The Economist

Don't panic over plastic

Hollywood after Weinstein

Povera Italia: a dismal choice

A special report on autonomous vehicles

How the West got China wrong

The Economist

2018-03-03

The world this week

Politics this week

China's Communist Party proposed the abolition of term limits for the posts of president and vice-president. The country's rubber-stamp parliament is expected to give its approval early this month. The change will make it easier for Xi Jinping to cling to power indefinitely, raising concerns in Western capitals that China will renege on promises to liberalise markets and allow limited forms of democracy. See article.

Ashraf Ghani, the president of **Afghanistan**, offered to allow the insurgents of the Taliban to become a political party and contest elections if they agreed to a ceasefire and promised to work within the constitution. The Taliban have called for talks with America, not the Afghan government. See article.

America announced new measures aimed at enforcing UN sanctions on **North Korea**. It blacklisted 28 ships thought to be smuggling oil to the country, and said it would ask other countries' permission to begin inspecting ships at sea.

In the latest of a series of delays, the leader of **Thailand's** military junta, Prayuth Chan-ocha, said elections to restore democratic rule that were planned for November might now be held as late as February 2019.

Authorities in **Indonesia** seized a yacht that America's Department of Justice says was bought with money stolen from 1MDB, a **Malaysian** development agency. The Americans say Malaysia's prime minister was involved in the theft, which he denies.

Baffled and bewildered

In what appeared to be an about-turn from his recent comments, Donald Trump called for strong **gun-control measures**, such as increasing background checks on buyers. One Republican senator said Mr Trump's remarks were "surreal". The Democrats were unsure what to make of them.

Hope Hicks announced that she is resigning as the White House's communications director. A confidante of Mr Trump, she was one of the few people left standing in the West Wing from Mr Trump's original team.

America’s federal housing department was mocked for spending $31,000 on a new **table and chairs** for the office of Ben Carson, the housing secretary. Mr Carson has pledged to clamp down on extravagant spending at his department, which oversees programmes offering affordable housing to poor families.

The temerity of Temer

Brazil’s president, Michel Temer, put the army in charge of public safety by creating a new security ministry. He appointed one general to lead a military intervention in Rio de Janeiro state. Meanwhile, the government sacked the federal police chief after an interview in which he said that an ongoing bribery investigation into Mr Temer had found no evidence of corruption.

In **Venezuela** Henri Falcón announced plans to run against President Nicolás Maduro in April's presidential election. Mr Falcón left the ruling socialist party in 2010 to join the opposition, which is boycotting the election and has booted him out for deciding to participate.

Police in **Honduras** arrested Rosa Elena Bonilla de Lobo, the wife of Porfirio Lobo, a former president, on charges of embezzlement. Prosecutors from an anti-corruption unit backed by the Organisation of American States allege that Ms Bonilla withdrew $510,000 from public funds and deposited the money in her personal bank account just before her husband stepped down as president in 2014.

Mexican authorities arrested four police officers suspected of kidnapping three Italian tourists from a petrol station in the state of Jalisco. According to prosecutors, the officers have confessed to handing the tourists over to a local criminal gang in exchange for about $50. They are still missing.

A new era under Ramaphosa?

South Africa's parliament voted in favour of a proposal to amend the constitution in order to allow the government to seize land without paying compensation. The governing African National Congress says it wants to change the law to put more farmland under black ownership. The government's detractors accuse it of not using the vast powers it already has to support poor rural people.

Nigeria's ruling All Progressives Congress reportedly renominated the country's president, Muhammadu Buhari, as its candidate for presidential elections that are scheduled to take place next year. Mr Buhari's first term has been characterised by economic crisis and a brutal insurgency in the north-east.

The UN accused North Korea of providing materials used to make chemical weapons in **Syria**. Meanwhile the Syrian army again attacked Eastern Ghouta, a rebel-held suburb of Damascus, in defiance of a resolution by the Security Council calling for a 30-day ceasefire. See article.

That it's come to this

Campaigning ended in **Italy's** general election, which takes place on March 4th. The polls show that a hung parliament is likely, which could mean a protracted period without a government. Silvio Berlusconi, an 81-year-old former prime minister, may well emerge as a kingmaker. See article.

Jan Kuciak, an investigative journalist in **Slovakia**, was murdered along with his partner. He had been probing the Mafia's involvement in high-level political corruption. Slovakia's prime minister has offered a €1m reward for information.

Jeremy Corbyn, the leader of **Britain's** opposition Labour Party, announced that he wants a permanent customs union with the European Union after Brexit. It was the clearest indication yet of Labour's position on relations with the EU after March 2019 and was welcomed by pro-remain Conservative MPs and business as well as Labour supporters. Mr Corbyn said a customs union would avoid a hard border in Northern Ireland, one of the thorniest issues in the Brexit negotiations. See article.

Boris Johnson, Britain’s foreign secretary and a leading Brexiteer, claimed that the Northern Irish border was being trumped up as an insoluble issue to frustrate the Brexit process. He pointed out that “there’s no border between

Camden and Westminster,” two boroughs in London, and said that the technology behind London’s congestion charge, “without any need for border checks” could be applied in the province.

This article appeared in the The world this week section of the print edition

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Business this week

The Chinese government stepped in to take control of **Anbang**, a giant insurer with more than $300bn in assets, following months of state attempts to rein in the company's growing debt. Wu Xiaohui, who transformed Anbang from a tiny car-insurance firm to a powerhouse acquiring stakes in foreign hotels and financial assets, is charged with "economic crimes". It was that expansion, underscored by the purchase of the Waldorf Astoria hotel in New York in 2014, that China's regulators came to view as a threat to financial stability. See article.

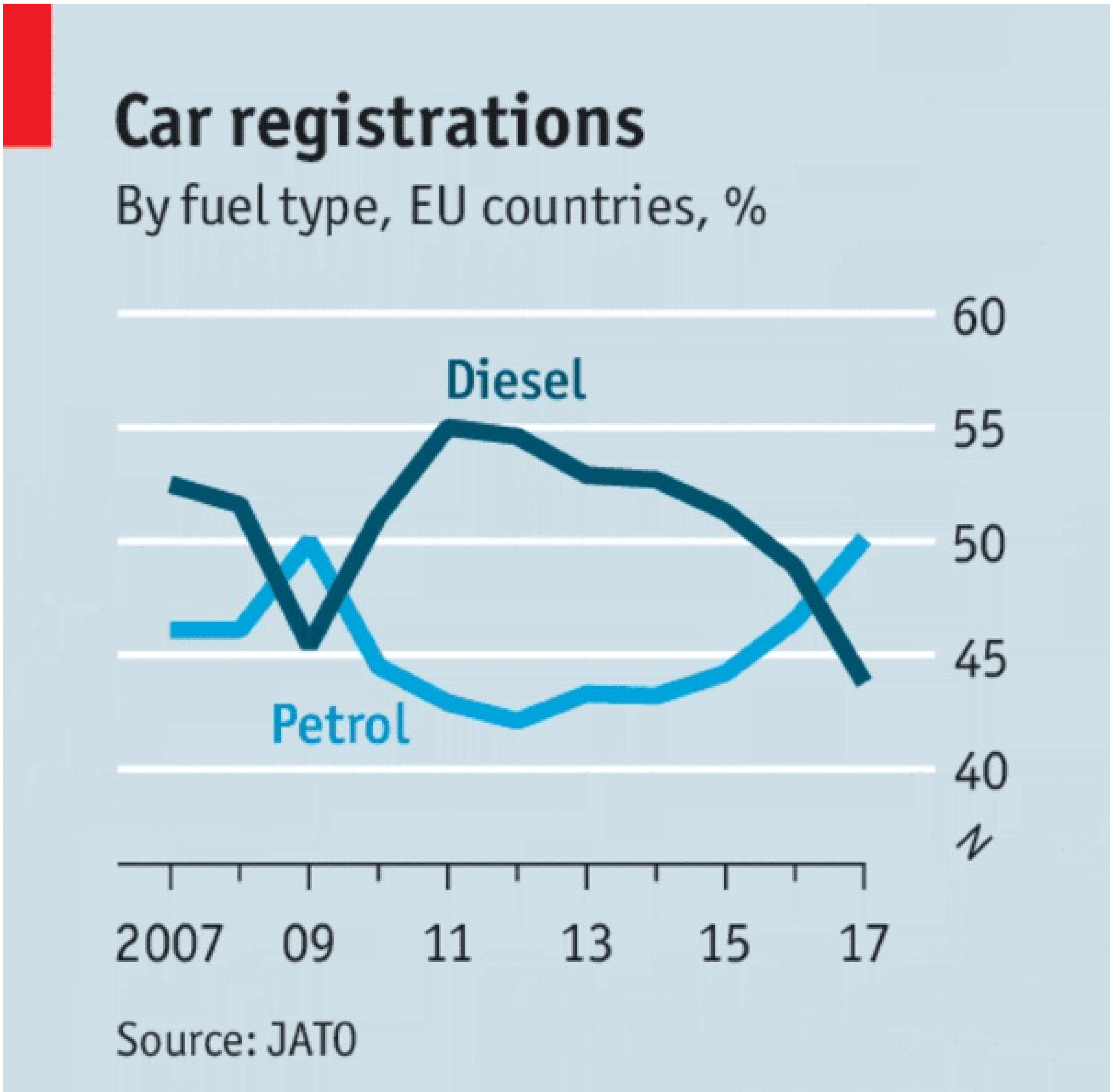
No more gunning for business

More companies distanced themselves from the **gun lobby** in the aftermath of the mass shooting at a school in Florida. Walmart said it would prevent people aged under 21 from buying guns, as did Dick's Sporting Goods, which will also stop selling semi-automatic rifles. But the power of the gun lobby is undiminished; Republicans in Georgia have moved to chop a tax break for Delta Air Lines in retaliation for its decision to end a discount scheme for members of the National Rifle Association. See article.

Berkshire Hathaway reported a total gain in net worth last year of $65bn, $29bn of which came from reassessing the potential tax liabilities on its portfolio of shares in light of the lower corporate-tax rate passed by Congress. The gain helped boost annual net profit at Warren Buffett's company to $45bn, from $24bn in 2016.

India's GDP grew at an annual rate of 7.2% in the last three months of 2017. With the government spending more on infrastructure and welfare, the economy has rebounded from the twin hits of a surprise monetisation programme and the implementation of a goods and services tax. See article.

The revelation that **Geely**, a Chinese carmaker, had accumulated a 9.7% stake in **Daimler** raised eyebrows in Germany. Geely built the stake through derivatives, so it did not have to notify German authorities when it passed holdings of 3% and 5%.



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A federal court in Germany ruled that the cities of Dusseldorf and Stuttgart could ban older **diesel cars** from their streets. The government, which is against the ban, tried to calm drivers and carmakers, saying this did not mean further bans were imminent. Sales in Europe have declined sharply in recent years as several countries have announced the phasing out of diesel-powered cars that emit polluting nitrogen oxides. See article.

The new-reality TV

Rupert Murdoch's plan to sell 21st Century Fox's entertainment assets to Disney hit a new snag when **Comcast** submitted a surprise bid for **Sky**, Britain's premier subscription-TV broadcaster. Fox owns 39% of Sky and is trying to buy the remaining 61% (it would then sell the entire 100% to Disney) but has met resistance from Britain's competition regulator. See article.

Amazon agreed to buy **Ring,** which makes video doorbells that enable householders to use their phones and computers to see who has come calling. The deal is said to be worth $1bn, making it one of Amazon's biggest acquisitions.

Avoiding a conventional IPO, **Spotify** filed papers to list its shares directly on the New York Stock Exchange. The music-streaming service will offer its existing shares to the public rather than issue new ones. It has warned that trading will be volatile.

The tough environment for Britain's bricks-and-mortar retailers claimed two more victims. The British arm of **Toys "R" Us** and **Maplin Electronics** went into administration, putting 5,300 jobs at risk.

Royal Bank of Scotland's share price was weighed down by concerns about its exposure to charges in America of mis-selling mortgage-backed securities. The bank reported its first annual profit in a decade. In 2017 RBS made a profit of £752m ($968m), following accumulated losses over the previous nine years of £58bn. See article.

Stockmarkets wobbled and the dollar rose as investors interpreted Jerome Powell's remarks on the strength of the American economy to mean that the Federal Reserve is on course to raise **interest rates** four times this year. Mr Powell made his comments during his first testimony to Congress as Fed chairman. See article.

Hide from seek

Google revealed that it had received requests to remove 2.4m web addresses from its search engines following the European Court of Justice's ruling in 2014 that people have "the right to be forgotten". That is far from being a "right". Google has not delisted 57% of the sites, in part because they contain information which is "in the public interest". That policy is being put to the test by a businessman in London, who is in court challenging Google's decision not to remove his conviction for accounting fraud from searches.

This article appeared in the The world this week section of the print edition

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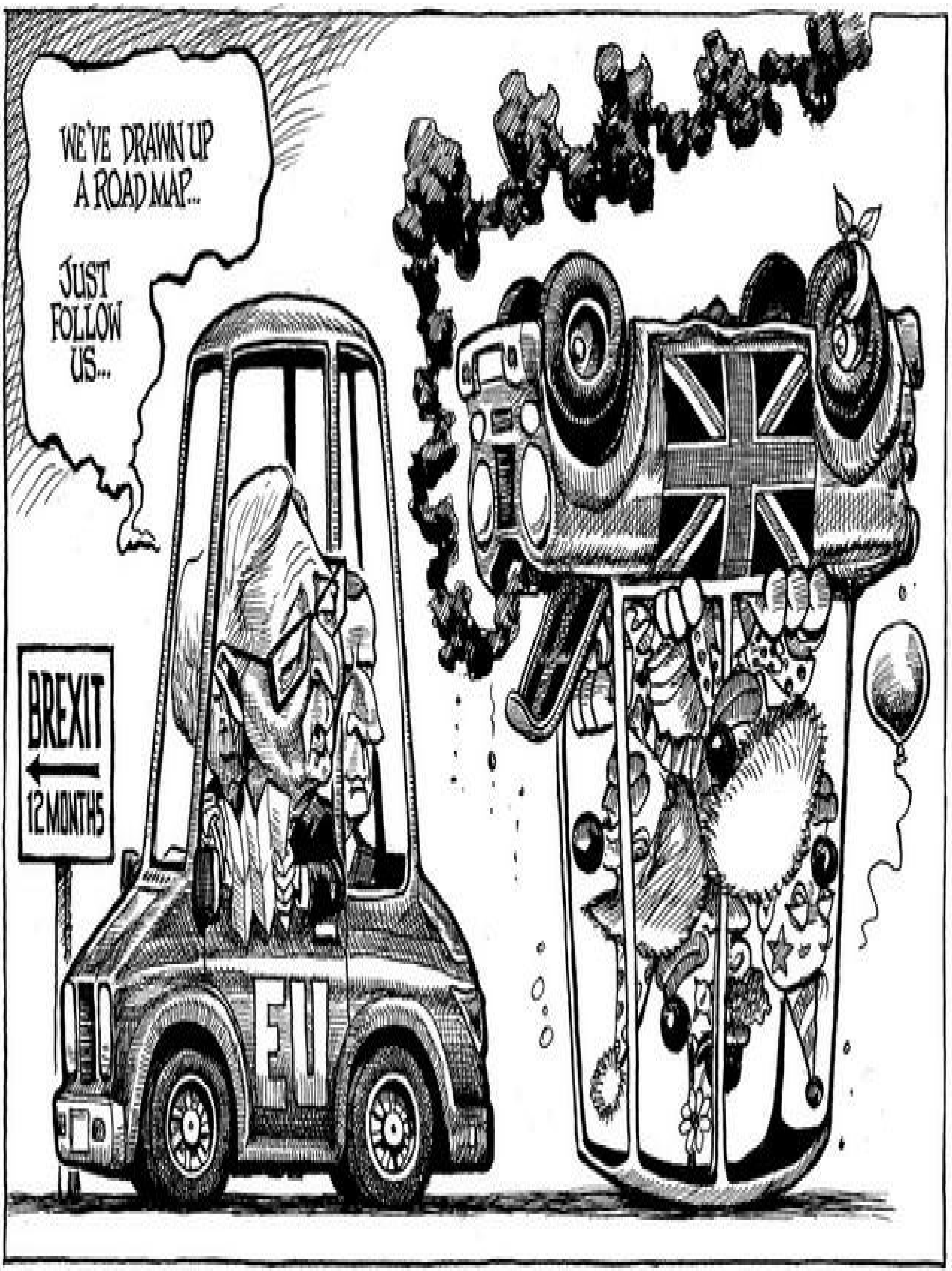
Kal’s cartoon



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Kal

More KAL’s cartoons

This article appeared in the The world this week section of the print edition under the headline “Kal’s cartoon”

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Leaders

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- **Italy’s alarming election: Povera Italia** [Fri, 02 Mar 06:00]
- **Pollution: Plastic surgery** [Fri, 02 Mar 06:00]
- **The Indian economy: No mere formality** [Fri, 02 Mar 06:00]
- **Sexism in Hollywood: #MeToo, part two** [Fri, 02 Mar 06:00]
- **Autonomous vehicles: Who is behind the wheel?** [Fri, 02 Mar 06:00]

Geopolitics

How the West got China wrong

It bet that China would head towards democracy and the market economy. The gamble has failed

LAST weekend China stepped from autocracy into dictatorship. That was when Xi Jinping, already the world’s most powerful man, let it be known that he will change China’s constitution so that he can rule as president for as long as he chooses—and conceivably for life. Not since Mao Zedong has a Chinese leader wielded so much power so openly. This is not just a big change for China (see article), but also strong evidence that the West's 25-year bet on China has failed.

After the collapse of the Soviet Union, the West welcomed the next big communist country into the global economic order. Western leaders believed that giving China a stake in institutions such as the World Trade Organisation (WTO) would bind it into the rules-based system set up after the second world war (see Briefing). They hoped that economic integration would encourage China to evolve into a market economy and that, as they grew wealthier, its people would come to yearn for democratic freedoms, rights and the rule of law.

It was a worthy vision, which this newspaper shared, and better than shutting China out. China has grown rich beyond anybody's imagining. Under the leadership of Hu Jintao, you could still picture the bet paying off. When Mr Xi took power five years ago China was rife with speculation that he would move towards constitutional rule. Today the illusion has been shattered. In reality, Mr Xi has steered politics and economics towards repression, state control and confrontation.

All hail, Xi Dada

Start with politics. Mr Xi has used his power to reassert the dominance of the Communist Party and of his own position within it. As part of a campaign against corruption, he has purged potential rivals. He has executed a sweeping reorganisation of the People's Liberation Army (PLA), partly to ensure its loyalty to the party, and to him personally. He has imprisoned free-thinking lawyers and stamped out criticism of the party and the government in the media and online. Though people's personal lives remain relatively free, he is creating a surveillance state to monitor discontent and deviance.

China used to profess no interest in how other countries run themselves, so long as it was left alone. Increasingly, however, it holds its authoritarian system up as a rival to liberal democracy. At the party's 19th congress last autumn, Mr Xi offered “a new option for other countries” that would involve “Chinese wisdom and a Chinese approach to solving the problems facing mankind.” Mr Xi later said that China would not export its model, but you sense that America now has not just an economic rival, but an ideological one, too.

The bet to embed markets has been more successful. China has been integrated into the global economy. It is the world’s biggest exporter, with over 13% of the total. It is enterprising and resourceful, and home to 12 of the world’s 100 most valuable listed companies. It has created extraordinary prosperity, for itself and those who have done business with it.

Yet China is not a market economy and, on its present course, never will be. Instead, it increasingly controls business as an arm of state power. It sees a vast range of industries as strategic. Its “Made in China 2025” plan, for instance, sets out to use subsidies and protection to create world leaders in ten industries, including aviation, tech and energy, which together cover nearly 40% of its manufacturing. Although China has become less blatant about industrial espionage, Western companies still complain of state-sponsored raids on their intellectual property. Meanwhile, foreign businesses are profitable but miserable, because commerce always seems to be on China’s terms. American credit-card firms, for example, were let in only after payments had shifted to mobile phones.

China embraces some Western rules, but also seems to be drafting a parallel system of its own. Take the Belt and Road Initiative, which promises to invest over $1tn in markets abroad, ultimately dwarfing the Marshall plan. This is partly a scheme to develop China’s troubled west, but it also creates a Chinese-funded web of influence that includes pretty much any country willing to sign up. The initiative asks countries to accept Chinese-based dispute-resolution. Should today’s Western norms frustrate Chinese ambition, this mechanism could become an alternative.

And China uses business to confront its enemies. It seeks to punish firms directly, as when Mercedes-Benz, a German carmaker, was recently obliged to issue a grovelling apology after unthinkingly quoting the Dalai Lama online. It also punishes them for the behaviour of their governments. When the Philippines contested China’s claim to Scarborough Shoal in the South

China Sea, China suddenly stopped buying its bananas, supposedly for health reasons. As China's economic clout grows, so could this sort of pressure.

This "sharp power" in commerce is a complement to the hard power of armed force. Here, China behaves as a regional superpower bent on driving America out of East Asia. As with Scarborough Shoal, China has seized and built on a number of reefs and islets. The pace of Chinese military modernisation and investment is raising doubts about America's long-run commitment to retain its dominance in the region. The PLA still could not defeat America in a fight, but power is about resolve as well as strength. Even as China's challenge has become overt, America has been unwilling or unable to stop it.

Take a deep breath

What to do? The West has lost its bet on China, just when its own democracies are suffering a crisis of confidence. President Donald Trump saw the Chinese threat early but he conceives of it chiefly in terms of the bilateral trade deficit, which is not in itself a threat. A trade war would undermine the very norms he should be protecting and harm America's allies just when they need unity in the face of Chinese bullying. And, however much Mr Trump protests, his promise to "Make America Great Again" smacks of a retreat into unilateralism that can only strengthen China's hand.

Instead Mr Trump needs to recast the range of China policy. China and the West will have to learn to live with their differences. Putting up with misbehaviour today in the hope that engagement will make China better tomorrow does not make sense. The longer the West grudgingly accommodates China's abuses, the more dangerous it will be to challenge them later. In every sphere, therefore, policy needs to be harder edged, even as the West cleaves to the values it claims are universal.

To counter China's sharp power, Western societies should seek to shed light on links between independent foundations, even student groups, and the Chinese state. To counter China's misuse of economic power, the West should scrutinise investments by state-owned companies and, with sensitive technologies, by Chinese companies of any kind. It should bolster institutions that defend the order it is trying to preserve. For months America has blocked the appointment of officials at the WTO. Mr Trump should demonstrate his commitment to America's allies by reconsidering membership of the Trans-Pacific Partnership, as he has hinted. To counter China's hard power, America needs to invest in new weapons systems and, most of all, ensure that it draws closer to its allies—who, witnessing China's resolve, will naturally look to America.

Rivalry between the reigning and rising superpowers need not lead to war. But Mr Xi's thirst for power has raised the chance of devastating instability. He may one day try to claim glory by retaking Taiwan. And recall that China first limited the term of its leaders so that it would never again have to live through the chaos and crimes of Mao's one-man rule. A powerful, yet fragile, dictatorship is not where the West's China bet was supposed to lead. But that is where it has ended up.

This article appeared in the Leaders section of the print edition under the headline "What the West got wrong"

Povera Italia

Italy goes to the polls with bleak electoral prospects

The world’s eighth-largest economy faces a woeful set of choices

TO HEAR Italy's politicians tell it, the country is, if not quite out of the woods, then at least emerging into an unexpected clearing, blinking gratefully. Growth has returned, exports are up, some of the weakest banks have been repaired and even the migration crisis seems to be under control, thanks to a deal with Libya's warlords. Emboldened, the aspirants are outbidding each other to promise gifts to voters. Benefits will rise, taxes will fall and jobs will soon return.

Sadly, things are not quite so rosy. The deal with Libya is precarious, to say the least. Although the economy is expanding again, its recovery is much weaker than that of the other big euro-area economies. Output growth of 1.7% a year trails the euro-zone average by a full percentage point. Unemployment is still over 10%, and far worse among young people. Banks are sitting on large portfolios of non-performing loans. At around 130% of GDP, Italy's public-sector debt is still a huge burden, even as quantitative easing by the European Central Bank, which kept interest rates low, is coming to an end. The country is in poor shape to withstand the next downturn. Responsible, reforming government is as badly needed as ever.

Alas, Italy is unlikely to get it on March 4th. The election that day is being fought using a new system that combines proportional representation with first-past-the-post contests in almost 40% of the seats (see article). Predictions are hard, but the signs point to a hung parliament, followed by a period of dealmaking, with a risk of things going seriously wrong.

Most seats will probably go to an unsavoury right-wing coalition that consists of Forza Italia, led by a convicted fraudster, Silvio Berlusconi; the anti-EU and anti-immigrant Northern League; and a hard-right outfit called the Brothers of Italy. Fortunately, Mr Berlusconi cannot be prime minister. Because of his conviction he is barred from parliament, at least until next year. If the League wins more seats than Forza (polls have them near-tied), it will be the one pushing for the top job anyway. An administration led by its boss, Matteo Salvini, would spook markets and investors: he once described the euro as a "crime against humanity", and favours (as does Mr Berlusconi) a flat tax which would hit revenues hard. The party is soft-pedalling its traditional demand for northern separatism. It is now more of a far-right national party (allied with the National Front in France). The coalition, however, looks likely to come up short.

That might be either a relief or awful. A relief, because neither the 81-year-old Mr Berlusconi nor Mr Salvini is fit to lead Italy; awful because there is a small chance that Mr Salvini might in that case be tempted to throw in his lot with the Five Star Movement (M5S), another populist outfit that is led by a 31-year-old with no experience of running anything apart from a website. The most popular party in Italy, M5S is chiefly a protest movement. It has toned down its anti-Europeanism but has few credible policies and no ideological underpinning. The role of its founder and self-styled "guarantor", a comedian named Beppe Grillo, remains a mystery.

It has to be the Democrats

If *The Economis*t had a vote, we would reject those woeful options and plump instead for continued government by the left-of-centre Democratic Party (PD). Under it, the country has at least been sensibly managed, and its "jobs act" introduced a few reforms into a system that still over-protects those with permanent jobs, encouraging companies to hire young people only on short-term contracts. However, the polls suggest that the voters, tired of years of austerity and PD infighting, will punish it at the polls. Barring a surprise, it will not be able to govern on its own.

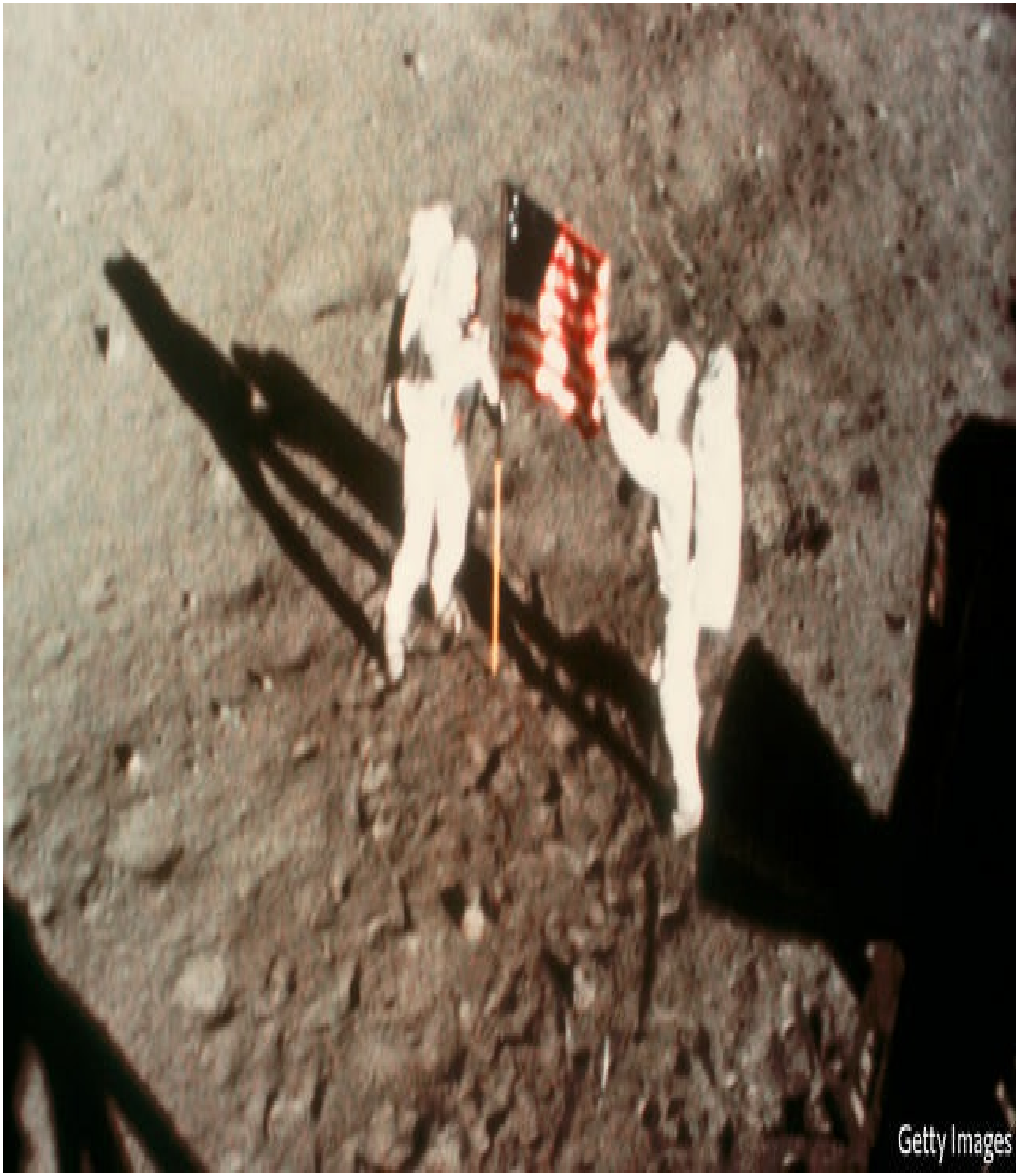
Italy is hopelessly stuck. The least bad way forward would be another "government of the president", a broad coalition underwritten by Sergio Mattarella, the head of state. For all the flaws of such a system, it has allowed Italy to muddle along since Mr Berlusconi stepped down at the height of the debt crisis in 2011. The current prime minister, Paolo Gentiloni of the PD, has been in office for just over a year, but has already shown the diplomatic skill to manage such an unwieldy beast. In Pier Carlo Padoan, Italy has been fortunate to have an astute finance minister who understands the need for fiscal discipline and reform. For Italy's sake, both of them deserve to stay in charge.

This article appeared in the Leaders section of the print edition under the headline "Povera Italia"

Plastic surgery

Don’t bin plastic. To solve the polymer problem look East

Eight out of the top-ten polluters are in developing Asia

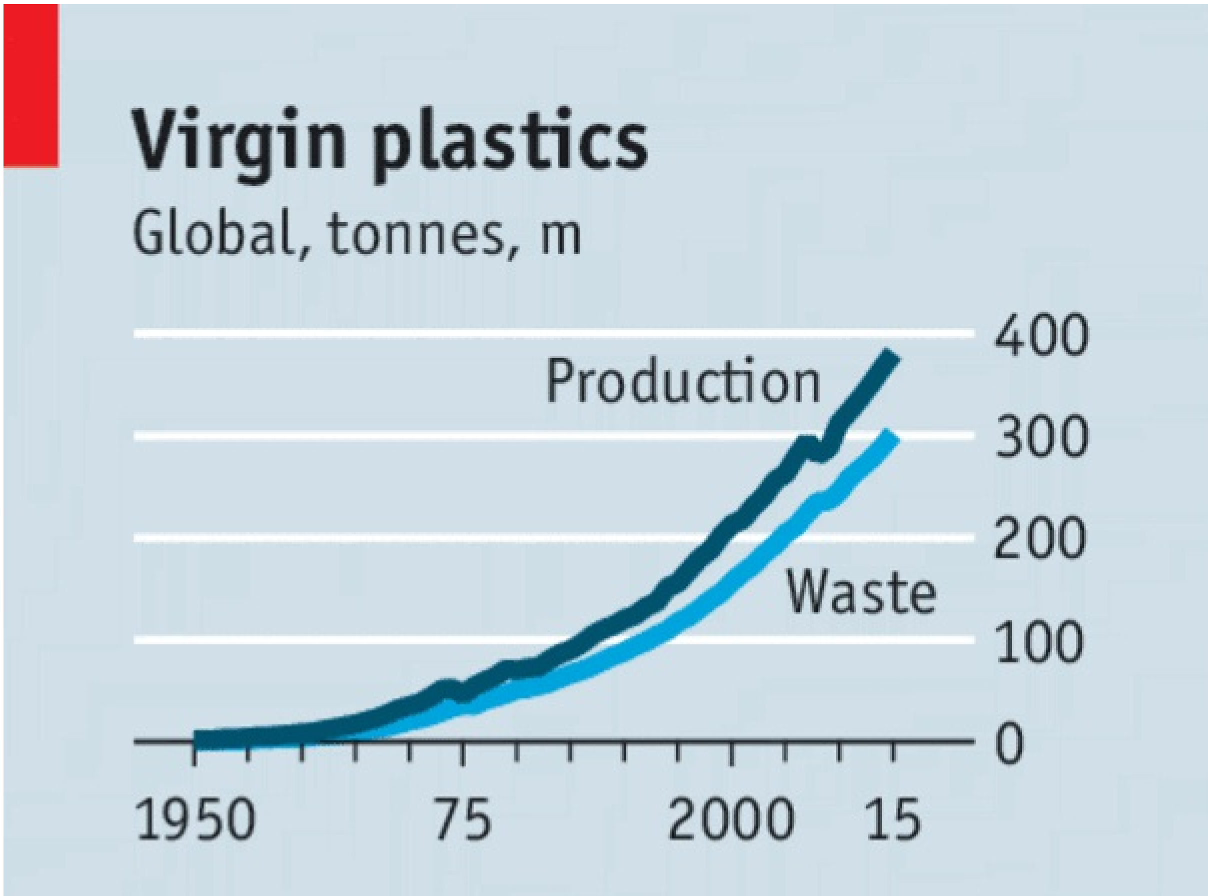


IT IS everywhere, as visible as it is vilified. From car parts to crisp packets, plastic has suffused the Earth, and beyond—in 1969 Neil Armstrong planted a nylon Stars and Stripes on the moon. More than 8bn tonnes has been produced since the 1950s, enough to wrap the continents in clingfilm four times over. Only 9% was recycled; 60% was dumped, mostly in landfills, too often in the natural world. Untold tonnes end up as irretrievable ocean flotsam, which sunlight and salt fragment into microscopic pieces that attract toxins and may be gulped by creatures that become seafood.

Plastic weighs heavily on the mind, too. Nine in ten Europeans worry about its impact on ecosystems; three in four fret that it can harm their own health. In Britain hatred of plastic unites the right-wing *Daily Mail,* the leftie *Guardian*, and the queen, who has banned plastic straws from her castles. But hold on. The little scientists know about plastic suggests that although it is the most noticeable pollutant, it is far from the most harmful. Using less is at best a partial solution. A better answer is to collect more—especially in Asia.

Rubbish data

The effects of plastic on nature and human health are hard to gauge. Most polymers are chemically inert. That makes them durable. It also makes them less likely to be a health risk to humans and beasts. As a pollutant, their impact is much lower than less tangible menaces. By one estimate, the environmental and social costs of plastic run to $139bn a year, chiefly from the greenhouse gases produced in its production and transport. The figure for farming is $3trn. Fertiliser run-off alone causes $200bn-800bn worth of damage to the ocean, compared with $13bn from plastic marine litter. Then look at the alternatives. A cotton tote bag must be used 131 times before its carbon footprint improves on that of a throwaway carrier bag.



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This does not stop plastic from being a problem. But bans and penalties on plastic bags in rich countries may be better for the conscience than for the environment (see article). Prohibition makes sense in poor places like Bangladesh and Kenya that lack proper waste-management systems. It is less useful in tidy France where rubbish collection works smoothly. It would be more effective for rich countries to shore up their recycling industries. They may have little choice in any case. In January China stopped receiving imports of recyclable plastic waste. Because it took half the total traded around the world, that has left hillocks of the stuff piling up in the West.

A carbon tax may spur recycling, which is less energy-intensive than producing virgin plastic. Mandating minimum recycled content in plastic containers, as California has since 1991, is also a useful tool. Governments could exempt second-hand polymers from value-added tax; after all, the tax has already been paid on the fresh source material.

But by itself, the West will not solve the problem. Among the ten biggest plastic polluters, all but two are in developing Asia. Together, they account for two-thirds of the plastic spewed into the ocean. Of these, only China could afford Western-style waste-management in the near future. Others are just waking up to the problem; before plastic began piling up, it reasonably seemed less of a priority for governments. Bangladesh may be able to copy India which, despite its 1.3bn people, falls outside the top ten thanks to armies of ragpickers. The rest, like Vietnam or Thailand, may be too wealthy for *raddiwallahs*, yet too poor for sophisticated rubbish collection. The rich world should focus its attention—and resources, including charity—on chivvying them along. That is the surest way to stem the plastic tide.

This article appeared in the Leaders section of the print edition under the headline “Plastic surgery”

No mere formality

The lessons from Modi’s attempt to formalise India’s economy

The best way to bring firms out of the shadow economy is to promote economic growth

FOR hulking bureaucracy, it is a thoughtful gesture. Each year the chairman of the Indian Central Board of Direct Taxation e-mails a “Certificate of Appreciation” to every resident who has paid over 100,000 rupees ($1,500) in tax. There are even helpful instructions on how best to print out this "recognition of your contribution towards building of our great nation", should you want to frame it.

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Fret not for India's forests. In a country of 1.3bn, fewer than 400,000 of these precious testaments were awarded in the latest wave. Not many Indians make enough money to pay that kind of income tax, and many of those who do opt not to. Perhaps half of India's economic activity, and even more of its jobs, involve dodging tax. That is why Narendra Modi, the prime minister, has set out to formalise the economy. The results are hit and miss (see article). But they are clear enough to give other tax-catchers a guide to how they should cast the net.

Having a more formal economy makes sense. Taxes pay for public services. India's rampant informality is one reason why its tax-to-GDP ratio has been stuck at a measly 15% or so for decades, cramping education and health care. Formal jobs pay up to 20 times more than informal ones, by one government estimate, and formal firms are more likely to innovate, grow and export. Having people and businesses operate outside the rules, whether by dodging taxes or avoiding regulations, is an affront to the idea of a fair society.

But formality is easy to get wrong. Fetishising it can confuse means with ends. Countries tend to become more formal as they get richer because formal firms expand to displace informal ones. Hence a relatively smaller grey economy is more likely to be the outcome of rising prosperity than its precondition. Indeed, draconian policies to expand tax collection often hamper the very growth that brings it about.

Mr Modi's chief pro-formality policy was the "demonetisation" of most banknotes in 2016. The cost, several quarters of sub-par growth, outweighed the benefits. It caused such dislocation that it is hard to see others emulating it (even the pantomime central-planners of Venezuela rowed back after announcing that they would scrap their own banknotes). Throttling the informal sector meant hurting not just crooks and tax-dodgers, who were Mr Modi's targets, but also hundreds of millions scratching out a living in the jobs market of last resort. Most Indians would work in the formal sector if they could, but jobs are scarce. Rather than "nudging" them towards better behaviour, as policymakers are often advised to do, demonetisation was more akin to a cricket bat to the head.

A better approach is to tempt people out of the shadows. A government scheme to provide bank accounts to all citizens, and have them linked to mobile phones and biometric national IDs, has turbocharged digital payments, which are easier to track and tax. Dealings with the authorities increasingly take place online, where it is harder to get shaken down for a bribe. That makes the prospect of being a formal business less terrifying. A newish goods and services tax entitles formal businesses to refunds that are not available in the grey economy. The number of firms registered has risen by 50%.

Coax, don’t coerce

The best results are those that lead to formalisation as a by-product of sensible rule-making. Small companies fail to grow into large (usually formal) ones because hundreds of unreformed labour laws make doing business legitimately a nightmare. Business taxes in India are among the highest in the world, or can be escaped only by using loopholes. Courts that formal businesses rely on often fail to help. Mr Modi is right that a more formal economy is a good thing, but he has overlooked the most effective solutions.

This article appeared in the Leaders section of the print edition under the headline “No mere formality”

#MeToo, part two

The Weinstein scandal is changing Hollywood for the better

And in more ways than one

IN OFFICES around the world, the scandal over Harvey Weinstein's depredations has obliged men to rethink their interactions with women. Many are struggling to decipher where the bounds of propriety lie (handshake or kiss?). In Hollywood itself, the furore has ruined reputations and ended careers. And film executives have been forced to reconsider not just workplace mores but the stories they choose to tell. It is a disorienting moment, but a promising one—for female artists, the studios themselves and for their viewers.

For such a faddish industry, Hollywood can be amazingly ossified. Female characters may no longer be tied to train-tracks and rescued by mustachioed heroes, but they still tend to be stereotyped and marginalised. Male actors do most of the talking; women are far likelier to take their clothes off. That is in part because conventional wisdom among decision-makers holds that big-budget films with female leads are liable to underperform. Not coincidentally, from boardroom to writers' room to director's chair, the vast majority of those decision-makers are men. That the Academy Awards on March 4th will feature a woman nominated for directing is a rarity; that a woman has been nominated for cinematography is a first.

Now the #MeToo movement has begun to redistribute power in Hollywood. Instead of being stymied by harassment, some women are being promoted; more are being given a chance to direct. At the same time there are signs that the studios are becoming squeamish about gratuitous sex and misogynistic violence, two staples of the silver screen (see article). To sceptics, those changes might look like woolly political correctness, or tokenistic positive discrimination. On the contrary, they are likely to be as good for movie-makers' profits as they are for female talent.

That is because Hollywood's chauvinistic assumptions about audience tastes are based less on scientific fact than on prejudice. Although women account for half of cinema-ticket sales in North America, for example, executives were so convinced that female-led action flicks were a turn-off that they hardly made any. The recent success of "Wonder Woman"—the third-highest-grossing film in North America last year—indicates a neglected market for strong female characters. Similarly, the triumph of "Black Panther", a chart-topper in the United States and abroad, has discredited another Hollywood shibboleth, namely that pictures with black casts could not succeed overseas.

Happily ever after

Perhaps female and minority viewers were once more tolerant of films that offered only caricatures of themselves, or omitted their likenesses altogether. Probably, many always felt short-changed, but Hollywood was too self-involved to notice. Now, however, the studios seem poised to learn from the hits these audiences turn out for, rather than dismissing them as outliers. Meanwhile women writers and directors are beginning to provide actors with more complex female roles—a trend that the scandal has accelerated.

All this matters beyond Hollywood, because its products are not like other industries'. Television and films have vast power to shape the way their audiences see themselves and other people. If the Weinstein episode circuitously leads to more rounded depictions of women on screens around the world, this grim saga might find a sort of happy ending.

This article appeared in the Leaders section of the print edition under the headline "#MeToo, part two"

Who is behind the wheel?

Self-driving cars offer huge benefits—but have a dark side

Policymakers must apply the lessons of the horseless carriage to the driverless car

A NEW kind of vehicle is taking to the roads, and people are not sure what to make of it. Is it safe? How will it get along with other road users? Will it really shake up the way we travel? These questions are being asked today about autonomous vehicles (AVs). Exactly the same questions were posed when the first motor cars rumbled onto the roads. By granting drivers unprecedented freedom, automobiles changed the world. They also led to unforeseen harm, from strip malls and urban sprawl to road rage and climate change. Now AVs are poised to rewrite the rules of transport—and there is a danger that the same mistake will be made all over again.

AVs are on the threshold of being able to drive, without human supervision, within limited and carefully mapped areas (see special report). Waymo, the self-driving-car unit of Google's parent company, hopes to launch an autonomous "robotaxi" service in the suburbs of Phoenix, Arizona later this year. General Motors, America's biggest carmaker, plans its own robotaxi service for 2019. On February 26th California said it would abolish the rule that experimental AVs must always have a safety driver on board ready to assume control.

Clean, dream machines

Assuming the technology can be made to work as AV firms expect, it is not hard to imagine the beginnings of the driverless era. Cost means that self-driving vehicles will at first serve as robotaxis, summoned using a ride-hailing app. That way they get used more, offsetting their costs, and provide transport that is cheaper per mile than owning a car, undermining the case for car ownership, at least for townies. UBS, a bank, reckons that urban car ownership will fall by 70% by 2050. Today's cars sit unused 95% of the time, so a widespread switch to robotaxis would let urban land wasted on parking be reallocated.

