

ENGLISH WRITTEN EXAMINATION

January 9, 2018

C1/ 9 credits

Instructions: This is a test of your ability to read and understand a text in English and to express yourself in the written language. You have **TWO** hours to complete the exam. **Answer all the questions**, as you will lose points for unanswered questions. Make your answers complete and concise (180 – 200 words).

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Write only on official paper with a blue or black pen, not pencil. You may use a monolingual dictionary. Hand in the text with your written answers at the end of the exam.

Wearied science *The Economist* (September 30, 2017)

1. Explain why, according to the article, new ideas are so important, but so difficult to find nowadays. What kind of circumstances can stimulate innovation?
2. Explain the following words or phrases (underlined in the text) in the context of the article:
 - (i) the well of our imagination has run dry
 - (ii) whether humanity has used up all its eureka moments
 - (iii) even if the world's scientists are scratching their heads
 - (iv) the search will often prove fruitless
3. Briefly discuss only **ONE** of the following:
 - (i) Which innovations do you think have had the most impact on the world? Explain why.
 - (ii) The American economist Robert Gordon believes that the digital technologies of today will not change our lives as much as the technological progress of the previous hundred years. Do you agree? Explain why.
 - (iii) Are you optimistic about the future? Do you think the current economic situation will improve or will it take a long time to recover from the recession?

Free exchange | Wearied science

New ideas are getting harder to find—for now

WERE there far fewer undiscovered ideas out there than in our more primitive past, how would people know? This is not an idle question; decoding the mysteries of nature, from atmospheric pressure to electricity to DNA, allowed people to bend the natural world to their will, and to grow richer in the process. A dwindling stock of discoverable insights would mean correspondingly less scope for progress in the future—a dismal prospect. And some signs suggest that the well of our imagination has run dry. Though ever more researchers are digging for insights, according to new research, the flow of new ideas is flagging. But that uncovering new ideas is a struggle does not mean that humanity is near the limits of its understanding.

The development of new ideas—meaning scientific truths or clever inventions—allows economies to grow richer year after year. Adding more workers or machinery to an economy boosts GDP, but only for a while. Applying ever more men with hoes to the cultivation of a field will generate diminishing returns in terms of crop yields, for instance; wringing more from the soil eventually requires the use of better seed-stock or fertiliser. Unless humanity finds new ways to do more with the same amount of labour and capital, growth in incomes peters out to nothing.

Dwindling growth in incomes is not a bad description of what has happened in much of the industrialised world in recent decades. Meagre rises, in turn, lead some to conclude that there are simply not many breakthroughs left to be uncovered, of the sort that lifted living standards during the Industrial Revolution. That, for instance, is the view of Robert Gordon, an economist at Northwestern University, whose bleak book, "The Rise and Fall of American Growth", reckons that the era of economic revolution is behind us.

Is it? A recent paper by Nicholas Bloom, Charles Jones and Michael Webb of Stanford University, and John Van Reenen of the Massachusetts Institute of Technology, provides relevant evidence. Though striking an agnostic position as to whether humanity has used up all its eureka moments, they nonetheless conclude that new ideas are getting more expensive to find. The authors consider four different case studies, within which they compare research "inputs" (such as the money spent on researchers and lab equipment) and outputs. The number of transistors that can be squeezed onto a microchip has doubled with reassuring regularity for half a century, every two years or so—a phenomenon known as Moore's Law (after Gordon Moore, a founder of

Intel). Yet this success has been achieved by pouring more and more resources into the effort over time. The research productivity of each scientist participating in the battle to cram in transistors has correspondingly tumbled.

Much the same is true in other fields of inquiry, such as efforts to raise crop yields and extend life. As the authors acknowledge, squeezing oranges dry is not a problem if new oranges keep arriving; ie, if new lines of research appear even as others are exhausted. Yet they reckon that, across the economy as a whole, the notion that the cost of ideas is rising holds true. Since the 1930s, the effective number of researchers at work has increased by a factor of 23. But annual growth in productivity has declined (see chart).

