suggest that although the rate of employment (the main source of income for most people) is expected to increase to 2020, income inequality is likely to increase as well. This is partly because projected real earnings growth will mainly benefit middle- and higher-income households, while the proposed cut in the maximum benefits cap to £23,000 per year in the Full Employment and Welfare Benefits Bill would primarily hit lower-income households. However, such projections are based on assumptions about the way that the structure of employment and pay will evolve, which in turn depend on developments in technology. To date, the shift towards a more knowledge-based and service-intensive economy has contributed to growing inequality because it has increased

demand for low- and high-paid jobs, but those in the middle have tended to decline.

Potential impacts of growing economic inequality

Studies on the social determinants of health have demonstrated a clear link between socio-economic background (such as income or occupation) and health. These health inequalities include life expectancy, infant mortality, mental health and physical health.²⁰ There is also some evidence of an association between economic inequality and societal problems such as social mobility, teenage births, imprisonment, trust, mental illness and obesity. However, this is likely to be mediated by many other factors such as ethnicity and changes to welfare or social policies and this makes it difficult to discern clear trends over time.

Persistent economic inequality can lead to social resentment, fuelling populist and protectionist sentiments, and lead to political disengagement and instability. For example, inequality has been identified as one factor in the London Riots in 2011, and in political extremism. Reducing inequality within and between countries is a key area addressed by the SDGs (Box 8).

Governance

Globally

Tensions between countries such as Russia and the Ukraine, along with instability within regions like the Middle East, challenge conventional notions of global governance that are based upon negotiation or collaboration between nation states. At the same time, the growing economic and political importance of emerging economies like Brazil, Russia, India, Indonesia, China and South Africa mean that trade is becoming more globalised, as illustrated by the current negotiations on new international trade treaties (see Box 9).

There are also many areas of the world – international waters, Antarctica and much of the Arctic – that fall outside the boundaries of nation states. While the first two of these are covered by international agreements, the Arctic is the subject of ongoing international discussions about exploitation of resources. Issues such as climate change are global in nature, while technologies like the internet cut across traditional nation state boundaries (see Box 10); both of these raise governance issues and require the involvement of many different types of parties.

Against this backdrop of geopolitical pressures, the next Parliament will see the publication of a new National Security Strategy as well as a Strategic Defence and Security Review. The House of Commons Defence Committee has argued that the UK needs capabilities to respond to the threat of conflict between nations as well as the threat from terrorism. It also noted that decisions will need to be made about the future of existing capabilities such as the future of the UK's nuclear deterrent.

Nationally

An increasing number of organisations are becoming involved in the development and delivery of public services. This means that decision-making is being transferred from central authorities to local and regional levels. For example, in education, academies and free schools allow businesses, educational foundations, charities and faith communities to run schools. Another example is the increasing involvement of private companies in delivering NHS services, with independent sector providers (ISPs) accounting for an increasing proportion of NHS spending on secondary care since 2005/06 (see Figure 11) compared to voluntary and other providers such as local authorities.

The new Parliament will oversee wider debates about the potential transfer of power with, for example, the forthcoming EU Referendum Bill. Furthermore, the Scotland Bill which proposes allocating new powers over taxation and spending to Scotland. Elsewhere in the UK, the Wales Bill proposes giving the National Assembly more powers over energy, transport and local government elections in Wales. Finally, the Cities and Local Government Devolution Bill contains further measures to devolve powers and budgets to local levels.

Box 9. New international trade agreements

A number of significant new international free trade agreements are currently under negotiation. These aim to liberalise trade in nearly all goods and services and include rules-based commitments beyond those currently established through the World Trade Organization. For example the Trans-Pacific Partnership (TPP) is a regional free trade agreement being negotiated between the USA, Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam.

The UK participates in trade negotiations via the EU. A significant new trade agreement is currently being negotiated between the EU and the USA: the Transatlantic Trade and Investment Partnership (TTIP). A key aim of TTIP is the removal of 'non-tariff barriers'; in practice this means the harmonisation of standards and regulations in a wide range of areas. These include motor vehicles, chemicals, pesticides, pharmaceuticals, food safety and animal and plant health measures, raw materials, energy, medical devices, cosmetics, textiles and intellectual property. The negotiations have raised concerns over the lack of transparency of the process and over the proposed mechanism for settling disputes between parties.