AVs would dramatically reduce the number of road deaths and, being electric, cut harmful emissions in places with clean grids. Clever routing, closer spacing between vehicles and dynamic congestion-charging could cut traffic. Like cars before them, AVs will reshape cities (a long commute is easier if you work or sleep en route) and redefine retailing (shops can come to you). Carmakers will face enormous change (see article); instead of selling to individuals, they will supply fleet operators, or reinvent themselves as "mobility service" providers.

Economists and urban planners should rejoice because AVs mean that, for the first time, the unwelcome externalities associated with cars can be fully priced in. In particular, dynamic road-tolling and congestion charging, adjusting the cost per kilometre according to the time of day, level of traffic, length of trip and so on, will allow fine-tuning of entire urban-transport systems. By setting taxes and tolls accordingly, planners can subsidise rides in poor districts, for example, or encourage people to use public transport for longer trips. They can also ensure that the roads do not end up full of empty vehicles looking for riders. Such granular road-pricing is the logical conclusion of existing schemes. Some cities already have congestion-charging regimes, subsidise ride-hailing in poor areas ill-served by public transport, or impose per-ride taxes on Uber, Lyft and their kind.

Yet the same tolling schemes that will let city planners minimise congestion or subsidise robotaxi services in underserved "transport deserts" have a darker side—and one to which too little attention has been paid. AVs will offer an extraordinarily subtle policy tool which can, in theory, be used to transform cities; but in the hands of authoritarian governments could also become a powerful means of social control.

Panopticons on wheels

For a start, AVs will record everything that happens in and around them. When a crime is committed, the police will ask nearby cars if they saw anything. Fleet operators will know a great deal about their riders. In one infamous analysis of passenger data, Uber identified one-night stands. If, as seems likely, human-driven cars are gradually banned on safety grounds, passengers could lose the freedom to go anywhere they choose. The risk that not all robotaxis will serve all destinations could open the door to segregation and discrimination. In authoritarian countries, robotaxis could restrict people's movements. If all this sounds implausible, recall that Robert Moses notoriously designed the Southern State Parkway, linking New York City to Long Island's beaches, with low bridges to favour access by rich whites in cars, while discriminating against poor blacks in buses. And China's "social credit" system, which awards points based on people's behaviour, already restricts train travel for those who step out of line.

So as robotaxi services roll out this year, and expand to cover wider areas in more cities in the years to come, there is more to think about than technology and transport policy. Experiments with different pricing schemes, decisions about whether to ban private vehicles from city centres, and license auctions for competing private robotaxi operators sound harmless enough. But collectively they represent a seismic shift for society. Autonomous vehicles offer passengers freedom from accidents, pollution, congestion and the bother of trying to find a parking space. But they will require other freedoms to be given up in return—especially the ability to drive your own vehicle anywhere. Choices about who can go where, when and how are inescapably political in nature.

A century ago cars were seized upon as a solution to the drawbacks of horses, which were clogging city streets with manure. The broader social consequences of cars, both good and bad, were entirely unforeseen. Today the danger is that AVs will be treated merely as a technological solution to the problems associated with cars and that, once again, the wider impacts will be overlooked. AVs have the potential to transform physical transport as radically as packet-switching transformed the delivery of data. But as with the internet, realising their benefits is a matter of politics as well as technology. AVs offer a chance to forge a new and better trade-off between personal mobility and social impact—but only if the lesson of the horseless carriage is applied to the era of the driverless car.

This article appeared in the Leaders section of the print edition under the headline “Who is behind the wheel?”

Letters

- **On the Democratic Republic of Congo, Costa Rica, 5G, Italy, Vietnam, Brexit: Letters to the editor** [Fri, 02 Mar 06:00]

Letters

Letters to the editor

On the Democratic Republic of Congo, Costa Rica, international courts, 5G, Italy, Vietnam, Brexit

Keeping Kabila to his word

One crucial aspect about the crisis in the Democratic Republic of Congo received short shrift in your otherwise comprehensive coverage ("Waiting to erupt", February 17th). That is that under the St Sylvester accord which was accepted by all key Congolese, opposition leaders should be allowed to return safely and campaign in national elections.

President Joseph Kabila’s legitimacy derives directly from the St Sylvester agreement brokered in December 2016 by Catholic bishops in Kinshasa. The agreement allowed him to remain in office past the end of his second term, but only as part of a package of other crucial steps necessary to ensure a peaceful democratic transition. In particular, since the bishops were entrusted with examining charges that have in effect exiled Moise Katumbi and other opposition leaders, and since the churchmen have concluded that the charges are baseless and politically motivated, Mr Kabila’s government has an obligation to ensure that those charges are dropped and that the exiles can return home freely to participate in politics.

The St Sylvester agreement also requires the government to ensure that forthcoming presidential elections are free and fair, and that Mr Katumbi and the other likely candidates can compete in a secure and safe environment. If Mr Kabila’s government fails to abide by these crucial parts of the accord, then the international community should declare the agreement inoperative. Mr Kabila would then no longer be regarded as the legitimate president.

The path forward is clear. If further chaos and crisis in Congo is to be averted, democratic elections must go ahead pursuant to the St Sylvester agreement negotiated by the Congolese themselves. Africa and the West should send Mr Kabila a clear message that if he chooses a different course, not only will he no longer be regarded as the legitimate leader of Congo but he and his cohorts will be subject to sanctions.

JAMES P. RUBIN
Former American assistant secretary of state
Washington, DC

Costly Costa Rica

Bello claims that Costa Rica has not been able to tackle poverty and inequality in part because it has a low tax revenue of 14% of GDP (February 10th). That figure does not measure revenues using OECD standards, which also take into account local and social-security taxes. Once you incorporate those, the tax burden rises to over 22% of GDP, the fifth highest in Latin America. Moreover, a lack of funds cannot explain the stagnant poverty rate.

Costa Rica's social spending is among the highest in the region as a percentage of GDP.

Wages in Costa Rica's public sector are significantly higher and rising at a much faster pace than in the private sector, which causes inequality. More tax revenue will only exacerbate the problem. The World Economic Forum ranks Costa Rica at 101 among 136 countries on efficiency of government spending. That is hardly an endorsement for giving its government a larger share of the economic pie.

JUAN CARLOS HIDALGO
Policy analyst on Latin America
Cato Institute
Washington, DC

Comparing courts

"The mouse that ruled" (February 3rd) cited the doctrine of "conventional control" invented by the Inter-American Court of Human Rights, which "obliges national states and judiciaries to make their constitutions and laws compatible with human-rights treaties their countries have ratified". The article goes on to refer to the IACHR's "puny" budget of $5m and draws a comparison with the European Court of Human Rights, which "spends nearly 20 times that amount" and "has no such power".

I am not in a position to confirm the size of the IACHR's budget, but I can inform your readers that the budget of the European Court for 2018 is approximately €71m ($87m). This funds a full-time court with 47 judges (and 650 staff) whose jurisdiction stretches over 47 countries with a population of over 800m. In 2017 it received 63,350 applications raising a wide range of alleged human-rights abuses. A total of 85,951 applications were disposed of judicially.

The IACHR, which does not sit full time, has seven judges and last year delivered 21 judgments. It is true that it is responsible for supervising the execution of its own judgments, whereas the execution of the judgments of the European Court is supervised by the Committee of Ministers of the Council of Europe. On the other hand, the IACHR does not deal with the filtering of inadmissible cases, which is part of the European Court's functions.

Furthermore and contrary to what appears to be suggested in your article, the European Court's judgments have binding force in respect of the respondent country and regularly result in the amendment by the country concerned of the relevant legislation. It is true that formally speaking there is no direct equivalent of the "conventionality control" in the European system, however in practice the court's judgments are widely followed since they provide the final authoritative interpretation of the European Convention on Human Rights.

The European Court has the greatest respect for its sister court in Costa Rica, but comparisons of the type drawn in your article are inevitably difficult and in this case simply inaccurate.

RODERICK LIDDELL
Registrar
European Court of Human Rights
Strasbourg

Preparing for 5G

Another trend taking place in the telecoms industry ("Next generation thinking", February 10th) is the aggregation of many operators' base stations onto a shared site, such as a tower. These towers are increasingly owned by third-party companies, which then rent and maintain the stations at a fraction of what it would cost individual telecoms to have their own towers. This shared infrastructure shows that the private sector can solve such problems without heavy-handed government regulation of the industry.

In fact, a main challenge for 5G is that it requires much denser deployments, as you point out. The main obstacle to such density is not the cost of the base station. Usually it is restrictive red tape and NIMBY laws. The right answer could again be looser regulation, not a government takeover of the cellular network.

JEFFREY ANDREWS
Professor of electrical and computer engineering
University of Texas at Austin

The death of civic Italy

Italy's Five Star Movement (M5S) would not have seen the light if Italians had been able to enjoy honest and responsible governments without rampant favouritism, corruption and illegality ("Star man", February 17th). By their unprincipled control of the offices of the state and the media, political parties have poisoned the well of representative democratic government to such a point that trust in politicians and the political system is non-existent and their enunciations patently implausible.

The M5S will not wrest power from the government, which will probably be replaced by an alliance between the democratic and the non-extremist parties or the parts thereof. It will make a respectable showing but pale to insignificance as a political force. This is because although what it is trying to do is worth doing, there is no longer an appropriate civic culture for it to grow roots and prosper.

DERYCK RHODES
Rome

One legacy of Vietnam

As your review of Max Boot's book on the Vietnam war observed, counterinsurgency was tried and eventually failed ("Wishful thinking", January 20th). Staff in the armed forces and the CIA at the time had a saying: "Sink or swim with Ngo Dinh Diem", meaning that the South Vietnamese leader was our only hope, and if he should fail (and he did) we ought to get out of Vietnam to avoid further damage.

In "Villages", Richard Critchfield referred to the Combined Action

Programme, in which a squad of American marines worked alongside a platoon of Vietnamese popular forces and patrolled a hamlet. The results were mixed, but those hamlets in the programme avoided the destruction of General Westmoreland's concept of search and destroy. I was a participant and can say, with mixed emotions, but nevertheless some pride, that we avoided such destruction.

MICHAEL PETERSON
Eugene, Oregon

We don't need another hero

I see that the secretary of state for exiting the European Union has sought to reassure our European partners that post-Brexit Britain would not be a "Mad

Max" dystopia ("The right way to do Brexit", February 24th). On reflection, as Mel Gibson has coped with being William Wallace, dealt with Jesus Christ and knows "What Women Want", he might like a crack at being prime minister.

DICK SCOTT
Exeter

Boris Johnson mistakes the meaning of Brexchosis, a word he claims to have coined. It is in fact an extreme form of halitosis brought on by continuously talking crap about the benefits of Brexit.

PETER KENDALL
London

This article appeared in the Letters section of the print edition

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Briefing

How the West got China wrong

Decades of optimism about China's rise have been discarded

Clear thinking and a united front are needed, but they may not be forthcoming

IN MARCH 2000 Bill Clinton divided American opinion on China into two camps. First came optimists with an eye on the future, who could see China becoming “the next great capitalist tiger, with the biggest market in the world.” Then came hawks and pessimists, stuck in the past, who saw China stubbornly remaining “the world’s last great communist dragon and a threat to stability in Asia.” A generation later, those words have the poignancy of a message from a lost world.

Like many either/ors, this one turned out to be a both/and. The China of Xi Jinping is a great mercantilist dragon under strict Communist Party control, using the power of its vast markets to cow and co-opt capitalist rivals, to bend and break the rules-based order and to push America to the periphery of the Asia-Pacific region. It is confident of its strength—since the financial crisis of 2008 it has touted state-guided capitalism as superior to free markets—and newly willing to show its teeth, deploying military might to redraw maps in the South China Sea. It punishes foreign businesses for the actions of their home governments. It is engirdling Eurasia with the contracts and rules that come along with the roads, railways and fibre-optic cables of its Belt and Road Initiative.

This has led to the starkest reversal in modern geopolitics. Political leaders and China-watchers across the West—most notably in America, but also in Europe, Australia and Japan—have come to believe that they were wrong about China’s rise. From cabinets to boardrooms to book-lined studies, voices which once argued that a growing middle class would drive China towards Western values have fallen silent. Hopes for reform were dealt a fresh blow when the Communist Party announced the scrapping of term limits for China’s presidency, allowing Xi Jinping to remain head of state indefinitely (see article).

Greatest good, greatest number

Instead debate divides those who think that it was naive to try engaging with China on the basis of such optimism and those who believe it was rational to make the attempt. Defenders of engagement have a point. China decided to rejoin the world after decades of Maoist isolation of its own accord; thinking that it was better to manage the process than not, as successive American governments did, made sense. Few were entirely Panglossian on the subject. Even in the headiest times America paired engagement with a need for “balancing” China’s rise, strengthening American forces in the Asia-Pacific and deepening security and trading alliances. The benefits were real. Cheaper goods have been a boon for American consumers; many American companies have done well out of China. And the simple fact that hundreds of millions of Chinese were raised from poverty counted for something with some Westerners.

But the China sceptics had a point. The West was too confident that a prosperous China would inevitably see its liberal democracies as a model. In hindsight, a lot of clever predictions about China look like wishes in disguise.

There is nothing dreamy about the National Security Strategy America published late last year. A general statement of the administration’s worldview, it says that China “challenge[s] American power, influence, and interests”. For decades, it goes on, American policy was “rooted in the belief that support for China’s rise and for its integration into the post-war international order would liberalise China.” This is deemed a mistake: “Contrary to our hopes, China expanded its power at the expense of the sovereignty of others.”

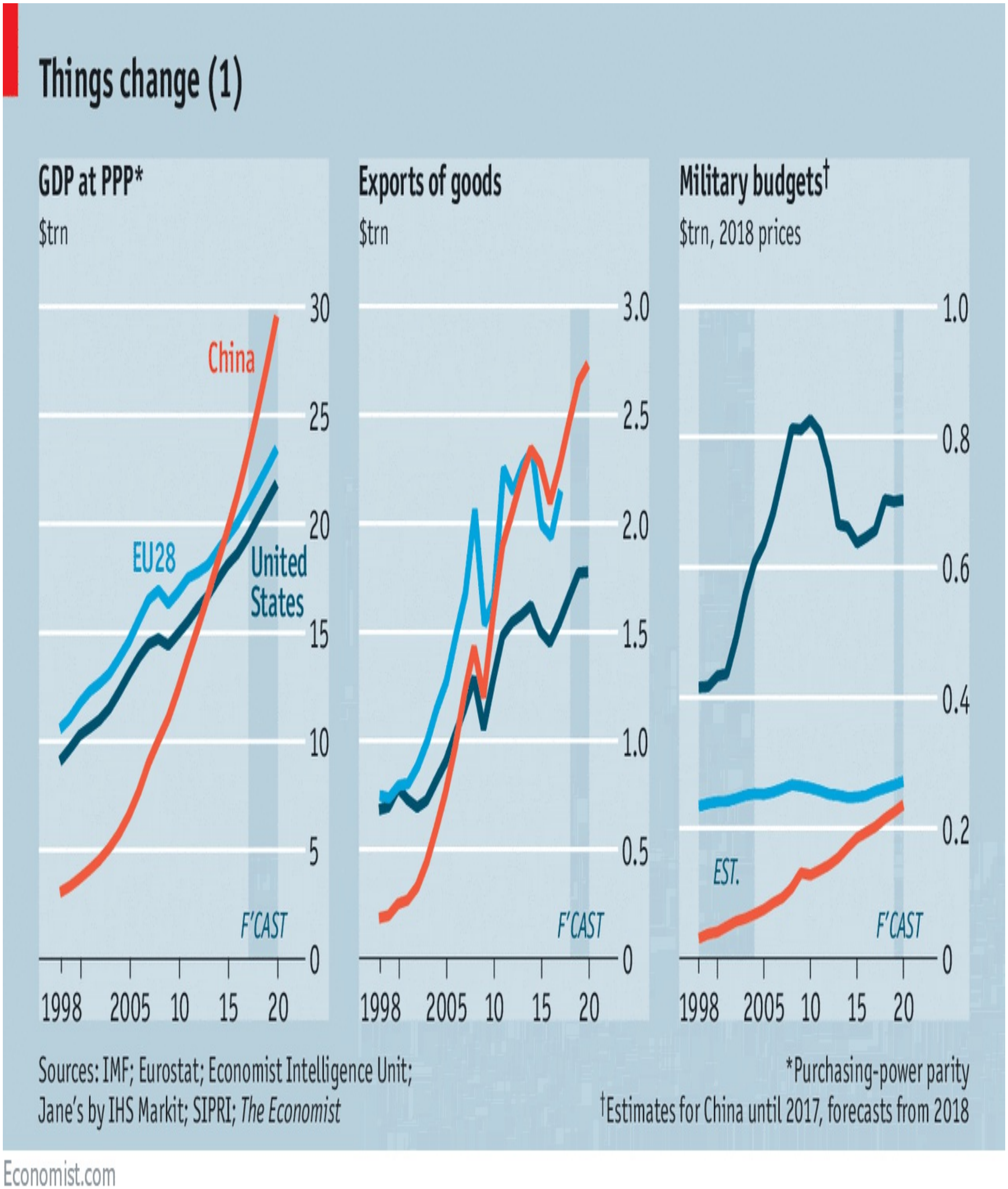
In consequence, though the strategy stops short of urging a return to cold-war containment, it proposes tougher curbs on Chinese spying and theft of intellectual property, especially from the most innovative American firms. In January an American business delegation warned Chinese officials of Politburo rank that aggressive trade actions by America are more likely than not. Mr Trump’s administration announced tariffs on aluminium foil on February 28th. It is soon to decide on steep tariffs against steel imports and the merits of a trade complaint punishing China for forced transfers of technology; that may allege close to $1trn in total damages.

Even those on the free-trade side of these debates worry about such showcase policies as “Made in China 2025”, a technology strategy aiming to create national champions in robotics, biomedicine, electric vehicles and more. When asked if they worry that China-curbing measures might disrupt global supply chains, nationalists on Team Trump reply that they want to reroute such chains back into America, while there is still time. In the Senate Republican free-traders like John Cornyn of Texas and Democratic champions of openness like Dianne Feinstein of California are co-sponsoring a bill to tighten the screening of Chinese and other foreign investments for national security.

Not long ago, such sabre-rattling would have triggered an uproar from corporate chieftains, worried about reprisals that would shut them out of China's markets. But big business is no longer a reliable cheerleader for China. The Stockholm China Forum, a private gathering of senior government officials, diplomats, business bosses and academics from China and the West, recently met in Hong Kong. Never before in the forum's 11 years have those assembled sounded so gloomy.

Nothing to lose but your supply chains

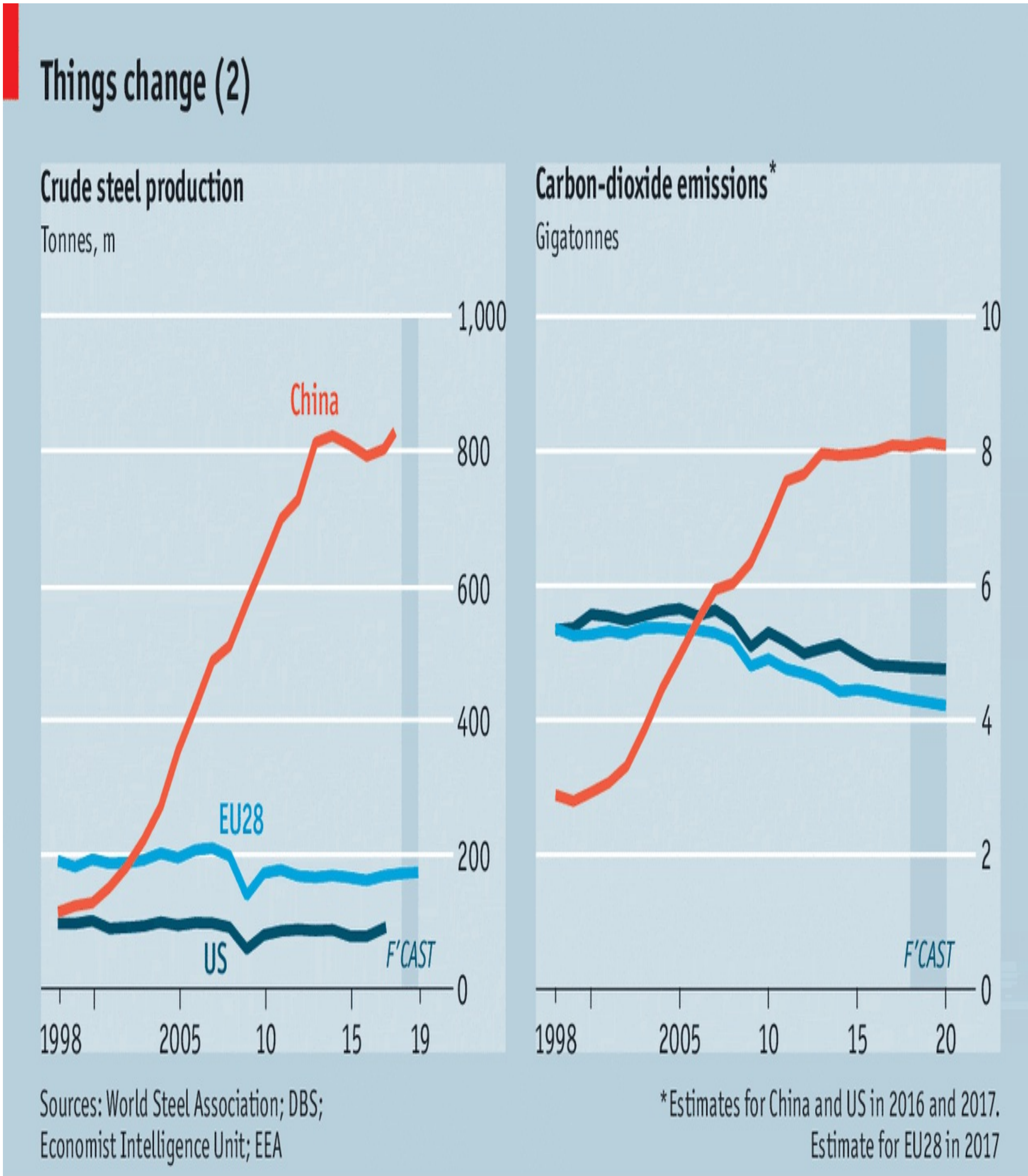
Foreign businesspeople talked of the "promise fatigue" that has set in as Chinese markets are opened only after they have ceased to matter (the recent decision to allow in American credit cards now mobile payment systems have made them irrelevant is an example). There was talk of dawn raids by Chinese regulators who take away computers filled with priceless intellectual property and global client lists, and of Western businessmen detained on murky grounds. They were especially shaken by the Chinese government's punishment last year of Lotte, a South Korean-Japanese firm which owns land south-east of Seoul on which American anti-missile batteries are now based. The Chinese dislike the radars, which could see deep into their territory. So they have closed Lotte supermarkets in China, ostensibly as fire hazards. Such arbitrary actions oblige even those businesses making hefty profits in China to think hard about diversifying their risks.



Though some sectors of American business, including retailers and commodity exporters, enjoyed a bumper 2017 in China, the days when boardrooms would nod through anything resembling a bold China strategy are over. Today, faced with continued Chinese subsidies, competition from state-backed rivals (see Schumpeter) and limited market access, the mood is grim.

It could get grimmer. Western officials and experts note China's growing military strength and its increased willingness to interfere in political debates across the democratic world, whether by funding friendly politicians and academic institutions, stirring up nationalism among Chinese students overseas, buying up foreign media outlets or bullying publishers. The "window" for confronting and challenging Chinese aggression, they say, is closing.

Part of what is so spectacular about the decline of Sino-optimism is how recently and how thoroughly it held the high ground. The idea that global engagement and rising prosperity would drive Chinese convergence with Western values was one of the last beliefs shared by all sides in the Washington elite. In that speech from 2000, aimed at encouraging Congress to dismantle barriers to commerce with China prior to its joining the World Trade Organisation (WTO), Mr Clinton drew a direct line between free enterprise and pressure for accountable government. When individuals have the power to realise their dreams, he enthused, "They will demand a greater say." Just two months later George Bush, campaigning for the presidency at a giant Boeing plant, predicted that China's WTO entry would bring both more jobs and political benefits. American goods would flow to Chinese consumers, China would enjoy "more open contact with the world of freedom.''



Economist.com

The optimists' camp could count on support from political and business elites, and from diplomats and sinologists who had been watching China's rise since the last days of Chairman Mao. The pessimists' camp was much smaller, and was dominated by old-school security hawks and hard-to-impress trade union leaders, sniffing a plot by bosses to lower American wages. Now one of their number sits in the Oval Office.

Westplaining modernity

The optimists made two sorts of mistake. The first was to overestimate the subversive power of various novelties. This was often an error of projection: they could not imagine being as tireless as Chinese leaders turned out to be in defending their authority. Modern telecommunications technologies "have proved an unambiguous threat to totalitarian regimes," Rupert Murdoch claimed in 1993. He later recanted, seeking to assuage appalled Chinese leaders, but plenty of others insisted that he had been right first time, if not about the faxes and satellite televisions of the 1990s, then about the internet of the 2000s. Why, technology entrepreneurs would scoff in Beijing bars a generation ago, China would have to hire hundreds of thousands of secret policemen to control the internet. Then China did more or less precisely that.

When Britain returned Hong Kong to China in 1997, under a 50-year agreement to preserve its free speech, free markets, rule of law and limited democracy, a *New York Times* columnist wondered if the city would prove a "colossal Trojan Horse", bringing democracy to China's mainland. Today Benny Tai, an activist law professor, sees little scope for an Odysseus of Hong Kong. Mr Tai was one of the founders of the Occupy Central protest movement which blocked streets in the business and financial heart of Hong Kong for weeks in 2014, in a bid to press the government to move towards universal suffrage—something Hong Kong's Basic Law promises. But he no longer believes that direct pressure from Hong Kong democrats is enough to achieve universal suffrage. He now believes Hong Kong's best hope is the emergence of a democratic movement in China.

The second broad error made by optimists was to imagine that Western governments and organisations could explain to Chinese leaders where China's self-interest lay. The modern history of foreign interactions with China is littered with such sometimes condescending attempts. An ambassador to Beijing, 20 years ago, was fond of describing one of the West's roles as helping China to correct its worst blunders. Our job is "to build ladders for China to climb down," he would sigh.

More subtle attempts to influence China aimed to harness forces pushing for change within the system. Working with reformist officials, Western governments promoted the idea that China could benefit from the rule of law, even if it were not ready to adopt universal values. They organised seminars and gave scholarships to judges and lawyers to study abroad on the argument that, if prosecutors, police officers and courts were to grant citizens the rights which in theory they already enjoyed under China's laws and constitution, that would be a big advance. But with some reformist lawyers jailed and many more silenced, and with Mr Xi opposed to any separation of powers that might put laws above the Communist Party, a foreign expert says: "The window has closed, the chance of using the rule of law to advance human rights has vanished."

Attempts to explain to China why it should join the West in a rules-based global order reached a high point in 2005. In an influential speech Robert Zoellick, then America's deputy Secretary of State, urged China to become a "responsible stakeholder" in the international system that was helping it become stronger and more prosperous. The world, he said, was watching China's rise and was wondering how it would use the influence that came with it. That very gentle, veiled threat came along with an assessment of China's fragility. Pointing to strikes, rural anti-corruption protests and rising crime, Mr Zoellick advised: "Closed politics cannot be a permanent feature of Chinese society. It is simply not sustainable—as economic growth continues, better-off Chinese will want a greater say in their future, and pressure builds for political reform." Seeking signs of hope, he pointed to village and grassroots elections and suggested that "they might be expanded—perhaps to counties and provinces—as a next step." That turned out to be a mirage—but only after American presidents had praised such elections time and again in speeches to Chinese audiences.

Western leaders also spent years praising China for embracing global goods, with varying degrees of justification. Europeans spoke admiringly of the leadership it showed in climate diplomacy and renewable energy. Its rulers were hailed for hosting six-party talks aimed at curbing North Korea's nuclear programme. The mood has soured now. China has signed up to unprecedented sanctions on North Korea, curbing its coal trade with that murderous regime. But Chinese leaders continue to water down and resist still-harsher sanctions, as they fear the collapse of the Kim regime more than its nukes.

The strong and the weak

Some past optimism was a form of cockiness. Asked about some warships China had bought from Russia in 2000, an American in Beijing described them as “an interesting morning’s work for the Seventh Fleet.” Not now. Pentagon types question the military utility of China’s outposts in the South China Sea. But the new bases, built atop reefs bulked up with dredged rock and sand, have real diplomatic nuisance value. Ian Storey of the Institute of Southeast Asian Studies in Singapore notes that China is urging neighbouring governments to agree on a Code of Conduct for the South China Sea that would ban military exercises within the 200-nautical-mile (370km) Exclusive Economic Zone of any coastal state without that state’s permission. That would greatly complicate America’s life in the Pacific.

Far from China converging with international laws, Western officials see the country seeking to be subject only to weak and vague rules over which it maintains strong powers of interpretation. Though not challenging bodies like the WTO or UN directly, China is increasingly keen on alternative forums. Nobody is quite sure what China means when it calls for schemes funded under the Belt and Road Initiative to be subject to special dispute settlement courts in China, but it makes American and European officials anxious.

Weighing the challenge of a rising China dispassionately is made harder by a simultaneous, and not coincidental, crisis of confidence in the West. One happy story that no longer provides much cheer is the idea that open societies will always outpace lumbering autocracies. In 2013 America’s vice-president, Joe Biden, dropped in on the visa queue at the American embassy in Beijing and startled the Chinese students there with his observation that though American school pupils might not be at the top of global league tables, their defiance of orthodoxy gave them an edge. “Innovation can only occur where you can breathe free,” he told them. In a speech in 2014 Mr Biden conceded that China is graduating lots of scientists, but challenged his audience to name “one innovative product that has come out of China.”

Today the West is in a funk. It is a time for serious thinking about how to balance China more effectively, with a united front and without losing sight of the strengths of democratic, accountable government, a free press and independent courts. Instead the West feels tired, timid and tetchy. From Washington to the capitals of Europe, the air is filled with calls for “reciprocity” in dealings with China. Such calls cover everything from more aggressive screening of investments to proposals to deny Chinese academics visas if Western counterparts are denied access to China. More transparency is a necessity when Chinese money is on offer. But few will win from tit-for-tat reprisals.

Western politicians have spent years rationalising their retreats in the face of Chinese pressure. The West has lost hope that it can make China embrace universal values. That would be a poor reason for the West to betray those values in response.

This article appeared in the Briefing section of the print edition under the headline “Not the partner you were looking for”

United States

Portfolio theory

School choice does not work as well as its advocates hope

Treating schools as an investor treats a portfolio might work better

WILLIAM HITE, Philadelphia's school superintendent, has a difficult job. His school district, which contains some of the poorest pupils in the nation, has been under state control since 2001, an arrangement that will end this year. Proficiency in reading and maths lags about 30 percentage points behind the rest of the state. To boost results the district has turned to proliferating charter schools, which receive public funds but have independent management and now educate one in three children in the district. Twenty-one low-performing public schools, christened "Renaissance schools", have been turned over to charter operators. At a school-board meeting on February 15th vocal charter supporters, mostly black parents frustrated with poor local schools, confronted angry, mostly white, teachers.

"I can't and I won't let my sons down," testified Rasheeda Fossey, whose children are in the school system. After a lawyer for charter schools finished speaking, teachers booed and hissed "Bullshit". Mr Hite, trapped in the middle of the squabble, says his role is "to ensure high-quality schools" and "not ask what kind of school it is". Charters are chafing under the district's supervision, which they see as biased, while the teachers' union operates in a state of war. The expansion of charter schools represents "a concerted effort to dismantle public education as we know it", says Jerry Jordan, the president of the Philadelphia Federation of Teachers.

Philadelphia's case may be unusually contentious, but it reflects a nationwide trend as school-choice initiatives, like charters and vouchers offering public subsidies for private education, continue their growth without much help from Washington. That is despite the appointment of Betsy DeVos, a longtime funder of school-choice efforts, as secretary of education. The federal government pays for less than 10% of public-school funds. Control is devolved to states and school districts, leaving the education secretary rather weak in setting policy. At a recent breakfast put on by school-choice advocates on Capitol Hill for Republican congressional staffers, Ms DeVos was not mentioned once. She may have had more influence as a deep-pocketed donor, who helped the rapid expansion in charter schools in Michigan, than as education secretary.

States, especially those governed by Republicans, are expanding schemes such as vouchers and education savings accounts, where the state transfers cash directly to parents. Spending on such programmes, which now include 470,000 children, has tripled as a share of education expenses in the past ten years, according to EdChoice, an advocacy group. Charter schools now educate 3.1m pupils, a sevenfold increase since 2000. In New Orleans, which rebuilt its woeful education system after Hurricane Katrina, 93% of pupils are now educated in charters, where they have made considerable improvement.

Other urban school districts are not as far along as New Orleans, but many are emulating it. Cities like Philadelphia, Indianapolis and Washington, where 46% of pupils are enrolled in charters, are examples of a growing "portfolio model" movement. Under this approach, school districts treat their charter and traditional public-school offerings much as stock-pickers do their financial portfolios, by strenuously monitoring performance and quickly ridding themselves of low-performing assets. Rather than creating unfettered markets, where the ready availability of public cash can attract unscrupulous providers, technocrats wield a heavy cudgel—the threat of closure—to force accountability.

The financial analogy of "portfolio model", and its association with Michael Bloomberg when he was mayor of New York City, has made the term pejorative among those who talk of education being privatised. But the portfolio model is actually less like a pure market in education, because it takes choices away from parents, many of whom are attached to their local school, no matter how mediocre. Paul Hill, the intellectual progenitor of the portfolio model, reckons that 40 school districts, most of them large and urban, have now adopted this method.

Even with their impressive growth, charters educate only 7% of American pupils. The grand experiment can be justified on two grounds. The first is moral—there is inherent good in being able to pick schools. "Parents' right to choice is really the civil-rights issue of the 21st century," says John Schilling, president of the American Federation for Children, which Ms DeVos once chaired and helped found. "Low-income parents should also have the ability to send their kids where they want," he adds.

The second justification for choice is pragmatic—to spur competition and innovation which would "drag education out of the 19th century", as Milton Friedman put it. For this crowd, outcomes are important. But, like the traditional public schools they seek to replace, charter schools tend to produce uneven results. The best nationwide study, by researchers at Stanford

University, suggests they have little overall effect on learning.

Detroit's charters, which Ms DeVos pushed mightily, are widely seen as a mess. Students in Philadelphia's charters do better in reading exams, but not in maths. The evidence on school vouchers is similarly uninspiring, with little gain in test scores and only marginal increases in graduation rates. Pupils who took part in Indiana and Louisiana's voucher schemes posted significantly worse results than those who remained in the public-school system. Treating schools like a portfolio, where bad ones are quickly pushed out of business, might work a bit better.

This article appeared in the United States section of the print edition under the headline "Portfolio theory"

V strange

What is going on at the VA?

A window onto the Trump administration’s special brand of chaos

Every day is Halloween for David Shulkin

DAVID SHULKIN, the secretary of veterans' affairs, did a dim-witted thing when he took a leisurely trip to Europe in July 2017 at taxpayers' expense.

The government paid his wife's travel costs while the pair toured Westminster Abbey, cruised down the Thames, improperly accepted tickets to Wimbledon and went shopping in Denmark. For this, Mr Shulkin has been appropriately excoriated by his department's inspector-general in a report that was released on February 14th.

In most administrations, such daft behaviour would be a sacking offence. In the Trump administration, where five cabinet members have faced investigations over travel expenses, it seems rather pedestrian. Only one, Tom Price, the health secretary, has had to resign. Yet in Mr Shulkin's case, the flap has pushed another scandal to the fore. Some top Veterans' Affairs (VA) officials, installed by the White House, appear to have divided loyalties and are, in Mr Shulkin's view, scheming to subvert him. Many of them have ties to Concerned Veterans for America (CVA), an outfit bankrolled by the conservative Koch brothers, who want more ex-servicemen to receive health care through private markets.

For many Americans, the phrase "veterans' health care" conjures images of scandal and ineptitude. Much of this is because of a crisis in 2014, when it was discovered that hospital officials had falsified records to avoid reporting delays in appointments. Heads rolled when it appeared that 40 ex-servicemen had died while waiting for appointments. Less coverage was given to later investigations, which have been largely unable to blame the deaths on the extended waiting times.

Most Americans would be shocked to learn that the VA health system actually seems to provide higher-quality care than its competitors. A review by the RAND Corporation showed that the VA outperformed non-VA care on 45 of 47 outpatient quality measures. More than 80% of new primary care patients are able to get an appointment within two weeks. Annual surveys show satisfaction levels with treatment close to 80%. In-patient care was more mixed, however, and performance tends to vary greatly between hospitals. Clearly the system needs fixing, but fundamentally broken it does not appear to be.

Few of the prominent organisations that help veterans think the VA health system requires a radical restructuring. For this reason, they do not much like the CVA, which spends a fair amount of money highlighting the health system's inadequacies. The motives of the Koch brothers, the CVA's backers, are more likely to be ideological than financial. The industrialists, whose business interests are concentrated in energy rather than health care, have a long-standing antipathy towards socialised medicine, of which the VA health system is the prime example in America. Like Britain's National Health Service, the government programme is a single purchaser which owns its own facilities and employs its own doctors.

In the aftermath of the scandal in 2014, Congress passed a law to pay for more veterans to purchase care outside the VA system. The VA has long paid for such services, usually for those who live far away from specialists or who are unable to obtain an appointment fast enough. But the cost of purchased care has surged 500% from 2002 to 2014, and a lack of data makes quality assessment impossible. Unsurprisingly, a review in 2016 shows significant cost mark-ups. The cost of diabetes treatment nearly tripled, the cost of prostate-cancer treatment almost doubled.

The CVA, which is careful to avoid the word privatisation, would like to push the VA further in this direction regardless. "That's fantastically expensive, it's probably bad medicine, and it would lead to all kinds of fragmentation in care," says Phillip Longman, policy director at the Open Markets Institute, who has written a book on the VA health system. "It also leads, in effect, to the privatisation of the system, because you won't have the volumes to stand up hospitals."

Within the department, paranoia has taken hold. Mr Shulkin told reporters that he had been given him the authority to purge "subversive" staff. A leaked memo obtained by ProPublica, a non-profit, and written by Jake Leinenkugel, a former beer executive and senior adviser on veterans' affairs installed by the White House, plotted firing senior officials like the deputy secretary, the secretary's chief of staff and, eventually, the secretary himself. Communications staff disregard orders from the boss. One lobbied to have him fired.

The press secretary removed one of Mr Shulkin's statements from the VA website, and appeared to overrule him on the rewording of an agency motto.

Another senior adviser, Darin Selnick, who previously served as head of policy for CVA, was installed as senior adviser to the secretary, where he quickly began unilaterally crafting policy that pushed for more privatisation of the agency's health services. In his former life, Mr Selnick drafted a plan to dismantle the government-run veterans' hospitals and turn over care entirely to private markets. Since being ejected from the VA, reportedly at Mr Shulkin's insistence, he has taken up residence on the White House Domestic Policy Council, where his freewheeling policymaking continues.

This article appeared in the United States section of the print edition under the headline "V strange"

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Labour’s lost

The future of public-sector unions hinges on the vote of Neil Gorsuch

All the other justices in “Janus” have already tipped their hands

JUSTICES of the Supreme Court rarely announce what they are going to do before ruling. But Justice Antonin Scalia's death two years ago has made open books of eight justices in *Janus v American Federation of State, County* *and Municipal Employees* (AFSCME), a case that could kneecap America's labour movement. When Mr Scalia died, he and his colleagues were poised to decide whether unions could charge public workers "agency fees" even if they did not become members. The remaining justices deadlocked 4-4, leaving in place a lower-court decision that upheld the fees under *Abood v Detroit Board of Education*, a precedent dating from 1977.

Now Neil Gorsuch, Mr Scalia's replacement, holds the key vote in *Janus*. But with a spotlight on his chair during the oral argument on February 26th, Justice Gorsuch had an apparent bout of stage fright. While his colleagues sparred over forced subsidies, free speech and the merits of *Abood*—which holds that mandatory fees preserve "labour peace" and prevent cheapskates from free-riding on their dues-paying colleagues—Justice Gorsuch sat mum.

"I'm not a bank," says Mark Janus (pictured above), the Illinois social worker who brought the case. When the local AFSCME chapter draws $24 from his paycheck twice a month to help pay for collective bargaining, it advocates policies Mr Janus says he opposes. It is wrong to push for pay rises, Mr Janus says, when his state is in a "terrible financial condition" with "billions in unpaid bills". According to *Abood*, it is fine to charge non-members to support collective bargaining but not to fund a union's strictly political actions, such as campaigning. But William Messenger, Mr Janus's lawyer, rejected that distinction. A "compulsory fee for speech to influence governmental policies" chafes against the First Amendment, too. Workers should not be obliged to support any part of a union's mission. For Pat Hughes, president of the Liberty Justice Centre, which is supporting Mr Janus, forced fees are "un-American".

The four liberal justices pushed back against Mr Janus's call to overturn *Abood* by noting other contexts in which people finance groups or ideas they oppose without harm to their freedom of speech. University students are compelled to pay a student-activities fee, Justice Ruth Bader Ginsburg observed, though they may object on principle to campus groups receiving money. The same goes for lawyers forced to pay dues to bar associations advocating positions they reject. When Mr Messenger cited good reasons for those duties, Justice Sonia Sotomayor was incredulous: "The government purpose here is labour relations and labour peace." Why isn't that "a compelling state interest"?

Abandoning *Abood* after four decades would be a radical move for a handful of judges to foist on America, Justice Elena Kagan added. "I don't think that we have ever overruled a case", she said, "where reliance interests are remotely as strong as they are here." Laws in 23 states would be upended "at once" and labour contracts would be invalidated for "maybe up to over 10m workers". Worried about fitting a "modern framework on older cases", Justice Stephen Breyer asked whether long-settled rulings like *Abood* should be dug up and analysed anew. What, he mused, about *Marbury v Madison*, the decision of 1803 justifying the court's power to review the constitutionality of legislation?

With his eye on Justice Gorsuch, Justice Breyer floated what he called a "compromise". It is possible to vindicate the rights of workers like Mr Janus without undermining the state-mandated status of public-sector unions in half of America, and the solution bears the imprimatur of solid conservative thinkers. A brief co-authored by Charles Fried, a solicitor-general under Ronald Reagan, argues that it is "manifestly incorrect" that all union speech is political. Such a view threatens to "constitutionalise every workplace dispute". Still, *Abood* has grown too loose, Mr Fried writes: non-member employees should be charged only for collective bargaining, not for "lobbying, advertising and other speech outside of a state's system for managing its workforce". He points to an opinion from 1991 by one Justice Scalia as the model for retaining, but sharply limiting, agency fees.

Whether the junior justice, nearing his first anniversary on the court, likes this middle path will be revealed when a decision comes by the end of June. But it is clear that the jurist who usually occupies the swing seat, Anthony Kennedy, is a vote against the unions. When the lawyer for Illinois said states were keen to have a "stable, responsible, independent counter-party" on the other side of the bargaining table, Justice Kennedy erupted. Are unions the state's "partner" in demanding higher wages, tax increases and "massive government"? For Yvonne Walker, president of California's largest public-sector union, this was the "one-sided" rant of a man "playing Jeopardy". He seems to "already have the answer", she said, he's just "phrased it in the form of a question”.

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Soldiering on

Should the army subsidise high-school soldiering?

An unresolved question is being asked again after the Parkland shooting

IN 2016 the Junior Reserve Officers' Training Corps (JROTC), a Pentagon-funded programme that provides military-style training to high-school pupils, notched up its centenary. The occasion was marked with balls, dinners and fun runs. Today the mood among JROTC units is less celebratory. On February 14th a former JROTC cadet opened fire at a high school in Parkland, Florida, killing 14 students and three teachers. When the shooter, 19-year-old Nikolas Cruz, was arrested by authorities, he was wearing a polo shirt emblazoned with the JROTC crest. As if this were not enough, days after the shooting it emerged that in 2016 Mr Cruz's unit had received $10,827 from the National Rifle Association.