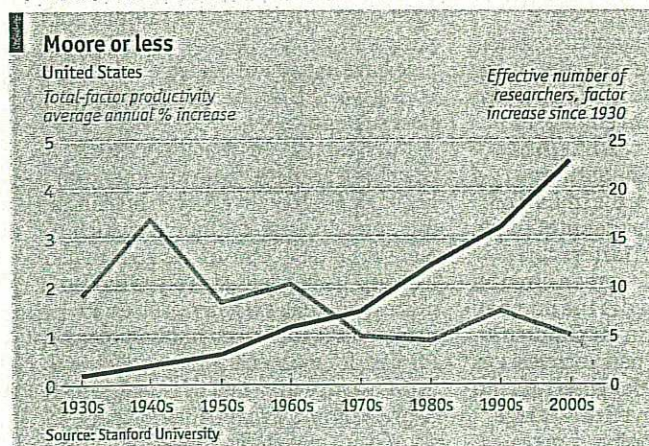
Not the only fruit

Despair is premature, however. The effort to find new, growth-boosting ideas is not necessarily hopeless, just complicated. Whether herding more researchers into the laboratory raises growth might depend on how intensively the resulting brainstorms are used, for example. Across the global economy, many countries have yet fully to exploit ideas already in use by firms at the frontier of scientific knowledge. The problem, in other words, is not that oranges are in short supply or are already squeezed dry, but rather that of the ten workers at the juice bar, only one has learned to do the squeezing. Investments in education and training, to expand the share of workers that can use new ideas, or in the quality of management, to improve how effectively ideas are applied within firms, would do wonders for growth, even if the world's scientists are idly scratching their heads.

Analysing the supply side of the innovation equation in isolation can also be misleading. The demand for new ideas, and, correspondingly, the incentive to tackle difficult questions, also matters. In his analysis of the Industrial Revolution, Robert Allen, an economic historian then at Oxford, sought to explain why it started in Britain rather than anywhere else. Supply-side factors, such as improved literacy and stronger property rights, certainly played a part. But it was the demand for labour-saving innovation, prompted by Britain's relatively high wages at the time, which gave tinkerers a strong incentive to develop and hone the steam engine and its applications.

Put differently, researchers are often like the drunken man searching for his keys under the streetlight, because that is where the light is. Until some pressure is applied to encourage him to look elsewhere, the search will often prove fruitless. It is easy to see why firms might take a lackadaisical approach to some research questions. Disappointing wage growth across advanced economies is a deterrent to the invention and use of labour-saving innovations. Persistently high rates of profit give big firms plenty of money to plough into fancy research labs; but also suggest that the competitive pressures which might prompt them to exploit the resulting discoveries are weak.

The accumulation of knowledge is in some ways a burden. The more is known, the more researchers must absorb before they can add to the stock of human knowledge—or the more they must collaborate with other researchers to combine their areas of expertise. But the incomplete exploitation of currently available knowledge is in some way reassuring. It suggests that people are underperforming relative to their potential: both in how they use available ideas and in how they uncover new ones. ■



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Policymakers around the world are embracing behavioural science
***The Economist* (May 18, 2017)**

1. Explain in what way behavioural science can help policymakers. What arguments does the author mention in favour and against this approach?
2. Explain the following words or phrases (underlined in the text) in the context of the article:
 - (i) And the approach was less heavy-handed than imposing quotas for poorer pupils
 - (ii) The education department is considering rolling out the scheme.
 - (iii) psychology was "the sickly sibling to economics".
 - (iv) bureaucrats being given a free rein
3. Briefly discuss only ONE of the following:
 - (i) What so you understand by 'libertarian paternalism'? What is your opinion of this approach?
 - (ii) Comment on the following statement by Robert Reagan, "Government exists to protect us from each other. Where government has gone beyond its limits is in deciding to protect us from ourselves."
 - (iii) Is nudging potentially dangerous or do we have enough safeguards in society and in the political system for it to be used?
 - (iv) Which present day issues, if any, do you think require the use of 'nudging'? Can nudging really change people's behaviour? Can you think of any laws regulating our behaviour that have achieved this?

Nudge comes to shove

Policymakers around the world are embracing behavioural science

An experimental, iterative, data-driven approach is gaining ground

May 18th 2017

IN 2013 thousands of school pupils in England received a letter from a student named Ben at the University of Bristol. The recipients had just gained good marks in their GCSEs, exams normally taken at age 16. But they attended schools where few pupils progressed to university at age 18, and those that did were likely to go to their nearest one. That suggested the schools were poor at nurturing aspiration. In his letter Ben explained that employers cared about the reputation of the university a job applicant has attended. He pointed out that top universities can be a cheaper option for poorer pupils, because they give more financial aid. He added that he had not known these facts at the recipient's age.