Box 10. Technology crossing borders

Technological developments such as the internet cut across traditional nation-state boundaries. This raises issues for governments in the areas of crime, radicalisation, security, taxation and regulation ([POSTnote 475](#)). For example:

- The darknet ([POSTnote 488](#)) uses sophisticated anonymity systems, which allow their operators to conceal their identity if they wish to. This helps citizens to protect their security and privacy but can also facilitate organised crime.
- Alternative currencies ([POSTnote 475](#)) such as Bitcoin raise regulatory and policy challenges regarding consumer protection, financial crime and taxation and benefits.
- Increased use of remote access to shared computing resources (cloud computing) means that a company may collect data about consumers in the EU and store it in the US, where different data protection laws apply.

Proponents of localism suggest that transferring power from central government can encourage greater levels of community power and political participation by enabling public policy to respond more directly to community needs. However, a recent survey suggests that while citizens generally perceive the transfer of fiscal powers to local levels as positive, they are less sure about the extent to which such developments represent a real shift in power.²¹ There is also debate about how notions of identity influence people's participation in formal politics and whether young people and other groups favour other forms of politics such as protests, e-petitions, and boycotts (see Box 11 and [POSTnote 498](#)).

There are concerns that decentralising policy-making may lead to multiple and overlapping lines of accountability. Service providers can be accountable to local authorities, central government, communities and users for meeting contractual obligations or standards. This mix of accountability presents challenges, with critics arguing that it has diminished democratic accountability. Citizens are able to hold government to account through the mechanisms of

representative democracy, which allows them to vote for their choice of elected representatives every five years. The means of holding non-elected organisations to account is less clear and may require new relationships and new ways of working between citizens and these organisations.

Unpredictable risks

The majority of this note has been concerned with overarching trends that are projected to continue in the medium and long-term. However, the future is inherently unpredictable; while extrapolating current trends can identify some challenges and opportunities, such trends can also be disrupted by unforeseen events or technologies. Disruptive shocks such as financial crashes, terrorist attacks, major industrial accidents or the emergence of new diseases are difficult to predict. On the basis of likelihood and impact, the Government considers pandemic flu, coastal flooding, widespread electricity failure and catastrophic terrorist attacks the highest priority risks. There are a range of futures approaches, such as scenario planning, to help identify possible threats and ensure systems and organisations are sufficiently agile and resilient to respond.

Box 11. Identity and governance

The idea of identity applies at several levels: individual identity; geographic identities at local community, regional, national and supranational levels; and identification within a social group such as a family unit, social class, or affiliation to a religious group, political movement or shared interest group. It is influenced by factors such as national demographic change, immigration and shifting attitudes to national, religious and ethnic identities. For example, although respondents to UK surveys claim dual national identities, the 1990s saw a declining trend for people to identify themselves as British in favour of devolved national identities such as Scottish, Welsh or Irish. This can have implications for the way people engage with formal politics. For example, the turnout in the Scottish independence referendum was over 84%, far higher than that seen in recent UK general elections.

A 2014 report found that young people, certain Black and Minority Ethnic groups, disabled people and those from the lowest social grades were less likely to be registered to vote and turn out at elections than others ([POSTnote 498](#)). Some see this as part of a wider trend of people disengaging from formal politics. However, research suggests that young people are interested in and concerned about politics, and increasingly likely to participate in non-conventional forms such as protests, e-petitions and boycotts.

Some of the overarching trends set out previously could be disrupted by such events. For example:

- Demographic projections will be shaped by unpredictable occurrences such as disease outbreaks and changes in migration patterns.
- Projections about public health (Box 2) will be affected by changing patterns of disease such as a pandemic flu outbreak.
- Projections on climate change would be upset by unpredictable feedbacks between the components of the climate system (oceans, land and atmosphere (see [POSTnote 454](#)).
- Trends in governance at a global or national level could be disrupted by large scale conflict between nation states, new forms of conflict and extremism.

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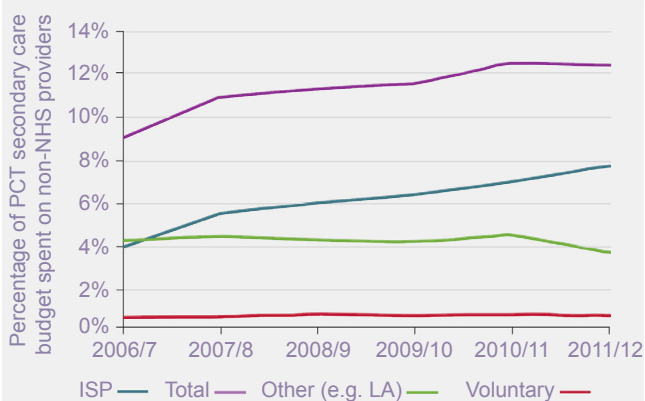


Figure 11. Spending on non-NHS providers as a percentage of total spending on secondary care²²