This is not the first time the JROTC has faced public scrutiny. Parents and advocacy groups have criticised the programme, which offers courses in military history and marksmanship, for steering pupils towards the armed services rather than higher education. Such recruitment efforts, they say, target pupils in poor minority neighbourhoods. The JROTC programme is also costly. The Department of Defence spends $370m a year supplying about 3,500 public high schools with textbooks, uniforms and equipment, but local school districts pay half of instructors' salaries. Some parents say the money would be better spent on something other than marching and shooting.

Military top brass chafe at the suggestion that the JROTC is chiefly a recruitment scheme. But for many years the programme's funding fell under the recruitment-and-training section of the Pentagon's budget. And in 2000 William Cohen, then defence secretary, told congressmen that the JROTC was "one of our best recruiting tools".

The claim that JROTC programmes are aimed at poor minority schools also has some truth to it. A recent paper by the RAND Corporation, a think-tank, finds that among schools with JROTC programmes, 57% of pupils are eligible for free or reduced-cost lunches and 29% are black. At schools without JROTC, these figures are 47% and 12% respectively.

Economist.com

Supporters argue, however, that these are precisely the students that benefit most from JROTC. In 1992, at the behest of General Colin Powell, President George H.W. Bush doubled the size of the JROTC, expanding the programme into America's inner cities. A military-style education, it was argued, would provide disadvantaged pupils with structure and discipline. Since the JROTC's expansion, several studies have found that the programme is associated with stronger academic results, including better attendance and higher graduation rates. Many pupils say the programme has changed their lives.

Whether the JROTC also leads to greater gun use is less clear. Many JROTC cadets take marksmanship courses and compete on rifle teams (most use air rifles, which fire pellets, rather than actual firearms, which use gunpowder). There are more than 2,000 high-school rifle teams registered with America's Civilian Marksmanship Programme, a gun-safety advocacy group. In the aftermath of the Columbine High School shooting in 1999, in which 12 students and a teacher were killed, Chicago's public schools ended JROTC rifle training because it clashed with the city's "zero tolerance" gun policy. That was not the case for Smithfield-Selma High School in Smithfield, North Carolina. In 2016, the school made headlines for converting an unused greenhouse into a 1,200-square-foot on-campus shooting range. It cost $10,400.

This article appeared in the United States section of the print edition under the headline "Soldiering on"

Spooks for hire

America’s intelligence agencies find creative ways to compete for talent

Novel ways to attract and retain programmers, cyber-security analysts and data scientists

And the truth shall make you free

AMERICA’S intelligence agencies are struggling to attract and retain talent. Leon Panetta, a former Pentagon and CIA boss, says this is “a developing crisis”. Barbs from President Donald Trump have chipped away at the prestige of work that some consider already tarnished by leaks and the belief that “enhanced interrogations” is another way of saying torture. The backlog of people waiting for a security clearance approval or renewal has swollen to 700,000 or so, with an average waiting time of well over a year. Many applicants simply give up.

The squeeze is tightest in cyber-security, programming, engineering and data science. Deborah Kircher at the Office of the Director of National Intelligence (ODNI) says entry-level data analysts earn $25,000-50,000 more a year in the private sector. Others report bigger differences. At the Pentagon’s Central Command in Tampa, some data scientists’ salaries have fallen from about $180,000 to roughly $100,000, says one who left for higher pay which, for shorter contracts at least, can reach $350,000 a year. Hiring by Disney and other firms whittled his old team of eight down to one.

Until the agencies solve this problem, he says, they will fall short in their mission or end up paying more for expertise from contractors. By one estimate, contractors provide a third of the intelligence community’s workforce. This can sap morale, as government analysts who quit for a higher contractor salary are often assigned, sometimes just days later, to their former workplace, says Ben Venzke, boss of Intel Center, a Virginian firm that sells reports on extremist activity.

Part of the problem is the demand in the private sector for skills that used to be needed almost exclusively by government agencies, says Robert Cardillo, head of the National Geospatial-Intelligence Agency (NGA). To hire people for geospatial data analysis, he must now compete with firms like Fitbit, a maker of activity-measurement gadgets. One result of this, says Mr Panetta, the former CIA chief, is “a real tug-of-war” inside agencies, between reformers keen to make the government careers more attractive and an old guard that resists innovation in hiring and employment conditions.

The NGA now encourages certain staff to work temporarily for private firms while continuing to draw a government salary. After six months or a year, they return, bringing “invaluable” skills to the NGA, Mr Cardillo says. Firms return the favour by quietly lending the NGA experts in app development and database security. There is also a greater willingness to let intelligence experts moonlight. Not only do staff top up their salaries, they become happier employees, says Chris Burgess, a former CIA station chief. His sideline? Importing household decorations into America.

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Can’t touch this

For how much longer will the Velvet Hammer rule Illinois?

Michael Madigan was first elected when Nixon was president

Michael Madigan, political immortal

TWO well-known Chicago dinosaurs are attracting gawpers right now. One is Sue, the city's beloved 40-foot-long *Tyrannosaurus rex*, who is moving from the Field Museum's main exhibition hall to her private suite on the second floor. The other is Michael Madigan, the Democratic Speaker of the Illinois House, who has represented his district on the south-west side of Chicago for 47 years and been Speaker for 33 years. For the first time in his long career, Mr Madigan is facing calls to resign from members of his own party, because of the way he handled allegations of harassment at his office. Yet this episode has served mainly as a reminder of the extraordinary grip Mr Madigan has on state politics.

Daniel Biss, a state senator, and Christopher Kennedy, a businessman, both Democratic candidates for governor, are leading the charge. Mr Biss called on Mr Madigan to resign immediately as chairman of the Democratic Party of Illinois, another of Mr Madigan's functions. Mr Kennedy said Mr Madigan "chose to protect his machine political allies instead of the women who were abused by them", and "he no longer can lead our party."

Alaina Hampton, a young political consultant, alleges that the Speaker and his entourage tried to sweep her complaints under the carpet when she accused Kevin Quinn, a long-standing Madigan aide, of harassing her for more than five months. Ms Hampton worked for Marty Quinn, Kevin's brother, a powerful alderman and close ally of Mr Madigan with whom he shares office space in his ward. She is also accusing Mr Madigan's people of refusing to hire her for a political campaign in retaliation for her allegations.

Few state representatives or aldermen are openly criticising a man nicknamed the "Velvet Hammer". In 2013 his daughter, who is the state's attorney-general, pulled the plug on a run for governor because her father was not ready to stand down. Mr Madigan is the longest-serving—and possibly most powerful—Speaker of any state assembly. And, at 75, he shows no sign of wishing to retire.

In his decades in Springfield, he has built a machine that is admirably efficient at getting his candidates into state office. He has been elected 17 times as Speaker, seldom with any challenge from another Democrat (Illinois does not have term limits). In his constituency in Chicago he tends to win with over 60% of the vote. When Jason Gonzales, a political consultant, dared to challenge him in the primaries in March 2016 for his House seat, he retaliated with a campaign of television and radio ads brutal even by Illinois standards.

“Madigan is very much of the old school of machine politics,” says Christopher Mooney of the University of Illinois at Chicago. He is a moderate Democrat of Irish-German extraction who mixes a lack of ideology with a reverence for the Catholic church. After losing the Speaker’s job between 1995 and 1997 when Republicans held the majority, he became almost exclusively focused on winning elections. Local lore says that when he cleared out his office for his Republican rival he left behind a vintage first-aid kit, a not-so-subtle hint at bloody battles ahead.

Mr Madigan has built an unrivalled network of campaign aides and volunteers, who are devoted to him. In April 2013 Alex Clifford, the chief executive of Metra, a regional commuter railway company, wrote in a memo that Mr Madigan had asked him to give a pay rise to one political ally who worked at Metra and a job to another. Two months later Mr Clifford was fired, albeit with a whopping severance package of $871,000. Subsequent investigations cleared Mr Madigan of any wrongdoing, but a report by Thomas Homer, then the legislative inspector-general, published in 2014 by the *Chicago Tribune*, contained an account of Metra’s chairwoman entering Mr Madigan’s office for a chat and leaving with a yellow Post-it note bearing the names of two workers the Speaker wanted promoted. In another meeting, a longtime Madigan aide who worked as a lobbyist for Metra was spotted leaving the Speaker’s office with two CVs.

Even during the Metra scandal Mr Madigan was able to keep a low profile. This changed after Bruce Rauner took over as governor the next year. The neophyte Republican pursued the Speaker mercilessly after they fell out over passing the state budget. Mr Rauner took to blaming Mr Madigan for the state’s abysmal finances and every other problem, accused him of having shady ties with trade unions and even called him a crook. He also spent millions trying to tarnish Democrats by linking them to Mr Madigan. “Demonising Madigan is one thing the governor has done successfully,” says Kelly Cassidy, a state representative.

Seeing his opponent weakened thanks to the #MeToo movement suits Mr

Rauner a few weeks before the primaries for governor on March 20th. “Mike Madigan has spent his three-decade reign as Speaker of the House advancing his own political career at the expense of Illinois taxpayers,” says Mr Rauner, but now “his corruption is finally catching up to him.”

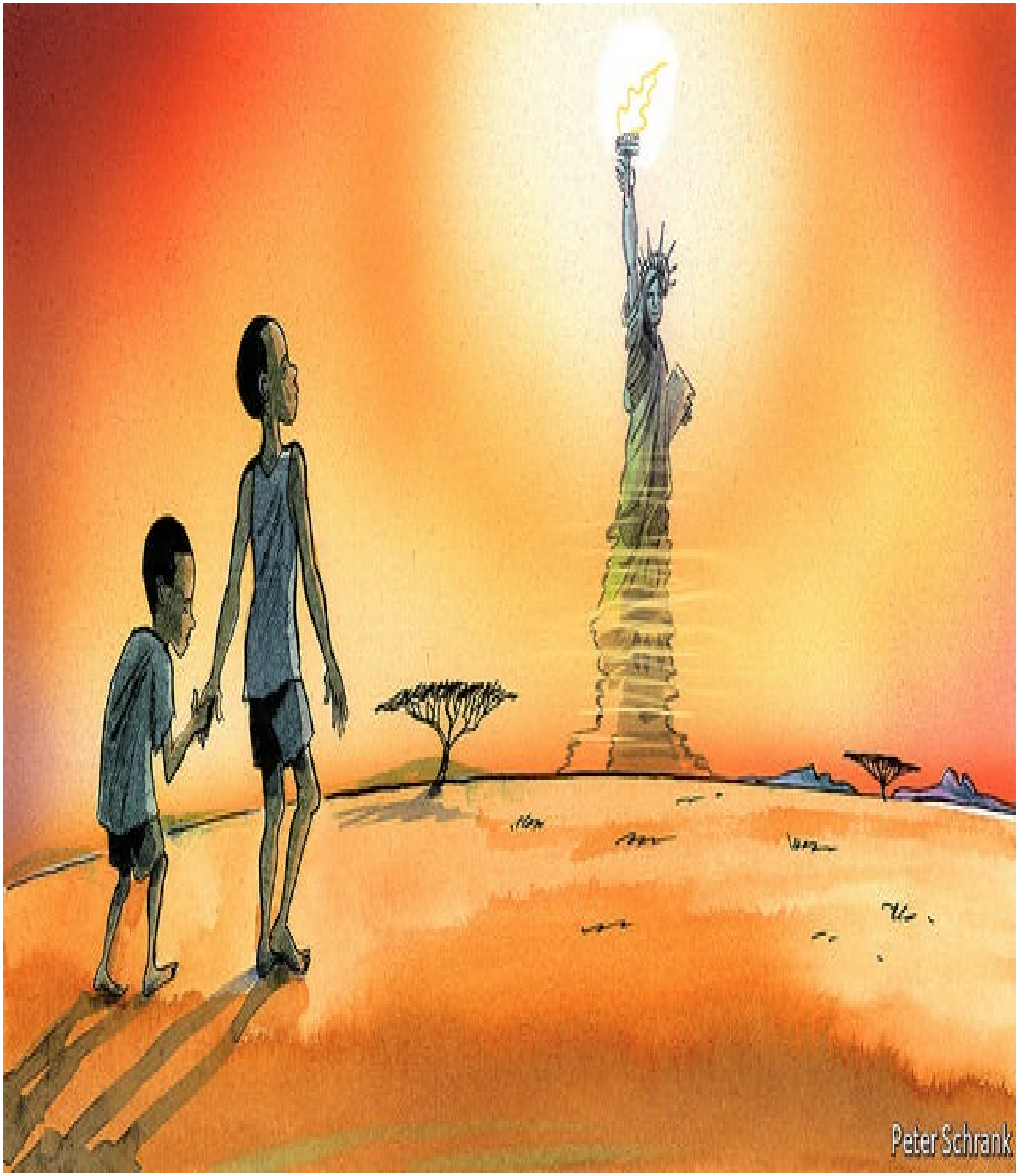
Yet Mr Madigan remains very powerful, and is safer in his job than Mr Rauner. Depending on the outcome of the investigations of harassment on his watch, he might be forced to step down as chairman of the party. But after what is likely to be a resounding victory in the legislative primaries in March (he is running unopposed) as well as the mid-term elections in November, he will almost certainly be re-elected Speaker in January 2019. No serious challenger is in sight. Like Sue the dinosaur, who is moving to a smaller hall, Mr Madigan may just have to get used to a slightly smaller sphere of influence.

This article appeared in the United States section of the print edition under the headline “Can’t touch this”

Lexington

A lesson in American greatness

From an old acquaintance



NOTHING is more American than Emmanuel Makender's discontent. A 35-year-old taxi driver in Grand Rapids, Michigan, Mr Makender has a comfortable four-bedroom house and two cars outside it. He earns $40,000 a year, the average family income in Grand Rapids, which means his pregnant wife need not work. Yet when congratulated on his achievements, he says he hopes “to be successful one day”. Dissatisfaction, hunger and striving are intertwined. “Still living the American dream, we struggle on!” he says, at the end of a two-hour catch-up.

Lexington had met Mr Makender 18 years before, in different circumstances. He was then a destitute war orphan living in a fly-blown refugee camp in northern Kenya. A fugitive from the war in Sudan, which had claimed an estimated 2m lives, including most of Mr Makender’s immediate family, he had fled his village six years earlier, after soldiers attacked it one night. They killed his father, three of his siblings and, he thought, his mother, leaving him, aged around 12, terrified and alone in the dark.

He joined a straggling column of fugitive children, mostly boys, who trekked hundreds of miles east to Ethiopia to escape the war and rebel press gangs. But another war broke out there, so they trekked back across Sudan to Kenya. The arduousness of the journey, which Mr Makender survived by eating wild plants (“Some were so bitter,” he says) and many did not, made them a celebrated disaster story. They were known as the Lost Boys, and, on November 4th 2000, the day your columnist visited Kakuma refugee camp, America offered them sanctuary. Over the next year 3,800 Sudanese children and teenagers were resettled in 18 states. It was one of America’s biggest resettlement projects.

It also illustrates two of the Refugee Admissions Programme’s traditional strengths. Since it was launched in 1980 it has had an average quota of 95,000 refugees a year, more than that of any other rich country. America has also tended to take the most forlorn cases. Some were victims of its foreign-policy blunders, including hundreds of thousands of Vietnamese refugees. Yet this tendency also reflected the values and self-confidence of a country founded by fugitives, which, over the ensuing four centuries, has been relentlessly successful at turning them into productive citizens. Those traditional strengths no longer apply, however. Because refugee policy is one of the few bits of the immigration system President Donald Trump controls, he has ravaged it.

This year's refugee quota, 45,000, is the lowest in three decades, and is not expected to be met. Mr Trump also excluded a lot of wretched people from it, by temporarily placing additional restrictions on anyone from a secret list of 11 countries, which is said to include South Sudan, as well as Syria and Iraq. A low-cost nativist signal to his supporters, these are the biggest changes Mr Trump has made to America's immigration regime. They are also counter-productive, as well as cruel, a typical case of nativists mistaking American strengths for weakness.

The argument against refugees, which Republican governors in Texas and Michigan were making even before Mr Trump's election, is that they are a financial burden and security threat. Both charges are unfounded. For though it is true that refugees represent a bigger upfront cost than other migrants—America spends between $10,000 and $20,000 resettling each one—they repay that in spades. A decade after their arrival, the average income of a refugee family is close to the American average. Mr Makender has paid over $100,000 in taxes. Americans can also relax about their odds of being killed by a refugee. None of the 3m-odd fugitives America has taken since 1980 has been involved in a fatal terrorist attack. That reflects the rigour of America's vetting, refugees' hunger for advancement—and America's ability to feed it.

Not all the Lost Boys have thrived; some hit the bottle and ended up in jail (as might anyone orphaned, shot at and chased by crocodiles). Yet a few have done extremely well: one is a diplomat, another a chess master. Mr Makender, whom Lexington traced through a Lutheran charity that fixed his resettlement, is more representative. A few days after he learned "about something called snow", he was ensconced in Michigan with a family of white evangelicals ("my American parents", he calls them) and attending high school. He meanwhile worked evenings in a grocery, a part-time job he has maintained, even as he has found better-paid work, because "the people there are nice to me".

He has also worked in a factory, making granola bars, and completed two years of a three-year nursing degree. He did not finish it because he had such little luck finding an internship he began to suspect that America, though short of nurses, was not ready to hire an African man as one. "When you keep getting called back for job interviews and not getting the job, you suspect there is something else going on," he shrugs. But he kept on working, ten hours a day, often seven days a week.

Working out

After a trip to South Sudan, where he was joyfully reunited with his mother, he started sending most of his wages to her and to pay for the education of three nephews, in Kenya and Uganda. That illustrates another virtuous potential of refugees. They tend to be generous to those they leave behind and better at targeting their assistance than aid agencies. That is good for their new country as well as their old one, because thereby they create networks for future commerce and exercising of soft power. The businesses Somali-Americans have started in Mogadishu may head off more anti-American rage than any counter-terrorism measure.

There is, of course, another argument for barring refugees. Some Americans simply don't want more foreigners in their midst, and it is their right to hold that view. Yet the politicians who dignify it with specious arguments are making fools of themselves and harming America. Refugees make the country stronger, as well as better. They always have.

This article appeared in the United States section of the print edition under the headline "Lost Boy found"

The Americas

- **Canada’s economy: Don’t drill, plant** [Fri, 02 Mar 06:00]
- **Language in Brazil: Gialdo alert** [Fri, 02 Mar 06:00]
- **Bello: Venezuela and Latin American values** [Fri, 02 Mar 06:00]

Don’t drill, plant

What’s next for Canada’s economy

Old sources of growth are running dry. The government is looking for new ones

“EVERYBODY thinks this is a 50-pound sack of seeds,” says Steven Fabijanski as he hefts a large white bag onto a table. “Actually, it’s 8,000 litres of jet fuel.” That is what Agrisoma Biosciences, the company Mr

Fabijanski runs in Quebec, plans to make from the bagful of carinata, or Ethiopian mustard seed. In January a Boeing 787 Dreamliner operated by Qantas flew from Los Angeles to Melbourne on a mixture of jet fuel and juice extracted from Agrisoma's mustard seeds. Eventually, a third of biofuel for aviation will come from seeds bred by the company, Mr Fabijanski predicts. His slogan is: "don't drill, plant."

Biofuel looks like an industry of the future in a country that depends on those of the past. Oil and vehicles, Canada's two biggest exports, are both declining, and may continue to do so. Oil from Alberta's tar sands is expensive to produce. The United States, by far its biggest foreign customer, is fracking more and importing less. Carmaking has never fully recovered from a recession in the United States in 2008. Production has dropped from a peak of 3m vehicles in 1999 to 2.2m last year.

With Donald Trump in the White House, Canadians worry that things will get worse. No one knows what will come out of the renegotiation demanded by Mr Trump of the North American Free-Trade Agreement (NAFTA) with the United States and Mexico, under which the trade in vehicles takes place. Businessmen also worry about the new American tax law, which slashes the tax on corporate profits from 35% to 21%, below the average Canadian rate of 26.7%. Jack Mintz, an economist, has called it a "tax tsunami" for Canada. That and the threat to NAFTA are encouraging American businesses to keep their money at home rather than investing in Canada, says the central bank.

This comes on top of other discouragements to growth. The workforce is shrinking as ageing baby-boomers retire. Economists worry that consumers, who have built up record levels of debt, will spend less as interest rates rise. Dominic Barton, the managing partner of McKinsey, a consultancy, has warned that, without changes, GDP will grow by an average of 1.5% over the next 50 years, half the rate of the previous 50. The economy grew 3% last year. But the government forecasts a slowdown to 2.2% this year and to 1.6% in 2019.

These gloomy expectations were in the air when Bill Morneau, the finance minister, presented the government's budget in parliament on February 27th.

Business-people were hoping he would give the economy a quick boost, perhaps by reducing taxes to match Mr Trump's corporate cut or with a dose of deregulation. Mr Morneau disappointed them. The budget continues the government's methodical approach to fixing the economy's problems. Mr Morneau and the prime minister, Justin Trudeau, prefer to plant patiently rather than to drill aggressively.

That was evident in the "equality and growth" budget's big idea: putting more women to work. Just over 61% of working-age women have a job or are looking for one, compared with around 70% of men. Women working full time earn 88% of what men do on average. That is not bad by the standards of other rich countries. But Mr Morneau reckons that much could be gained by doing better. If female participation in the labour force rose to that of men, an unlikely scenario, the economy would be 4% larger, according to RBC, a bank.

A woman's place is in the office

Mr Morneau quoted that prediction to justify a range of female-friendly policies. He will raise the child benefit, which parents can spend on day care, and improve incentives for new fathers to take time off work. There will be extra money for female entrepreneurs and to fight sexual harassment. The federal government will close its own pay gap, Mr Morneau promised.

Female-friendliness is fashionable, but it also fits with the strategy of removing economic roadblocks advocated by Mr Barton, a Canadian who leads a panel that advises the government on how to promote growth. Encouraging women to work is a politically palatable alternative to raising immigration. Polls suggest that Canadians do not want to increase the target from its current 310,000 a year. The government plans to spend C$180bn ($140bn) on infrastructure over 12 years. It has not yet followed economists' advice to improve competitiveness by lifting restrictions on foreign ownership of airlines and telecoms firms.

More appealing to the Liberal government is the idea of trading more with countries besides the United States. The value of foreign trade is equivalent to 64% of Canada's GDP. The United States buys three-quarters of its exports. Apart from threatening NAFTA, the Trump administration has slapped tariffs on Canadian softwood and newsprint, and may impose them on steel and aluminium. Canada needs friendlier partners.

It is making progress. An economic and trade deal with the European Union, negotiated by the previous government, took effect last September. Canada is due to sign a deal with ten Pacific countries, including Japan and Vietnam, on March 8th. But its quest for further agreements has faltered. Mr Trudeau failed to launch trade talks with China on a visit there in December. His trip last month to India, with which Canada has been conducting fruitless talks since 2010, was a disappointment. Mr Morneau did not mention India when he listed “new markets” Canada hopes to enter.

Canada is unlikely to make much impression on those markets with the same old industries. That is where companies like Agrisoma come in. It exemplifies the idea, promoted by Mr Barton among others, that tomorrow’s winners will come from adding technology to yesterday’s successes, especially agriculture. The Saskatchewan Food Industry Development Centre, a non-profit lab in Saskatoon, is working with growers of pulses, wheat and soya beans to produce meat substitutes. It has produced passable chicken fingers, says Shannon Hood-Niefer, its chief scientist. James Cameron, a Hollywood director, has invested in a plant in Vanscoy, Saskatchewan, to make new foods from peas. “Shame on us if we don’t develop agri-food as a focal point of growth,” says Philip Cross, an economist at the Macdonald-Laurier Institute in Ottawa.

In January, BlackBerry, a Canadian technology company, announced a partnership with Baidu, a big Chinese internet firm, to work on ways to use artificial intelligence in cars. Last month the government said that it would spend nearly C$1bn over five years to help groups of firms and research institutes working on artificial intelligence, food protein, marine vehicles, advanced manufacturing and digital technology. It hopes that these projects will lead to the development of Silicon Valley-like “superclusters”.

Subsidising such things probably has a lower economic pay-off than encouraging women to work and improving infrastructure. Mark Wiseman of BlackRock, an American investment firm, who is a member of Mr Barton’s advisory panel, worries that support targeted at specific industries risks “spreading the proverbial peanut butter too thin”. The government should back proven winners, not potential ones, he says. Others think it should let individual firms and sectors fend for themselves.

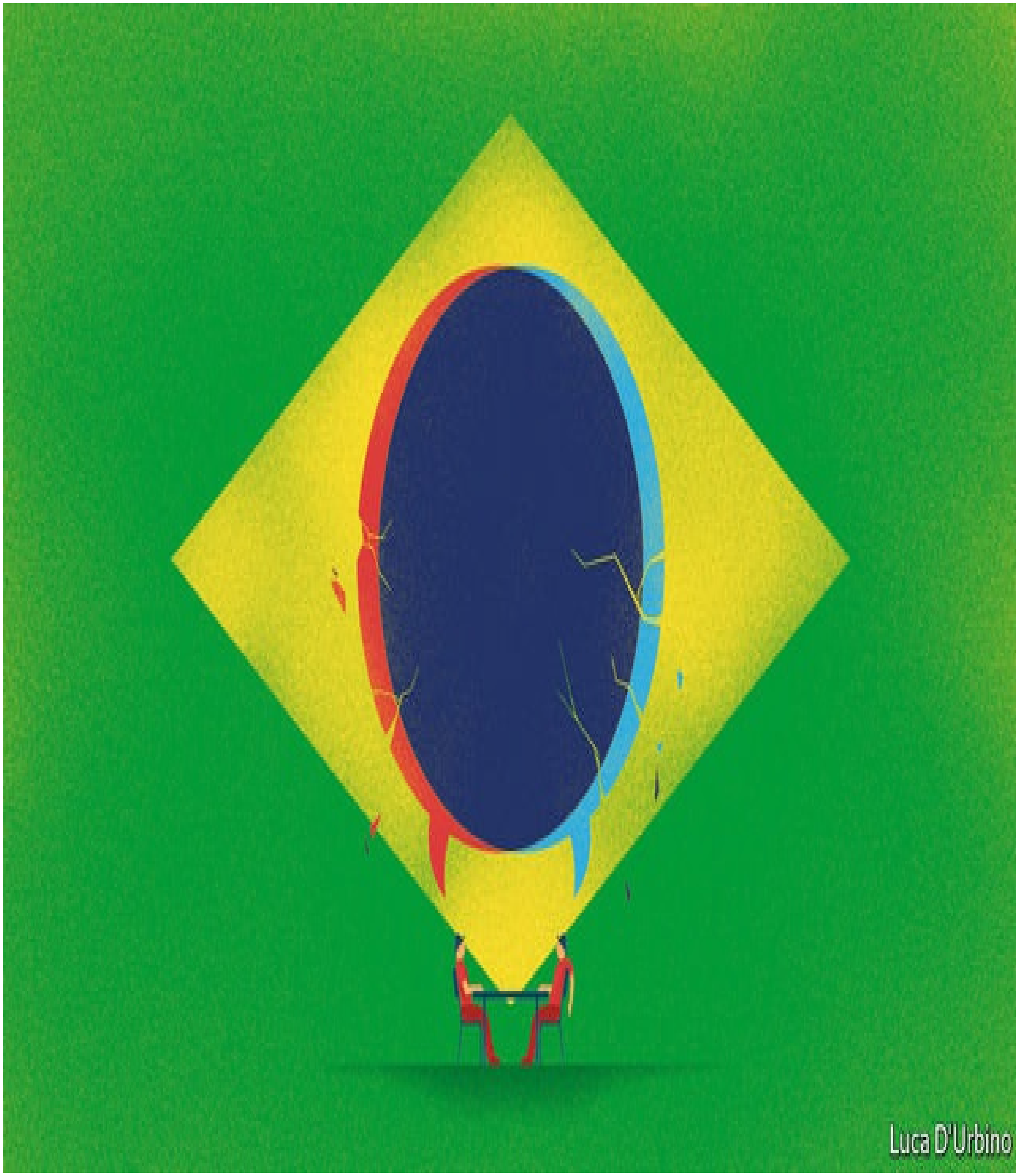
The criticism aimed at Mr Morneau's budget is blunter. He responded to gathering threats from the United States with "deep denial", fumed the Fraser Institute, a free-market think-tank. John Manley of the Business Council called the budget "disappointingly thin". But Mr Morneau, who has abandoned his promise to balance the budget by next fiscal year, cannot afford the tax cuts many of his critics favour. The government's patient planting strategy makes sense, as long as a storm does not ruin the harvest.

This article appeared in the The Americas section of the print edition under the headline "Don't drill, plant"

Gialdo alert

The fight to save European dialects in Brazil

The challenges of urbanisation, globalisation and the primacy of Portuguese



THE two dozen old men playing cards in the parish hall in Serafina Corrêa, a small town in the southern Brazilian state of Rio Grande do Sul, seem unremarkable until you eavesdrop. They banter not in Portuguese but in

Talian, a dialect that mixes words from Venetian and other Italian dialects as well as Portuguese. It is spoken by perhaps 2m descendants of immigrants who came to Brazil 150 years ago. A sign at a zebra crossing in the town asks, “Parché Corer Cossi? Va Pianpian” (“Why are you racing? Slow down”).

Serafina Corrêa calls itself the “capital” of Talian, one of about 30 non-indigenous tongues used in Brazil, especially in the south. They include Polish, Russian and Dutch, but also rare dialects such as Trentino, another import from northern Italy, and Riograndenser Hunsrückisch and East Pomeranian, both forms of German. Their speakers fret that the advance of Portuguese will drive them to extinction. Marli Zanella, who works in a boutique in Serafina Corrêa, complains that when she addresses her 23-year-old daughter in Talian, “she only replies in Portuguese.”

The dialects have survived other threats. Getúlio Vargas, Brazil’s president when it entered the second world war on the allies’ side, banned all foreign languages, the most common of which were German and Italian. “Many people went to jail,” says Paulo Massolini, a doctor who heads the Federation of Italian-Brazilian Associations of Rio Grande do Sul. These days, Talian speakers are pilloried rather than prosecuted. Some have trouble pronouncing nasal diphthongal sounds in Portuguese words such as *pão* (bread).

Although Talian and the other dialects are hybrids, their defenders fear that the Portuguese influence is becoming dominant. In the 1950s a fatigued Talian speaker would have called himself *stanco*; today, he is likely to say he is *cansado*—tired in Portuguese—says Dr Massolini. In Hunsrückisch, *schuhloja*—shoe shop—is reassuringly a hybrid of the German for shoe with the Portuguese for shop. But an aeroplane is simply an *aviong*, from the Portuguese *avião* rather than the German *Flugzeug*.

Talian has an energetic lobbying campaign behind it, which may improve its chances of survival. Known formerly as “Venetian-Brazilian”, Dr Massolini and other campaigners coined the new name in 1995. It comes from Venetians’ habit of dropping the first and last vowel sounds of some words. Talian champions published a grammar. Dictionaries and teach-yourself books followed. In 2009 Serafina Corrêa's municipal council ordered that official documents be printed in Talian as well as Portuguese, and in 2014 Brazil's ministry of culture recognised it as part of the country's cultural heritage. Mr Massolini is pressing UNESCO to recognise it.

Speakers of less favoured dialects are resentful and envious. Talian speakers in Serafina Corrêa "act as if their variant is the correct one", complains Giorgia Miazzo, a linguist who has recorded speakers of Italian dialects across Brazil. (They have 15 different ways of saying "yellow", she found. In Talian, it's *gialdo*.) Cléo Altenhofen, a linguist at the Federal University of Rio Grande do Sul, laments that Hunsrückisch, spoken by some 1.2m descendants of immigrants from Rhineland-Palatinate, lacks Talian's celebrity. "They have dictionaries, and we have a research project," he says wistfully.

He and his colleagues are mapping the regions in which Hunsrückisch is spoken and have amassed 800 hours of audio recordings. "It's the first step in getting it formally recognised," he says. He dreams of opening a museum of linguistic diversity.

But museums and dictionaries are feeble defence against globalisation and urbanisation. The best way of keeping the dialects alive would be to use them as a medium of instruction in public schools. But the national government sets the curriculum, so that is unlikely to happen. Parents are a poor substitute for teachers. "The more you make kids speak a language the more they rebel," says Mr Altenhofen. His 16-year-old daughter is learning Japanese. She wants to study Korean next.

[This article appeared in the The Americas section of the print edition under the headline "Gialdo alert"]

Bello

How Venezuela tests Latin America’s commitment to democracy

Regional solidarity should not trump the defence of pluralism

WHEN Bill Clinton called the first Summit of the Americas in Miami in 1994 he wanted to celebrate the shared commitment of all 34 countries in the hemisphere to democracy and free trade—all, that is, except Cuba, the 35th, which was not invited. At the seventh summit in Panama in 2015, regional solidarity prevailed. At Latin America's insistence, Cuba was invited and Raúl Castro sat down with Barack Obama, setting the seal on their diplomatic détente.

So it was a big diplomatic step when last month Peru's government, the host of the eighth summit, scheduled for April 13th-14th, announced that it was withdrawing Venezuela's invitation and that Nicolás Maduro, its president, would be denied entry. Peru acted for the 14-nation ad hoc "Lima group", which includes most Latin American countries. They rejected Mr Maduro's decision to hold a sham presidential election on April 22nd. Latin America is once again giving priority to the defence of democracy. Can it do so consistently and effectively?

If democracy is to be the criterion for participation (as agreed at the meeting in Quebec in 2001), why not exclude others? Neither Cuba nor Nicaragua should qualify. Nor, arguably, does Honduras. Having ended term limits in dubious fashion, Juan Orlando Hernández, a pro-American conservative, won a second term as president in November in an election that the opposition and outside observers claim was rigged. His party's legislators have given themselves carte blanche to steal public money, eviscerating an anti-corruption mission under the aegis of the Organisation of American States (OAS).

But the electoral fraud in Honduras was not clear-cut. Mr Hernández should be warned but not excluded. Venezuela remains the most dramatic case of democratic regress in Latin America. Its descent into economic chaos, human misery and dictatorship is of unprecedented gravity.

Mr Maduro's regime has stopped publishing many statistics. A survey by three universities published last month found widespread malnutrition; 87% of respondents were poor and 61% were extremely so. That is far above the Latin American averages of 31% and 10% respectively, and should shame all those who hailed Hugo Chávez, Mr Maduro's late mentor, as an anti-capitalist paragon. The survey estimates that 815,000 Venezuelans have emigrated since 2012, most in the past two years. Their arrival in other South

American countries is pushing the region to act.

Having weakened the opposition through the imprisonment or banning of its leaders and the intimidation (including torture) of its activists, Mr Maduro is trying to seal his dictatorship by bringing forward the presidential election due later this year. Since the government refuses the conditions for a free and fair contest, the opposition coalition says that it will boycott the poll next month. In those circumstances, “a lot of Latin American countries will not recognise the result as legitimate,” says Juan Carlos Varela, Panama’s president.

On February 23rd the OAS, which brings together all countries except Cuba, approved a resolution similar to the Lima group’s. But it did so only by a bare majority. Venezuela’s regime still has a few allies (and clients among Caribbean island-states that receive cheap oil). Some may boycott the Lima summit in solidarity.

What chance is there that action by Venezuela’s neighbours can achieve results? “This is the moment for mediation [in Venezuela], but it has to be by everyone, by Latin America, the United States and Europe,” says César Gaviria, a former secretary-general of the OAS. The priority must be a free and fair election. Failing that, the region will have to ramp up the pressure.

Ostracism is a start. That it hurts the regime’s pride was clear in 2016 when the foreign minister tried to gatecrash a meeting of the Mercosur trade group, from which her country has been suspended. Latin American countries should follow the United States and the EU in barring the regime’s leaders from visiting, and in seizing their looted assets. It should also demand that the faction-ridden opposition unite behind a single leadership.

Latin America has plenty of disagreements with Donald Trump, but anti-imperialism should not, as Venezuela argues, override the defence of democracy and human rights. Neither should the tradition of non-intervention, nor an insistence on unattainable regional unanimity. That means the OAS might not be the right diplomatic vehicle. Rather, the Group of Lima should turn itself into an open-ended coalition of the willing to take whatever political action is necessary to return Venezuela to democracy and stave off a humanitarian disaster.

This article appeared in the The Americas section of the print edition under the headline “Venezuela and Latin American values”

Asia

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Mopping up

Pakistan’s army is getting serious about defeating domestic terrorism

Chinese investment will not materialise if workers keep getting killed

A TRIP around Miran Shah with an escort of heavily armed soldiers is a surreal experience. The town is the administrative centre of the northern half of Waziristan, a lawless region once controlled by jihadists that Barack

Obama called “the most dangerous place in the world”. But Pakistan’s army, which fought a 22-month campaign from 2014 to evict militants from North Waziristan, is trying to transform the town from a byword for extremism into a showcase of the stability to which the generals say the country is returning.

The army lost nearly 500 men in the fighting. About 3,400 militants were killed; many more fled across the border to Afghanistan. Signs of the violence are everywhere. But so too are efforts to provide greater prosperity for traumatised civilians (nearly 1m people living in the region were displaced). New roads fan out from the town. Lots of buildings, including shops, clinics and a sports stadium, are going up. A children’s playground has been laid out next to the river that flows through the town, dotted with Disneyfied fake cows.

The army has also painstakingly reconstructed a jihadist complex, complete with a bomb-making factory, escape tunnels, an armoury stuffed with assault rifles and a blood-spattered torture-chamber. The courtyard is shared by a bullet-scarred Humvee stolen from American forces in Afghanistan and two tethered goats.

There are ambitious plans for development elsewhere in North Waziristan. The army wants to build schools and bring water and electricity to neglected villages. It even talks of tourism. But the forts dotted across the barren hills are a reminder that security is more tenuous outside Miran Shah than the briefing given by the army in an underground bunker suggests. Indeed, a rocket attack on an army vehicle just a few miles away on the day of your correspondent’s visit killed two soldiers and injured three more.

The number of civilians killed by jihadists in the Federally Administered Tribal Areas (FATA), which includes North Waziristan, rose from 86 in 2016 to 138 last year, according to the FATA Research Centre, an independent think-tank. North Waziristan has remained fairly quiet, but the neighbouring district, Kurram, accounted for 76% of casualties, suggesting that some of the fighters ejected from North Waziristan are still uncomfortably close by.

Among those now holed up in Kurram is the Haqqani network, an ally of the

Afghan Taliban that America says the Pakistani army is shielding. In his first tweet of 2018, Donald Trump accused Pakistan of “lies and deceit”. He later suspended $2bn in military aid. An American drone strike in North Waziristan last month reportedly killed a Haqqani commander and two of his accomplices. It came just a day after a deadly attack on a hotel in Kabul that Afghan officials claimed was carried out by the Haqqanis.

The army insists it no longer makes any distinction between “good” terrorists, who confine their attacks to Afghanistan or India, and “bad” ones who target Pakistan. As part of a new campaign launched last year, it has stepped up its counter-terrorism efforts across FATA. In 2017 it carried out 164 “intelligence-led operations” targeting jihadists within the country, especially the Pakistani arm of the Taliban, the Tehreek-e-Taliban Pakistan (TTP). But not, it would seem, the Haqqanis.

The army’s pounding of the insurgents has had an effect. According to the South Asia Terrorism Portal, a website that monitors terrorism across the region, civilian deaths from extremist attacks in Pakistan have dropped from over 3,000 in 2013 to 540 last year. The figure is on track to fall again this year, with just 24 deaths so far.

Economist.com

Officials maintain that the majority of terrorist attacks in Pakistan now originate from Afghanistan, where the TTP and other groups have found a haven in the country's "wild east". Since the bulk of NATO forces left Afghanistan in 2014, border provinces such as Paktika, Khost, Nangarhar and Kunar (see map) have become largely ungoverned spaces from which jihadists can operate with relative impunity.

Nasir Khan Janjua, a retired general who is national security adviser to the prime minister, Shahid Khaqan Abbasi, says he has evidence that 143 attacks in Pakistan have been organised by groups in Afghanistan. In a mirror image of the long-standing claim that Pakistan's Inter-Services Intelligence agency actively supports (and even runs) groups that carry out attacks in Afghanistan and India, Mr Janjua accuses Indian and Afghan spooks of helping the TTP and Islamic State, which is also active in another turbulent part of Pakistan, the southern province of Balochistan.

The army is seeking to reduce what it sees as the mayhem spreading across the border with Afghanistan by building a fence along all accessible parts of the 1,500-mile (2,400km) frontier. Major-General Asif Ghafoor, an army spokesman, says that the first phase, covering the most vulnerable 270 miles, should be completed by the end of the year and the rest of the $550m project a year after that. It will consist of two tall fences with barbed wire, about two metres apart. Pressure sensors and CCTV cameras will run along its length. There will be manned posts every mile or so and 443 forts along its course.

One potential beneficiary of the army's campaign against domestic terrorism is the China-Pakistan Economic Corridor (CPEC). This is the Pakistani leg of China's Belt and Road Initiative to revive Asia's ancient trading routes.

China is investing over $60bn to upgrade Pakistan's neglected infrastructure. New roads, railways, much-needed power stations and a deep-water commercial port at Gwadar in Balochistan are all part of the plan, which would link western China with the Arabian Sea. The projects could account for 20% of Pakistan's GDP over the next five years and boost economic growth by three percentage points.

But it is hard to imagine China seeing the projects through, or other investors piling in, unless security can be improved. At either end of CPEC are two violence-prone regions: Pakistan-administered Kashmir and Balochistan. Last year Baloch separatists killed ten labourers helping to build Gwadar port. There is talk of a Chinese-inspired scheme to install CCTV to monitor all the main roads that are part of CPEC.

The army's sprawling commercial empire provides further encouragement to tame lawlessness. The top brass are well aware of the business opportunities CPEC presents both for the country and for itself. That, more than Mr Trump's angry tweets, may persuade Pakistan to redouble its commitment to the war on terror.

This article appeared in the Asia section of the print edition under the headline "Mopping up"

End of the road

Japan is trying to get doddering drivers to give up their licences

But lots of old motorists are refusing to come quietly

AFTER nearly half a century behind the wheel, Hisao Matsumoto, who is 85, is not ready to stop driving. He and his wife depend on their car to escape the confines of Hakone, the lakeside town where they live. Horror stories of pileups involving elderly drivers do not ruffle him. “I’m not that old yet,” he says. “I still have 15 more years to go till I reach 100.”

Mr Matsumoto is one of more than 5m drivers in Japan aged 75 or older. A million more will be on the roads by 2021. Unnerved, the police are trying to coax many out of their cars. Over-75s are twice as likely to cause a fatal accident as younger drivers, says the National Police Agency (NPA). Nearly half of older drivers who caused fatal accidents last year had signs of cognitive impairment.

Hundreds of older drivers turn the wrong way into motorways every year. In January an 85-year-old man steered his vehicle into oncoming traffic on a country road, hitting a car and mowing down two schoolgirls. Police believe he mistook the accelerator for the brake. The man’s family said he had long resisted their pleas to hand over his keys.

Such stubbornness is common, notes Kazunori Iwakoshi, who heads an NGO that supports elderly drivers. Motorists now in their mid-70s were born after the war and helped drive Japan’s economic rebirth, he says. Many have never had an accident and resent being cast aside.

Since last March over-75s renewing their licences must take cognitive tests to screen for dementia. Tests are also mandatory after telltale violations, such as ignoring road signs. The NPA expects these changes to take 15,000 drivers off the road each year. It would also like to limit elderly drivers to cars with automatic braking systems.

Nagging families may be more effective. More than 250,000 over-75s surrendered their licences last year. Many were pushed down to the local police station by relatives, says Mr Iwakoshi. His organisation publishes a checklist for elderly drivers, aimed at getting them to gauge their responses themselves.

The Matsumotos are lucky. Hakone gives pensioners unlimited access to public transport for ¥10,000 ($94) a year. Thousands of elderly people are stuck in rural communities with no buses. Next year, Mr Matsumoto says, he may give up his car, which costs him over ¥500,000 a year. But he'll keep his licence just in case. He has just passed his driving test again.

This article appeared in the Asia section of the print edition under the headline "End of the road"

Power-shedding

Afghanistan’s fragile government picks a dangerous fight

Warlords do not like being told what to do

President Ghani does not have much to smile about

FROM behind the counter of his optician's shop on the north bank of the Kabul river, Noorullah looks anxiously at his ten-year-old son. He fears for the boy's education under the current government and—worse—for his life. In the past month terrorists from Islamic State and the Taliban have run amok in the city, killing 150 civilians. Police recently found a suicide vest at a nearby checkpoint. "These attacks are good for the government," he says bitterly. "They are the only reason it is still surviving. People are afraid to go on the streets and protest."