The letters had the effect that was hoped for. A study published in March found that after leaving school, the students who received both Ben's letter and another, similar one some months later were more likely to be at a prestigious university than those who received just one of the letters, and more likely again than those who received none. For each extra student in a better university, the initiative cost just £45 (\$58), much less than universities' own attempts to broaden their intake. And the approach was less heavy-handed than imposing quotas for poorer pupils, an option previous governments had considered. The education department is considering rolling out the scheme.

The trial was run by the Behavioural Insights Team (BIT), a company spun out of the British government in 2014 and which remains in part publicly owned. BIT has pioneered the use of psychology to help policymakers change behaviour through "nudges" rather than taxes or laws. That approach is spreading, as governments from Australia to Qatar, and bodies such as the UN and World Bank, follow.

Mind over matter

When BIT was set up, in 2010, the very idea provoked objections. Some critics feared that nudges would do little good, and that their effects would fade over time. Others warned that governments were straying perilously close to mass manipulation. More recently, some of the findings on which the behavioural sciences rest have been questioned, as researchers in many fields have sought to replicate famous results, and failed.

By and large those doubts have been allayed. Even if specific results turn out to be mistaken, an experimental, iterative, data-driven approach to policymaking is gaining ground in many places, not just in dedicated units, but throughout government.

Nudging is hardly new. "In Genesis, Satan nudged, and Eve did too," writes Cass Sunstein of Harvard University. From the middle of the 20th century psychologists such as Stanley Milgram and Philip Zimbardo showed how sensitive humans are to social pressure. Daniel Kahneman and Amos Tversky described the mental shortcuts and biases that influence decision-making. Dale Carnegie and Robert Cialdini wrote popular books on persuasion. Firms, especially in technology, retail and advertising, used behavioural science to shape brand perception and customer behaviour—and, ultimately, to sell more stuff.

But governments' use of psychological insights to achieve policy goals was occasional and unsystematic. According to David Halpern, the boss of BIT, as far as policymakers were concerned, psychology was "the sickly sibling to economics". That began to change after Mr Sunstein and Richard Thaler, an economist, published "Nudge", in 2008. The book attacked the assumption of rational decision-making inherent in most economic models and showed how "choice architecture", or context, could be changed to "nudge" people to make better choices.[...]

One of the best-known nudges is to set the desired outcome as the default. For example, enrolling all workers in a company pension scheme, and requiring them to opt out if they do not wish to be members, greatly increases savings rates compared with when non-membership is the default. [...] Nudges that involve making the desired choice more attractive, or at least more obvious, range from making the wording on letters about late payment of taxes more emphatic to placing healthy food at eye level in canteens.

Among the most effective nudges are "social" ones: those that communicate norms or draw on people's networks. [...] And a trial involving diabetes shows that it matters to nudge at the right moment. In 2014 Hamad Medical Corporation, a health-care provider in Qatar, raised take-up rates for diabetes screening by offering it during Ramadan. That meant most Qataris were fasting, so the need to do so before the test imposed no extra burden. [...]

Brain gain

Many of the early critics of nudge techniques regarded them as infantilising, or even a type of government mind control. "Nanny is alive and well in Westminster" ran the headline of a newspaper article about the nudge unit in 2011; the author went on to deride the unit's "Orwellian overtones". Many worried about the idea of bureaucrats being given free rein to shape behaviour by imperceptibly tweaking government communications and environmental cues.

Even the proponents acknowledge the risks. "Hitler nudged, so did Stalin," writes Mr Sunstein. Laws in some American states that have suppressed black people's votes, such as those passed by North Carolina in 2013, look remarkably like nefarious nudges, from limiting the types of IDs that can be used for registration to banning out-of-precinct voting. All made voting less easy, attractive, social and timely—and disproportionately cut the number of black people voting.

North Carolina's laws were struck down on appeal last year, in a nice demonstration of the need for checks and balances when it comes to nudging, as with all other policy action. And all governments nudge whether they have a dedicated unit for doing it, Mr Sunstein points out, and whether or not they mean to. There is no purely neutral way of presenting choices, so why not try to choose the one that results in the best outcomes? As long as that choice is made in a transparent manner, and is subject to democratically elected politicians, nudging offers policymakers an alternative to both the nanny state and the unintelligent one; a middle way that he describes as "libertarian paternalism".