Pressure is building on the government of President Ashraf Ghani nonetheless. He has labelled a recent suicide bombing, which killed 105 civilians, as his "9/11". But the government does not seem capable of stopping the attacks. Its haplessness is emboldening critics. Mr Ghani remains in a stand-off with the governor of the northern province of Balkh, Atta Muhammad Noor, who in December refused his order to resign. On February 25th Mr Noor blamed the "irresponsible" and "narcissistic" government for the attacks.

The foundations of this administration were flimsy to begin with. When the presidential election of 2014 produced a stalemate between Mr Ghani and his main rival, Abdullah Abdullah, America brokered a vague "power-sharing agreement" by which Mr Abdullah became chief executive (a post invented to mollify him). This staved off the threat of civil war. But it left the government in chaos as the pair vied for control, blocking or duplicating one another's appointments. It did not help that the two-headed administration emerged just after the departure of 125,000 foreign troops, an exodus that caused the economy to slow dramatically and prompted the Taliban to redouble their efforts to topple the government.

Mr Ghani's theoretical training for his job is unparalleled. In 2008, the thin, combustible academic co-authored "Fixing Failed States", a summary of his life's research into the construction of institutions in war-torn countries. The former World Bank official has since put some of his theories into action, stabilising the economy, opening up new trade routes with Iran, Uzbekistan and Turkmenistan, and recruiting a cadre of spreadsheet-friendly ministers.

The president is now trying to reduce bloodshed by offering to negotiate with the Taliban. This week he said he would be willing to recognise them as a political party and allow them to contest elections if they agreed to a ceasefire and worked within the constitution. The Taliban, who recently called for negotiations with America, have not yet responded to the offer.

In the meantime Mr Ghani is seeking to free Afghan politics from the half-nelson of strongmen. Whereas his predecessor, Hamid Karzai, used to entertain former warlords in the presidential palace, Mr Ghani has shunned them. His disdain is understandable. They treat state revenues as their own and consider themselves above the law. Among those he has sidelined is the vice-president, Abdul Rashid Dostum, who was accused last year of ordering henchmen to sodomise a political rival with an AK-47 rifle.

But the face-off with Mr Noor shows how difficult such figures are to dislodge, and how easily they can stir up trouble. Mr Noor has refused to surrender control of the main border crossing with Uzbekistan, from which he is thought to be earning around $90m a year. Instead, he is stoking divisions between Pushtuns like Mr Ghani and the country's many smaller ethnic groups, who formed the bulk of Mr Abdullah's voters in 2014. He has also joined an alliance of peeved strongmen, the grandly named Coalition for the Salvation of Afghanistan. At best the row is a distraction from the president's reforms, says Michael Kugelman of the Woodrow Wilson Centre, a think-tank. If it turns into a more concerted rebellion, he says, it will pose a grave threat to the country's stability.

Institutional reforms might help to defuse some of the political tensions. Under the power-sharing agreement, Mr Ghani and Mr Abdullah were supposed to have agreed on various constitutional amendments within two years, in part to formalise the position of chief executive (or prime minister). But it is not possible to amend the constitution without holding elections for local district councils, because the councils select delegates to a *loya jirga*, or constitutional convention. Local elections have, in turn, become mired in a dispute between the president and the legislature.

Another helpful step would be to allow candidates for the national parliament to run as representatives of a party, rather than as individuals. This could help Mr Ghani subdue the strongmen, says Tabish Forugh, a former official at the

Independent Election Commission, by offering voters the chance to pick a platform, rather than a personality. Institutionalising parties would also make it possible to adopt a system of proportional representation, which might give those excluded from power under the current first-past-the-post system more of a stake in electoral politics.

“The next administration, with more credibility, can deal with these issues,” says one official, who points out that it will be a tall order to hold the parliamentary election on time, under any electoral system. Plans to produce a proper electoral roll are well behind schedule, even though the vote is due in July.

Meanwhile, ordinary Afghans see little improvement in their daily lives. Outside his tyre shop in central Kabul, Hassan Ali nervously wipes a knife against his knee. “Even in the civil war I could eat,” he says, “but now I go hungry most nights.” According to a survey conducted last year by the Asia Foundation, a think-tank, 33% of Afghans feel optimistic about the country’s future; 61% are pessimistic. When Mr Ghani took office in 2014, the optimists outnumbered the pessimists by 55% to 40%.

This article appeared in the Asia section of the print edition under the headline “Power-shedding”

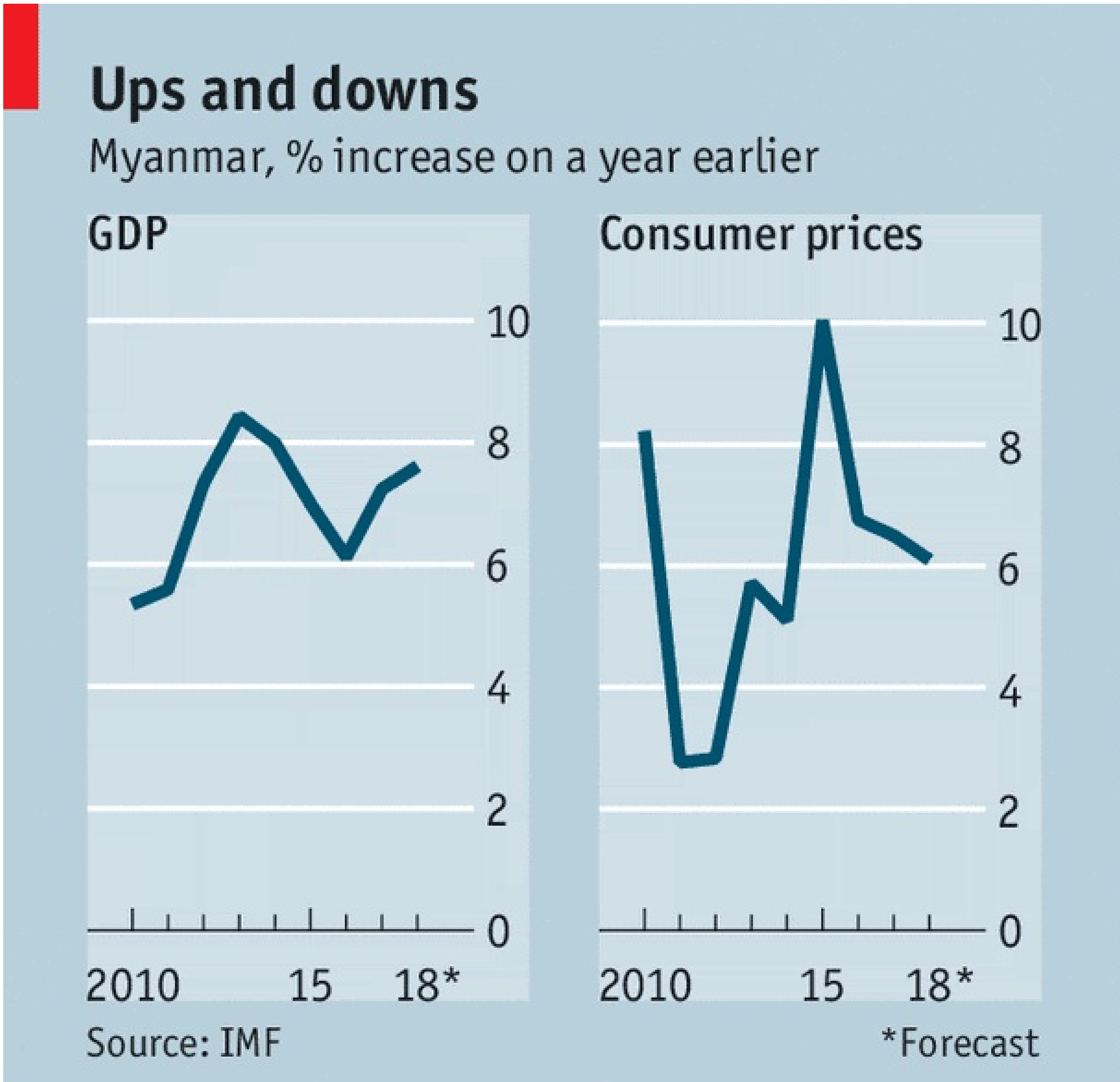
Burmese daze

Myanmar’s government unveils a 238-point economic reform plan

But it is better at announcing policies than implementing them

THE Yangon Stock Exchange does not lack ambition. It is housed within the imposing former headquarters of the central bank. The two guards manning the entrance protect a stack of visitor badges, mostly unused. Inside, a list of “missions”—integrity, fairness and openness—hangs beside a Christmas tree which still has presents stacked beneath it in late February. Books by Warren Buffett and Thomas Piketty are prominently displayed. The centrepiece is a series of television screens tracking the fortunes of the five companies listed on the exchange. When a power cut momentarily shuts everything down, one of the 20 employees is reassuring. “Don’t worry—we have a generator,” he explains, as the lights gradually return.

When Myanmar’s transition to democracy began in 2011, the government seemed equally hopeful for the economy. The president of the day, Thein Sein, a former army general, started reversing half a century of stasis and isolation. He gave the central bank more independence and awarded mobile licences to foreign telecoms companies. Several special economic zones were set up to encourage investment. The economy grew 8.4% in 2013. Land values in Yangon, the former capital, surged, as office space became scarce.



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Yet since Aung San Suu Kyi's National League for Democracy (NLD) won elections in 2015 progress has been as underwhelming as the stock exchange. A regulatory crackdown stalled most construction in Yangon in the government's first year. This, combined with a poor harvest, led to lower-than-expected growth, which is only just starting to pick up (see chart).

Four months after coming to power the NLD issued a 12-point plan for the economy which sounded promising, if woolly. There was talk of boosting foreign investment and making life easier for small businesses. Almost two years later, on February 26th, the government released a document fleshing out these ideas with no fewer than 238 measures to spur the economy, from improving the justice system to reforming state-owned enterprises. But there was no indication of who would push all these changes through, much less any sense of urgency.

There should be. With one of the lowest tax takes in the world, at just 6.4% of GDP, the government can afford little in the way of public services. Most ministries are Dickensian, with piles of paper stacked up on desks and a lack of co-ordination between one department and another. Shoddy infrastructure means that, although on paper the country has 50m consumers, in reality only about half of them can be reached easily by road. Skilled workers are hard to find. The courts are unreliable at best. A steady supply of electricity, particularly in summer, is a rarity. “You can have a low labour cost,” points out Filip Lauwerysen of the European chamber of commerce. “But it is useless if you have the whole labour force doing nothing because of a power cut.” As a result, Myanmar languishes near the bottom of the World Bank’s ease-of-doing-business rankings, just above Liberia but below Sudan. It is ranked particularly badly at protecting minority investors, enforcing contracts and resolving insolvency.

The government has narrowed the fiscal deficit and is relying less on the central bank to finance the shortfall, issuing bonds instead. That has helped to reduce inflation from 10% in 2015 to 6.5% last year. But it has yet to take the necessary bureaucratic steps to bring into force a law permitting foreign investors to take a 35% stake in local companies. The central bank, for its part, has called off a drive to get private banks to write down non-performing loans, for fear that their balance-sheets were already overstretched.

Supporters of the government argue that 50 years of isolation and 20 years of sanctions are hard to reverse, and that the previous government had already adopted all the easy reforms. “Sometimes it is a wonder so much economic reform takes place at all,” sighs Sean Turnell, an Australian economist who advises Ms Suu Kyi.

But the state counsellor, as Ms Suu Kyi styles herself, has made ending Myanmar's many ethnic insurgencies her priority. It is not clear that the economy is of much interest to her. It does not help that she is not so much a micro-manager as a "nano-manager", as one critic puts it, leaving everyone else uncomfortable making any decisions. Policy wonks complain that, whereas the previous government would take advice from technocrats, the NLD shuns outsiders. The party's long list of promised policies disguises a "lack of willingness" to reform, says Eric Rose. He shut the local office of his law firm early last month after five years of trying to help Americans invest in Myanmar.

This article appeared in the Asia section of the print edition under the headline "The 238-point plan"

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The tissue issue

The price of toilet paper triggers a panic in Taiwan

The government has appealed for calm

Bummer

IN ANXIOUS times, political leaders try to assuage fears. So it was this week when William Lai, Taiwan’s prime minister, appealed for calm after a run on that most essential of goods, toilet paper. Reports of looming price increases had started the panic. When local television and newspapers featured stories about people stocking up, even more rushed to the shops to follow suit. Supermarket shelves were stripped bare; tissue paper and kitchen towels were also snapped up. As the frenzy spread, Mr Lai assured the country that supplies would be more than sufficient to meet needs.

The mess began on February 23rd when Taiwanese retailers, including several supermarket chains, said that toilet-paper producers would increase prices by as much as 30% in mid-March because the cost of raw pulp had gone up. The announcements aroused suspicions of collusion. On February 27th the Fair Trade Commission met with three toilet-paper suppliers and five retailers to look into allegations of price-gouging. Mr Lai also asked a task-force to investigate whether retailers had hoarded supplies.

For many observers, though, the bigger question is why Taiwanese care so much about the cost of toilet paper. Taiwan ranks 34th in the world in income per person, richer than Portugal or Greece. But wages have stagnated in recent years, making people more sensitive to the prices of staples. The habit of preparing for typhoons has also sharpened the impulse to stockpile. Loading up on a commodity such as toilet paper—non-perishable and relatively compact—is easy.

The peculiarities of Taiwan’s paper industry are also a factor. Rising pulp prices are a global phenomenon, but affect Taiwan more than most rich countries because local toilet-paper producers use barely any recycled content. If pulp prices stay high, that may change.

The toilet-paper debacle adds to the challenges for Tsai Ing-wen, the president, whose approval rating has fallen sharply since she took office in 2016. The Kuomintang, the main opposition party, says that if Ms Tsai cannot manage something as trivial as toilet paper, she cannot be trusted on bigger problems. She, naturally, rejects this smear.

This article appeared in the Asia section of the print edition under the headline “Wiped out”

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China

- **Constitutional change: Under the cover** [Fri, 02 Mar 06:00]

Back to the old days

Xi Jinping decides to abolish presidential term limits

Unhappiness in China is palpable

BLOGGERS in China surpassed themselves in their ingenuity after the Communist Party announced its plan to get rid of presidential term limits, which would have required Xi Jinping to step down as head of state in 2023.

One online commentator posted a picture of Winnie-the-Pooh hugging a jar of honey, with the caption “Find the thing you love and stick with it.” The Bear of Very Little Brain is used in China as code for the portly Mr Xi—the post was swiftly deleted by humourless censors. Others posted mock condom advertisements with tag lines such as “Doing it twice is not enough” and “I like how you’re always on top.” (The manufacturer solemnly informed readers that these were fakes.) Other banned terms included “I disagree”, “Animal Farm” (the novel), “emigrate”, “board the plane” (*dengji*, which also sounds like “ascend the throne”) and “Yuan Shikai”, an early 20th-century warlord who declared himself emperor and died six months later.

Censorship makes judging public reaction in China hard. But there was more inventive mockery in response to the startling announcement on February 25th than there was during the country’s biggest political event of the past few years, a party congress last October. There was also some unusual open dissent. A prominent former editor, Li Datong, and a well-known businesswoman, Wang Ying, both appealed to the legislature through WeChat, a social-media platform, demanding that it reject what Ms Wang called an “outright betrayal”. Many Chinese, it seems, regard scrapping term limits as a return to the bad old days of strongman rule.

Terms of art

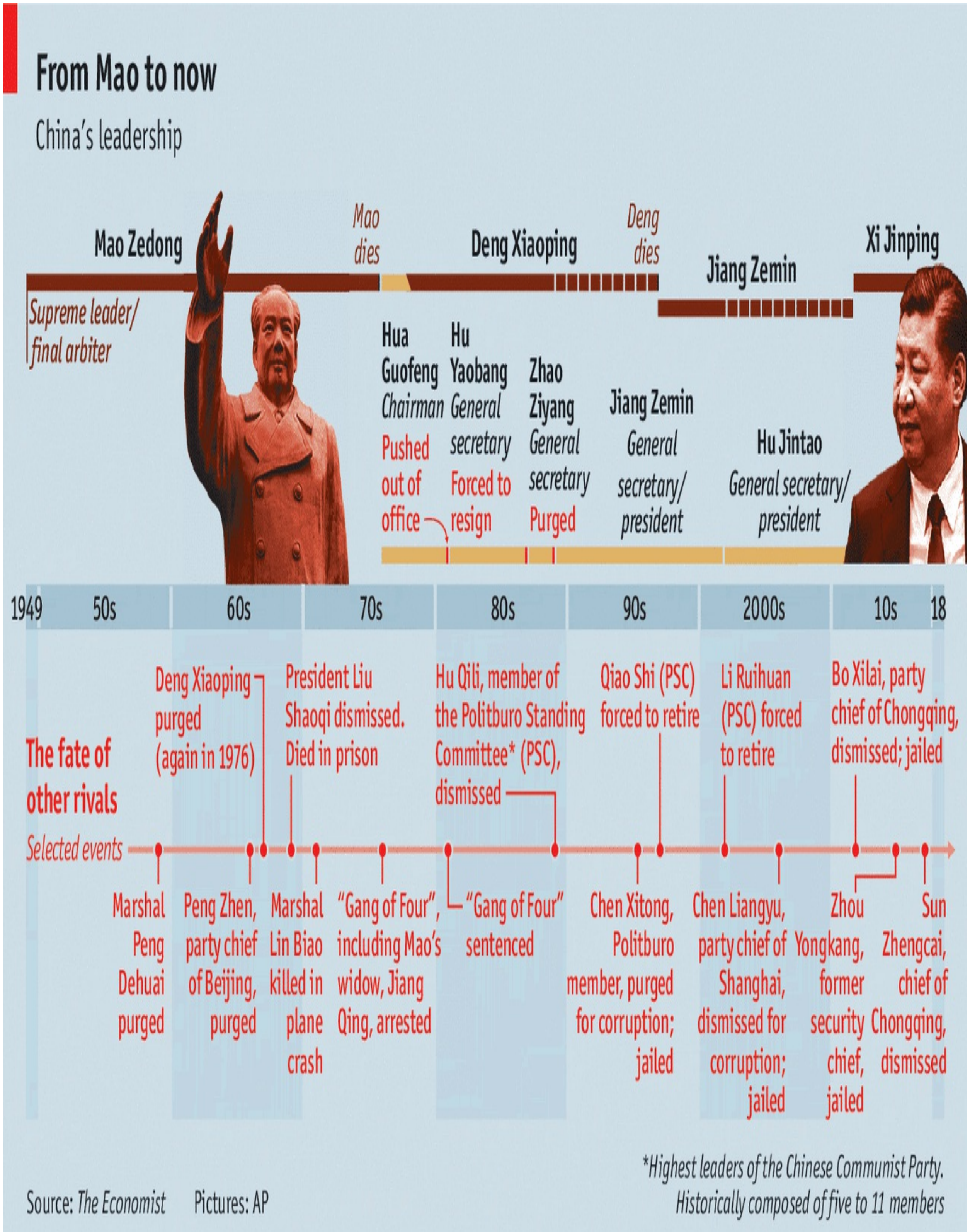
Such limits may not matter much in themselves (they will be formally abolished at an annual session of the rubber-stamp parliament, which starts on March 5th). The presidency is a weak office. Mr Xi could stay in power as the party’s general secretary and military chief, to which term limits do not apply. But the abolition is still important partly because it is the clearest evidence that Mr Xi does, in fact, plan to ignore convention that party chiefs step down after ten years, and keep all of his jobs after 2023. It also pierces the veil of politics and shows what kind of ruler he wants to be. At a time when he is trying to boost China’s image globally as a modern, outward-looking and responsible state, the political system he governs seems premodern, opaque and treacherous.

The system itself is extremely unusual. China has two ladders of authority:

the government and the party. The party hierarchy outranks the state one. In other countries, the ministers of finance and foreign affairs (government jobs) are usually the most important ones after the president or prime minister. In China, they are not even in the top 25. Neither man is a member of the Politburo, let alone its inner sanctum, the Politburo Standing Committee. Formally, the People's Liberation Army is controlled by the party, not the government. In one respect, though, Chinese politics is all too normal. As with other Leninist systems, it is bedevilled by the problem of leadership succession. Of the 11 party leaders since 1921 (seven since the party seized power in 1949), only one—Mr Xi's predecessor, Hu Jintao—has stepped down from all his posts in accordance with a timetable. Seven were executed or purged.

In the 1980s, reacting to the chaos of the Mao era, Deng Xiaoping tried to make the system more orderly and predictable by introducing new rules, norms and precedents. These included the reinstitution of the post of president (there had not been one since 1968), along with a two-term limit for the holder of that office as well as the vice-president. Mandatory retirement ages were also introduced. After Mao's one-man freak show, Deng argued that China needed "collective leadership". In a speech in 1980 he said the system should avoid an "over-concentration of power", which, he warned, was "liable to give rise to arbitrary rule". He said it should make a clearer separation between the party and the government. And it had to "solve the problem of succession in leadership". Before he resigned in 1989 as head of the party's Central Military Commission, Deng said his final task was to "take the lead in establishing a retirement system".

As the abolition of term limits shows, he failed—or at least, his reforms failed to rein in Mr Xi. Instead of avoiding an over-concentration of powers, the president has made himself chairman of everything. Instead of separating party from state, he has injected party control into areas which had once been relatively free of it, such as private companies (see article). Now he has cast aside Deng's efforts to introduce a system of succession by timetable.



Economist.com

Deng's reforms also failed in a more obvious way—they did not change the political system as he had promised. Before Mr Xi took over, Jiang Zemin, Deng's successor, was still influential behind the scenes, though he had retired in 2004 (see chart). In 2012 Mr Xi's rival, Bo Xilai, was arrested and jailed following a scandal involving corruption and the murder of a British businessman on the orders of Mr Bo's wife. Mr Xi has used his anti-graft campaign to rid himself of other rivals—most recently Sun Zhengcai, who was party chief of the south-western region of Chongqing, the same job that Mr Bo had held. This hardly looks like a predictable, orderly system.

The events leading up to the removal of term limits show how murky politics remains. The proposal came from the party's Central Committee, comprising its most senior 200-odd officials. It was dated January 26th. But the committee did not meet that day. It had met a week earlier. That meeting produced a communiqué about constitutional reform, which did not mention that term limits had been discussed. So last weekend's news that they would be abolished was a complete surprise. Curiously, it was revealed by the English-language service of Xinhua, the government's main news-agency, hours before it was released in Chinese (heads rolled at Xinhua because of this).

It is not unusual for important party decisions to be circulated first among party members before they are made public. But for an important one such as this to be kept under wraps for so long, without a leak, suggests that relatively few senior officials were involved. The length of time before the announcement may also be an indication of unexpected opposition. There has been surprisingly little commentary in state-run media on such a momentous change, further suggesting a lack of elite consensus. The term-limit abolition was not even announced separately. The news emerged only as part of a list of constitutional amendments, buried at the bottom of the second page of the party's flagship newspaper, *People's Daily*.

Mr Xi's constitutional changes—which go beyond scrapping term limits—could make the political system even more opaque and draconian. Top of the list of revisions to be approved by the legislature in March is one that will replace the phrase "socialist legal system" with "socialist rule by law"—

making it clear that courts should be a tool of party control.

The current constitution mentions the leading role of the party only in its preamble. The revised version will refer to it in article one, declaring that: "The socialist system is the fundamental system of the People's Republic of China. The leadership of the Chinese Communist Party is the most essential feature of socialism with Chinese characteristics." Party and state could hardly become more amalgamated.

No less important, the parliament will approve what looks like a new administrative branch that merges elements of the party, government, police and judiciary into a powerful organisation called the National Supervision Commission. This will incorporate the party's discipline-enforcement body but work closely with the courts and report to the legislature—ie, there will be no separation of powers. It will be able to interrogate, search, detain and punish any official, whether from the party or the government bureaucracy, in cases involving corruption, violations of ethics and ideological deviation.

Such changes are controversial. Han Dayuan of Renmin University in Beijing suggests that some of them—notably the abolition of term limits—may even undermine the constitution. For years scholars like him have been trying, as Deng did, to devise ways of reconciling constitutional norms with one-party rule. They fear that Mr Xi has turned his back on this effort.

Look on my Works, ye Mighty

So why has he done this? He could have stayed on as general secretary. His ideology, called "Xi Jinping Thought for a New Era", would still have been in the party's own charter, giving him the status of final arbiter in any dispute. The answer must be that it is because of the kind of leader he wants to be: with his power on full display, not hidden behind the scenes. A reason for wanting this is that he is trying to project Chinese influence round the world. Because of diplomatic protocol it is easier to meet foreign leaders as president than as general secretary. Another reason may be that he faces opposition (not least because of his anti-corruption campaign) and must continuously show rivals who is in charge. It is even possible, as *People's Daily* argued online on February 26th, that staying as president and party chief for another ten years or more will lead to more consistent, long-term policy-making and perhaps enable him to get to grips with some of the economy's entrenched problems.

Perhaps. But it is equally likely that the changes will increase what Chinese observers call the "bad emperor" risk: that if Mr Xi is set on a course that will prove a big mistake, nobody will be able to stop him. The abolition of term limits may be just such a blunder.

This article appeared in the China section of the print edition under the headline "Under the cover"

Middle East and Africa

The crocodile swims in murky waters

Zimbabwe’s new president says he is a democrat. Is he?

Emmerson Mnangagwa says some sensible things, but has yet to win over sceptics

WILL parliamentary and presidential elections, which must be held by late July, be free and fair? If so, will Emmerson Mnangagwa and his Zanu-PF party, which has run Zimbabwe since independence in 1980, win? And if they lose, will they hand over power to the victors, as they have brazenly failed to do in the past? This set of questions hangs over the country. One certainty, however, is that Zimbabwe is better off now that it is no longer under the thumb of Robert Mugabe, who ruled it for 37 years. Even better is that it has not fallen under the sway of his greedy wife, 52-year-old Grace Mugabe, whose tightening grip over her then 93-year-old husband prompted the army to step in, shove the old man into retirement and lift Mr Mnangagwa into the top spot in November.

Yet the new 75-year-old leader, known as the Crocodile, remains an enigma (see article). He has made some sensible noises, promising to amend a law that declares that businesses should be at least 51% owned by black Zimbabweans or the state. He wants to compensate the 4,000-plus white farmers whose land has been confiscated since 2000, and re-establish property rights (up to a point) by providing 99-year leases to commercial farmers, white and black. He has promised fair elections and says he and his party will bow out if they lose.

The mood in Harare, the capital, is jollier than it was under Mr Mugabe. The police, who routinely plundered drivers at ubiquitous roadblocks, are off the streets. Many Zimbabweans hope for a rosier future after decades of economic decline punctuated by bouts of horrific violence orchestrated by the ruling party. Foreign investors are sniffing around for the first time since the land-grabs began.

But old worries are creeping back. Is Mr Mnangagwa master or servant of the generals who made him president? Whereas many hoped he would widen his cabinet and kick out the worst rascals, he has kept some of the nastiest of the old guard. Constantino Chiwenga, the army commander who led the coup, is his vice-president.

The urge to purge

Mr Mnangagwa’s anti-corruption drive has so far been aimed entirely at his enemies in Zanu-PF, particularly Mrs Mugabe’s favourites, putting many behind bars. The reviled Obert Mpofu, who has been accused in parliament of demanding vast bribes when minister of mines, is now home minister. The Crocodile has not yet dared to scrunch the former first lady, even though he reckons she tried to assassinate him (with poisoned ice-cream).

The economy is still dire. About 90% of working-age people lack formal jobs. The legions reduced to hawking on the streets of Harare and Bulawayo, Zimbabwe's second city, are preyed on by Zanu-PF thugs demanding pay-offs. Electricity and water are intermittent, even in hospitals. ATMs are empty. State workers' wages are paid months late. In a residual population of 13m, 3m survive on food handouts from America and Britain. Perhaps 3m Zimbabweans have fled abroad.

The biggest question-mark hangs over the elections. The voters' roll, which was manipulated in 2013, has been updated quite well. The electoral commission that used to pander to Mr Mugabe has a new chairperson claiming independence. Mr Mnangagwa has lifted Mr Mugabe's ban on election observers from the West, including the European Union and the Commonwealth. "I'm very happy that the Doubting Thomases can come in," he says.

The opposition Movement for Democratic Change (MDC) has been torn by infighting, before and even during the demise of Morgan Tsvangirai, its founding leader. His death on February 14th provoked a massive outpouring of grief in Harare that rattled the government. It may be easier for the main opposition, made up of three endlessly splintering alliances, to sort itself out now that Mr Tsvangirai is gone. Nelson Chamisa, 40, an articulate lawyer who appeals to young urbanites, could rally it ahead of the election. It may well sweep the cities, as it has done before.

But Zanu-PF's brutally effective machine is expected to wrap up the more numerous rural populace, who are easier to intimidate. Civic groups say the party's heavies have persuaded villagers that how they vote can be detected via the barcodes of their biometric registration slips. Joice Mujuru, a former vice-president now in opposition who fell out with Mr Mugabe (and whose husband, a former head of the army, was mysteriously burned to death in 2011), claims that 3,000 soldiers have already been sent to the countryside in civilian garb to campaign and bully. Villagers fear that rural chiefs and headmen will withhold food aid if they suspect them of voting the wrong way. Zanu-PF's national political commissar menacingly told a rural gathering that people should remember 2008, when thousands of MDC activists in the countryside were set upon by Zanu-PF militias and hundreds were murdered. Many analysts think that Zanu-PF's rural voting bloc should ensure victory for Mr Mnangagwa, even without resorting to violence. "Just the memory of 2008 is enough," says a former MDC campaigner.

But that is no certainty. If it is a tight race, the ultimate question is whether the army will hold back. The new head of the electoral commission admits that 15% of the commission's staff are retired military officers. In previous elections, army commanders declared that they would never serve under the MDC. Mr Mnangagwa insists that the generals are not involved in politics and that "those statements are dead." But he rejects the idea that General Chiwenga and the new head of the army should publicly say so. Zimbabwe is in for a nervous few months.

This article appeared in the Middle East and Africa section of the print edition under the headline "The crocodile swims in murky waters"

Emmerson Mnangagwa

A chat with Zimbabwe’s new president

Open for business, closed for remorse

“THE land resettlement was a huge success in terms of our people, 367,000 of our people, back in possession of the land,” says President Emmerson Mnangagwa of the expropriation of most of Zimbabwe’s white-owned farmland since 2000—a move that wrecked the economy and pushed millions into poverty. Was it fair that bigwigs of his ruling Zanu-PF party took several farms each? “No, no, it is one farm, one person,” he says. “I have 404 hectares and I paid for the equipment myself.”

Mr Mnangagwa admits, however, that Zimbabwe “became almost a country without friends” under Robert Mugabe, who was ejected in a coup last year. Now “Zimbabwe is open for business,” says Mr Mnangagwa, speaking in his home in Borrowdale, the poshest suburb of Harare, the capital.

Stockily built, with watchful hooded eyes and a friendly gap-toothed smile, Mr Mnangagwa is viewed as a pragmatist. And he says much to reassure Western diplomats and investors. He wants to arrange compensation for those whose land was seized. But his economic vision is hardly liberal. He extols a “command” model where agriculture is guided by government. He blames the economy’s collapse on sanctions, even though these were targeted on leading figures such as himself. He testily rejects a suggestion that they were far lighter than those levelled against the white-supremacist regime of Ian Smith before Mr Mugabe took over in 1980. “You are plain ignorant,” he tells *The Economist*.

He knows that the West will not support Zimbabwe until the coming elections have been deemed free and fair, and insists they will be. But he denies that previous elections were unfair, especially in 2008, when NGOs reckoned that at least 270 activists of the opposition Movement for Democratic Change were killed. “It was fair, very fair. Where is the evidence for violence? Not a single case was taken to the police.” Indeed the police were part of the problem.

And will he apologise for the killing of some 20,000 members of the Ndebele ethnic group, most of them civilians, in the early 1980s when he was head of the security service? He blithely denies that he once called dissidents “cockroaches who must be exterminated”. “Let’s not live in the past,” he says. “The future must be harmonious.”

This article appeared in the Middle East and Africa section of the print edition under the headline “Open for business, closed for remorse”

Senegal’s success

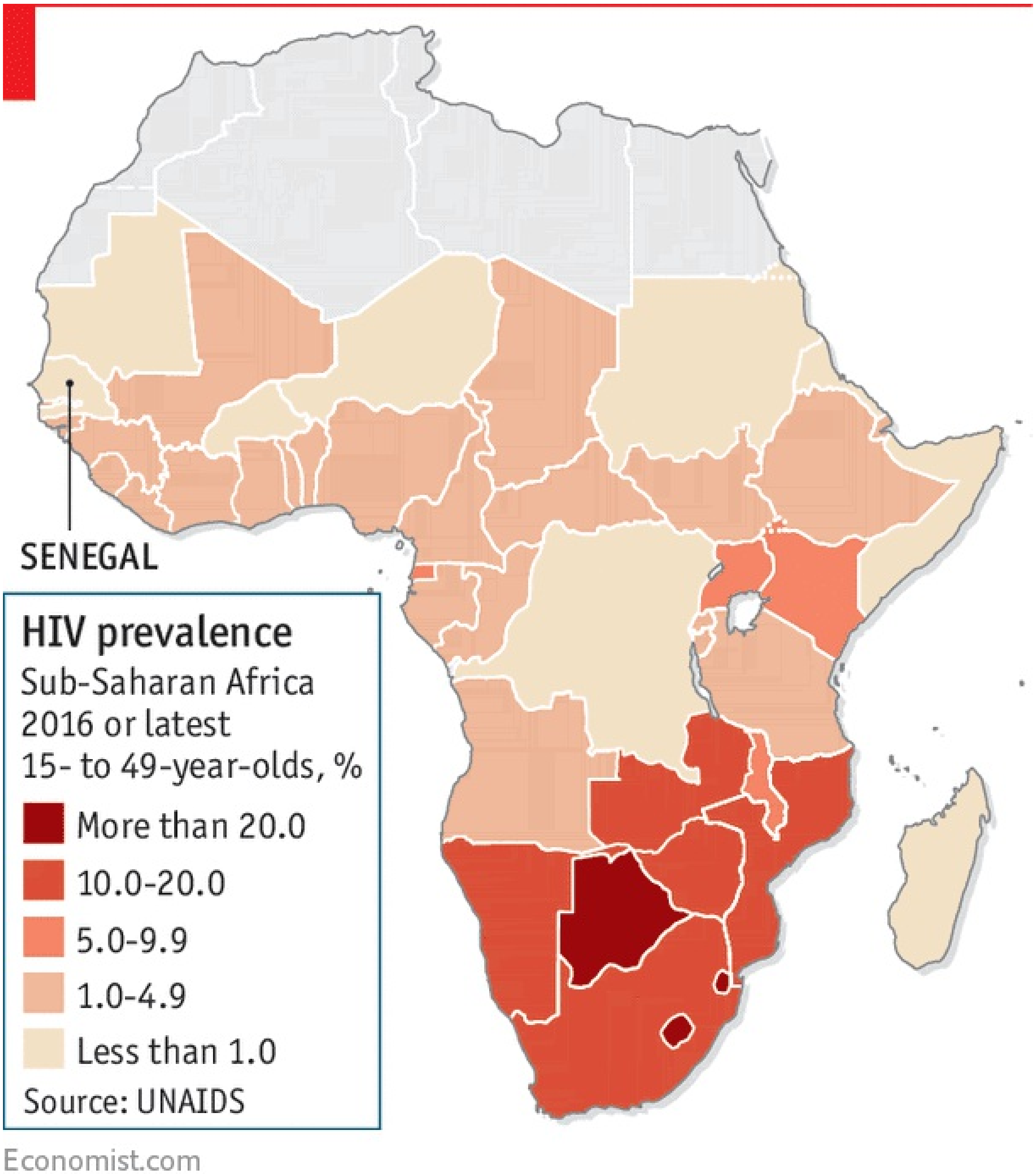
How a small African nation is beating AIDS

Even a poor country can curb the epidemic

AS A middle-class Senegalese man, Salou (not his real name) was rather proud of his roundness in 2002. But by 2003 his clothes were falling off. He got tested and found he had AIDS. His pregnant wife was also infected with

HIV. They went to Dakar, Senegal's capital, and she was put on antiretroviral drugs to prevent the infection of her unborn child. "When my son was born he tested negative, thank God," exclaimed Salou.

The hopeful tale of Salou's baby is far from universal. Although west and central Africa have long had a lower prevalence of HIV than the south and east (see map), the region still has a stubbornly high rate of new infections. In south and east Africa close on 20m people have the virus, almost four times more than in west and central Africa. From this high base, the number of new infections each year in the south and east has fallen by 29% since 2010, to 790,000. Alas, new infections in west and central Africa have fallen just 9%, to 370,000. Moreover, about 310,000 people die from HIV-related illnesses each year in west and central Africa, compared with 420,000 a year in east and southern Africa. This high toll is prompting urgent calls from global bodies such as UNAIDS and UNICEF for a new approach.



An example of that may be found in Senegal, which has cut new infections by almost three-quarters since 2010, leaving it with one of the least-afflicted populations in Africa. Whereas 4.3% of people in sub-Saharan Africa are HIV-positive, the prevalence in Senegal is just 0.4%.

Senegal may be poor but its HIV prevention and treatment system punches above its weight. It was the first country in sub-Saharan Africa to start a government-backed programme to treat people with antiretrovirals in 1998, not just prolonging the lives of those with HIV but reducing the chances that they would pass it on. In a bold move in 2003 it made the treatment free, several years before the World Health Organisation recommended that countries do so.

It has also pushed back social taboos by ensuring that drug users and sex workers are treated. Prostitution is legal in Senegal, so long as sex workers have health check-ups every three months. If they get HIV, they are not driven underground, where they might continue to spread the disease. Instead they are allowed to work while being given free treatment, which makes them less infectious. As a result, HIV prevalence among sex workers dropped from 28% in 2002 to 7% in 2016, according to UNAIDS. Drug users are given free syringes, so they are less tempted to use dirty ones.

Senegal's decentralised health-care system helps, says Ibrahima Traoré of the Social Polytechnic Institute of Hygiene in Dakar. The number of sites offering voluntary counselling and testing increased by 600% in the four years to 2010.

One thing that Senegal has done remarkably well is to involve a wide range of groups in tackling the virus. *Marabouts* (imams) talk about HIV in mosques. Women's groups try to find unregulated sex workers and Senegal's famous wrestling groups teach men about the risks of unsafe sex. This use of civil society is something that is sorely lacking elsewhere in the region, says Nathalie Cartier of Médecins Sans Frontières.

To be sure, there is work to be done. About half of people infected with HIV are still not being treated. Only about a quarter of children with the virus are getting medication for it. And gay men are afraid to ask for advice because homosexuality is punishable by up to five years in jail. Nonetheless, Senegal has shown that even a poor country can curb the epidemic.

This article appeared in the Middle East and Africa section of the print edition under the headline "Beating back HIV"

Jets, but no pilots

For the Gulf states, diplomacy involves buying weapons they don’t need

They have agreed to arms deals worth billions of dollars in the past year

Tools of diplomacy, or just mirages?

WHEN Qatar celebrated its national day in December, warplanes whizzed over the seaside corniche in quick succession: six French-made Mirage fighters, six cargo planes and a squadron of propeller-powered trainers. That was half of the air force. The world's wealthiest state, with a native population of only 300,000, has never been known for its martial prowess. The first three aircraft deployed to enforce a no-fly zone over Libya in 2011 had to make emergency landings in Cyprus.

Yet Qatar plans to increase the size of its air force. Since June it has signed $20bn in contracts to buy 96 new jets from three countries: F-15s from America, Typhoons from Britain and Rafales from France. The shopping spree is one side-effect of the nine-month-old blockade of Qatar by Bahrain, Egypt, Saudi Arabia and the United Arab Emirates (UAE). The quartet wants Qatar to end its support for Islamist groups, among other things. But the move has awakened rare displays of nationalism in the tiny emirate, the military build-up being one example. "We need to plan for the worst," says Khalid al-Attiyah, the defence minister. "I still see $25bn as not enough."

Western defence officials already wonder how Qatar will incorporate the new kit. The standing army numbers just 27,500 men. Fewer than 10% are in the air force, which will need hundreds of new pilots to fly an expanded fleet. The air academy graduated just 30 last year, though it hopes to double that number in 2018. It will need to train them on three different platforms, a decision that puzzles some military attachés. Mr Attiyah defends the purchases. The F-15s are strike fighters, he notes, whereas the European jets are better suited to air-to-air combat.

But for Qatar and its neighbours, arms deals are also a way to shore up support in Western capitals. Bahrain is spending $3.8bn to about double its fleet of F-16s. The UAE signed a $1.6bn deal with Lockheed Martin, an American firm, to upgrade its air force. During his visit to Saudi Arabia last May, President Donald Trump announced arms deals with the kingdom worth $110bn. It was the largest such sale in American history—or, at least, it appeared to be. "It was a shopping list, but the Saudis haven't actually signed contracts for most of it," says an American diplomat.

Qatar has been most aggressive in pursuing this strategy. On June 9th Mr Trump called the emirate a sponsor of terrorism. Five days later his defence secretary signed off on the F-15 deal, undermining the president's narrative. In October BAE Systems, a British firm, announced that it would lay off nearly 2,000 workers because of sluggish Typhoon sales. But the $6.7bn deal with Qatar, announced two months later, will help keep the production lines humming. The frenzied defence spending mirrors a flood of Qatari cash into Washington lobbying firms, which totals $4.7m since June. (In the five years before that, it spent only $6.5m on lobbying in America.) A mitten-shaped peninsula that juts off Saudi Arabia's eastern coast, Qatar has always felt insecure. In 1996, soon after the previous emir took power, dozens of ex-military officers were charged with plotting a coup. Qatar blamed Saudi Arabia and the UAE, though they denied involvement. Qatar's fears were amplified in 2011 when other Gulf states deployed troops to Bahrain to quash a popular uprising. Qatar supported the move (and sent a small contingent of troops), but many people felt it set a troubling precedent.

Qatar's best defence against outside aggression is al-Udeid, a sprawling airbase that is the forward headquarters of America's Central Command. To please America's airmen, Qatar is constructing 200 housing units for officers and their families, plus an entertainment complex. It also wants to build ports that could host American warships. Bahrain is currently home to America's Fifth Fleet. That is unlikely to change, but the proposal underscores how important the American security umbrella is to Qatar.

The military build-up is already raising tensions in the Gulf. In January the UAE claimed that two Qatari fighter jets intercepted a civilian airliner. Bahraini state television aired a video that showed the radar tracks of all three aircraft. They were indeed close to each other. But the Qatari jets were flying on a perpendicular course to the Emirates plane, and 2,000 feet below it. With scores of new warplanes buzzing the skies over the Gulf, though, such run-ins may become more common.

This article appeared in the Middle East and Africa section of the print edition under the headline "How much for a pilot?"

Holy, profitable land

A dispute over real estate roils Jerusalem

Israeli politicians want to make churches pay taxes on their businesses

How many patriarchs does it take to move a ladder?

A SMALL wooden ladder stands on a ledge above the entrance to the Church of the Holy Sepulchre in Jerusalem, the spot where Christians believe Jesus was crucified, buried and resurrected. The ladder serves no purpose, but it has been moved only twice in the past two centuries. That is because all six Christian denominations that have a presence in the church must agree to rearrange things. They rarely do.

On February 25th, however, the main occupants—the Catholics, Greek Orthodox and Armenians—showed rare ecumenical unity. They decided to close the church in protest against an attempt by city hall to tax commercial property owned by the churches, and a draft law in the Knesset that would allow the government to expropriate land sold by churches to private buyers. Church leaders compared the measures to laws "enacted against the Jews during dark periods in Europe".

Two days later Binyamin Netanyahu, the prime minister, stepped in. He said that a committee led by Tzachi Hanegbi, a cabinet minister, would work with the churches to resolve the dispute over taxes; the legislation in the Knesset would be put on hold. On February 28th the Church of the Holy Sepulchre was reopened, ending the immediate crisis before it could disrupt the Easter pilgrimage.

But the underlying problems persist. They have roots in the 16th century, when churches began buying property in Jerusalem from the Ottomans, who ruled the city. The churches built schools, hostels and hospitals for pilgrims and local Christians. The property served as a symbol of clerical power. By the 20th century, as Jerusalem grew, and was divided and reunited by war, the Christian population shrank. The land was increasingly used for commercial purposes. New neighbourhoods were built on plots leased from the churches, which are still the city's largest private landowners.

Although the Israeli government has long exempted churches from taxes, Jerusalem's municipality has demanded that their businesses pay local levies. The dispute was supposed to be resolved in talks with the Vatican, but these have dragged on for two decades. So in early February Nir Barkat, the mayor of Jerusalem, put liens on the churches' bank accounts (now lifted) for unpaid taxes totalling 650m shekels ($187m). Mr Barkat may also have hoped to put pressure on the finance ministry to help cover a local budget deficit.

The proposal in the Knesset was considered even more noxious by the churches, which have begun to sell much of their residential property in West Jerusalem, the main Jewish half of the city. The proposal was meant to protect lease-holding tenants from having to negotiate with real-estate developers over the future of their homes. But the churches claim that the possibility of expropriation by the government would scare away potential buyers of their land. They see the measure as political posturing, especially as the Knesset member who proposed the law is a potential candidate for mayor.

The churches themselves have been accused of unjust practices. The Greek Orthodox patriarch in Jerusalem was fired after his church sold property to Jewish settler groups, which then evicted Palestinian tenants. Land issues in the city are inherently fraught. Much like the immovable ladder, that is unlikely to change.

This article appeared in the Middle East and Africa section of the print edition under the headline “Holy, profitable land”

Idle and angry

As Morocco’s economy slows, the jobless are getting restive

Protests in the north have pricked the king’s conscience

FOR over a year, fishermen, miners and jobless graduates in northern Morocco have demanded more help from the government. To be fair, the government is acutely aware of the need to create more jobs. Even as the protests rage, workers are putting the finishing touches on Marchica, the first of seven eco-resorts planned for the northern coast under the king's ten-year plan to increase tourism. "We can't just build hospitals and schools," says Sami Bouhmidi, one of Marchica's managers. "We need to lay the foundations for investment and regeneration."

Morocco's development has been impressive. A growing manufacturing sector, investment by European and Chinese firms, and stronger links with sub-Saharan Africa have boosted the economy. Since 2000 GDP per person has increased by 70% in real terms. Tax breaks have drawn a splurge of foreign investors, including 110 aerospace firms and 150 automotive companies, to the north. Progress can be seen in new roads that cut through the mountains and a high-speed train that is set to hurtle down the coast by year's end. Tourists are already flocking to the country in record numbers.

Poverty has dropped over the past decade. Still, many people feel left behind. Tolls on the new roads mean that most Moroccans remain on clogged and dangerous carriageways. The high-speed train may please tourists, but it will be a luxury for the average family. As many as two-thirds of Moroccans entering the labour market fail to find work.

The situation has grown dire in parts of the country. In much of the north, the youth unemployment rate is 40%, over twice the national average. A charity distributing food in Sidi Boulaalam, 200 miles south of Casablanca, was swamped with applicants last November, leading to a stampede that killed 15 people. Tens of thousands of Moroccans cross the Strait of Gibraltar each year on unreliable dinghies, hoping to find work in Europe. Relatives back home rely on their remittances.

Protests, sometimes violent, have pricked the conscience of King Muhammad VI. He warns of "a political earthquake" and scolds his government for failing to "reduce disparities between segments of the population, correct inter-regional imbalances or achieve social justice". He gripes that only a sliver of his five-year development plan for the north has been implemented. Several ministers have been sacked.

But the king spends much of his time convalescing abroad. (Last month he was travelling again, for heart surgery.) He surfaces to cut ribbons on new projects. In his absence, though, only some come to fruition. The ruling elite, known as the *makhzen* (“storehouse”), controls much of the economy and puts its projects first.

Some in the Rif, a northern mountain region with a rebellious history, dream of a new uprising. King Muhammad’s father, Hassan II, violently suppressed a Riffian revolt in the 1950s, then neglected the local Berbers, whom he called savages. His son prefers to exercise soft power. He has championed development in the north, where he often holidays, and made the Berber tongue, Tamazight, an official language. Only three people have been killed in the year-long protests.

In February King Muhammad sent the mild-mannered prime minister, Saad Eddine El Othmani, on a conciliatory tour of Jerada. The desolate city in the north has been rocked by protests since December, when two brothers died collecting coal in an abandoned mine. State-run mines were once a mainstay of the city’s economy, but the government shut them down in the 1990s. The security forces kept things calm during Mr Othmani’s visit, but protesters returned to the streets as soon as he left. Hundreds have been arrested. Over 50 are on trial for undermining the state. “The people want an economic alternative,” they chanted. A few eco-resorts are probably not enough.

This article appeared in the Middle East and Africa section of the print edition under the headline “Idle and angry”

Europe

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Indebted and undecided

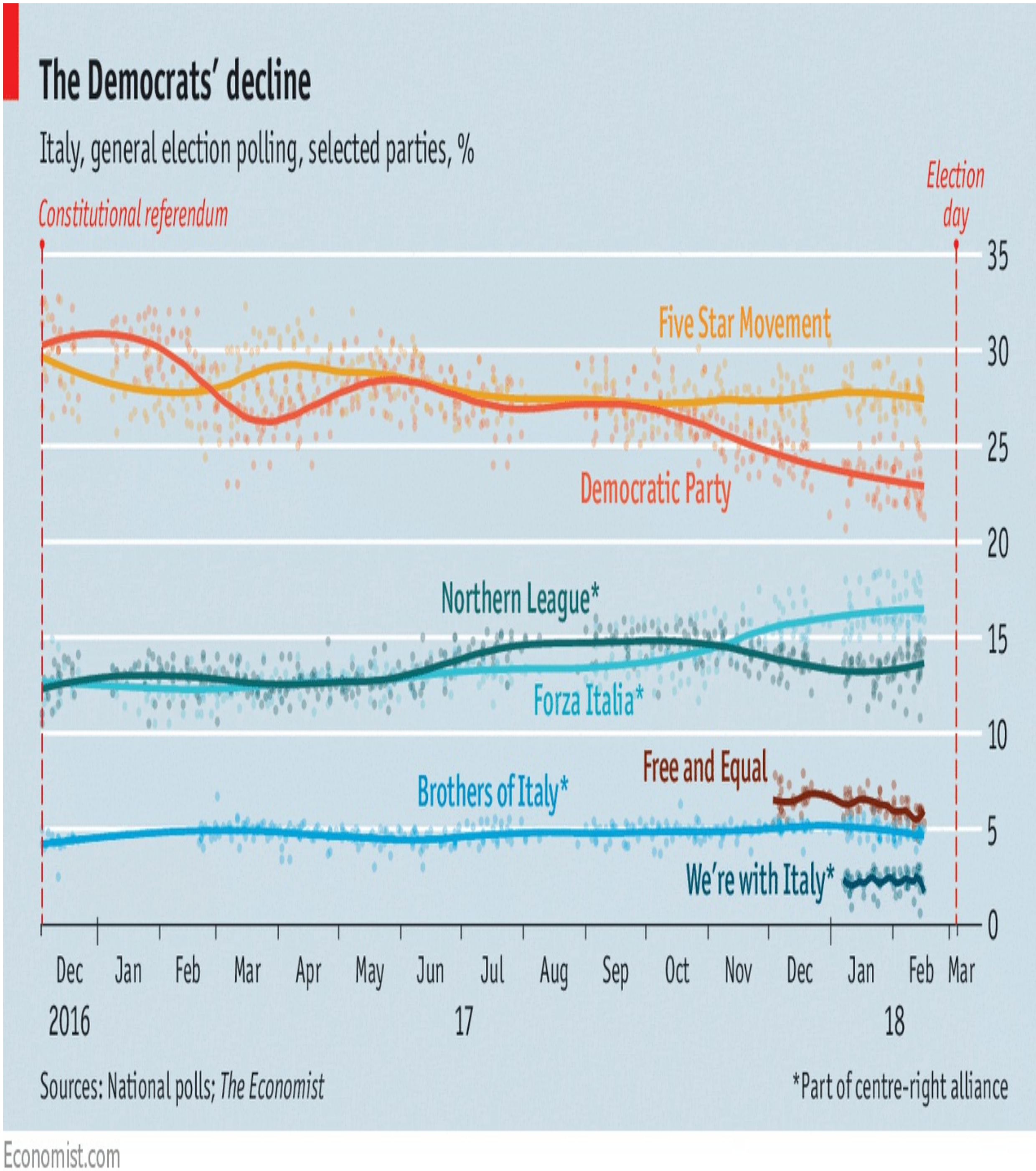
Italy risks political confusion when it votes on March 4th

A stable majority looks highly unlikely

WITH a rosary in one hand and a copy of the New Testament in the other, the leader of the Northern League, Matteo Salvini, swore himself in on February 24th as Italy’s next prime minister. No matter that Italy’s general election was not to be held until March 4th, or that his party was polling just 13% of the national vote. One day, he told his audience at a rally in the cathedral square of Milan, they would look back and say: “I was there.”

Acting like a prime minister before becoming one is not uncommon in Italy among those who aspire to the job. The day before, Luigi Di Maio, candidate of the anti-establishment Five Star Movement (M5S), had gone to the Quirinal palace in Rome to tell the president, Sergio Mattarella, that he would soon be sending him the names of his cabinet. Embarrassingly for Mr Di Maio, the president chose not to receive him. Worse still, one of his putative ministers turned the job down.

The originator of this optimistically anticipatory technique was Silvio Berlusconi (pictured above right, with Mr Salvini), whose Forza Italia party is yoked to the Northern League in a right-wing electoral alliance: in 1994, he announced his entry into politics in a video showing him at a desk in a book-lined study, looking as if he were making an address to the nation. Not long afterwards, he was indeed elected.



Perhaps the oddest aspect of Italy's bizarre election campaign this year is that 24 years on, despite a stream of sex scandals, more than 20 trials on charges ranging from false accounting to bribing judges and a conviction for tax fraud, Mr Berlusconi remains an arbiter of his country's fortunes. He cannot be prime minister because his conviction carried a ban from public office. But he has said that he will stand if another election has to be held next year, after the ban expires. By then, Mr Berlusconi will be almost 83 years old. In the meantime, this election could boost his importance yet further.

Return of the crooner

His right-wing alliance is the only one with any hope of an outright parliamentary majority. To secure one, analysis suggests the right needs only around 40% of the vote. That is because a 3% threshold will keep numerous small parties out of parliament, and the alliance can expect to win a large number of seats in first-past-the-post contests that a new electoral system introduces. It is tantalisingly close. Polls published just before a ban in the last fortnight of the campaign show the media tycoon and his allies running at around 37%. But depending on how votes translate into seats under the new system, that might still be enough for victory. If the right did win, whether Mr Salvini or a temporary stand-in for Mr Berlusconi would be proposed as prime minister would depend on which of their parties had won more votes. Forza Italia went into the final straight with a narrow advantage in the polls.

A peculiar aspect of the campaign was Mr Berlusconi's prolonged refusal to disclose his choice for the top job. That meant he monopolised the limelight—but since he is a talented campaigner, it may have been a wise move. On February 27th he finally plumped for the moderate, if platitudinous, president of the European Parliament in Strasbourg, Antonio Tajani.

The difference between a government led by Mr Tajani and one headed by Mr Salvini, a punchy, hard-right, populist Euro-sceptic, would be considerable. It illustrates a point made by Wolfango Piccoli of Teneo Intelligence, a political-risk consultancy, about the effects of Italy's new electoral law: "A shift of a few percentage points in voters' preferences could have a dramatic impact on the ability to form a new government, and its eventual composition and leadership."

The choice between Mr Tajani and Mr Salvini would at least reflect voters' preferences. The same cannot be said of the other likely outcome—a hung parliament. No one, for example, will have voted for a "grand coalition" of Forza Italia, the centre-left Democratic Party (PD) and perhaps the League and some smaller parties (party leaders can ditch their allies to make new deals after the election). Yet that remains the likeliest upshot if no alliance secures an outright parliamentary majority, and a further reason for believing that Mr Berlusconi's influence could grow.

A grand coalition, particularly if it has the incumbent prime minister, Paolo Gentiloni, in charge, would certainly reassure investors. But the PD, which faces competition from a breakaway new party further to the left, has slipped in the polls to between 20% and 25%. As the dominant partner in Mr Gentiloni's coalition, it risks further punishment because of the travel disruption caused by the snow that fell in unlikely places, including Naples and Rome, this week.

Can Mr Gentiloni keep it together?

To assemble a majority, Mr Mattarella may need to involve the inexperienced M5S which, despite a campaign marked by blundering and controversy, remains the most popular party in Italy. But with less than 30%, the M5S, which is running alone, appeared to be well short of an outright majority. The movement's policy till now has been that until it gets one, it should not make deals with mainstream parties to get power. What remains unclear, and could force a return to the ballot box, is how far the M5S will be prepared to engage in any coalition talks after the vote.

The prospect of a hung parliament has raised fears of gridlock. But Italians have more than 70 years' experience of solving apparently intractable political conundrums. Arguably greater than the threat to governability is that to good government. Whichever coalition emerges from the election is likely to be heterogeneous. That is inevitable in the case of a "grand coalition", but just as likely if the right wins outright. Mr Berlusconi and Mr Salvini have repeatedly disparaged each other's ideas. They have fallen out over Mr Salvini's proposals for closing mosques and reintroducing conscription, their attitudes to the euro zone's budget-deficit limit (of 3% of GDP) and the rate at which they would implement their alliance's star pledge: a flat rate of income tax.

A further reason for concern is the lack of any serious discussion of Italy's economic challenges during the election campaign. Marcello Messori, director of the school of European political economy at the LUISS university in Rome, notes the absence of attention to the central issue of Italy's declining productivity. A recent Oxford Economics study found that, despite a modest increase last year, output per hour had risen by 20% less than Germany's since 1999. "Nor have the politicians discussed another issue," says Mr Messori. "If productivity is to be improved, there are going to be plenty of victims. People are going to be thrown out of work and will need to be retrained. They will need welfare support in the short-term. How is that going to be financed?"

Another pressing question is how Italy, with its giant debts, will cope with the rise in borrowing costs to be expected when the European Central Bank withdraws its support from the bond market. The party manifestos all contain vague promises to slash public debt. Yet they sit alongside plans for higher spending and lower taxes that would unavoidably increase it, at least in the short term, if implemented.

A study for *La Repubblica*, a centre-left daily, by Roberto Perotti, an economics professor at Bocconi University in Milan, calculated that the programmes of the PD, M5S and right would add €56bn ($68bn), €63bn and at least €161bn respectively to the deficit. The highest of those figures would take it to almost 12% of GDP. Long before then, however, the markets would have been seized by panic, doubtless tipping the euro zone into a second crisis.

This article appeared in the Europe section of the print edition under the headline "The right road is wholly lost and gone"

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Succession planning

Germany prepares for a new coalition government

The Social Democrats are expected to endorse the deal on March 4th

TWO weeks ago, Germany’s chancellor seemed to be in trouble. Her Christian Democrat (CDU) party and the more conservative Christian Social Union (CSU), its Bavarian sister, hated the bland coalition deal she had just forged with the Social Democrat (SPD) leadership. They also hated the fact that she had conceded the mighty German finance ministry to her prospective centre-left partners to help them win a membership vote, the result of which is due on March 4th. And they hated the fact that she had not brought any prospective successors into the cabinet.

Since then, however, Angela Merkel has rewritten the final chapters of her chancellorship. At a CDU conference in Berlin on February 26th Annegret Kramp-Karrenbauer, her preferred candidate to be general secretary (and, many reckon, to succeed her as chancellor) was elected to the job with 98.9% of votes. The party also opted for a new "grand coalition" with the SPD by a similar margin. In her speech, Mrs Merkel blamed her poor election result in September on *Unbehagen*, or malaise, about the capacity of the German state in moments like the refugee crisis, about technological change and about an unpredictable wider world.

It is still possible that the SPD members will vote against the coalition deal. In that case Mrs Merkel would probably form a minority government, though it would be unlikely to last a full four years. Or she could try to force new elections. But it looks more likely that grass-roots Social Democrats will—very reluctantly—back the deal. If so, Mrs Merkel's fourth term as German chancellor will begin around mid-March.

Several new figures would then mark German politics. Olaf Scholz, the fiscally conservative SPD mayor of Hamburg, would be finance minister and thus dominate discussions with Emmanuel Macron, the French president, on euro-zone reform. The pugilistic Andrea Nahles, the incoming SPD leader, would strive to give her party new definition in the Bundestag. Mrs Kramp-Karrenbauer, the moderate former minister-president of the Saarland, would launch a programme of renewal in the CDU. In her speech at her party's conference in Berlin she committed to making it once more "the place where there's a real contest". Meanwhile Jens Spahn, an ambitious MP from the Rhineland, would become health minister.

The expected contest between Mrs Kramp-Karrenbauer and Mr Spahn to replace Mrs Merkel—who most people in Berlin assume will step down before the next election, due in 2021—would pit two starkly different visions of the CDU/CSU alliance against each other. The former, aged 55, belongs like Mrs Merkel to the party's Christian-social wing. She is a social conservative and economic centrist who as leader would probably prefer yet another coalition with the SPD. By contrast Mr Spahn, who is only 37, and is gay, belongs to the CDU's socially liberal wing, yet has won over the party's conservatives with a tough line on immigration and integration, and would most probably seek to form a new government with his friend Christian Lindner of the pro-business Free Democrats, if the numbers permitted. He admires dynamic young centre-right European leaders like Sebastian Kurz in Austria and Leo Varadkar in Ireland.

For Europe a new German "grand coalition" would be preferable to the alternative: more muddle. The continent's mightiest economy has now gone five months without leadership. Mr Macron and others want to do a preliminary deal by June to strengthen the euro zone before its next crisis. A "no" from the SPD membership would make a new government before the autumn unlikely. But even a "yes" would leave big questions open. Would SPD control of the finance ministry move Germany much towards French proposals on the integration of the euro zone? Would Mrs Kramp-Karrenbauer consolidate her position as Mrs Merkel's preferred successor? Would Mr Spahn stay loyal or agitate against the chancellor? Mrs Merkel's position is secure for now. What comes next is less certain.

This article appeared in the Europe section of the print edition under the headline "Succession planning"

Muzzling the media

No one in Turkey dares report accurately on the war in Syria

With more than 100 journalists in jail, it is prudent not to

AT THE start of its offensive against Kurdish insurgents in Syria's Afrin province last month, Turkey's prime minister, Binali Yildirim, held a morning briefing with more than a dozen editors of the country's leading news outlets. According to accounts of the meeting, the journalists were provided with guidelines on how to cover the unfolding war. Reporters were asked to “bear in mind Turkey’s national interests”, one participant recalled. News published in the foreign media was to be treated with caution as it was likely to give a platform to “terrorist propaganda”. Readers were to be reminded that the army would take the utmost care to avoid civilian casualties. The coverage was to highlight that Turkish troops would be fighting Islamic State (IS) gunmen in addition to Kurdish ones—though IS has no presence in Afrin.

With a handful of exceptions, Turkey’s media have followed the government’s recommendations to the letter. The main channels have competed to be first to report on the number of villages captured and the numbers of Kurdish People’s Protection Units (YPG) killed by Turkish troops. (The government detests the YPG because of its support for Kurdish separatists inside Turkey.) News stories have tended to be no more than a blend of government talking points and army communiqués. When Turkey’s president, Recep Tayyip Erdogan, threatened to give American troops embedded with the Kurds elsewhere in Syria “an Ottoman slap”, no fewer than 16 newspapers featured his words on their front pages the following day. Turkey’s army claims to have “neutralised” over 2,000 YPG fighters in Afrin without killing a single civilian. Not a single mainstream media outlet has questioned the figures.

Turkey is the world’s biggest jailer of journalists, with over 100 currently behind bars. Mr Erdogan seems determined to keep it that way. On February 16th a court sentenced six media workers, including a prominent novelist, to life in prison without parole on trumped-up charges of involvement in an abortive coup in 2016. The same day Turkey released Deniz Yucel, a correspondent for a German newspaper, from pre-trial detention. Widely considered a bargaining chip in Turkey’s fraught relations with Germany, Mr Yucel had been locked up for over a year without even an indictment.

Arrest is the weapon of last resort. What gets Turkey’s government the coverage it wants is a more nuanced system of incentives and sanctions. Because the biggest news outlets are run by conglomerates with interests in sectors like mining, construction and shipping, even those media bosses privately opposed to the government dance to Mr Erdogan's tune to avoid losing out on lucrative state contracts. Some hire government cronies. Critical pundits are banished from the main news channels. Reporters sacked under government pressure become unemployable. Others are dragged through the courts. Some still test the boundaries, but most are resigned to living inside them. "There's no need for censorship any more," despairs a columnist. "Journalists understand what is expected of them."

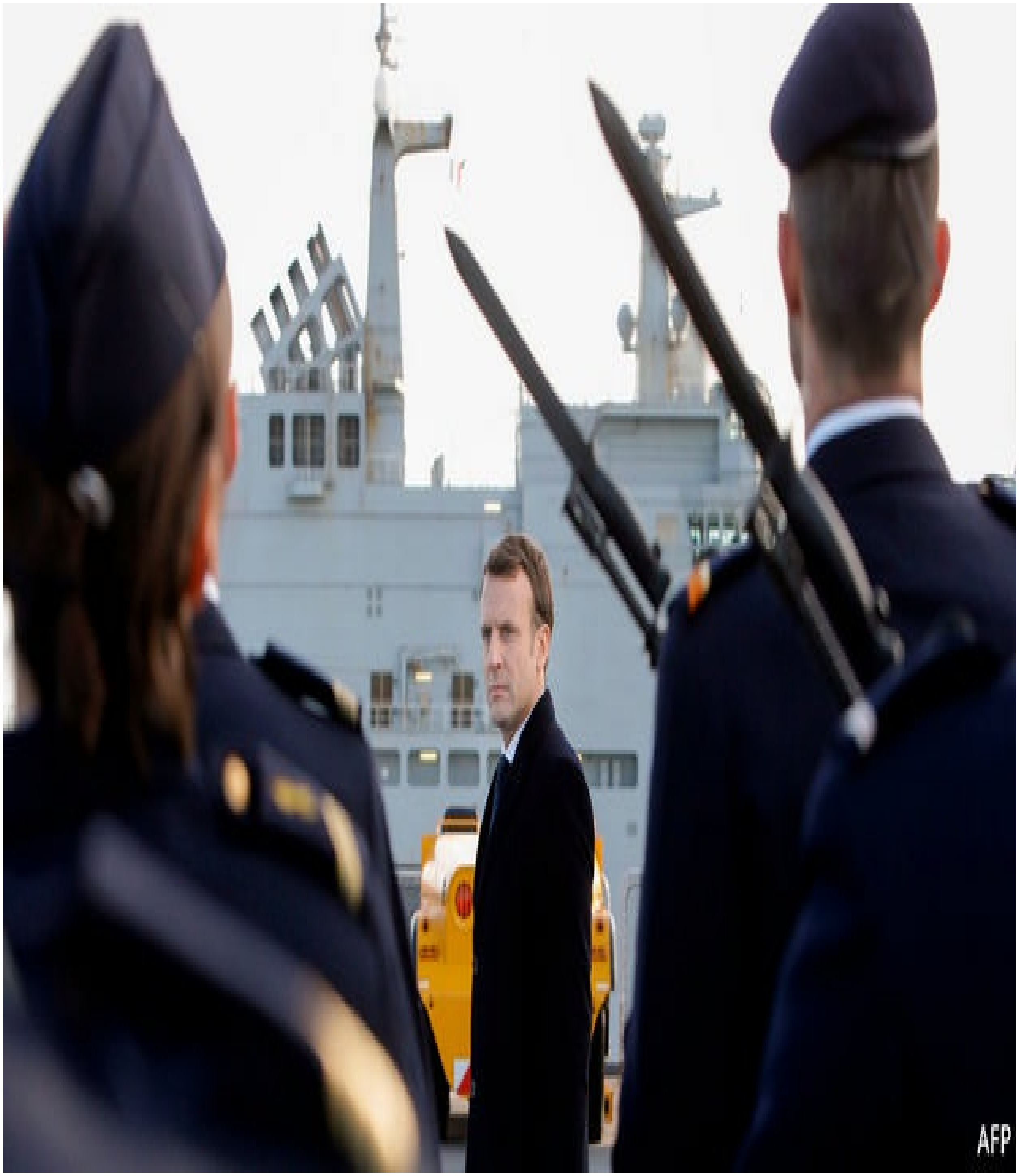
The climate of fear, the ongoing state of emergency and the nationalist zealotry unleashed by the coup have made objective coverage of the war in Afrin impossible. "Journalists are incapable of reporting critically without being accused of treason," says Erol Onderoglu, the Turkish representative of Reporters Without Borders. The internet is no longer a safe space for dissent. In the past month more than 800 people have been detained for protesting against the war on social media. Newspapers that cite the Syrian Observatory for Human Rights (SOHR) when reporting atrocities committed by Syrian regime forces in Ghouta or Idlib ignore the group's reports from Afrin. The SOHR estimates that at least 112 civilians on the Syrian side of the border have died in the fighting, in addition to seven Turkish civilians killed by rockets fired from YPG strongholds. "All news of civilian casualties is considered as false or as terrorist propaganda," says Kadri Gursel, a veteran journalist. "There's a blackout."

This article appeared in the Europe section of the print edition under the headline "Muzzling the fourth estate"

Aux armes, citoyens!

Emmanuel Macron wants to bring back national service in France

The young president missed out on it himself



WHEN Sweden brought back conscription at the start of this year, it was a direct response to rising tension in the Baltic region and the difficulty of recruiting soldiers. Now France, too, is debating the reintroduction of military service, which the country used to require of all young men until it was abolished by the Gaullist President Jacques Chirac in 1997. Unlike in Sweden, however, it is far from clear what the point in France would be.

During his election campaign last year, Emmanuel Macron (who is too young to have had to do it himself) promised to bring back compulsory military service, if only for a month. It would apply, he said, to all men and women, and take place in the three years following an individual's 18th birthday. Nothing detailed is yet on the table. Yet in recent declarations the president has begun to talk about a "universal national service", which might be partly "civic", but would involve some unspecified "exposure" to military affairs. Unlike the Swedish system, in which conscripts serve for nine to 12 months, the French version, said Mr Macron, would now last from three to six months. He has put a general in charge of rolling out the idea.

Some three-fifths of the French approve of the plan, according to one poll. And Mr Macron seems determined to press ahead. But the defence establishment is distinctly unkeen. The army faces no particular recruitment problem. It is already stretched by operations in the African Sahel and the Middle East, as well as patrolling the streets in France. When Mr Macron refers to the need for "national cohesion", or calls his plan a "project for society", military types see red. They have no wish to act as a sort of glorified social service to the 600,000-800,000 young people who would be covered each year, nor to enforce attendance on the unwilling. "If you cannot tell young people that this is a national defence imperative, it will be very difficult to coerce them," notes François Heisbourg, of the Foundation for Strategic Research, who is sceptical about the idea.

There are concerns about the budget, too. Mr Macron originally estimated costs for his one month's military service at €2bn-3bn ($2.4bn-3.7bn) a year, amounts that were steep enough. Yet he also referred during the campaign to an investment cost of €15bn-20bn, vast sums that, if serious, would amount to half the annual French defence budget. Some suggest that the numbers were slipped into the candidate's speech by defence advisers eager to make the idea appear unworkable. More recent estimates suggested that the cost of building 18 regional centres across France, in order to take in 4,500 young people for a month at a time, would be closer to €3.6bn.

Perhaps least clear of all is what Mr Macron wants to get out of this. He seems to have various aims, none directly related to national defence: to build respect for the security forces, to bring people from different backgrounds together and to provide a nation-building experience.

Even so, the broader social aim may prove elusive. A recent parliamentary report was scathing about the usefulness of a month of compulsory service for such a purpose. It pointed out that teenagers who turn to crime, or become radicalised, often do so before the age of 18. Nor did it believe that such a project could bond the nation. The idea that "a few weeks of military instruction would be enough to develop among 18-to 21-year-olds a sense of national belonging", it concluded, "is illusory".

This article appeared in the Europe section of the print edition under the headline "Aux armes, citoyens!"

A fit of intolerance

Why Spanish courts censor art, speech and rap lyrics

Independent judges don’t like what they see or hear

Now you see it, now you don’t

IF YOU want to give a work of art loads of publicity, censor it. That is what the hosts of Madrid’s Contemporary Art Fair (ARCO) did with a tableau by

Santiago Sierra called "Political Prisoners in Contemporary Spain" featuring 24 pixelated mugshots, three of them of jailed Catalan separatist leaders. On February 21st the director of the exhibition centre where ARCO is held ordered a participating gallery to remove the work. With that, he triggered a national debate.

His decision coincided with two other acts of intolerance. The previous day the Supreme Court upheld a 42-month jail sentence against Josep Miquel Arenas, a rapper who calls himself Valtónyc, for insulting the monarchy and glorifying terrorism in YouTube posts. That followed an order by a lower-court judge to withdraw a book about the drug trade in Galicia, published in 2015. A former mayor in a small town, whom nobody had previously heard of, objected to his name appearing in the book.

These incidents confirm a worrying trend. Since 2015 Spain's courts have convicted more than 50 people for "hate speech" or the glorification of terrorism. Spaniards are still emotionally scarred by the crimes of ETA, a Basque separatist group that murdered 829 people, and by two big jihadist attacks (the latest one in Barcelona in 2017). But ETA gave up violence in 2011 and is dissolving itself. That didn't stop a court last year from convicting Cassandra Vera, a student, for tweets mocking the murder by ETA in 1973 of Luis Carrero Blanco, Franco's prime minister, even though the dead man's granddaughter called for clemency.

None of these legal decisions was taken by the conservative government of Mariano Rajoy's People's Party; they mostly show the impact of a new penal code, and the zeal of independent and deeply conservative judges. But they are damaging the image of Spanish democracy at a delicate time.

Four Catalan separatist leaders have been in pre-trial detention for almost four months; two dozen more face charges. By holding a referendum and then declaring independence, the separatists deliberately violated the constitution and the law. Spanish politicians point out that the separatists face charges for their actions, not their beliefs, and thus, contrary to Mr Sierra's contention, are not "political prisoners". They might well have been prosecuted anywhere in Europe. But human-rights groups worry that charges of rebellion (carrying a possible 30-year jail sentence) and lengthy pre-trial detention are disproportionate.

As for Mr Sierra, a professional provocateur, he sold his tableau to a Catalan entrepreneur for its asking price of €80,000. It is to be displayed at a museum in Lleida, in the west of the region.

This article appeared in the Europe section of the print edition under the headline "A fit of intolerance"

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Charlemagne

Power does not always lie where you might expect in Europe

Back-seat drivers are steering Poland, Romania and the Czech Republic the wrong way. Is Italy next?

WHEN Rex Tillerson, America's secretary of state, dropped in to see the most important politician in Poland a few weeks ago, he might have hoped for grander surroundings. But power in Warsaw resides not in the presidential palace, the prime minister's chancellery or the parliament. Instead Mr Tillerson had to duck into the headquarters of Poland's ruling Law and Justice (PiS) party, a dingy office that shares a building with a shuttered Japanese restaurant in an unremarkable corner of the capital. There he was greeted by Jaroslaw Kaczynski, who chairs the party but holds no constitutional position beyond his role as a backbench MP serving Warsaw constituents.

Europeans got used to dealing with back-seat drivers when Vladimir Putin ran Russia as prime minister in 2008-12, while his factotum, Dmitry Medvedev, kept the presidential throne warm. But now they are found closer to home. Mr Kaczynski is perhaps the most prominent among them. Polish prime ministers serve at his pleasure. In December he summarily dispatched Beata Szydlo to make way for Mateusz Morawiecki, her deputy. That decision was taken to improve Poland's scratchy relations with its European partners; the suave, English-speaking Mr Morawiecki is seen as a more convincing exponent of his boss's views. But Europe's leaders know who is really in charge.

Mr Kaczynski has chosen to stay in the shadows, perhaps to avoid inflaming the large segment of Polish voters who detest his brand of nationalist populism. But elsewhere criminal convictions have kept puppet-master politicians from the stage. In Romania a vote-rigging conviction bars Liviu Dragnea, who leads the ruling Social Democrats, from office. He also faces a string of corruption probes. So instead he directs a series of unimpressive prime ministers while urging his party to wage war on Romania's "deep state", including its anti-corruption directorate, and to pass laws making it harder to tackle graft. In January Viorica Dancila, an obscure member of the European Parliament, became Romania's fifth prime minister in just over two years.

In the Czech Republic Andrej Babis, a tycoon-turned-politician facing corruption charges of his own, has been unable to form a majority since his ANO ("Yes") party won the most seats in an election last October. He serves as acting prime minister but perhaps not for long; potential coalition partners have made their support conditional on his stepping aside. Yet like PiS and

Romania’s Social Democrats, ANO is a one-man band: if Mr Babis is shunted aside, he will simply direct the action from offstage.

And then there is Italy. It is impossible to predict the outcome of the election on March 4th, but one possibility is victory for the three-party right-wing coalition, of which Silvio Berlusconi’s Forza Italia might, according to the latest polls, win the most seats. As with Mr Dragnea, a criminal conviction, in this case for tax fraud, bars Mr Berlusconi from taking office, at least until next year, but he has loyal lieutenants. The most plausible contender for prime minister is Antonio Tajani, president of the European Parliament. Mr Tajani has signally failed to shed his air of mediocrity in that job, but possesses the cardinal virtue of having remained loyal to Mr Berlusconi, whom he once served as spokesman, since Forza’s founding in 1993.

Europe’s back-seat drivers have several things in common. They have emerged in countries where parties have shallow roots or have been atomised, enabling strongmen to dominate their organisation and personnel decisions. That is easiest in ex-communist countries with barely three decades of multiparty democracy under their belts. In Italy Forza Italia was established by Mr Berlusconi in the wake of the “clean hands” corruption scandal that destroyed the Christian Democrats in the 1990s. Messrs Berlusconi, Kaczynski and Babis all co-founded their respective parties. None has shown much interest in grooming colleagues who may harbour ambitions of their own.

The crash to come

But the problems with such arrangements are obvious. International partners can hardly negotiate with political ciphers in good faith. Two years ago EU officials discussing judicial reforms with the Polish government thought they had secured a deal until Mr Kaczynski emerged from nowhere to squash it at the last minute. In Italy’s case this could hamper difficult talks on euro-zone reform later this year, especially when it comes to managing the sovereign debt on which some of the country’s banks have gorged. It is frankly difficult to imagine Mr Tajani negotiating such issues seriously with Angela Merkel or Emmanuel Macron. More broadly, European summits depend on mutual trust among leaders that each will follow through at home on commitments made in Brussels. How can that be done when the real leader is thousands of miles away? During her two-year stint in office Ms Szydlo sometimes asked for summits to be suspended, to give her time to phone home for instructions.

There can be checks on unaccountable leaders, including independently elected parliaments and presidents. In Romania Klaus Iohannis has at times been a bulwark against the Social Democrats' excesses. Even appointed prime ministers who are supposed merely to execute their master's will can develop a taste for office; that is why Mr Dragnea has rattled through so many of them. Mr Morawiecki, who has no standing of his own inside PiS, has been loyal so far but that could be tested.

Yet this is no way to run a country. Leaders who are unaccountable to voters endanger democracy and undermine institutions. Basic governance becomes harder when lines of authority are blurred and ministers serve at the whim of figures who do not occupy formal office. The incompetence of Romania's latest government is outrageous, says Oana Popescu of Global Focus, a think-tank in Bucharest. It does not take a back-seat driver to ensure that a country is badly run. But it certainly helps.

This article appeared in the Europe section of the print edition under the headline "Europe's back-seat drivers"

Britain

Master of (almost) all he surveys

The battle of ideas within the Labour Party

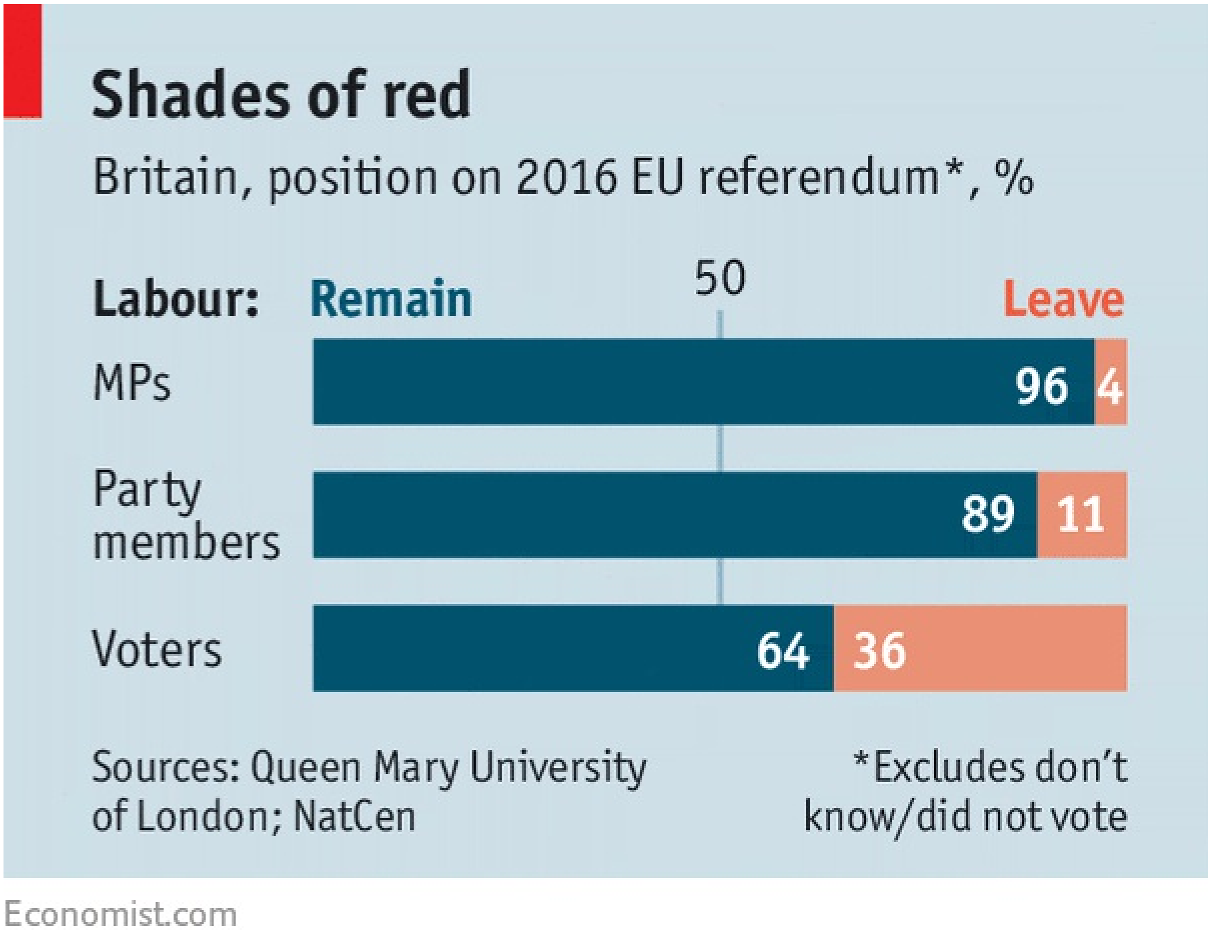
Jeremy Corbyn’s position is stronger than ever, but the fight goes on for control of councils, officials and policy

BY THE time he had finished speaking, Jeremy Corbyn had made some unlikely friends. The Labour leader was in Coventry, declaring that under his radical left-wing government Britain would remain in a customs union with the EU after Brexit. The Confederation of British Industry, hardly a bastion of socialism, hailed the policy as a "real-world solution". Rebellious Conservative MPs campaigning for a soft Brexit cheered it. Labour MPs who had bayed for Mr Corbyn's sacking after the EU referendum, only 18 months ago, heaped praise on the announcement.

After the ridicule and rebellion that dogged his start as leader of the opposition, it is quite a reversal. Recent Labour leaders have faded in the role. Mr Corbyn has done the opposite. "He's gone from Mr Bean to Stalin," says one adviser. Two-and-a-half years into the job, Mr Corbyn has never been stronger. Once-mutinous MPs have fallen into line. Corbynites fill crucial positions in the party's apparatus. Left-wingers dominate Labour councils in London. But Mr Corbyn's rule is far from absolute.

In the parliamentary Labour Party, peace reigns. "Acquiescent" is the common description of backbenchers. If offered an immaculate ejection of their party leader, most MPs would take it. For some of those close to the Labour leader, the feeling is mutual. But with Labour nudging ahead of the Tories in opinion polls, there is no appetite for a coup, and deselecting troublesome MPs is easier said than done.

In some local parties, by contrast, bloody intraparty battles rage. In Haringey, a Labour-run north-London borough, the controversial redevelopment of a run-down housing estate sparked a civil war from which the left wing of the local party emerged victorious. The result was the deselection or resignation of more than 20 Labour councillors, under pressure from Momentum, an activist group founded to support Mr Corbyn. After a round of local elections due in May, Haringey is likely to become the first Momentum-controlled council in the country. Meanwhile in Newham, east London, Sir Robin Wales for the first time faces a battle to be reselected as Labour's mayoral candidate. His opponent? A Momentum-backed candidate.



Outside London, Momentum is finding the going harder. It has caused barely a ripple in the sea of red that is Labour's northern urban territory. All 96 of Manchester's council seats (of which Labour holds 94) are up for election in May. Only six candidates belong to Momentum. It is a similar story in Leeds, where Momentum has ten candidates running, out of 99. In other big cities, such as Birmingham, Sheffield and Newcastle, Momentum has struggled to gain significant footholds. The group's own organisers say this shows that its supposed takeover of the Labour Party is a myth. "When you look at the numbers, it just isn't there," says one.

Arranging a municipal purge takes time, manpower and a near-superhuman stamina for procedural warfare. It is one thing to pull it off in a densely populated London borough, with an eager supply of activists a Tube ride away, but quite another to do it in the regions, points out one activist from another wing of the party. Deselecting rebellious MPs would prove even trickier, they argue. For now, at least, a block of moderate local politicians and MPs who often only grin and bear Mr Corbyn's policies is set to stay.

Labour's central party apparatus, by contrast, is increasingly stuffed with true believers. On February 23rd Iain McNicol, the moderate general-secretary, resigned after months of criticism from left-wingers. The two most likely contenders to succeed him are Jon Lansman, the founder of Momentum, and Jennie Formby, an apparatchik from the Unite union, Labour's biggest donor. They disagree on whether members or unions should have the bigger say in how the party is run. But both are strong supporters of Mr Corbyn, in whose image the party is slowly being remade.

Yet although Mr Corbyn's critics have surrendered control of the party bureaucracy, other battles are still under way. "The organisational fight may be being won by the hard left, but the philosophical and policy fight is up for grabs", says one senior Labour MP. The most important battleground is Brexit. This week Mr Corbyn reiterated that Britain "voted to leave the EU, that's a done deal." But Labour's position on the manner of departure is still in flux, as shown by the customs-union shift.

For Mr Corbyn, a lifelong Eurosceptic who in the end campaigned tepidly for Remain in the referendum, Brexit sometimes seems to represent a political obstacle rather than a matter of great ideological interest. Some of Mr Corbyn's opponents fear that he would use Brexit to administer a "reverse shock-doctrine", using Brexit-induced trauma as an excuse to foist socialism on Britain. Yet some in Mr Corbyn's camp worry about the opposite—that Brexit may create a black hole in the public finances that would rule out some of the party's expensive policies. So far, Labour's position on Brexit has been driven by a simple aim: to get elected.

That will not be easy. The party's members are solidly pro-EU: 89% voted to remain, as did 96% of Labour MPs. Among Labour voters, however, the figure was 64%. The defection of Labour's Leave-voters would torpedo its chances of forming a government. Yet for most people there is more to life than Brexit, argues Kevin Cunningham, a former Labour adviser and now a pollster at XY Campaigns. The party's position on more familiar issues may keep voters loyal. Labour's Leave-voters strongly support Corbynite policies such as nationalisation and are generally left-wing, points out Mr Cunningham.