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For the love of pizza *The Economist* (June 4, 2016)

1. According to the author what are the reasons for Italy's economic woes? Does he adopt a sympathetic attitude to Italy?

2. Explain the following words or phrases (underlined in the text) in the context of the article:

- (i) ... gastronomic thermometer of the market
- (ii) ... dismayed at its bastardization
- (iii) have every right to brand their dish
- (iv) ... the sacralisation of heritage

3. Briefly discuss only **ONE** of the following:

- (i) The article is very critical of Italy. Do you agree with it or do you think it is unfair? How would you respond to it?
- (ii) The EU is portrayed as being very dogmatic and rigid. How do you see the EU's role and function today? What should the EU's objectives be and how should it work towards them?
- (iii) The cultural heritage of Italy is immense. What is the importance of cultural heritage for a country and its economy? Do you think Italy takes full advantage of its cultural resources? If not, what do you think it could or should do?

Charlemagne | For the love of pizza

heritage = património
 wos = fougasse

Italy's pride in "genuine" food reveals much about its economic woes



CALL it pizza, pitta or fougasse: when Europe's holidaymakers head for the Mediterranean this summer, they will feast on some type of flatbread with condiments. Such dishes have age-old roots. In the "Aeneid", Virgil's heroes forage for a meal of forest fruit laid on pieces of hard bread on the grass. Famished, they eat the bread, too: "See, we devour the plates on which we fed."

Of all these edible platters, it is pizza that has become the world's favourite fast food, plain dough onto which each country bakes its own flavours: mussels in the Netherlands, Teriyaki chicken and seaweed in Japan. Born in Naples, the modern pizza was the poor man's meal. One 19th-century American visitor, Samuel Morse (inventor of the telegraph), thought it "like a piece of bread that had been taken reeking out of the sewer". For Alexandre Dumas, it was "the gastronomic thermometer of the market": if fish pizza was cheap, there had been a good catch; if oil pizza was dear, there had been a bad olive harvest.

These days pizza is a gastronomic mirror, reflecting Italy's anxiety about globalisation. Italians are rightly proud of their food, yet dismayed at its bastardisation by the rest of the world. They fear that the best in Italian *civiltà* is being looted by others. It is America, not Italy, that has turned everything from pizza to cappuccino into profitable global franchises; Domino's and Starbucks are even trying to penetrate Italy.

Now Naples is fighting to reclaim "real" pizza. Last month hundreds of red-capped *pizzaioli* gathered to bake the world's longest pizza, 1,853.88 metres of it, snaking along the waterfront with the city's fabled vistas of Mount Vesuvius and Capri. It was all in support of Italy's bid to have the art of Neapolitan pizza recognised by UNESCO as a treasure in the world's "intangible cultural heritage", alongside Mongolian knuckle-bone shooting and Brazil's *capoeira* dance. A ruling is expected next year.

In 2010 the European Union registered Neapolitan pizza as a Traditional Speciality Guaranteed (TSG) product. It stipulates that certified "Pizza Napoletana TSG" must consist of a base of twice-leavened, hand-shaped dough (no rolling pin), no wider than 35cm. It must be 0.4cm thick at the centre and 1cm-2cm around the rim. It may be garnished in just three ways: with tomatoes and extra-virgin olive oil, or with certified mozzarella from either buffalo's or cow's milk. It must be baked in a wood-fired oven and eat-

en on the spot, not frozen or vacuum-packed.

This is culinary dogmatism. European food-inspectors surely have better things to do than take a ruler to pizza. The *pizzaioli* say they want only acknowledgment of their tradition. One oft-heard fear is that, Heaven forbid, America might try to gain recognition for its own inferior pizza. Should Hamburg then copyright the hamburger, or Crimea steak tartare? Tellingly, Italy is the most assiduous state in claiming EU "geographical indications" (GI), be they the stringent Protected Designation of Origin (eg, Chianti Classico), the looser Protected Geographical Indication (eg, Cantucci Toscani) or the weakest appellation, TSG. Excluding TSGs, Italy has secured protection for 924 food products, wines and other drinks, more than France (754) or Spain (361).