Meanwhile, Labour's softening line on Brexit creates the prospect of splitting the Conservatives, whose contingent of Remain voters is roughly equal to Labour's Leave minority. Tory rebels have already proposed legislative amendments designed to keep Britain within a customs union, which could inflict a damaging defeat on Theresa May's government if Labour supports them (see Bagehot). Mr Corbyn's new stance placates those Labour MPs who had demanded he come up with a softer Brexit policy, and creates a potential route to Downing Street should Brexit blow up for the Tories. The Labour leader may not have total control of his party, but he is moving closer to a bigger prize.

This article appeared in the Britain section of the print edition under the headline "Master of (almost) all he surveys"

Border bust-up

What is the EU’s customs union and why is it central to Brexit?

An issue that was barely mentioned in the referendum campaign has emerged as a big obstacle

The border becomes a battleground

BREXIT keeps on throwing up surprises. One came this week when the issue of a customs union with the European Union suddenly moved into the political spotlight. Another was the sight of business lobbies praising Jeremy Corbyn, Labour's far-left leader, because he supported the idea of forming such a union, in hopes of uniting with rebel Tory MPs to defeat the government. Yet this technical-sounding matter was barely mentioned in the Brexit referendum—and few voters or even MPs really understand it.

The concept is old enough. The *Zollverein*, which abolished tariffs between German states in the 1830s, is a famous example. The EU's customs union dates from its inception in 1957, though it was not completed until 1968. Like a free-trade area, a customs union scraps internal tariffs and quotas, but it adds a common external tariff. By definition, leaving the EU means leaving its customs union. But it does not preclude forming a new customs union with the EU, as Andorra, Monaco—and, on a bigger scale, Turkey—have done.

By getting rid of tariffs and quotas, a customs union facilitates trade. The EU's customs union is essential to supply chains across Europe, with car parts and cabbages freely criss-crossing borders many times over. Unlike in a free-trade area, there are no costly rules-of-origin requirements to prove where products came from. And unlike membership of the EU's single market, a customs union does not entail free movement of people, being directly subject to the European Court of Justice (ECJ) or paying into the EU budget.

Yet there are drawbacks to a customs union. As Turkey has found, being in one makes it impossible to strike free-trade deals in goods with other countries. Worse, it means that any such deals that the EU makes automatically open the Turkish market without giving Turkey reciprocal rights (cheap Mexican imports, for instance, can enter Turkey even though it has no free-trade deal with Mexico). Turkey's customs union is only partial, excluding farm products, and it does not cover services. There are lengthy checks at the Turkish border with the EU.

Mr Corbyn tried to get around these problems by demanding not only a comprehensive customs union but also the right to do trade deals and to have a say in future EU free-trade negotiations. Brussels is unlikely to agree formally to this; indeed, the ECJ would refuse to allow it. But Britain, with greater clout than Turkey, might just be able to secure an informal right of consultation over EU trade deals.

The government still rules out any customs union at all. On February 27th Liam Fox, the international-trade secretary, labelled the notion a “sell-out” of British interests. Yet a customs union that covered only goods would allow free-trade deals in services, which Dr Fox energetically promotes. And the gains from possible future deals are smaller and further off than the immediate losses from leaving the EU and its free-trade deals with third countries.

This point was made by Dr Fox’s former permanent secretary, Sir Martin Donnelly, who likened his ex-boss’s position to rejecting a three-course meal now in favour of a packet of crisps later. The Treasury also frets that future gains are too remote to offset today’s losses. So does the Confederation of British Industry, which wants “a customs union for now”—that is, until future deals materialise. Another business lobby, the Institute of Directors, suggests a customs union that excludes most processed agricultural products and services, so these could be in free-trade deals.

The customs issue is bound up with another Brexit headache: averting a hard border with Ireland. The European Commission has released a draft legal text of the Article 50 withdrawal agreement, whose principles it agreed with Britain in December. The paper spells out the fallback option for avoiding a border, which is to keep Northern Ireland in a customs union and in full alignment with single-market rules. This implies that there might be a border in the Irish Sea, an idea rejected by the Democratic Unionists, who prop up Theresa May’s government. “No UK prime minister could ever agree to it,” she declared. If there can be no border on land or sea, a customs union could yet be forced on her.

This article appeared in the Britain section of the print edition under the headline “The customs of the country”

University challenge

British universities are under fire. Can a new regulator sort them out?

Vice-chancellors’ salaries, free speech, stroppy academics: the Office for Students has its work cut out

Going nuclear

SIR MICHAEL BARBER is used to difficult jobs. He was in charge of implementing policy during Tony Blair’s time in Downing Street, where he developed the doctrine of “deliverology”—think targets combined with the clever use of data to check they are met—while being castigated, by one newspaper columnist, as the “control freak’s control freak”. He has advised on an overhaul of schools in Pakistan, and published six books, including one called “How to Run a Government”. Now, at the age of 62, he has become chairman of the Office for Students (OfS). The new higher-education regulator begins work in April; its framework was laid before Parliament on February 28th.

Compared with his previous jobs, this one ought to have been a doddle. British universities are among the world’s best. The new regulator is powerful, bringing together the functions of various existing institutions. When Sir Michael was appointed last February, the government imagined a data-driven, technocratic organisation that would act as a “market regulator”, reflecting the fact that most funding now follows students, who get government loans of £9,250 ($12,830) a year to pay for tuition. The OfS would look out for students’ interests and boost competition by clearing the path to creating new institutions.

Since then, however, universities have found themselves uncomfortably close to the centre of British politics. The lesson many politicians drew from Labour’s surprising success at the general election in 2017 was that the Tories needed to work on their appeal to young voters. In particular, many worried that Labour’s pledge to abolish tuition fees had struck a chord with a generation saddled with big student debts and doubts about the value of their degrees. In July Damian Green, then deputy prime minister, said there was a need for a “national debate” over tuition fees.

He got one. And, to the dismay of universities, the debate has come to cover more than just fees. Andrew Adonis, a Labour peer and another former adviser to Mr Blair, has drawn attention to the salaries and perks enjoyed by vice-chancellors (a recent Channel 4 investigation found that one had spent £1,600 of university cash transporting his dog from Australia to Britain). In a speech in December Jo Johnson, then the universities minister, added his voice to the cacophony arguing that universities do not do enough to protect free speech on campus, calling for students to become “resilient and learn to deal with controversial opinions". The latest crisis is that lecturers have gone on strike over cuts to their juicy pensions. The government has suggested that universities should compensate students for missed classes.

All this means that the job of regulating universities now comes with more scrutiny, and more responsibility. In his speech Mr Johnson announced that the OFS would, along with its other duties, protect free speech on campus. It will also look at university pay. Sir Michael says he will seek to prevent universities offering vice-chancellors egregious salaries—his powers include the ability to levy fines and even to strip institutions of university status—but adds that he doesn't "want to get into a populist attack on vice-chancellors".

Some wonder whether the regulator can possibly be effective in such areas. Free speech, for instance, is most often constrained not by universities but by student activists, who won't much care if their institution is fined. University officials say the OfS may lose their confidence if it focuses on concerns that are tangential to what they see as the purpose of a university. It is not its job to get involved in things such as the squabble between academics and their employers, but that may be a hard message to get across.

A good start would have helped. Instead, the OfS appointed Toby Young, a former journalist and founder of a chain of schools, to its advisory board. He promptly resigned after it emerged that years ago he had sent some fantastically crude tweets, including about politicians. On February 26th a report by the Commissioner for Public Appointments criticised the OfS and the Department for Education for the way his appointment was carried out.

Sir Michael says he will focus on improving teaching, student employability and the information available to pupils picking a university, as well as expanding access to higher education. He hopes that free-speech issues "won't take up too much of our time". In his book he writes that a government must pick a narrow list of priorities and work on them relentlessly. Staff at the OfS must hope that ministerial whims don't get in the way of a similar approach at the regulator.

This article appeared in the Britain section of the print edition under the headline "Super-regulator to the rescue!"

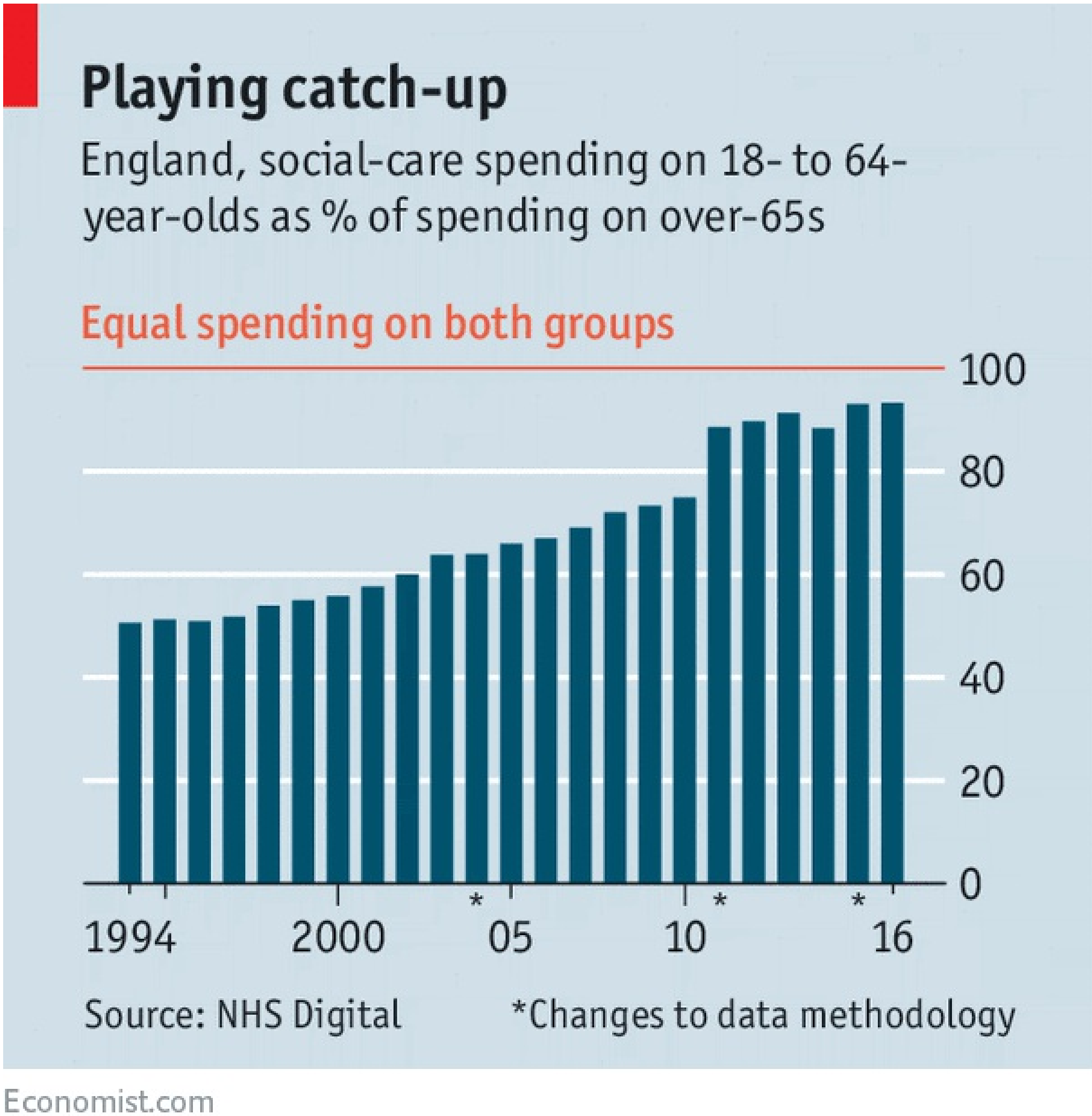
The other social-care crisis

Social care for younger adults may soon cost more than for the elderly

While most people worry about the ageing population, the bill for younger clients is rising faster

THE residents of a supported-living home in south London are an active bunch. All six have severe learning disabilities and are cared for by ten full-time staff from Mencap, a charity. Nevertheless, once a month they discuss their ambitions with their key worker. About a year ago, one middle-aged client decided that she wanted to use public transport independently. Now she can catch the bus to a local café to have tea with a friend. Others are gardening at a local park or learning to cook. And their social workers occasionally throw them a party at a community hall, inviting other clients from nearby homes. The shindigs have even sparked a few romances.

Such capers are not what most people imagine when they think of social care. A more common view is of an elderly person in a old-folks' home, or receiving occasional home visits from a helper. Headlines warn that Britain's ageing population is putting a strain on the service. The number of people of retirement age has risen by 2m in the past ten years. A government green paper on social-care funding, announced in November, is likely to focus on the over-65s.



But that is by no means the whole picture. Although about twice as many over-65s receive social care as working-age adults—who include those with physical disabilities and mental illnesses, as well as people with learning disabilities—spending on the two groups is almost equal, at about £7bn ($9.7bn) each (see chart). And spending on working-age adults has been growing faster. In 2005 only six of the 151 local authorities in England spent more on care for working-age adults than they did on care for the elderly. Last year, 57 did. Much of this shift has to do with people with learning disabilities, who make up the fastest-growing part of councils' social-care budgets.

Many reasons for the change are encouraging. One is that people with learning disabilities are living longer than they used to. More babies are surviving previously fatal conditions, such as premature birth, to reach adulthood with a learning disability. Medical advances help later in life, too. Today someone with Down's syndrome can expect to live to 60. In the 1980s their life expectancy was 25.

They also lead better lives. Before the 1980s many were kept in long-stay hospitals, where living conditions were grim. Social workers at the home in south London say that some older clients struggle to kick habits from these times, such as sitting and watching washing machines so that no one can take their clothes. Now most people with learning disabilities live in community settings. Much more effort is put into finding them work or helping them become independent. But this is labour-intensive and thus costly. A ratio of three staff to one client is not uncommon.

Another reason is that most people with learning disabilities rely entirely on government funding, rather than their own savings, points out Andrew Cannon, head of Voyage Care, a provider. That gives cash-strapped local authorities less leeway to cut learning-disability services. Spending on this group increased by 2% in real terms between 2011 and 2014 (the most recent period for which years of comparable data are available), while dropping by 8% for adult social care overall.

Such trends are likely to continue. Last year a survey of the heads of local authorities' social services found that the biggest factor in the increase in overall expected spending in 2018 would be people with learning disabilities, not the elderly.

One reason for this is a decision by the Department for Business regarding "sleep-ins", explains Derek Lewis, the chairman of Mencap. These are night shifts that care workers spend at care homes in case of emergency. Partly because of their needs and partly because they tend to live in homes with relatively few residents, people with learning disabilities are more likely to need this level of care than the elderly. Previously, carers were reimbursed with a low flat rate for sleep-ins. The policy change means they must be paid an hourly wage for their time. That cost may be borne by local authorities or providers, depending on how care contracts are drawn up.

Many local authorities have agreed to absorb this cost, but not all. And the tax office has decided that social-care employers are liable for up to six years of back pay. That will cost the providers of care for those with learning disabilities an estimated £400m. Many are furious. They say that the government should stump up the cash, otherwise small suppliers, which make up most of the market, could go bust. A legal challenge to this decision will be heard in March at the Court of Appeal.

Whatever the outcome on back pay, the new policy on sleep-ins will drive up spending on social care. The cost to the taxpayer will not be known for several years, as local authorities decide how to pay for overnight stays. But on present trends, looking after working-age adults may soon cost more than caring for the elderly.

This article appeared in the Britain section of the print edition under the headline "The other crisis"

Bottom’s up

Scotland’s minimum price for alcohol may have unexpected effects

Some drinks makers and retailers stand to benefit from the new law

Includes cirrhosis at no extra cost

ONLY about a dozen countries, mainly in eastern Europe, drink more than the British. Adult Britons each glug the equivalent of 500 pints of beer a year, a habit which kills 7,000 of them annually. The Scots, who are the thirstiest of the bunch, are determined to cut down. On February 26th their devolved government set a minimum price for alcohol of 50p ($0.70) per unit (equivalent to roughly half a pint of beer or a small glass of wine). The policy is likely to sober up some of the heaviest drinkers. Surprisingly, it may also give some drinks firms and retailers reason to celebrate.

The Scottish Parliament voted for a price floor in 2012. But legal challenges by the drinks industry delayed the policy's implementation. The Scotch Whisky Association argued that the plan conflicted with European Union trade rules. In November 2017 Britain's Supreme Court decided that it did not. When the policy is introduced in May, Scotland will join a handful of other countries that have introduced some form of minimum price, mostly big-drinking places such as Russia and Ukraine.

Plenty of tipples will be made more expensive by the new floor. An analysis by the Institute for Fiscal Studies, a think-tank, suggests that across Britain roughly 70% of shop-bought alcohol is priced at below 50p a unit. The cheapest, strongest drinks will become a lot more expensive. In some places the price of Omega cider, which makes up in strength what it lacks in taste, stands to rise by 70%.

This kind of sturdy, discount grog is often favoured by the hardest drinkers. The minimum price could, therefore, have a big impact on public health. Last year a review of evidence in *BMJ Open*, an online journal, suggested that minimum pricing was "likely to reduce alcohol consumption, alcohol-related morbidity and mortality".

Yet the policy may also mean higher profits for some drinks makers and retailers. Demand for booze tends to be inelastic with respect to price, suggesting that the hit to revenues caused by the expected fall in consumption will be more than outweighed by the rise in prices. Normally competition between firms prevents them from jacking up their prices. By introducing a compulsory price floor, the government is doing it for them.

Higher taxes would be an alternative way to dissuade consumption, with the added benefit of raising money for the Treasury rather than the drinks industry. It would encourage champagne guzzlers to cut back, as well as scrumpy swillers. But the Scottish government has no powers over alcohol duties. And the Westminster government, which does, is worried about squeezed living standards and is in no mood to raise taxes on the national pastime.

This article appeared in the Britain section of the print edition under the headline “Bottom’s up”

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Total eclipse of the arts

The quiet decline of music in British schools

Barely one in 20 pupils took music GCSE last year. How much longer will the world dance to Britain’s tune?

Diminuendo

FOR the men of Rhostyllen, there were once three pillars of life: coal, God and the organ. On Saturdays they would pile into one of five pubs in this village near Wrexham for pints and a singsong. The next morning they reprised the chorus in its two chapels. Mark Pritchard used to walk past the Old Black Horse to hear his father and his colliery friends in full flow. The pits are long gone and the Old Black Horse has made way for houses, but Mr Pritchard can still remember the sound its organ used to make. “I love music,” he says. “I’m a Welshman.”

Yet on February 21st Mr Pritchard, now the leader of Wrexham borough council, voted with his fellow councillors to cut the budget for its music service, which gives free lessons to children who want to learn an instrument, by 72%. He says they had little choice. The council has already made £52m ($72m) of savings since 2008, by chopping the number of managers, merging departments and charging for car parks. In the next two years it must save another £13m. Council tax will rise by 3.9% this year but more services, including music, will have to be pruned.

Music is more than a pastime in Britain. The country’s music industry is worth £4.4bn a year and projects soft power around the world. Three of the five biggest-selling artists in 2016 were British (David Bowie, Coldplay and Adele). More than a sixth of the 200 most-streamed songs of all time on Spotify are by Britons, second only to the number recorded by Americans. But the industry faces an “existential crisis”, in the words of Michael Dugher, head of UK Music, an industry lobby group. Even in the world’s poorest slums, people make music. But children need formal tuition to “hone their talent”, he argues, and in Britain that tuition is becoming rarer.

Most schools give at least some of their pupils all-class music lessons, but from the 1950s until the 1990s most councils also paid for peripatetic staff to travel around schools, giving one-to-one or small-group instrumental tuition. They also organised bands, choirs and county concerts.

That system is unravelling. According to the Welsh Authorities’ Music Education Association, no more than seven of the 22 Welsh councils still pay for a service that employs musicians on the kind of permanent contracts usually enjoyed by teachers. In Powys, the music service was abolished in the 1990s and schools can now choose whether or not to provide instrumental tuition, for which they charge parents. From next year Wrexham will set aside £50,000 to cover lessons for the poorest children, but everybody else will have to pay. Many will give up, fears David Thomas, the head of the council's music service.

The Educational Institute of Scotland, a teachers' union, claims that 22 of 32 Scottish councils charge pupils to learn an instrument. In England, most children used to be entitled to free instrumental lessons, according to Music Mark, an educational association, but provision now varies widely. The Arts Council, a government body which administers a £75m annual fund for English music services, is unable to say which councils offer free tuition and which do not.

The "English Baccalaureate", which the government introduced in 2010, judges schools on the proportion of pupils who get good grades in English, maths, history or geography, the sciences and a language—but not the arts. It has contributed to a steep decline in the number of pupils studying music at school, though the shift began before the measure was introduced. Of those students taking GCSE maths (a rough measure of the overall pupil population), the share who also sat the music GCSE rose every year this century until 2007, since when it has fallen in most years, from 8% in 2008 to 5.5% last year. Meanwhile, fewer pupils are studying music at A-level.

Music could increasingly become the preserve of the rich. Poor children are already less likely to become musicians. The Sutton Trust, a charity, found that 19% of the people named "best solo artist" at the Brit Awards between 1977 and 2016 went to private schools, compared with 7% of the overall population. So far this century the proportion has been higher than in the 1990s. Only 44% of undergraduates at the Royal Academy of Music in 2016 came from state schools, lower than the proportion at any university. Music colleges fear that council cuts will exacerbate the problem. A parent would have to find £200 for a basic cornet; a top-of-the-range tuba might cost £8,000.

In 1975, 16 of the 25 young musicians in the Tredegar Town Band, a renowned troupe in south Wales, lived within 250 yards of the band room. Now only 10% of the band's membership is local, says Iwan Fox, its vice-president. Some come from as far away as Birmingham, partly because of the band's reputation but also because there are no longer enough talented locals to fill the spaces. These days the only instrument many children are taught to play in school is the ukulele. "Everyone strums away to 'Wonderwall'," says Mr Fox. "It's a production line of nothingness."

This article appeared in the Britain section of the print edition under the headline "Total eclipse of the arts"

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Bagehot

Parliament’s silent majority could thwart a hard Brexit

Theresa May has united her cabinet around a Brexit plan. Getting it past MPs could be harder

THE British constitution is a mysterious thing. It is not written down in any single place. It is sometimes frustratingly fuzzy. Yet on the most important subject of all—where sovereignty lies—it is crystal clear. Sovereignty does not lie with the government. It does not lie, thank God, with that dangerous abstraction, “the people”. It lies with Parliament, and ultimately with the House of Commons.

Theresa May has tried her best to massage this inconvenient constitutional fact into a manageable political shape. She called an election in order to increase her majority and with it her ability to bribe and bully her MPs. She argued that MPs would only be given a vote on the European Union (Withdrawal) Bill at the last moment. But it was as if the spirit of parliamentary sovereignty was determined to frustrate her. First, she lost her majority in June 2017. Then, in October, Dominic Grieve, a normally faithful party man and former attorney-general, pushed through an amendment obliging the government to give MPs a “meaningful” vote on the Brexit deal.

Mrs May has recently focused all her energies on securing agreement within her cabinet. At the prime minister’s country residence, Chequers, on February 22nd, the various factions agreed on a policy they called “managed divergence”. But whatever the merits of this plan—and most people regard it as a pig that won’t fly in Brussels—the battleground is now moving from the cabinet, where Brexiteers and anti-Brexiteers are evenly balanced, to Parliament, where a different logic prevails.

Three-quarters of MPs voted to remain. This pro-EU majority has been humbled by the vote to leave—after all, Parliament explicitly contracted the decision to the voters. It has also been marginalised by day-to-day politics. The leaders of the two main parties both embraced the “Brexit means Brexit” formula. Brexiteers advanced their position with discipline and determination. But people who voted against Brexit in the first place are naturally predisposed to voting for a soft Brexit, such as remaining in a customs union with the EU. One calculation puts the number of MPs who support a customs union at 487, compared with just 155 who oppose it (150 Tories plus five Labour MPs). This silent majority is now finding its voice, thanks to two developments.

The first is that moderate Tories are beginning to push back against the Brexiteers. In particular, Anna Soubry is bringing the same determination to her cause that Jacob Rees-Mogg, an outspoken Brexit purist, has brought to his. Together with Tory remainers such as Ken Clarke and Labour Remainers such as Chuka Umunna, Ms Soubry has tabled amendments to both the Taxation (Cross-Border Trade) Bill and the Trade Bill that would force Britain to be part of a customs union with the EU after Brexit, a position that directly contradicts Conservative Party policy.

The second is that, on February 26th, Jeremy Corbyn embraced the idea of staying in a customs union. This sent an electric shock through politics. It suggested that Mr Corbyn is so keen on getting to Downing Street that he is willing to abandon his long-standing suspicion of the “capitalist club” in Brussels. It energised the pro-EU majority of Labour MPs who have been infuriated by Mr Corbyn’s Euroscepticism. And it increased the chances of a parliamentary showdown over Ms Soubry’s amendments.

Is there really a possibility that moderate Tories will defeat their own government? The arithmetic could be demanding. Several pro-Brexit Labour MPs, such as Frank Field and Kate Hoey, might vote with the government. Tories will be highly sensitive to the charge that they are making it more likely that Britain will fall out of the EU without a deal, and that Mr Corbyn will slither into Downing Street. But they are also reluctant to vote for a measure that threatens not only to hamper trade with Britain’s biggest market but also to impose a hard border in Ireland. And the Fixed-Term Parliaments Act makes it possible to vote against the government without precipitating an election. The government is so worried about the gathering revolt of the moderates, with 20 Tories indicating that they might vote with Ms Soubry, that it is delaying votes for as long as possible.

Sir John Major, the Tory prime minister in 1990-97, has gone even further than Ms Soubry in standing up to the Brexiteers, whom he describes as being “wrong” on “nearly all they have said or promised”. In a speech on February 28th he argued that Parliament’s vote on the Brexit deal should be not only “meaningful” but “decisive”. MPs should be given a free vote on whether to accept or reject the outcome of the negotiations. Parliament should be able to send the negotiators back to seek improvements. And it should be free to order another referendum. “That is what parliamentary sovereignty means,” Sir John said.

The mother of arguments

The next few months could bring high political drama. The government could be humiliated on the customs union; Tory MPs could precipitate another leadership election; and, if Sir John has his way, they could reject the final deal or send everything back to the electorate. Parliament's growing assertiveness will make it more difficult for Mrs May to negotiate with Brussels. It is hard enough negotiating with an implacable bureaucracy without having your position constantly redefined by a volatile Parliament. It will also make it harder to pass the mass of Brexit-related legislation that is working its way through Parliament.

But this is a price worth paying for making the right decision on a subject that will shape Britain for generations. Parliamentary scrutiny will reduce the chance that Britain adopts a hardline version of Brexit on the say-so of zealots. And it will increase the chance that the government takes into account the 48% who voted to remain. The strongest argument for leaving the EU was always about restoring parliamentary sovereignty. The sooner the silent majority of MPs makes the most of this, the better.

This article appeared in the Britain section of the print edition under the headline "Parliament's silent majority"

International

- **Plastic pollution: Too much of a good thing** [Fri, 02 Mar 06:00]
- **Defence correspondent** [Fri, 02 Mar 06:00]
- **Foreign internship** [Fri, 02 Mar 06:00]

The environment

The known unknowns of plastic pollution

So far, it seems less bad than other kinds of pollution (about which less fuss is made)

MR MCGUIRE had just one word for young Benjamin, in “The Graduate”: plastics. It was 1967, and chemical engineers had spent the previous decade devising cheap ways to splice different hydrocarbon molecules from petroleum into strands that could be moulded into anything from drinks bottles to Barbie dolls. Since then global plastic production has risen from around 2m tonnes a year to 380m tonnes, nearly three times faster than world GDP.

Unfortunately, of the 6.3bn tonnes of plastic waste produced since the 1950s only 9% has been recycled and another 12% incinerated. The rest has been dumped in landfills or the natural environment. Often, as with disposable coffee cups, drinks bottles, sweet wrappers and other packets that account for much of the plastic produced in Europe and America, this happens after a brief, one-off indulgence. If the stuff ends up in the sea, it can wash up on a distant beach or choke a seal. Exposed to salt water and ultraviolet light, it can fragment into “microplastics” small enoughto find their way into fish bellies. From there, it seems only a short journey to dinner plates.

Countries as varied as Bangladesh, France and Rwanda have duly banned plastic bags. Since last year anyone offering them in Kenya risks four years in prison or a fine of up to $40,000. In January China barred imports of plastic waste, while the European Union launched a “plastics strategy”, aiming, among other things, to make all plastic packaging recyclable by 2030 and raise the proportion that is recycled from 30% to 55% over the next seven years. A British levy on plastic shopping bags, introduced in 2015, helped cut use of them by 85%. On February 22nd Britain’s environment secretary, Michael Gove, mused about prohibiting plastic straws altogether.

Fearful for their reputations, big companies are shaping up. Coca-Cola has promised to collect and recycle the equivalent of all the drinks containers it shifts each year, including 110bn plastic bottles. Consumer-goods giants such as Unilever and Procter & Gamble vow to use more recycled plastics. McDonald’s plans to make all its packaging from recycled or renewable sources by 2025, up from half today, and wants every one of its restaurants to recycle straws, wrappers, cups and the like.

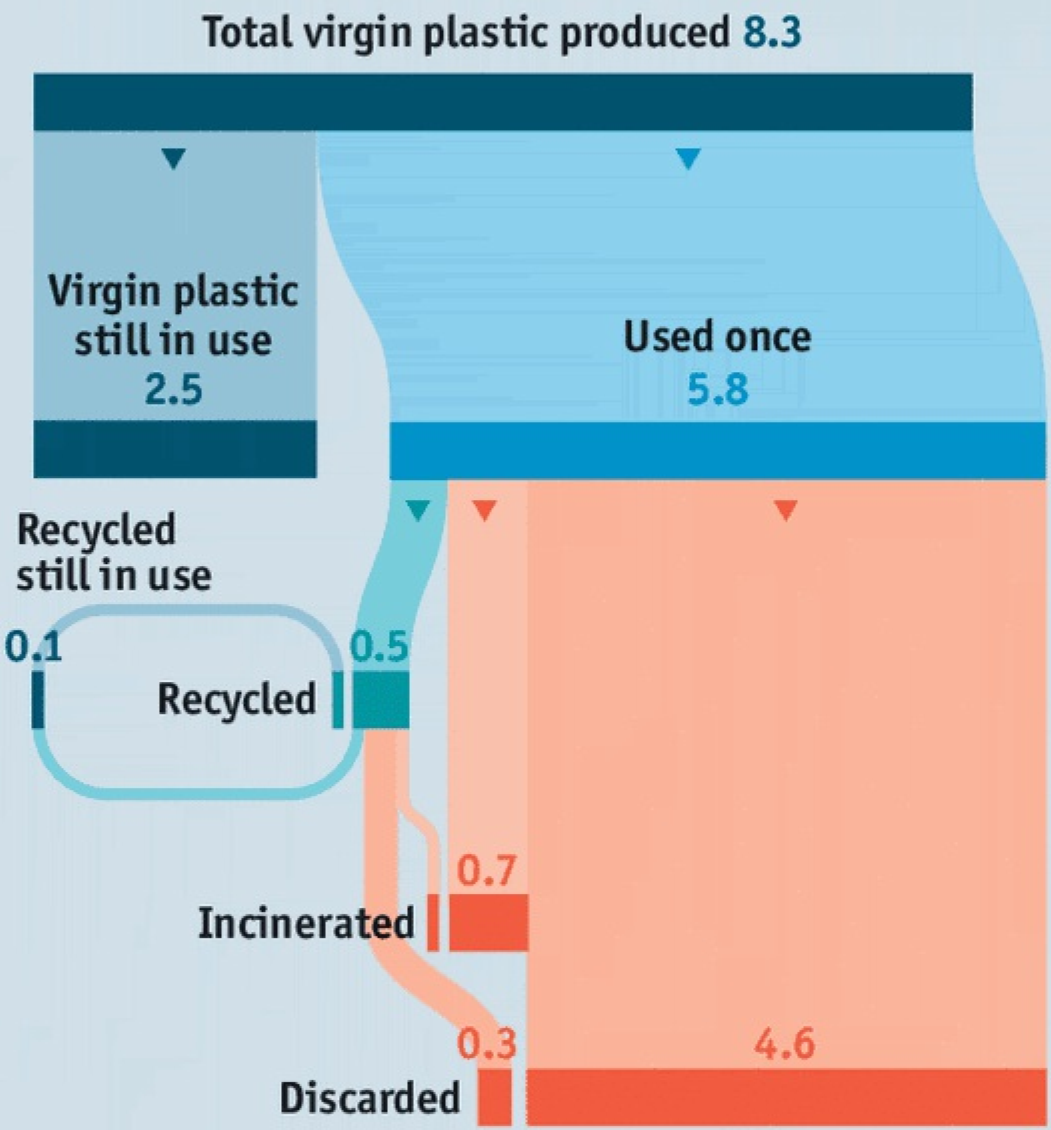
The perception of plastics as ugly, unnatural, inauthentic and disposable is not new. Even in “The Graduate” they symbolised America’s consumerism and moral emptiness. Visible plastic pollution is an old complaint, too (years ago, plastic bags caught in trees were nicknamed “witches’ knickers”). What is new is the suspicion that microplastics are causing widespread harm to humans and the environment in an invisible, insidious manner. “Blue Planet 2”, a nature series presented by Sir David Attenborough that aired in Britain last October and in America in January, made the case beautifully. But the truth is that little is known about the environmental consequences of plastic—and what is known doesn’t look hugely alarming.

A load of rubbish

The end of all things

Global plastic production and use

1950-2015, tonnes, bn



Source: "Production, use, and fate of all plastics ever made" by R. Geyer et al., *Science Advances*

Economist.com

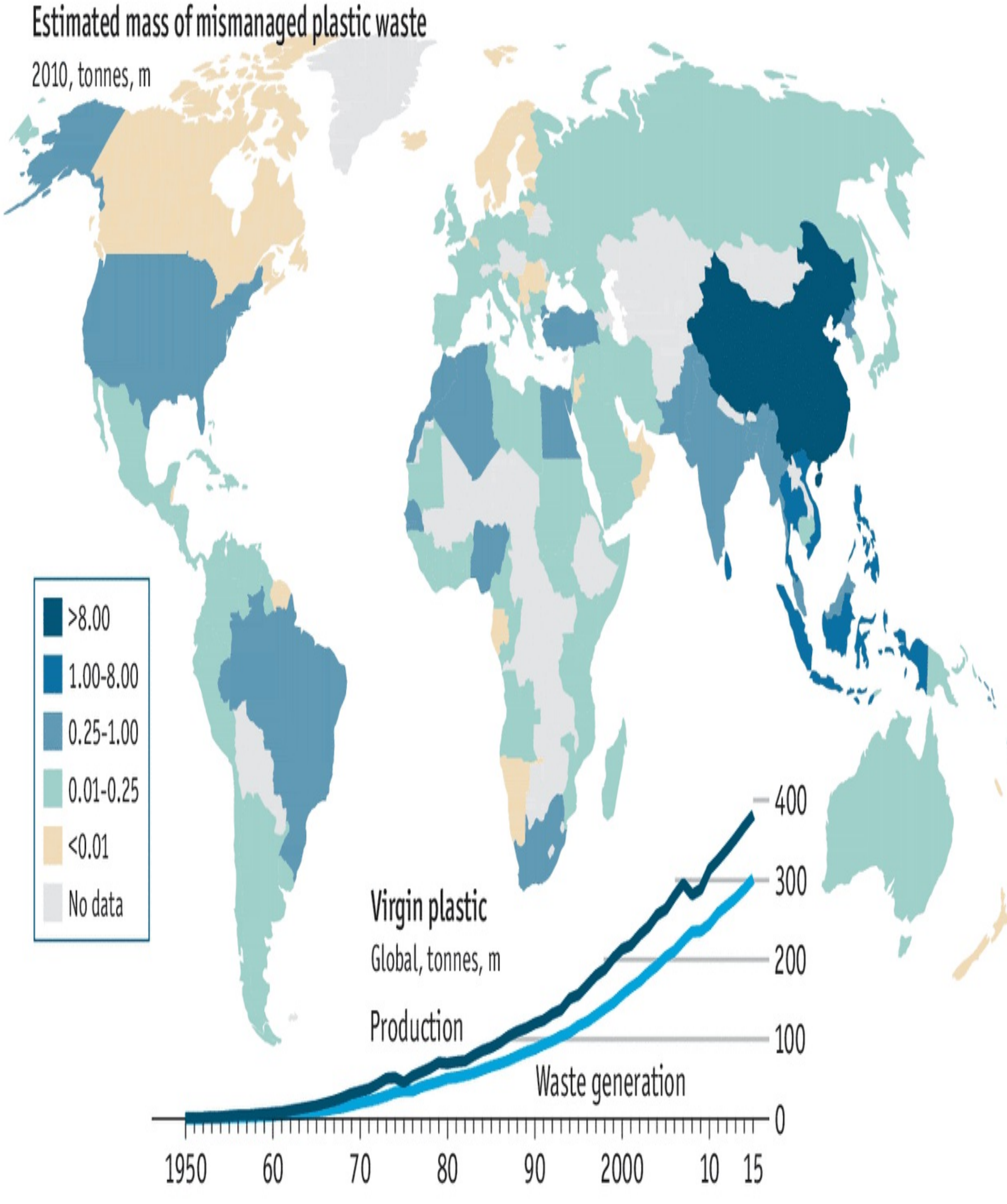
We can be surest about how much plastic is produced and where it ends up. In a paper published last year in *Science Advances*, Roland Geyer of the University of California, Santa Barbara, and his colleagues put the cumulative amount of solid plastic waste produced since the 1950s that has not been burned or recycled at 4.9bn tonnes (see chart 1). It could all have been dumped in a landfill 70 metres deep and 57 square kilometres in area—that is to say, the size of Manhattan.

If only it had all remained on land, or even washed up on beaches, where it could be collected. A bigger environmental worry is that much plastic has ended up in the ocean, where, dispersed by currents, the stuff becomes virtually irretrievable, especially once it has fragmented into microplastics. Computer models suggest that seas hold as many as 51trn microplastic particles. Some are the product of larger pieces breaking apart; others, like microbeads added to toothpaste or face scrubs, were designed to be tiny.

Whereas salt and sunlight can cause plastics physically to break apart into smaller pieces, chemically the hydrocarbons linked together into the polymer chains of which plastics are made do not spontaneously decompose into other compounds. Like crude oil, from which most polymers are derived, that happens only if they are burned at a high temperature to release mainly carbon dioxide and water. In normal conditions plastic simply accumulates in the environment, much as carbon dioxide does in the atmosphere.

Even if the flow of plastic into the sea, totalling perhaps 10m tonnes a year, was instantly stanched, huge quantities would remain. And the flow will not stop. Most of the plastic in the ocean comes not from tidy Europe and America, but from countries in fast-developing East Asia, where waste-collection systems are flawed or non-existent (see map). Last October scientists at the Helmholtz Centre for Environmental Research, in Germany, found that ten rivers—two in Africa and the rest in Asia—discharge 90% of all plastic marine debris. The Yangtze alone carries 1.5m tonnes a year.

China as number one



Sources: "Plastic waste inputs from land into the ocean", by J. Jambeck et al.; *Science*

Economist.com

On current trends, by 2050 there could be more plastic in the world's waters than fish, measured by weight. Such numbers frighten people and change their behaviour. Nine in ten Europeans worry about plastic's impact on the environment. More than half told pollsters for Eurobarometer in 2017 that they try to forgo plastic bags when shopping. By comparison, only one-tenth consider fuel-efficiency when buying a new car. Unlike other kinds of pollution, plastic is an eyesore, notes Liz Goodwin of the World Resources Institute, a think-tank. Yet if a comprehensive league-table of environmental ills existed—which it does not—plastics would not top it.

Just 10% of 3.6m tonnes of solid waste discarded each day the world over is plastic. Whereas filthy air kills 7m people a year, nearly all of them in low- and middle-income countries, plastic pollution is not directly blamed for any. A report last year by the Lancet Commission on pollution and health, which put the total number of pollution-related deaths at 9m, mentions plastics once in its 45 pages.

On land, the damage from litter, which exercises many anti-plastic campaigners, is limited. Most refuse does not spread too far beyond population centres, where (at least in principle) it can be managed. At sea, most plastics end up in vast rubbish patches fed by ocean circulation patterns, the biggest of which can be found in the north Pacific.

Mid-ocean gyres are fortunately neither especially rich in fauna nor particularly biodiverse. The effects of plastics on busier bits of the ocean, such as reefs, have been little studied. One paper, published this year in *Science* by Joleah Lamb of Cornell University and colleagues, linked plastic litter to coral disease near Indonesia and Myanmar. But little similar work exists for other sedentary species, let alone slippery migratory ones.

Researchers have identified 400 species of animal whose members either ingested plastics or got entangled in it. It is known that because polymers repel water (which is why droplets form on their surface), plastic particles also attract certain compounds from their surroundings. Some of these could be toxic. Laboratory studies have shown that if swallowed by fish, compounds in plastic fragments can be absorbed from the digestive tract into flesh. However, no studies have so far been performed to test whether such toxins concentrate up the food chain, as mercury does in fish. The only direct evidence of plastic entering the human diet is a study by Belgian scientists who discovered plastic fragments in mussels. Unlike fish, bivalves are eaten whole, guts and all.

Munching *moules-frites* seasoned with a pinch of plastic may sound unappetising but need not be worrisome, says Stephanie Wright, who studies the subject at King's College, London. Polymers are chemically inert, and so do not themselves present a health risk. Some common additives such as phthalates (which soften PVC) or bisphenol-A (which hardens many types of plastic used in consumer goods) are chemically akin to human hormones, and might therefore disrupt them in high concentrations. For decades both have been licensed for use in everything from pipes to shampoo bottles because human exposure was unlikely to exceed safe limits. America now bans some phthalates in toys and child-care products because of potential harm to growing children.

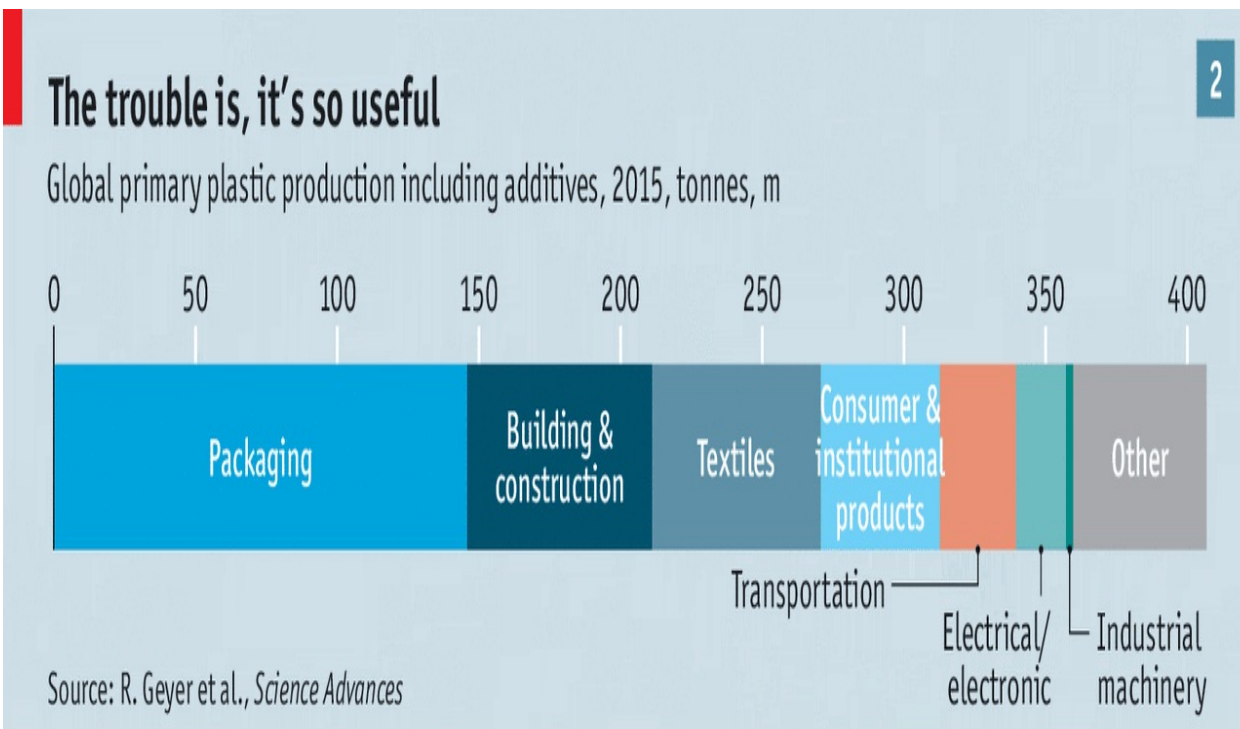
Weighing the damage

Trucost, a research arm of Standard & Poor's, a financial-information provider, has estimated that marine litter costs $13bn a year, mainly through its adverse effect on fisheries, tourism and biodiversity. It puts the overall social and environmental cost of plastic pollution at $139bn a year. Of that half arises from the climate effects of greenhouse-gas emissions linked to producing and transporting plastic. Another third comes from the impact of associated air, water and land pollution on health, crops and the environment, plus the cost of waste disposal.