Chefs and farmers, pizza-makers included, have every right to brand their dish and set their own standards. The state must obviously ensure that food is safe. Governments have an interest, too, in guaranteeing the quality of some premium appellations—Champagne, say. But the profligate use of state-enforced GIS smacks of producers trying to gouge consumers. Italy betrays an innate protectionism: rather than compete on global markets, producers want to enshrine "heritage", ask for Europe's help and maximise the rents they can extract from "quality" products. They complicate trade deals as the EU seeks to stop others from using terms such as "feta". Hosuk Lee-Makiyama, a fellow of OPEN, a new British think-tank, says the value of geographical indications in trade deals is unproven; they are mostly a sop to farm lobbies to compensate for cuts in subsidies.

Above all, the name-craze limits scale, productivity and innovation. Take Roberto Brazzale, whose family has made Parmesan-style "grana" cheese for generations. He shifted part of his work to the Czech Republic where, he argues, the milk is superior and costs are lower. His "Gran Moravia", made by Italian methods and aged in Italy, is indistinguishable from the official "Grana Padano", yet may not be identified as such. The Po valley cannot produce enough milk to satisfy the potential global demand for Italian grana, he argues; and decreeing the use of animal rather than vegetable rennet means official cheesemakers struggle to sell to vegetarians and observant Muslims and Jews.

Slow food, slow economy

At its best Italy's love of tradition makes for idyllic holidays, wonderful wines and delightful Slow Food. Italians like to think that their art, culture and way of life will lift them out of economic torpor. But the sacralisation of heritage is a millstone. Italy has seen almost no productivity growth in more than a decade, in part because its firms remain small: on average they count seven employees, about the size of a family-run pizzeria. Artisan products offer no salvation. Italy has no global food chains to speak of (or even big retailers, such as France's Carrefour). It may be home to espresso, but the next-door Swiss invented Nespresso.

If pizza embodies Italy's woes on a plate, it also offers hope. Look closely at a Neapolitan pizza: the succulent tomatoes came from the New World; the best mozzarella is made from the milk of the buffalo, an Asian beast that may have arrived in Italy with the barbarian tribes who conquered Rome; the aromatic basil originates from India. Neapolitan migrants carried pizza across Italy and America. The genius of Italy lies in its inventiveness and adaptability—not in a hallowed land, nor in an imagined tradition canonised by the state. That way lies paralysis and cultural fossilisation. ■

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No country for young people *The Economist* (November 22, 2014)

1. The article talks about the present economic situation of secular stagnation and suggests that demographics may play a central role in it. According to the author, how is population affecting the economy?
2. Explain the following words or phrases (underlined in the text) in the context of the article:
 - (i) ... the rich world's prolonged malaise.
 - (ii) All else being equal ...
 - (iii) the first baby boomers qualified for Social Security ...
 - (iv) they have [...] fewer technological breakthroughs to exploit.
3. Briefly discuss only ONE of the following:
 - (i) Do you agree with the explanation for the present day secular stagnation presented in the article? Are there any other factors that should be considered?
 - (ii) In what way are population trends changing? Discuss the factors that are affecting population. You can give examples of different situations in the world.
 - (iii) Many comparisons have been made between the economic situation of the 1930s and the recent crisis. What are the similarities and the differences between the two situations?

Free exchange | No country for young people

Demography may explain secular stagnation

IN THE late 1930s economists trying to explain how a depression could drag on for nearly a decade wondered if the problem was a shortage of people. "A change-over from an increasing to a declining population may be very disastrous," said John Maynard Keynes in 1937.* The following year another prominent economist, Alvin Hansen, fretted that America was running out of people, territory and new ideas. The result, he said, was "secular stagnation—sick recoveries which die in their infancy and depressions which feed on themselves and leave a hard and seemingly immovable core of unemployment."

A year ago Larry Summers of Harvard University revived the term "secular stagnation" to describe the rich world's prolonged malaise. Weak demand and excess savings were making it impossible to stimulate growth with the usual tool of low short-term interest rates, he argued. Demographics may play a central role in the ailment Mr Summers described—indeed, a more central one than in the 1930s.

An ageing population could hold down growth and interest rates through several channels. The most direct is through the supply of labour. An economy's potential output depends on the number of workers and their productivity. In both Germany and Japan, the working-age population has been shrinking for more than a decade, and the rate of decline will accelerate in coming years (see chart). Britain's potential workforce will stop growing in coming decades; America's will grow at barely a third of the 0.9% rate that prevailed from 2000 to 2013.