To put that into perspective, the United Nations Development Programme says that the costs of overfishing and fertiliser run-off amount to some $50bn and $200bn-800bn a year, respectively. By 2100 ocean acidification, which is caused by atmospheric carbon dioxide dissolving into water, could cost $1.2trn a year. The costs of rapid ocean warming caused by human-induced climate change are hard to fathom but are likely to be enormous.

The overall cost of plastic pollution compares favourably with other sorts of man-made harm mostly because plastics are light. Making a kilogram of virgin plastic releases 2-3kg of carbon dioxide, about as much as the same amount of steel and five times more than wood. But a product made of plastic can weigh a fraction of a comparable one made of other materials.

That is why replacing plastic with other things could raise environmental costs at least fourfold, according to Trucost's analysts. This is even true of the various virtue-signalling alternatives to plastic bags. A British government analysis from 2011 calculated that a cotton tote bag must be used 131 times before greenhouse-gas emissions from making and transporting it improve on disposable plastic bags. The figure rises to 173 times if 40% of the plastic bags are reused as bin liners, reflecting the proportion in Britain that are so repurposed. The carbon footprint of a paper bag that is not recycled is four times that of a plastic bag.



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And other materials could not replace plastics in all circumstances. Imagine a hospital without surgical gloves, or promiscuity without condoms. By keeping food fresh for longer, plastic packaging substantially reduces organic waste, itself a growing environmental concern. In 2015 J. Sainsbury, a British grocer, reduced waste in a beefsteak line by more than half by using plastic vacuum packaging.

Plastic pollution "is not the Earth's most pressing problem", in the words of one European official. But, he immediately adds, just because plastics may not be the biggest problem facing humanity does not make them trouble-free. As scientists never tire of repeating, more research is needed. It is the absence of evidence about how plastics influence health rather than evidence of absence that explains their bit part in the Lancet Commission report, says Philip Landrigan of the Icahn School of Medicine in New York, who chaired it.

Fresh science may be forthcoming. In the past two years Ms Wright has noticed an uptick in grants for plastics-related research. Erik van Sebille, of Utrecht University in the Netherlands, recalls that a few years ago a seminar on ocean plastic pollution organised by America's National Oceanic and Atmospheric Administration drew perhaps 200 participants. This year organisers had to cap attendance at 600 and turn people away.

While researchers get a better handle on the science, campaigners badger politicians and browbeat consumers to kick the polymer habit. They often invoke the precautionary principle. If the impact of something is uncertain but could be great, the argument goes, better forestall it just in case. As the proliferation of plastic bans and strategies suggest, they are having some success.

PET peeves

Much of this activity makes scarcely a dent in the world's plastic pollution problem, however. Some has unintended consequences. Making plastics biodegradable, by adding corn starch or vegetable oil to petroleum-derived hydrocarbons, renders them harder to recycle. Recyclers already struggle to invest in capacity or innovation even in countries that collect lots of their rubbish. Periodic declines in the oil price, which makes virgin plastic cheaper, can bankrupt recyclers, many of which are small or medium-sized companies, says Peter Borkey of the OECD, a rich-country think-tank.

Meanwhile consumer-goods firms sometimes say that too little recycled plastic is available to buy. With costs of some recycled plastic competitive with virgin stuff, “supply is a bigger issue than cost,” says Virginie Helias, Procter & Gamble’s vice-president for sustainability. In other words, erratic demand appears to dampen supply while insufficient supply inhibits demand. Recyclers everywhere face that problem. There is no guarantee that targets like the EU’s will solve it.

China’s import ban may provide the necessary jolt. Introduced as part of a broader clampdown on pollution, it took waste exporters by surprise. In 2017 European countries shipped a sixth of their plastic waste for disposal abroad. Most sailed to China. In the short run some surplus waste can go to Malaysia or India, but those countries’ capacity is a fraction of China’s. Eventually, refuse exporters will have to deal with more of it at home.

Building recycling capacity is one option. Incineration is falling out of favour for heating or electricity generation as coal-fired plants are replaced with gas, which emits less greenhouse gases than waste-to-energy plants. From an ecological standpoint, landfilling is not as bad as it looks, so long as additives that might leach out of the polymers are prevented from escaping. Plasma recycling, where refuse is heated to as much as 5,000°C, turning it into unadulterated hydrocarbons plus a solid residue, looks promising but remains some way from commercialisation.

To be disposed of, though, plastic waste must be collected. In Europe, America and other developed places, virtually all of it is. To eliminate marine litter in particular, more rubbish needs to be picked in the leaky Asian countries.

China’s anti-pollution drive may bring about improvements, although the country now pays more attention to filthy air and water, which are more pressing concerns. Indonesia has launched its own National Action Plan on marine plastic. The other big polluters are eyeing similar measures. What happens there over the next few decades will matter more than any number of Western plastic-bag bans.

This article appeared in the International section of the print edition under the headline “Too much of a good thing”

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Defence correspondent

We are looking for a senior writer to cover global defence and security. Applicants should send a CV and an original 600-word article, suitable for publication in The Economist, to defencejob@economist.com by March 5th. No journalistic experience is required, but a knowledge of military and geopolitical affairs is essential.

This article appeared in the International section of the print edition

Foreign internship

We are seeking a summer intern to write about foreign affairs for *The Economist*. The internship will be London-based, will last for three months or more, and will pay £2,000 per month. Anyone is welcome to apply. Applicants should send an original unpublished article of up to 600 words on any issue in international politics or foreign affairs, a CV and a cover letter to foreignintern@economist.com. We are looking for originality, wit, crisp writing and clarity of thought. The deadline is April 3rd.

This article appeared in the International section of the print edition

Special report

Reinventing wheels

Autonomous vehicles are just around the corner

Driverless vehicles will change the world, just as cars did before them. What went wrong last time round holds valuable lessons for getting it right this time, says Tom Standage

EVERY DAY AROUND 10m people take an Uber. The company has made ride-hailing commonplace in more than 600 cities in 82 countries. But the Volvo XC90 picking its way through traffic on a wintry morning in

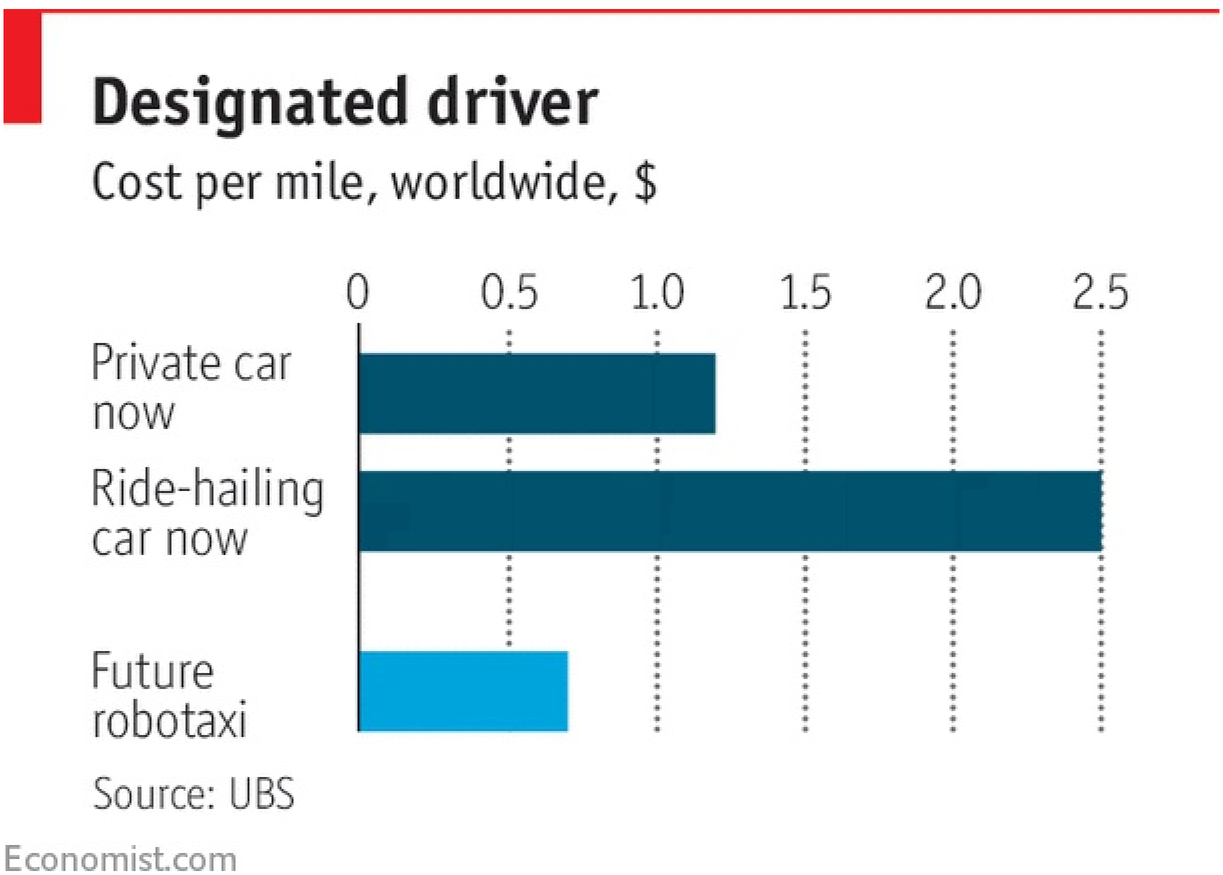
Pittsburgh is no ordinary Uber. Climb into the back, and you will see a screen mounted between the front seats, showing a digital representation of the world around the car, with other vehicles, pedestrians and cyclists highlighted as clusters of blue dots. Tap the screen to say you are ready to leave, and the car starts to move. But no one is driving it. This Uber is an autonomous vehicle (AV)—a car that can drive itself.

Admittedly, Uber's self-driving robotaxi has a human sitting in the driving seat, but only to take over if something unexpected happens. The car drives carefully but confidently in downtown traffic and light snow, handling four-way stops, traffic lights and pedestrian crossings with aplomb. It even knows how to deal with drivers performing the "Pittsburgh left", a local custom that allows the first vehicle at a traffic light to turn left in front of oncoming traffic. The most noticeable difference from a human driver is that the vehicle makes no attempt to avoid Pittsburgh's notorious potholes, so the ride is slightly bumpy at times. The engineer in your correspondent's robotaxi takes over occasionally, for example to guide the car through roadworks where the lane markings have recently been changed.

Autonomous vehicles are not yet quite ready to operate without human supervision, then. But they have made rapid progress in recent years, and can now be seen on the roads in several American cities, easily identified by the clusters of sensors on their roofs. Uber's robotaxis ferry riders around in Pittsburgh and Phoenix. Waymo, Google's self-driving car unit which is now a separate company in the Alphabet family, has gone a step further, operating autonomous minivans in Chandler, a suburb of Phoenix, without safety engineers in the driving seat. It plans to launch a commercial ride-hailing service there this year. GM, America's biggest carmaker, hopes to launch a robotaxi service in 2019 using autonomous Chevy Bolt cars that do not even have steering wheels or pedals.

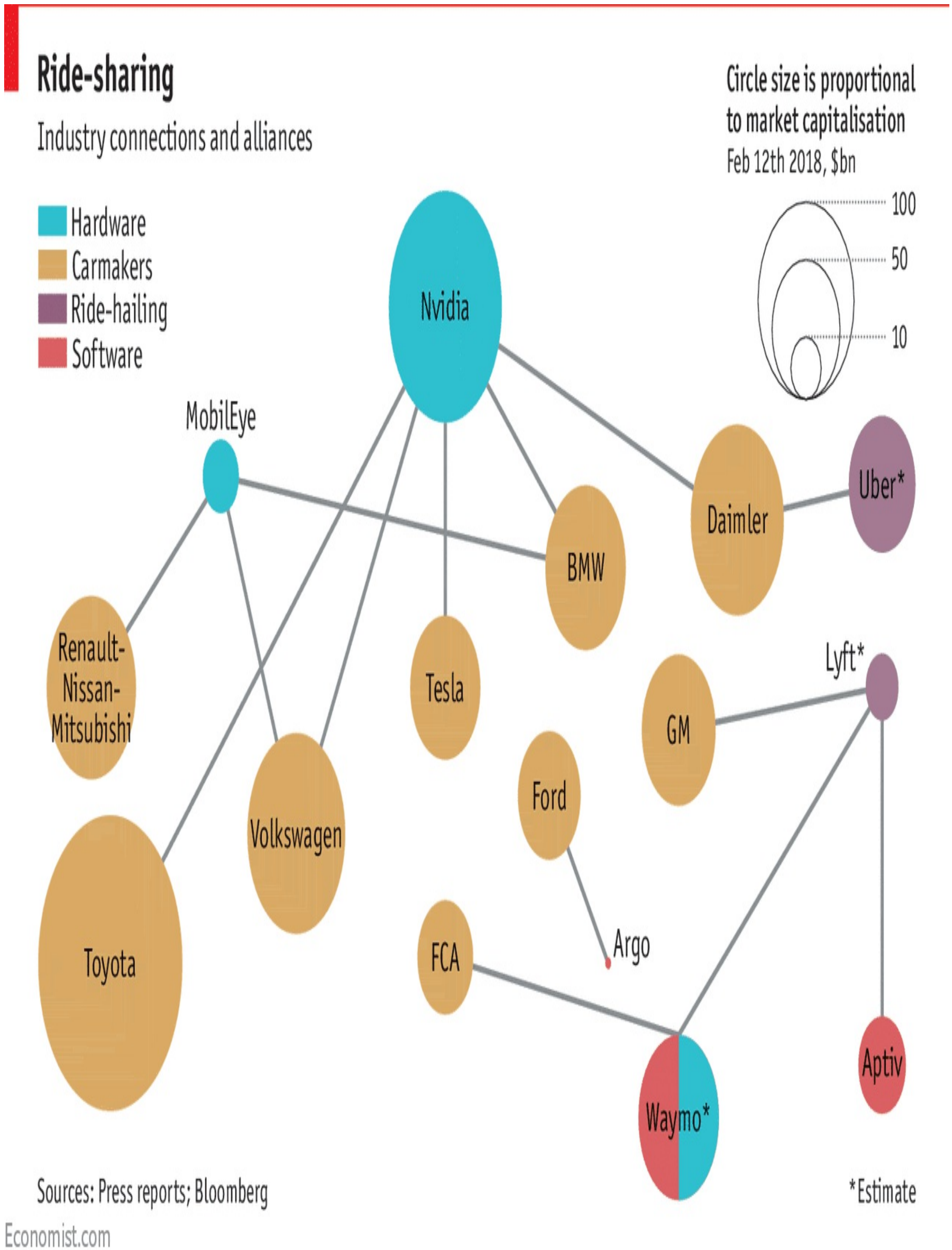
AVs operated by tech giants, startups and established carmakers can also be seen around Silicon Valley and Pittsburgh, America's two main hubs of the emerging industry, drawing on talent from Stanford and Carnegie Mellon universities respectively. In other parts of the world, driverless shuttles ferry passengers on university campuses, in business parks or along special bus lanes. AVs stole the show at CES, the world's biggest technology fair, in Las Vegas in January. Suddenly, it seems, everybody is jumping on the driverless bandwagon.

Recent progress in computer vision and other machine-learning systems is one reason. Tech folk from chipmakers to software firms see AVs as a lucrative new market for their products. Within the automotive industry, the rise of Uber and other ride-hailing services caused a "massive shift in perception around 2015", says Sebastian Thrun, a pioneer of AVs at Stanford who led the development of Google's first self-driving car. Carmakers realised that they needed to take AVs seriously—because they will redefine their industry.



The combination of autonomy and ride-hailing, together with a switch to electric vehicles, seems likely to undermine the logic of car ownership for many people. Ride-hailing services in the rich world currently cost around $2.50 per mile, compared with about $1.20 per mile to own and operate a private car (see chart). But the driver accounts for about 60% of the cost of ride-hailing. UBS, an investment bank, reckons that automation, competition and electrification (which makes cars more expensive to buy but much cheaper to run) will cut the cost of ride-hailing by 70%, to about $0.70 per mile. So a typical Western household driving 10,000 miles a year could ditch its car, use robotaxis and save $5,000 a year. And there are other advantages, explains Mr Thrun: "You can be drunk, you don't have to look for parking, and your kids can take the car."

"Once the car becomes autonomous, the relevance of car ownership drops materially," says David Lesne of UBS. His firm predicts that robotaxis will take off rapidly after 2025, with 80% of people using them in cities, where available, by 2035. BCG, a consultancy, reckons that by 2030 a quarter of passenger-miles travelled on America's roads will be in shared, self-driving electric vehicles, reducing the number of cars on city streets by 60%, emissions by 80% and road accidents by 90%. Though some people will want to own their autonomous cars, about half of AVs will be shared robotaxis, says Nikolaus Lang of BCG. Globally, the "passenger economy" created by the convergence of autonomous vehicles and ride-hailing will be worth $7trn a year by 2050, says Strategy Analytics, a consultancy.



Ride-sharing
Industry connections and alliances
Hardware
Carmakers
Ride-hailing
Software
Circle size is proportional to market capitalisation
Feb 12th 2018, $bn
100
50
10
Nvidia
MobilEye
Daimler
Uber*
BMW
Renault-Nissan-Mitsubishi
Tesla
Lyft*
GM
Ford
Volkswagen
Toyota
FCA
Argo
Aptiv
Waymo*
Sources: Press reports; Bloomberg
*Estimate
Economist.com

Carmakers, technology giants, startups and ride-hailing firms are already engaged in a furious battle to dominate this emerging industry. The carmakers understand metal-bashing, but know less about complex software. The tech firms know about machine learning and computer vision, but not making cars. The ride-hailing firms, for their part, have their apps installed on millions of users' phones, providing the obvious route to market. The result has been a flurry of deals, much hedging of bets and a constantly evolving web of alliances (see chart).

Mix and match

Intel, a chipmaking giant, bought Mobileye, a maker of autonomous-driving systems, for $15.3bn in March 2017. GM bought Cruise, an AV startup, for $1bn in March 2016, set up Maven, a car-sharing service, and invested $500m in Lyft, Uber's main ride-hailing rival in America. Ford fired its CEO in May 2017, partly in response to concerns that the firm was falling behind in electric and autonomous vehicles; it is now investing $1bn in Argo, an AV startup, and also has an alliance with Lyft. Delphi, a big partsmaker, bought nuTonomy, an AV startup, for $450m, and has since reinvented itself as an AV company called Aptiv. Uber recently agreed to buy 24,000 self-driving cars from Volvo, for use in its robotaxi fleet; it also has a partnership with Daimler. For its part, Daimler has been buying up ride-hailing services across Europe and the Middle East that compete with Uber, and also owns a car-sharing service. Volkswagen, Europe's biggest carmaker, has struck a deal with Aurora, an AV startup founded by veterans of Google, Uber and Tesla. And so on.

In short, the tectonic plates of technology and carmaking are colliding, heralding a carquake. This seismic shift will transform both industries, and its aftershocks will be felt far and wide: AVs will be as transformative a technology as the smartphone. Just as cars reshaped the world in the 20th century, in ways good and bad, AVs could change how people live, work and play. They could dramatically reduce the number of road deaths, the time spent sitting in traffic and the space wasted on parking. In urban planning, AVs provide "a great opportunity to address a lot of problems at the same time", says Joel Kotkin, an urban-studies expert at Chapman University in

Orange, California. “If the 20th century was about cars giving us independence, the 21st will be about autonomous vehicles giving us independence from cars,” says Justin Erlich, head of policy for AVs at Uber.

But just as cars had unexpected side-effects, AVs are raising new concerns about safety, cyber-security, liability and inequality. “Autonomous vehicles will open a Pandora’s box of unintended effects,” says Peter Norton, a social historian at the University of Virginia. A century ago cars promised to provide safe, fast and congestion-free transport. The similarities with the claims now being made about AVs are “eerie”, notes Mr Norton. This special report will assume that the technological hurdles to full autonomy can be overcome. It will consider the implications of AVs for personal mobility, car ownership and carmaking, but will also look at the wider economic, social and cultural knock-on effects. How will everyday activities be transformed? How could AVs reshape cities? And what lessons does the rise of the car in the 20th century hold for driverless vehicles in the 21st?

This article appeared in the Special report section of the print edition under the headline “Reinventing wheels”

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From here to autonomy

Autonomous-vehicle technology is advancing ever faster

Making vehicles drive themselves is hard, but getting easier

Learner non-driver

THE MODERN AUTOMOTIVE era began with a competition. In the early 1890s there was much interest in the emerging technology of horseless carriages, which promised to combine the speed of a train with the flexibility of a horse and the convenience of a bicycle. *Le Petit Journal*, a French newspaper with a knack for publicity stunts, decided to hold a contest to discover the best method of propulsion: steam, electricity or petrol engine. It invited entrants to drive from Paris to Rouen, a distance of 79 miles. Their vehicles would be judged not by their speed but whether they were safe, easy to use and economical to run.

The competition, held in July 1894, attracted crowds of onlookers as 21 contraptions set out from Paris. Only 17 vehicles stayed the course; along the way, seven dogs were run over and one cyclist was injured. The clear winner was not a direct participant but an inventor: Gottlieb Daimler, whose internal-combustion engine had powered nine of the vehicles, including the four that shared first prize. He had, the judges proclaimed, "turned petroleum or gasoline fuel into a practical solution" for self-propelled vehicles, which were starting to be referred to in French as "automobiles". Daimler's victory helped establish the supremacy of petrol-powered cars in the 20th century, and the term automobile soon spread into English and other languages.

Fittingly, the modern era of autonomous vehicles also began with a competition, held in March 2004 in the Mojave desert. It was organised by DARPA, America's main military-research agency, and required driverless vehicles to navigate a 150-mile off-road course. A total of 21 teams qualified, but after pre-contest trials and mishaps only 12 vehicles crossed the starting line. Amid mechanical failures and encounters with ditches, none of them made it to the finish. Carnegie Mellon's Sandstorm, the vehicle that did best, travelled 7.4 miles before getting stuck; as it tried to free itself, its front wheels caught fire.

It seemed that DARPA had set the bar too high. Yet when it held another competition in October 2005, five of the 23 participants completed the entire 132-mile course, and all but one beat the 7.4-mile record from the previous year. The winning vehicle was built by a team from Stanford University led by Sebastian Thrun; Sandstorm finished second. In just 18 months, autonomous driving had gone from hopeless to feasible. In a third DARPA contest, in November 2007, vehicles had to complete tasks in a simulated urban environment, coping with road signs, traffic signals and other vehicles. Six out of 11 teams completed this much more complex challenge.

Encouraged by this rapid progress, Google set up a self-driving car project in 2009, led by Mr Thrun. Since then the participants in the various DARPA contests have gone on to work on autonomous-vehicle technology at Google, Uber, Tesla and a host of startups. Prototype self-driving cars first took to America's public roads in 2012; they have since travelled millions of miles and have become steadily more capable. But the technology is not ready for mass deployment just yet. A fully autonomous car must solve three separate tasks: perception (figuring out what is going on in the world), prediction (determining what will happen next) and driving policy (taking the appropriate action). The last of these is the simplest, making up just 10% of the problem, says Mr Thrun; perception and prediction are the hard parts.

I see

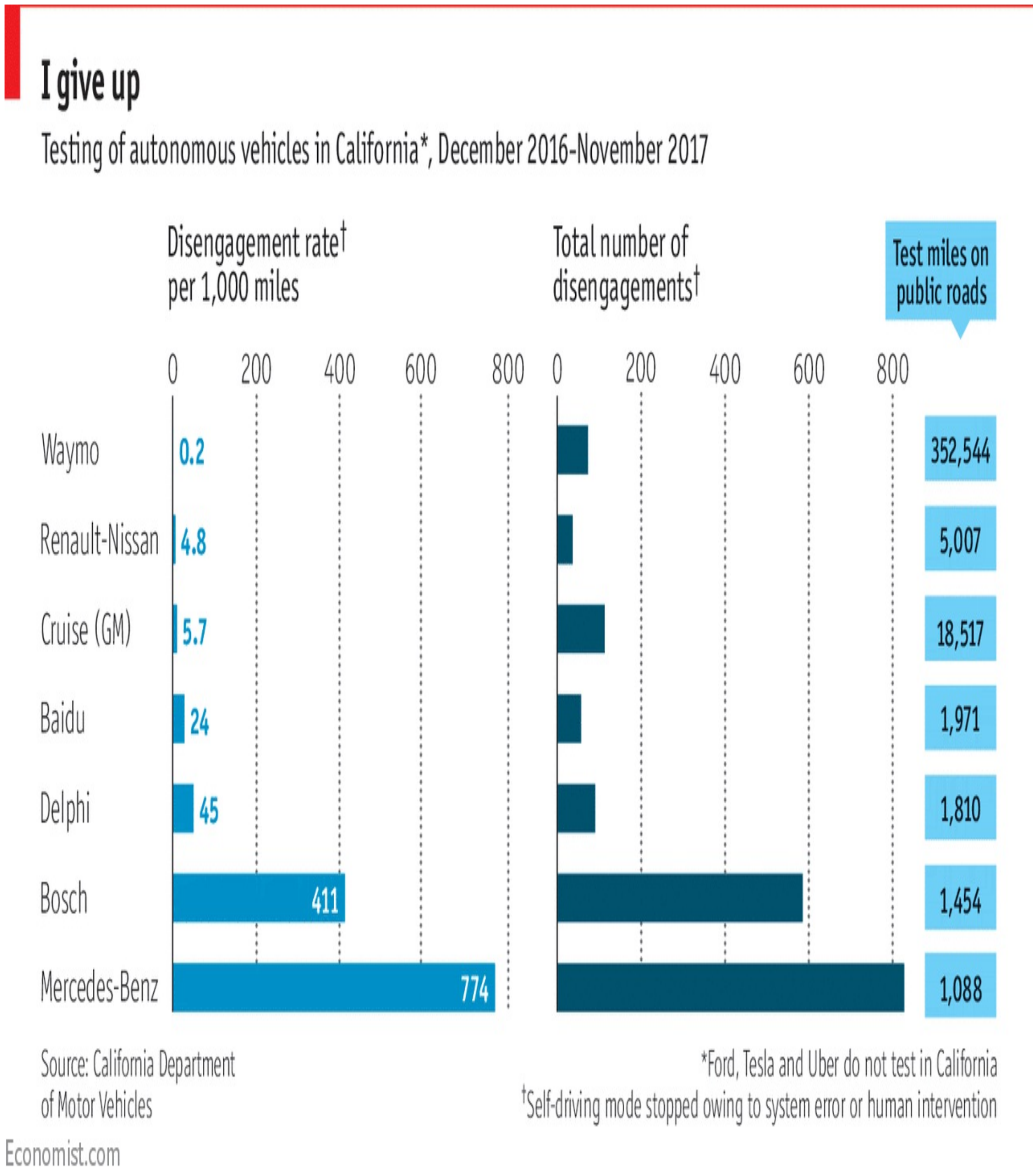
Autonomous cars perceive the world through a combination of sensors including cameras, radar and LIDAR—a radar-like technique that uses invisible pulses of light to create a high-resolution 3D map of the surrounding area. The three complement each other. Cameras are cheap and can see road markings, but cannot measure distance; radar can measure distance and velocity, but cannot see in fine detail; LIDAR provides fine detail but is expensive and gets confused by snow. Most people working on autonomous vehicles believe a combination of sensors is needed to ensure safety and reliability. (Tesla is a notable exception: it hopes to achieve full autonomy without the use of LIDAR.) High-end LIDAR systems currently cost tens of thousands of dollars, but startups are devising new solid-state designs that should eventually reduce the price to a few hundred dollars.

Having combined the data from its sensors, the car needs to identify the items around it: other vehicles, pedestrians, cyclists, road markings, road signs and so forth. Humans are much better at this than machines, which have to be trained with lots of carefully labelled examples. One way to obtain them is to pay people to label images manually. Mighty AI, based in Seattle, has an online community of 300,000 people who carefully label images of street scenes for a range of automotive clients. "We want cars to have human judgment," says Mighty AI's boss, Daryn Nakhuda, "and for that we need human expertise.” Imagery from video games such as “Grand Theft Auto”, which features strikingly realistic street scenes, can also help. Because the game software knows what everything is, it can label such scenes with perfect accuracy, allowing them to be used for training.

The hardest things to identify, says Mr Thrun, are rarely seen items such as debris on the road or plastic bags blowing across a highway. In the early days of Google’s AV project, he recalls, “our perception module could not distinguish a plastic bag from a flying child.” Puddles on the road also caused confusion. Combining data from multiple sensors, however, can reveal whether an item in the road is a solid obstacle or not. Cars can also compare their sensor readings with those gathered previously by other cars on the same road, learning from each other’s experiences in a process called “fleet learning”. That gives an edge to first movers with thousands or millions of miles of self-driving experience under their belts; but some startups also create and sell ready-made high-resolution maps for use by AVs.

Once a vehicle has identified everything around it, it needs to predict what will happen in the next few seconds and decide how to respond. Road signs, traffic lights, brake lights and turning signals provide some clues. But AVs are at a disadvantage to human drivers, who are used to dealing with exceptions to the normal flow of traffic, such as roadworks, broken-down vehicles, delivery trucks, emergency vehicles, fallen trees or bad weather. Snow is a particular challenge: LIDAR systems must be carefully tuned to ignore falling snow, and accumulations of snow on the roads make high-resolution street maps less accurate.

While the technology is still being developed, it helps to stick to limited areas that have been mapped in detail and generally have good weather. That explains why Phoenix, with its sunshine and regular grid system, is a popular place to test AVs. Pittsburgh is considered more difficult because of its harsher weather. Cruise, an AV startup now owned by GM, has demonstrated some impressive autonomous driving in the complex streets of downtown San Francisco. Kyle Vogt, Cruise’s boss, argues that testing in densely populated environments means cars experience unusual situations more often, and thus learn faster.



When an AV gets confused and does not know how to respond, or makes the wrong decision, the safety engineer in the driving seat takes over. This is known as a "disengagement", and the number of disengagements per 1,000 miles travelled provides a crude measure of how the companies developing

AVs compare (see chart). Disengagements are best seen not as failures but as learning experiences that help AV systems improve. Sensor data recorded in the lead-up to a disengagement can reveal what the car got wrong, says Noah Zych, head of safety at Uber's AV unit. Modifications to its software can then be tested in simulation. "We can play it back again and again, vary the scenario and see the distribution of outcomes," says Mr Zych. The improved software is then rolled out in real cars.

What do I do now?

Even when AVs are widely deployed, they will probably still need to ask for human assistance sometimes. Consider an AV caught behind a broken-down truck on a two-lane road with a solid line down the middle, says Christophe Sapet of Navya, a maker of driverless shuttles. Because it has been programmed to obey road markings, the AV will get stuck. Human drivers would simply bend the rules and drive around the truck when the road is clear. Navya's AVs instead call a remote supervision centre, where a human operator can see live feeds from their cameras. Rather than controlling such a vehicle remotely, the operator gives it temporary permission to cross the white line when it is safe to do so. Mr Thrun suggests such operators could, in future, end up supervising thousands of AVs at a time.

Meanwhile, limited forms of autonomy are being gradually added to existing production cars. A scale devised by the Society of Automotive Engineers defines the levels of autonomy. Level 1 involves basic assistance (such as cruise control). Level 2 adds features such as lane-keeping, allowing the car to drive itself on highways, but still requiring the driver to pay full attention. The new Audi A8, launched this year, is the first car to achieve level 3, which means it can drive itself and monitor its surroundings, but the driver must take back control when asked.

Waymo, Uber and others are attempting to jump directly to level 4, which provides full autonomy under certain conditions, such as in a specific part of a city. Some in the industry consider the partial automation of levels 2 and 3 to be unsafe, because drivers are still required to pay attention even when they have handed over control of the vehicle, which they find hard to do. (The driver of a level 2 Tesla Model S was killed when his vehicle hit a lorry in May 2016; investigators found that despite warnings from the car, he failed to keep an eye on the road.)

One problem for AVs is that the world was built to cater for human drivers, with whom they must share the roads. Humans communicate by flashing their lights and using other non-verbal cues, which (like other driving customs) can vary from place to place. AVs will probably end up being tuned to fit in with their surroundings, driving more aggressively in Boston than in California, for example, suggests Amnon Shashua, the boss of Mobileye, a maker of autonomous-driving technology.

“You have to make the vehicle so it can operate in the world as it is today,” says Chris Urmson of Aurora, an autonomous-driving startup. But things should get easier in future. There may be road lanes or entire districts dedicated to AVs, and special equipment to support them, known as vehicle-to-infrastructure (V2I) technology. Already, in some areas where AVs operate, traffic lights have been modified to tell approaching vehicles when they will change. In future, V2I and V2V (vehicle-to-vehicle) technology should allow AVs to co-ordinate their actions better.

The public seems concerned mainly about two potential risks associated with AVs: ethical dilemmas and cyber-attacks

The public seems concerned mainly about two potential risks associated with AVs. The first is how they should respond to ethical dilemmas: say, choosing between hitting a group of children in the road or swerving and hitting another vehicle. Many people working in the field think that such questions do not reflect the real world, and point out that the best course of action is usually to slam on the brakes. AVs have superhuman, 360-degree perception and much faster reaction times, notes Danny Shapiro of NVIDIA, a chipmaker whose products power AVs.

The second worry is about cyber-attacks. AVs, which are essentially computers on wheels, could be remotely hijacked or sabotaged. Engineers working on AVs insist that they take cyber-security very seriously, and say that the multiple redundant sensor and control systems they build in to make a vehicle mechanically safe will also provide some protection. If any part of the vehicle starts to behave strangely, for whatever reason, it will stop. “It is easier to use an ordinary vehicle to kill people than to take control of a driverless car," says Mr Sapet.

AVs are on the cusp of working on public roads, at least in orderly environments with good weather. "Once you can crack that nut, it's incremental," says Mr Urmson. For his part, Mr Thrun has moved on to a new challenge: building cars that fly. Automotive bosses think he is crazy, he admits. But until quite recently they were just as sceptical about self-driving cars.

This article appeared in the Special report section of the print edition under the headline "From here to autonomy"

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Selling rides, not cars

Self-driving cars will require new business models

Carmakers, tech companies and ride-hailing firms are all fighting for a piece of the action

Quality time

IF YOU WANT to buy a fully self-driving car, you may have to wait for another decade. Autonomous vehicles will initially be offered for sale not to private owners but to robotaxi-fleet operators, for two reasons. First, LIDAR sensors are still so expensive that, deployed in production cars, they would cost more than the rest of the vehicle put together. For AVs in a robotaxi fleet, that is less of a problem, because vehicles will be operating, and thus generating revenue, throughout the day, whereas private cars are in use only about 5% of the time.

Second, getting AVs to work safely and reliably is much easier if their geographical range is limited to places that have been mapped in fine detail, such as city centres. So your first ride in an AV will be in a vehicle you hail using an app, not one you own.

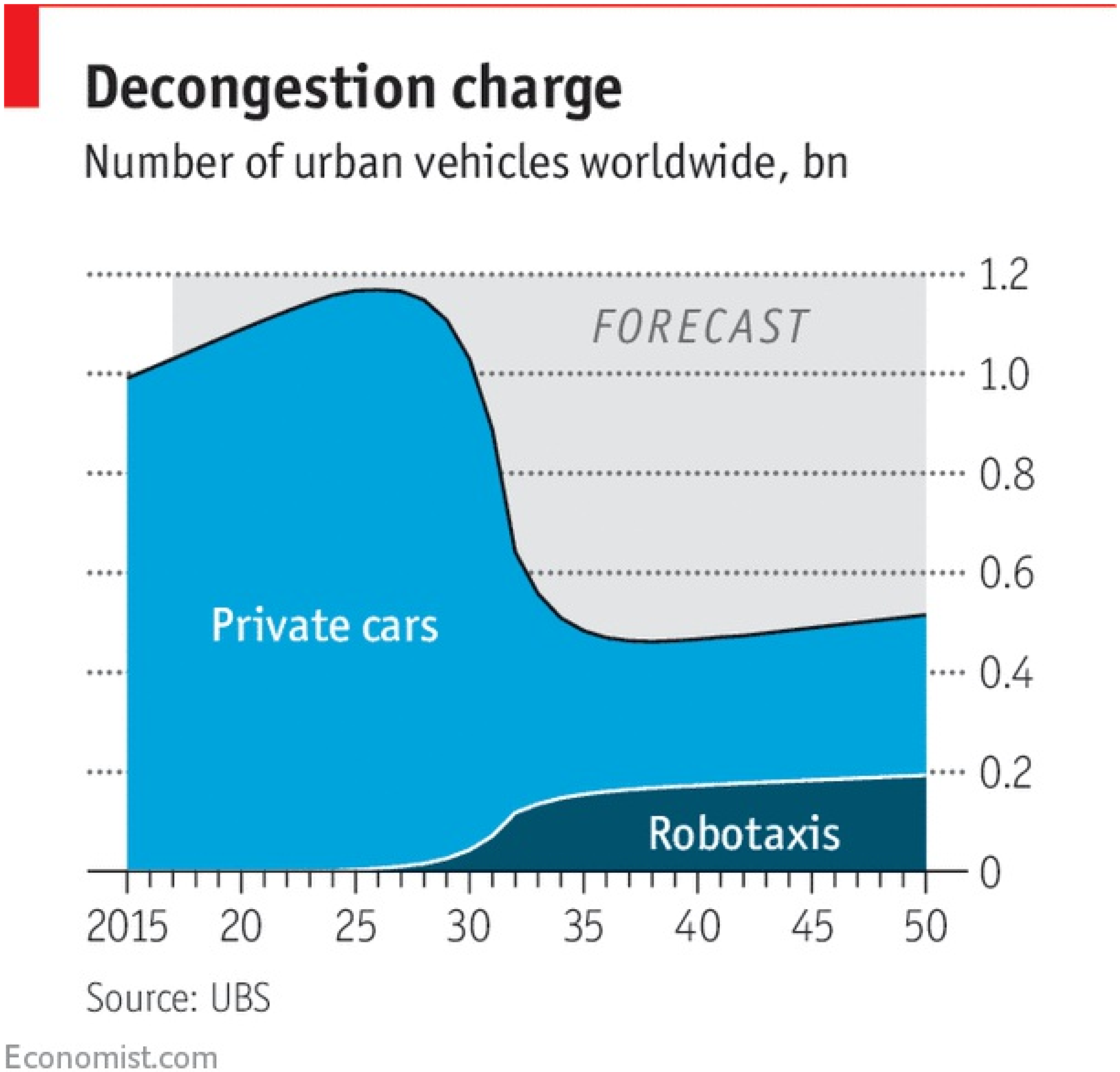
Waymo, Alphabet's AV effort, is testing a robotaxi service in Chandler, a suburb of Phoenix, and hopes to launch a commercial service later this year. Uber is operating driverless taxis in parts of Phoenix and Pittsburgh; users who hail a ride may find themselves being picked up by an autonomous car, supervised by an engineer (Uber gives riders the option to use an ordinary car instead if they prefer). Voyage, an AV startup, runs a robotaxi service in The Villages, a retirement community in San Jose, and is expanding to a second location, in Florida. Navya, a French startup, is operating an eight-seater autonomous shuttle bus in downtown Las Vegas, with three stops along a 1km (0.6 mile) route. It also has shuttles running in several other cities around the world, as does Easymile, a rival French firm. Large-scale deployments of AVs are most likely to start with geofenced robotaxi services in parts of cities such as Singapore or Dubai, and then expand over several years, predicts Nikolaus Lang of BCG.

It is likely to be many years before AVs are cheap enough for individuals to buy them, and capable enough to operate outside predefined, geofenced areas. Meanwhile, the roll-out of cheap robotaxis in urban areas might encourage many young urbanites, who are already going off car ownership anyway, to abandon it altogether. The combination of ride-hailing and autonomous-driving technology confronts carmakers with "the most profound challenge to their business models in a century", declares a recent report from BCG. That is why carmakers are now piling into ride-hailing and car-sharing services and pushing on with their own AV programmes. In an autonomous future where ownership is optional, they need to be selling rides, not cars.

This shift offers carmakers a big opportunity. The car market is worth around $2trn a year globally, whereas the market for personal transport is worth as much as $10trn, according to Morgan Stanley, a bank. But it also exposes them to new competitors, in the form of technology companies and ride-hailing networks. Some carmakers have launched their own mobility services; others may prefer to act as fleet managers, providing capacity for ride-hailing operators and charging them by the mile. Some will even make "white label" fleets badged with the name of a city or a ride-hailing network, rather than their own brand.

Robotaxi fleets running around the clock will generate predictable yields that will appeal to institutional investors. Turning themselves into asset managers for such fleets would be a logical step for carmakers, whose finance arms are already involved in fleet management, says David Lesne of UBS.

Pricing models for users will change, too: Uber is already testing telecoms-like monthly price plans in some cities, which include a certain number of rides or miles for a fixed price, just as a mobile calling plan offers a certain amount of calls, texts and data.



One big question is the effect of AVs on the number of vehicles sold worldwide per year, currently around 80m. Since most cars sit unused 95% of the time, switching to shared robotaxis that operate around the clock could greatly reduce the number of vehicles on the road. UBS reckons the global fleet size will halve by 2030 (see chart). But if robotaxis are in use 50% rather than 5% of the time, they will need to be replaced far more often, says Johann Jungwirth, chief digital officer of Volkswagen. So unless vehicle lifespans can be greatly extended, the number of new vehicles needed each year will rise.

Making vehicles reliably in large quantities is hard, as Tesla's production problems have shown. "The core expertise that we've had for decades is excellent manufacturing," says Ponz Pandikuthira, head of product planning for the European arm of Nissan. So even in a world of robotaxis, being a carmaker could still be a big business—just a different one from what it is today. After 130 years making hardware, says Mr Jungwirth, "we need to take software and services just as seriously." That requires taking on new staff, retraining, acquisitions and partnerships. AVs will also accelerate the switch to electric vehicles, which have fewer components and need fewer assembly workers.

Form follows function

It will not just be carmakers that change shape; so will cars. Just as early "horseless carriages" resembled horse-drawn carriages, without the horse, most autonomous vehicles today are ordinary cars, retrofitted to drive themselves. But take away the need for a steering wheel and pedals, and AVs can assume a much wider range of shapes and sizes; Volkswagen's Sedric and the Mercedes-Benz F015 are pods in which passengers sit facing each other. Future AVs may need to allow for some physical separation of passengers to encourage people to share vehicles with strangers, says Karl Iagnemma of nuTonomy, while families might hail a different vehicle that lets everyone sit together.

All this is bad news for car dealers. Most are barely profitable now and make their money from car financing and servicing, so even a small shift from car ownership to shared robotaxis could hit them hard. Repair shops and partsmakers could also suffer, assuming AVs reduce the number of car accidents. Already, some parts suppliers are listing AVs as a threat to their future profitability in regulatory filings. Insurers would be hit hard by a fall in private car ownership and fewer accidents. Health-care providers and personal-injury lawyers would also suffer if there were fewer accidents, though few will feel sorry for them.

People who drive taxis, delivery vehicles and trucks are most directly threatened by AVs. Uber and Lyft say they will continue to need human drivers on some routes for years to come, but driving jobs might be redefined rather than abolished. Delivery drivers could be employed to manhandle large packages into customers' homes. Truck drivers might become overseers of platoons of vehicles travelling on highways. And AVs will create new jobs for remote fleet supervisors and mobile repair workers.

It already seems clear that AVs will cause the car industry and its adjacent businesses to change shape dramatically over the next couple of decades. But the consequences will not stop there. Like cars before them, AVs are sure to have far-reaching cultural and social effects too, most obviously in cities.