All else being equal, a half percentage-point drop in the growth of the labour force will trim economic growth by a similar amount. Such an effect should be felt gradually. But the recession may have accelerated the process by encouraging many workers to take early retirement. In America the first baby boomers qualified for Social Security, the public pension, in 2008, on turning 62. According to several studies, this can probably explain about half the drop since then in the share of the working-age population either working or looking for work, from 66% to below 63%. (This echoes the experience of Japan, which slid into stagnation and deflation in the 1990s around the same time as its working-age population began to shrink.)

The size and age of the population also influences how many customers and workers businesses can tap, and so how much they will invest. Keynes and Hansen worried that a falling popu-

lation would need fewer of the products American factories made. Contemporary models of economic growth assume that firms need a given stock of capital per worker—equipment, buildings, land and intellectual property—to produce a unit of output. If there are fewer workers to hire, firms will also need less capital.

In a research note, Eugénio Pinto and Stacey Tevlin of the Federal Reserve note that net investment (gross investment minus depreciation) is close to its lowest as a share of the total capital stock since the second world war. This is partly cyclical, since the recession led businesses to curtail expansion plans. But it is also secular. Growth of the capital stock slowed from 3.1% a year in 1994-2003 to 1.6% in the subsequent decade. The economists attribute about a third of the deceleration to slower growth in the workforce, and the rest to less innovation. In other words, businesses are buying less machinery because they have fewer workers to operate it and fewer technological breakthroughs to exploit.

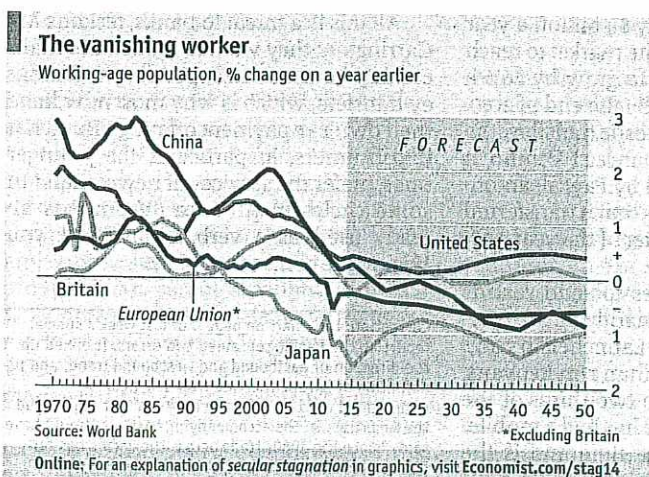
A borrower's world

The third means by which demography can influence growth and interest rates is through saving. Individuals typically borrow heavily in early adulthood to pay for education, a house and babies, save heavily from middle age onwards, and spend those savings in retirement. Coen Teulings of Cambridge University has calculated what various countries' collective savings should be given their demographics. Higher population growth and shorter retirements require less saving; older populations more.

For America, the required stock of savings equalled 228% of GDP in 1970: households should have been borrowers rather than savers since their relative youth and lower life expectancy meant they had ample future income to repay their debts and finance retirement. But as the population aged, its growth slowed and time in retirement lengthened thanks to increased lifespans, the required level of savings rose to 52% of GDP in 2010. For Japan, required savings went from 176% to 119% of GDP in the same period, Germany's from 189% to 325%, and China's from 40% to 86%.

The simultaneous effort by so many countries to save for retirement, combined with weak investment, slowing potential growth, fiscal retrenchment, corporate cash hoarding and inequality (which leaves more of the national income in the hands of the high-saving rich) is depressing the "equilibrium" interest rate that brings investment and saving into balance. There is, however, at least one obvious policy fix. "A higher retirement age reduces saving," Mr Teulings and Richard Baldwin of the Graduate Institute in Geneva write in a recent e-book. "There simply is a limit to the extent to which we can save today in exchange for leisure and high consumption tomorrow. Somebody has to do the work tomorrow; we cannot all be retired by that time."

Moreover, at some point, an ageing population starts to use up the savings it has accumulated. Charles Goodhart and Philipp Erfurth of Morgan Stanley note that the ratio of workers to retirees is now plunging in most developed countries and soon will in many emerging markets. Japan is already liquidating the foreign assets its people acquired during their high-saving years; China and South Korea are starting to do so and Germany will soon. This, they predict, will drag real interest rates, which are now negative, back to the historical equilibrium of 2.5-3% by 2025. ■



* Studies cited in this article can be found at www.economist.com/stagnation14