This article appeared in the Special report section of the print edition under the headline "Selling rides, not cars"

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The new autopia

A chance to transform urban planning

How autonomous vehicles will reshape cities

MODERN CITIES, PARTICULARLY in America, are habitats for cars as much as people, devoting huge amounts of space to roads and parking. “America is a great place to be—if you’re a car,” says Donald Shoup of the

University of California at Los Angeles. The expectation that people should be able to drive anywhere, encountering little or no congestion on the way and parking at their destination, led to a splurge of construction in the 20th century. Urban freeways, commuter suburbs and mandatory parking requirements reshaped cities. Now AVs promise to transform them once again, undermining many car-centric assumptions made in the 20th century, opening up new possibilities and turning urban-planning debates upside down. “For the first time in a generation, we can really rethink what suburban development looks like,” says Alan Berger, a professor of urban studies at the Massachusetts Institute of Technology.

Simply put, building cities around cars increases congestion, discourages the use of public transport and encourages sprawl, all of which urban planners generally disapprove of. The odd thing is that AVs could either reverse or accelerate each of these trends. They could reduce or increase traffic; make affordable transport more or less accessible; and lead to denser cities or more sprawl. It all depends on the rules for their use, and in particular the pricing. AVs know exactly where they are at all times, which makes it much easier to introduce fine-grained road tolls and congestion charges based on time of day, traffic levels and so on. That makes them a powerful and flexible policy tool.

Start with congestion. A switch to shared robotaxis could increase vehicle occupancy rates, reducing the number of vehicles needed to move people around and easing congestion. But low-cost robotaxis might also encourage more people to take more trips—the familiar problem of “induced demand” when road travel is cheap and easy. The roads could also fill up with autonomous delivery vehicles with nobody on board. The nightmare scenario, says William Riggs of the University of San Francisco, is that “we create another form of congestion—it just happens to be automated congestion.” But careful pricing of roads and rides should be able to prevent that. Some cities already have congestion-charging schemes of various kinds, or rules to encourage vehicle-sharing, such as dedicated car-sharing lanes. Some are starting to price access to kerb space, for example at airports. AVs would allow far more subtle forms of charging, taking account of time, place, vehicle type, number of riders, traffic levels and so forth, to maximise sharing and minimise congestion. “It will be that interplay that ensures we don’t end up with highly congested roads,” says Justin Erlich of Uber.

Using AVs for the “last mile” to move people to and from railway stations could make public transport more viable in less densely populated areas

What about the impact on public transport? A study by UC Davis found that among Uber and Lyft riders in America, bus use fell by 6% and light-rail use by 3%. AVs would be cheaper, so they could draw even more people away from public transport and onto the roads. This might discourage further investment in public transport, which in turn could create more “transit deserts” where large numbers of people (typically the poor and the elderly) depend on public transport but get an inadequate service. The economics of robotaxis will work best in dense urban centres, says Mr Riggs, so “we could see social-equity implications around the fringes of cities.” But again, there is also a rosier scenario. Using AVs for the “last mile” to move people to and from railway stations could make public transport more viable in less densely populated areas. Some cities might also operate their own robotaxi fleets, or subsidise rides in poor neighbourhoods using toll revenues collected in rich ones.

The emergence of AVs helpfully coincides with a change in the structure of cities, says Shlomo Angel, an urban-studies expert at New York University. He argues that the monocentric model, with a centre surrounded by suburbs, is a thing of the past. In many large American and European cities, jobs are moving from downtown to the periphery, and workers increasingly commute from one suburb to another, rather than to and from the centre. His analysis shows that 75% of jobs in a typical American city are outside the urban centre. In European and Asian cities with dense public-transport networks this decentralisation is easier to cope with, but retrofitting the necessary infrastructure onto American cities would be too expensive. “American cities need door-to-door transport systems to get to work, and driverless cars will play this role beautifully,” says Mr Angel. Robotaxis hailed on demand promise to be a lot more efficient than privately owned vehicles, he says, and are well suited to the spatial structure of both present and future American cities. Mr Berger agrees. “It’s not affordable to build mass transit that goes from suburb to suburb,” he says. “The best solution I’ve seen in my career is the idea of shared autonomous vehicles.”

That raises the question of urban sprawl. On the one hand, a switch to shared AVs by urban dwellers could lead to denser cities as some of the space currently used for parking is reallocated to housing. New high-density housing is already being planned with pick-up and drop-off zones for ride-hailing vehicles, and fewer parking spaces. On the other hand, AVs could also encourage sprawl by making long commutes more acceptable, because riders will be able to work or even sleep on the move. “The biggest negative of suburban living is the driving and the amount of space that has to be devoted to cars,” says Joel Kotkin of Chapman University. By doing away with driving and making city centres easier to access, AVs will increase the appeal of suburban living. So it seems likely that AVs will make cities both denser and more spread out, depending on the road-pricing regime.

Turning back the clock

AVs could also make possible new kinds of suburbs, updating the 20th-century dream of garden cities. “Over the last 100 years our landscape has been drastically altered by the automobile,” says Mr Berger. With AVs, “all the land we’ve given to the automobile can be put back into landscape and ecological functions.” By doing away with parking and using one-way, single-lane roads that loop through neighbourhoods, the area of paved surface can be reduced by 50%, he calculates. That means more space for plants, more biodiversity and better water retention, reducing the risk of flooding in the urban core. Suburbs will have enough space to generate their own solar power or grow their own food.

City centres will end up looking different, too. In effect, cities have banked a large amount of valuable real estate in the form of parking lots and garages, notes Peter Norton of the University of Virginia, and must decide how to spend their windfall. Housing is one obvious use; parks are another. Some streets could be reconfigured to more imaginative uses than high-volume thoroughfares, he suggests. In particular, some quieter streets could become spaces where pedestrians and slow-moving AVs share the roadway as equals, with neither having priority. This would mark a return to the way streets worked a century ago, before cars took over. “Streets should not just be roads for cars but places for people,” says Mr Shoup.

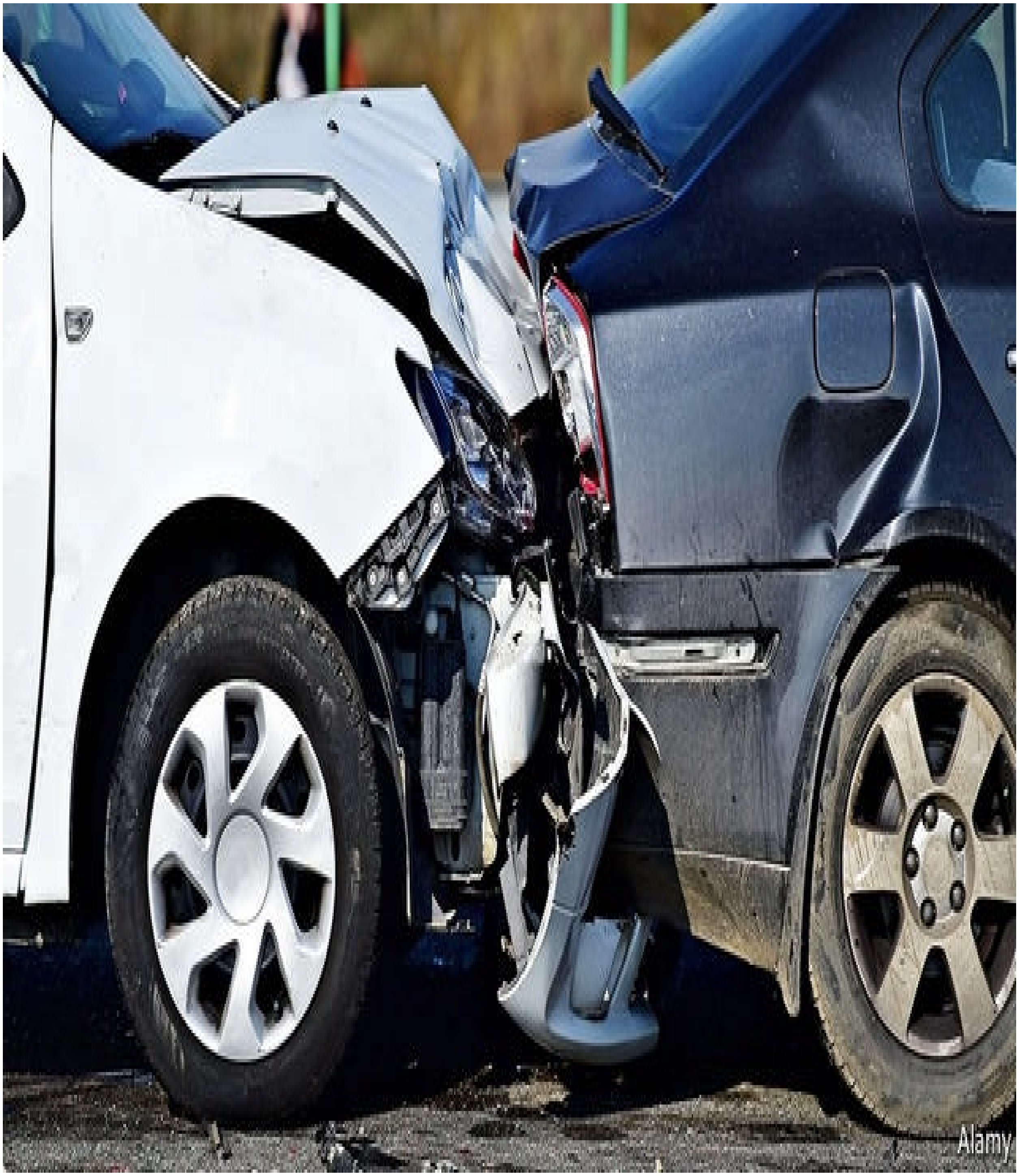
In retrospect, many drawbacks associated with cars in the 20th century arose from a failure to price their use properly. With appropriate pricing, AVs should be able to avoid many of those problems, giving urban planners and policymakers a much wider range of choices about how cities and transport systems could be structured. The challenge will be to choose wisely.

This article appeared in the Special report section of the print edition under the headline “The new autopia”

A different world

Self-driving cars will profoundly change the way people live

Foreseen and unforeseen consequences



Goodbye to all that

ROAD TRIPS. DRIVE-THROUGHS. Shopping malls. Freeways. Car chases. Road rage. Cars changed the world in all sorts of unforeseen ways.

They granted enormous personal freedom, but in return they imposed heavy costs. People working on autonomous vehicles generally see their main benefits as mitigating those costs, notably road accidents, pollution and congestion. GM's boss, Mary Barra, likes to talk of "zero crashes, zero emissions and zero congestion." AVs, their champions argue, can offer all the advantages of cars without the drawbacks.

In particular, AVs could greatly reduce deaths and injuries from road accidents. Globally, around 1.25m people die in such accidents each year, according to the WHO; it is the leading cause of death among those aged 15-29. Another 20m-50m people are injured. Most accidents occur in developing countries, where the arrival of autonomous vehicles is still some way off. But if the switch to AVs can be advanced even by a single year, "that's 1.25m people who don't die," says Chris Urmson of Aurora, an AV startup. In recent decades cars have become much safer thanks to features such as seat belts and airbags, but in America road deaths have risen since 2014, apparently because of distraction by smartphones. AVs would let riders text (or drink) to their heart's content without endangering anyone.

Evidence that AVs are safer is already building up. Waymo's vehicles have driven 4m miles on public roads; the only accidents they have been involved in while driving autonomously were caused by humans in other vehicles. AVs have superhuman perception and can slam on the brakes in less than a millisecond, compared with a second or so for human drivers. But "better than human" is a low bar. People seem prepared to tolerate deaths caused by human drivers, but AVs will have to be more or less infallible. A realistic goal is a thousandfold improvement over human drivers, says Amnon Shashua of Mobileye, a maker of AV technology. That would reduce the number of road deaths in America each year from 40,000 to 40, a level last seen in 1900. If this can be achieved, future generations may look back on the era of vehicles driven by humans as an aberration. Even with modern safety features, some 650,000 Americans have died on the roads since 2000, more than were slain in all the wars of the 20th century (about 630,000).

To take advantage of much lower operating costs per mile, most AVs are almost certain to be electric, which will reduce harmful emissions of two kinds: particulates, which cause lung and heart diseases, and climate-changing greenhouse gases. Even electric vehicles, however, still cause some particulate emissions from tyre and road wear, and the drop in greenhouse-gas emissions depends on how green the power grid is. The switch to electric vehicles will require more generating capacity (UBS estimates that it will increase European electricity consumption by 20-30% by 2050) and new infrastructure, such as charging stations and grid upgrades. For urban dwellers, the benefits will be better air quality and less noise.

Whether AVs will be able to reduce congestion is much less clear. The lesson of the 20th century is that building more roads to ease congestion encourages more car journeys. If robotaxis are cheap and fast, people will want to use them more. Yet there are reasons to think that the roads would become less crowded. Widespread sharing of vehicles would make much more efficient use of road space; computer-controlled cars can be smart about route planning; and once they are widespread, AVs can travel closer together than existing cars, increasing road capacity.

What is certain is that riders who no longer have to drive will gain an enormous amount of time that can be used to work, play or socialise. "Americans can take back a total of 30bn hours per year that they now spend driving, sitting in traffic or looking for a parking space," says BCG.

Yet to think about AVs as a fix for the problems caused by cars is to risk falling into a familiar historical trap. This is exactly how people thought about cars when they first appeared: as a fix for the problems caused by horses. In the 1890s, big cities around the world were grappling with growing volumes of horse manure and urine and the rotting bodies of thousands of dead horses, spreading disease. In 1894 the *Times* of London famously predicted that by the 1940s every street in the city would be buried under nine feet of manure. By comparison, cars seemed clean and hygienic, a key reason why they were adopted so quickly in the 20th century. "Cars replaced something that was in many ways far worse," says Donald Shoup of the University of California at Los Angeles. "But because of bad planning, they had unintended consequences." What might follow from AVs?

Shops that come to you

Cars transformed retailing, giving rise to suburban malls with lots of shops and plenty of parking. AVs, combined with the rise of e-commerce, could transform it again. “The Walmart of the future might be fleets of vehicles ready to drop off anything that you might get at a Walmart,” says Peter Norton of the University of Virginia. Or you might order an AV to take you home from work, and arrange to have your groceries, or a meal, waiting for you when you climb aboard. And why should shops, restaurants or other facilities be fixed in place? Coffee shops or food stands could restock at a central depot and then migrate to business neighbourhoods in the morning and entertainment districts in the evening, suggests Chenoe Hart, an architectural designer at the University of California at Berkeley. Mobile shops selling items such as shoes, clothes or cosmetics could visit particular neighbourhoods on a regular schedule, or when hailed by a customer. “It gives us flexibility to reassign space,” says Ms Hart.

Carmakers are experimenting with delivery vehicles that draw up outside a customer’s home, announce their arrival by text message and allow items to be retrieved from a locked compartment by entering a code. Low-cost deliveries using AVs could stimulate local production of all kinds of things, most notably food. Already, food-delivery services like UberEats, Deliveroo, Seamless and GrubHub have given rise to “ghost restaurants” that produce food for delivery only, centralising food production in a few kitchens. Cheap autonomous deliveries could make this kind of model more widespread.

Another possibility, says Johann Jungwirth of Volkswagen, is that restaurants or retailers might cover the cost of travel to encourage customers to visit them. Fancy restaurants might lay on luxury AVs to ferry sozzled customers home, as part of the cost of a meal. Retailers could offer to pay for shoppers’ rides. Ride-hailing networks have a lot of customer data that could be used to target in-vehicle advertising. Hail an AV to go to one shop or restaurant, and you might see ads for a rival. Riders may be offered cheaper rides with ads or more expensive ones without them.

Self-driving vehicles could also deliver other services, letting you work out with your personal trainer on the way to the office or summon a hairdresser to your home. Toyota’s e-Palette vehicles are boxes on wheels in different sizes that can be kitted out as mobile shops, offices or beauty salons.

Moreover, AVs could give rise to new kinds of social activities, just as cars provided teenagers with new social opportunities. Ride-hailing networks might group together people with similar interests or friends in common when assigning rides. Or they might work with a dating app, pairing people up with a potential match when they take a ride. AVs might also function as mobile party venues, or double as sleeping pods on long trips, offering an alternative to hotels and low-cost airlines.

A watchful eye

What unintended consequences might there be? One much-heralded benefit of AVs is that they will offer freedom and independence to people who cannot drive cars: the very old, the very young and the disabled. Such vehicles are already ferrying around people in retirement communities, and one of Google's videos shows a blind man doing errands in an autonomous car. But AVs could also encroach on freedom by invading people's privacy. Robotaxi operators will chronicle their riders' every move, so they will end up knowing a great deal about them. Some taxis already record riders for security reasons; robotaxis will surely surveil both their passengers and their surroundings to protect themselves. Police investigating a crime will ask AVs in the vicinity what they saw.

If people no longer drive cars, one consequence may be new forms of segregation, notes Ms Hart. Access to some places may be restricted to certain riders or robotaxi networks, just as some online services are "walled gardens" or cannot be accessed on all devices. She thinks there may be a need for a physical equivalent of "network neutrality" rules, to ensure that all locations are equally accessible to all AVs. In authoritarian societies, AVs could be a powerful tool of social control.

AVs could also trigger a shortage of organ donors (many of whom are young people killed in car accidents) and a drop in smoking (more than half of all tobacco sales in America are made at petrol stations, which will vanish, notes Mr Evans). And if cars are no longer symbols of independence and self-definition for the young, other things will have to take their place. Like cars before them, AVs will change the texture of everyday life.

This article appeared in the Special report section of the print edition under

the headline “A different world”

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Rules of the road

The success of AVs will depend on sensible regulation

Smart regulation and smart technology must go hand in hand

Cities for people, not cars

REGULATING A COMPLEX new technology is hard, particularly if it is evolving rapidly. With autonomous vehicles just around the corner, what can policymakers do to ensure that they arrive safely and smoothly and deliver on their promise?

The immediate goal is to make sure that AVs are safe without inhibiting innovation. In America, experimental AVs are allowed on the roads in many states as long as the companies operating them accept legal liability. Chris Urmson of Aurora says American regulators have got things right, working closely with AV firms and issuing guidelines rather than strict rules that might hamstring the industry. “It’s important that we don’t leap to regulation before we actually have something to regulate,” he says.

At the other end of the spectrum, Singapore’s government has taken the most hands-on approach to preparing for AVs, says Karl Iagnemma of nuTonomy, an AV startup that has tested vehicles in the city-state. For example, it has introduced a “driving test” that AVs must pass before they can go on the road. This does not guarantee safety but sets a minimum standard. The city of Boston has done something similar, requiring AVs to be tested in a small region before roaming more widely.

Elsewhere, regulators have permitted limited testing on public roads but want to see more evidence that the vehicles are safe before going further, says Takao Asami of the Renault-Nissan-Mitsubishi alliance. “Simple accumulation of mileage will never prove that the vehicle is safe,” he says. Instead, regulators are talking to carmakers and technology firms to develop new safety standards. Marten Levenstam, head of product strategy at Volvo, likens the process to that of developing a new drug. First you show in the laboratory that it might work; then you run clinical trials in which you carefully test its safety and efficacy in real patients; and if they are successful, you ask for regulatory approval to make the drug generally available. On this analogy, autonomous cars are currently at the clinical-trial stage, without final approval as yet.

What form would that approval take? Eventually, it will mean formal certification of vehicles capable of operating fully autonomously, so they can be offered for sale. But initial approval is likely to be granted to operators of specific robotaxi fleets, rather than vendors of particular vehicles, suggests

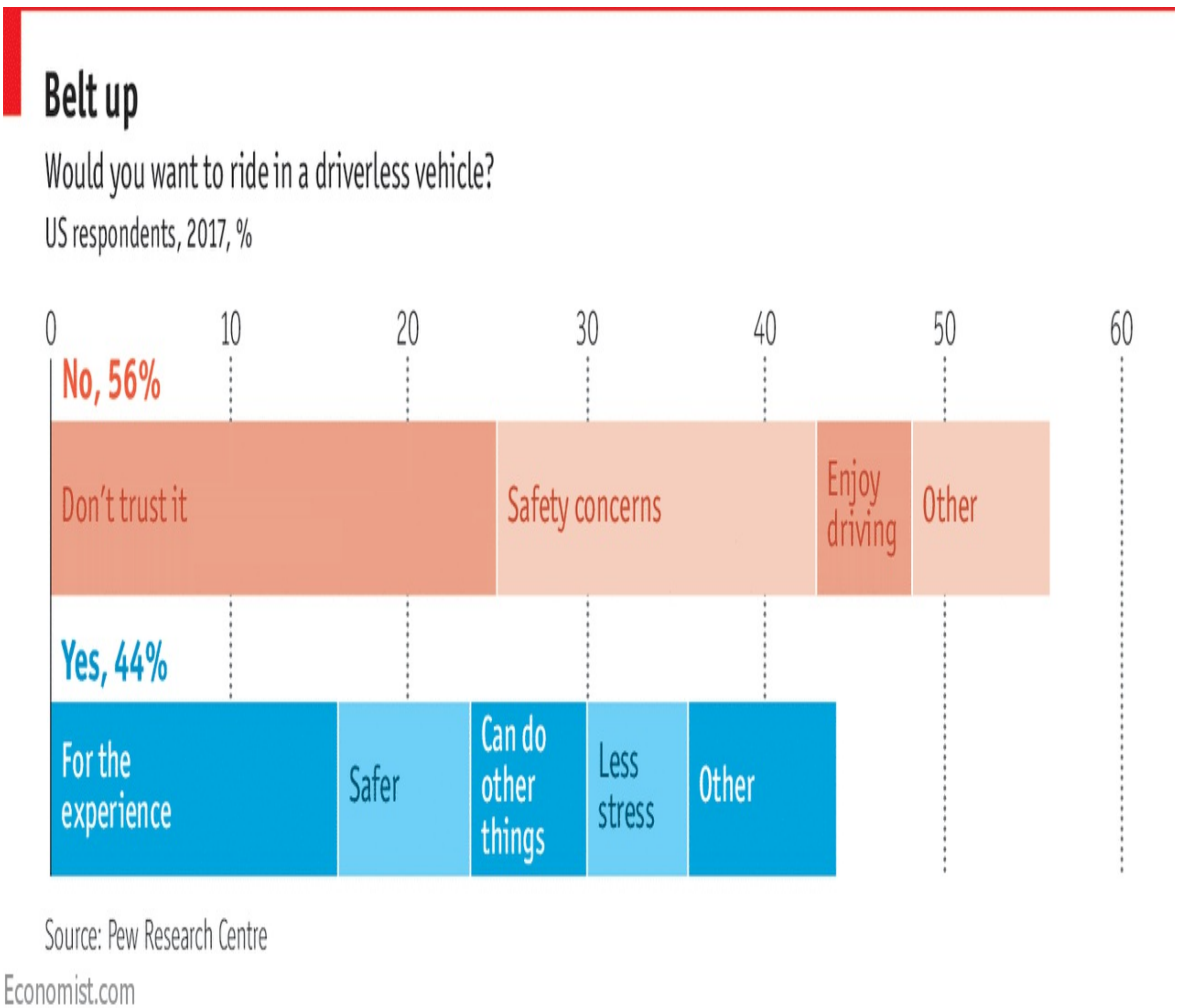
Mr Levenstam, because fleet operators will monitor all vehicles closely to ensure and maintain safety. Even this will be a calculated risk. It is not possible to prove that a new drug is entirely safe, but the risk is worth taking because of the benefits the drug provides. It will be the same for AVs, he suggests. After all, the status quo of human-driven vehicles is hardly risk-free.

Mr Asami draws another analogy, with aviation. “Black box” data recorders and careful testing have enabled air transport to evolve, despite crashes, because passengers know safety is taken seriously. In fact, America’s National Transportation Safety Board (NTSB) has started applying its aviation expertise to autonomous vehicles. In many ways AVs are more complex than aircraft, says Deborah Bruce of the NTSB, because they are closely surrounded by other things that move in unpredictable ways.

But medicine and aviation have global (or at least regional) regulatory standards, whereas AVs do not. The current patchwork of regulation will have to be simplified if the technology is to be widely deployed. “Uniformity is the friend of scalability,” says Mr Iagnemma. Questions of insurance and liability will also have to be worked out. Amnon Shashua of Mobileye worries that because of today’s regulatory uncertainty, fatal accidents involving fully autonomous vehicles could plunge the industry into legal limbo, or kill it altogether. He has proposed a set of rules that define how a car should respond in all 37 scenarios in the 6m-entry accident database maintained by NHTSA, America’s car-safety regulator, and would like to see these rules adopted as an open industry standard. That would absolve carmakers from making implicit ethical choices in their software while leaving room for innovation in other areas. Mr Iagnemma thinks it is a good start. Without such standards, he says, every company will develop its own way of translating the rules of the road, devised for humans, into a code that can be followed by machines.

Political potholes ahead

The risk of a backlash seems real enough. A survey by Advocates for Highway and Auto Safety, a consumer lobby, found that 64% of Americans were worried about sharing the road with AVs. In another survey, by the Pew Research Centre, 56% of Americans said they would not ride in a self-driving vehicle (see chart). Seeing AVs in action will be an important element of building public trust. In cities where AVs are commonplace, drivers have got used to them. Uber, Waymo and others are also starting to provide robotaxi rides in limited areas, so people can discover that riding in an AV is thrilling for the first 30 seconds and then quickly becomes boring. “But that’s the response we really want,” says Noah Zych of Uber, because it means riders feel safe.



Assuming that AVs can be shown to be safe, regulators will face a second challenge: setting the rules around how and where they operate, and how they relate to other forms of transport. Fine-tuning of pricing will, in theory, let planners control congestion and promote equal access to mobility.

Governments wishing to encourage the adoption of robotaxi services could go further, restricting the use of private cars (Gothenburg, London, Milan, Singapore and Stockholm already have congestion charges of various kinds) or banning them from some areas. That might be unpopular, and not just with car-owners. “I think there will be some real resistance to measures that compel people to use autonomous vehicles,” says Peter Norton of the University of Virginia. AVs could be seen as an Orwellian technology, an instrument of surveillance and social control.

Protesters might object by standing in front of AVs and blocking traffic. That could lead to calls for AV lanes to be fenced off, “thus making city streets even more inhospitable to non-motorists than they already are”, says Brian Ladd, author of “Autophobia”, a history of opposition to cars. But an unregulated introduction of robotaxis could also cause problems. Rival fleet operators might flood the roads with vehicles offering cut-price rides, making congestion worse.

Choices about transport and pricing are inescapably political in nature. How cities deal with them will depend on both economics and political dynamics, notes Justin Erlich of Uber. “We should be exploring lots of different policies in lots of different cities,” he says. Meanwhile, two principles can help.

The first is to consider AVs in the context of the wider transport system, and be clear about what role they are expected to play. AVs might be deployed as the primary means of transport in a particular area; or they could be used in “first mile, last mile” mode to ferry people to and from railway stations, filling mobility gaps and complementing other forms of transport.

The second principle is to be mindful of the balance of freedoms. AVs can potentially free people from driving, congestion, pollution and parking—but in return may require them to give up some other freedoms, such as the ability to take their own vehicle anywhere. In liberal countries, AVs will be accepted only if people feel that they enhance freedom rather than reduce it.

A century ago cars raised fundamental questions about personal autonomy, freedom of choice and mobility. AVs will do the same again. But this time around, with the benefit of hindsight, there is a chance that they will be seen not simply as a new form of transport but as a technology with far-reaching social and economic implications. Driverless cars present an opportunity to forge a new and better trade-off between personal mobility and societal impact. But AVs will deliver on their promise only if policymakers—like passengers climbing into a robotaxi—are absolutely clear about where they want to end up.

This article appeared in the Special report section of the print edition under the headline "Rules of the road"

Business

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Last lap of luxury

German cars have the most to lose from a changing auto industry

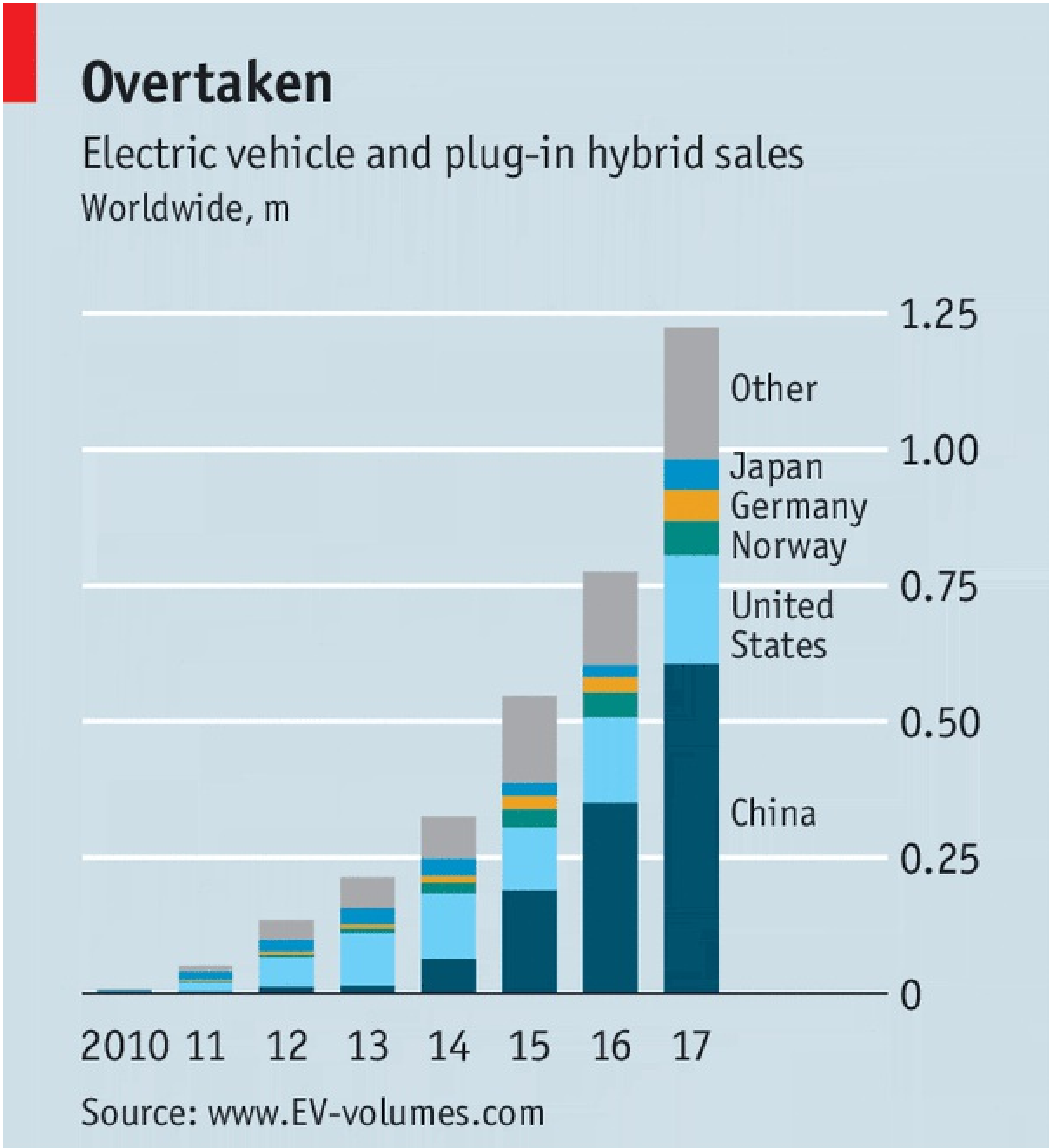
Coddled by successive governments, the industry is dogged by dieselgate, lagging in electric vehicles and unsure about driverless cars

GERMAN carmakers have much in common with the self-confident roadhogs who favour their vehicles. The cars they produce, with sleek design, doors that close with a satisfying thunk and roomy interiors swagged with leather and technology, are the dominant force at the upper end of the car market worldwide. At home, too, they are the purring engine of the economy; carmaking is by far Germany's biggest industrial sector.

But cars are changing. Electric power and autonomous vehicles will alter radically the way they are used (see special report). The difficulty in adapting threatens not only future revenues and profits at the big three—Daimler, BMW and Volkswagen (VW)–but also Germany's status as a mean economic machine.

For now they are ahead. Brands built on unmatched quality mean four-fifths of the world's premium cars have German badges. BMW and Daimler's Mercedes-Benz both make over 2.2m cars a year. VW vies with Toyota and the Renault-Nissan-Mitsubishi alliance as the world's biggest carmaker. It knocks out some 10m vehicles annually but relies on selling around 2m Audis and Porsches for 65% of its profits. The three companies' total output of over 15m vehicles in 2016 represented around a fifth of the global total. "We are still the best car producers in the world", brags Matthias Machnig, a deputy economy minister.

Yet the industry has three big problems. The first is one of public trust. VW's emissions scandal in 2015, when it admitted it installed software in cars to trick tests of emissions, and accusations last year of collusion on diesel standards on a vast scale, have damaged carmakers' reputations and also their political backing. A reminder of the seriousness of the issue came on February 27th when a federal court in Leipzig said that authorities in Stuttgart and Düsseldorf can prohibit entry of diesel cars, a ruling relevant to some 70 German cities. The prospect of city bans across Europe on polluting cars is drawing closer. Anti-diesel sentiments are spreading beyond Germany, with other cities, such as Paris and London, imposing bans.



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Second, the industry is woefully behind in designing and selling electric vehicles (EVs), which consumers are increasingly taking to. It is not the Germans, supposedly the leading innovators in cars, but Renault-Nissan-Mitsubishi, a mass-market rival, that makes the world's bestselling EV, the

Nissan Leaf, sales of which have reached some 300,000 since the car's launch in 2010. Chinese carmakers are streets ahead (see chart).

Third, the complex mechanical machines at which the country's engineers excel are gradually transforming into (battery-powered) computers on wheels that will drive themselves. Superior mechanical-engineering technology has been the industry's foundation, but there is no guarantee that it will lead in the electronic engineering and IT data-processing capabilities that will count most in future. Matthias Wissmann, president of the German Automobile Industry Association, concedes that such developments together mean his members face a "challenging moment".

The tyre tread of its carmakers has left a big impression on Germany. Cars are worldwide road-going adverts for the national brand. "Made in Germany" has become a guarantee of engineering prowess that has helped to promote the country's exports of industrial equipment and a myriad of niche products from the Mittelstand of medium-sized firms. Around four-fifths of all cars made in Germany, worth €256bn ($283bn) in 2016, are exported. A workforce of around 800,000 is employed directly or by suppliers. And these are plum jobs, with high pay and lots of perks (including, for some, big company cars).

The industry's success comes in part because the premium segment has long been growing faster than the car market as a whole. As motorists get richer they tend to trade up to a nicer set of wheels. The Germans have also cannily expanded what counts as a premium car. Once they specialised in big saloons. But a decade or so ago they put their badges on smaller, cheaper cars, such as BMW's 1-Series or the Mercedes A-Class. For a little extra drivers could have a prestigious German marque, a step up from mass-market models, which ceded market share.

Scale and strong brands have kept competitors at bay. Toyota's Lexus division and Jaguar Land Rover (JLR), a British-based Indian-owned firm with, not coincidentally, a former BMW executive in charge, have mounted the most successful challenge but are still minnows in comparison. They sold over 670,000 and 610,000 cars respectively in 2017. The premium brands of other carmakers have made even less of a dent. Only Tesla's swish electric cars have given the Germans cause to lose sleep.

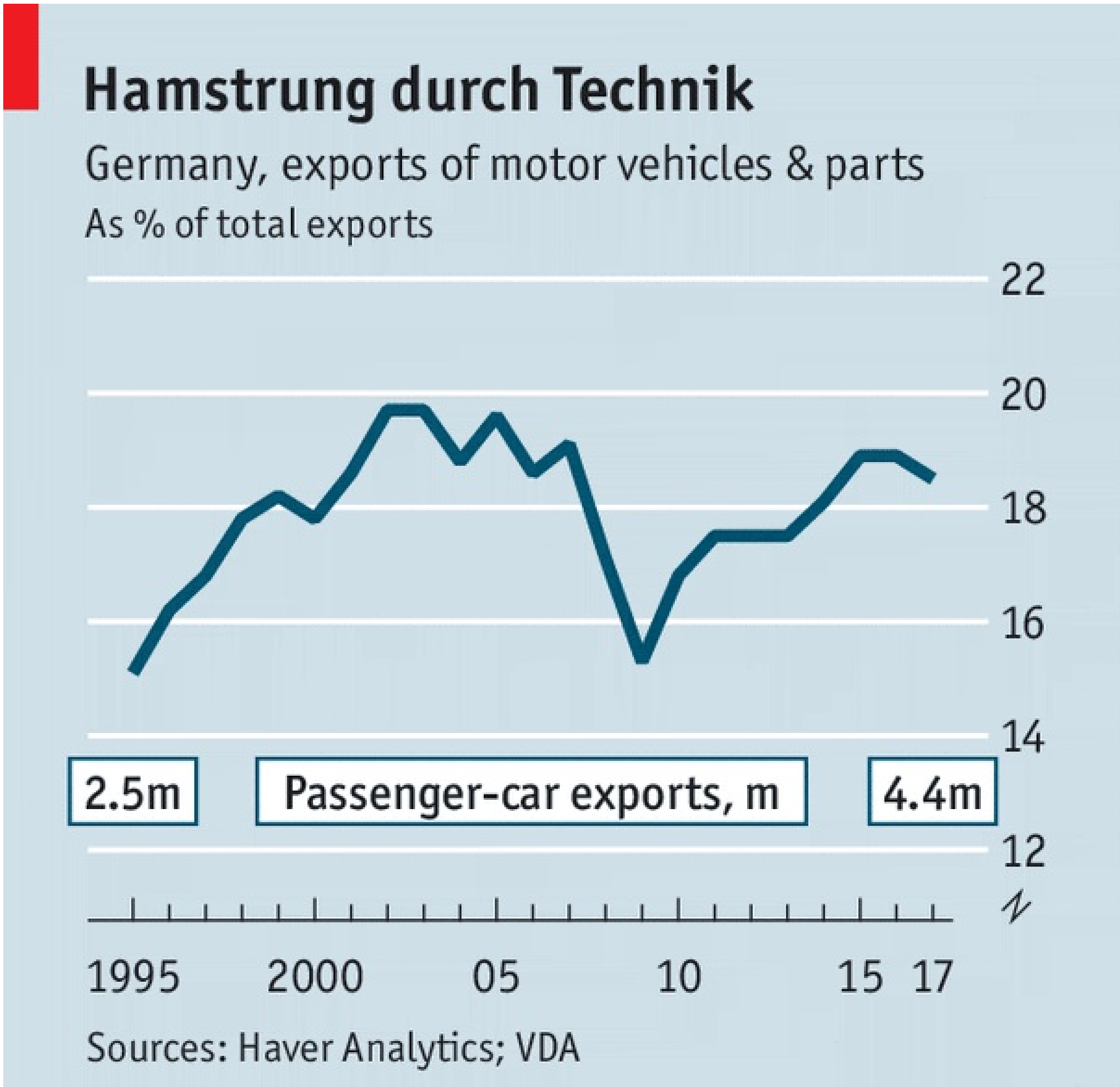
The Institute for Economic Research (IFO) says that carmakers account for 13% of industrial value creation in Germany. Cars are a spur of the technological innovation for which the country is famed. In 2016 the industry spent nearly €22bn on research and development, over a third of Germany's total. Serving the car industry is a key part of the businesses of industrial giants such as Bosch and Siemens.

Germany, company town for carmakers

This economic power has in turn given the car manufacturers plenty of political heft. The Christian Democratic Union (CDU) is heavily supported by the car companies; the Social Democrats by trade unions at the big three. Winfried Kretschmann, leader of Baden-Württemberg, home to many car producers, is from the Green Party. Even he has defended the long-term production of diesel cars.

Critics complain of a revolving door that has led carmakers to believe that they could get away with bad behaviour. A recent president of Germany, the previous chancellor and the current deputy chancellor have all served on VW's board. Eckart von Klaeden, once a senior official in the CDU, became Daimler's chief lobbyist in Berlin in 2013. Mr Wissmann, the boss of Germany's leading car-lobbyist group, also held a senior position in the CDU, and was transport minister in the 1990s. And so the list goes on.

These links have bestowed seeming advantages. "Free driving for free citizens" runs one German saying. Bosses and politicians flit between cities on autobahns with no speed limits. Germans pay no road tax. Tax policy keeps diesel substantially cheaper at the pump than petrol, nudging consumers to prefer big cars that rely on diesel engines to meet emissions regulations. Other tax rules also encourage companies to provide workers with premium cars and fuel allowances.



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Germany's current chancellor, Angela Merkel, has been only too willing to help. She pressed the EU to block an agreement on toughening carbon-dioxide emissions in 2013 (big German cars remain heavy emitters, although diesel produces less carbon dioxide than petrol). German politicians lobbied the European Commission to temper the severity of the latest set of emissions rules, for 2020 and beyond, announced in November. As Lutz Meier, a motor journalist in Berlin puts it, cars, and the policies that favour them, have helped to "determine our national psyche".

Yet consumers, especially younger ones, are increasingly doubtful about diesel-powered cars. The share of diesel sales has tumbled in Germany from a peak of 48% in 2012 to 33% this year and is plummeting elsewhere in Europe too. Germany’s car firms are heavily reliant on diesel sales in Europe; they make up well over a third of global sales for Daimler and for BMW and a quarter for VW. So if German cities do impose driving bans on diesel cars, in response to evidence that pollution threatens residents’ health, that could prove to be a “Fukushima moment” for the industry, suggests Christian Hochfeld, of Agora, a Berlin think-tank focused on energy and transport, referring to the fact that Germany’s nuclear business collapsed following the disaster in Japan in 2011. He also notes that resale values of diesel cars are tumbling. If carmakers are obliged to retrofit diesel vehicles with hardware to reduce nitrogen oxide emissions, as many people are now calling for, the cost to them would run to billions of euros in Germany alone.

Coddling of the industry by politicians is likely to decline. Mrs Merkel told bosses of the main car firms in September that "a lot of trust has been destroyed" in recent scandals. In November she warned the industry that it is running out of time to react to public worries over air pollution from their cars. As political opponents grow more outspoken in favour of bans—the Greens in parliament suggest sending petrol and diesel cars to the scrapyard nationwide by 2030—even Mrs Merkel's ruling party is adjusting its position on diesel. Last week a junior minister suggested that temporary driving restrictions on some routes might be introduced in an effort to limit the worst episodes of urban smog.

Political support in past years helped the industry in the short term but is widely felt to have contributed to complacency and to German manufacturers' lagging position in the EV race. Getting the cold shoulder from government might be beneficial if it spurred firms to act faster in responding to changing consumer tastes, producing electric or cleaner vehicles and keeping up with changing demand from abroad. But carmakers will fret that they are losing support, and if the mesh of rules and incentives that keep consumers driving their national treasures change, it could have a sharply detrimental effect on the industry.

Electric shock

Today it is Tesla that dominates the luxury market for EVs. This year JLR will be the first premium carmaker to start selling a direct competitor to Tesla's Model S saloon, the I-Pace. Audi's Q6 e-tron will arrive later in 2018 and Porsche's Mission E will not arrive until 2019. Volkwagen's and Daimler's EVs are based on established internal combustion engine (ICE) vehicles and sell only in small quantities. In 2017 VW sold under 13,000 of its most popular all-electric model in Europe and Mercedes just over 5,000. BMW has done better with its "i" sub-brand, established in 2011. Global sales of the i3, a neat if pricey saloon, exceeded 31,000 in 2017 but sales have never matched the firm's expectations.

Tardy arrival has significant costs. Suppliers are not in place to support an entirely new industry. German expertise in making chemicals and electronics could have been deployed to produce a battery industry to feed a thriving electric-car market. "We have no one in Germany who really understands batteries, and we lack the value chain; we are very, very late", laments Ferdinand Dudenhöffer, of the Centre for Automotive Research, in Essen.

Further delays in switching to rapid development of electric cars would prove more costly for everyone, executives say. “The longer you wait, the more jobs you lose”, says Mr Dudenhöffer. Many are at stake. The IFO offers a startling estimate that 426,000 jobs among the main carmakers, plus another 130,000 jobs among suppliers, depend directly on making parts for ICE vehicles.

In theory, German carmakers have the skills and cash to respond quickly, by building high-quality hybrid, plug-in or all-electric cars. And they have ambitious plans to catch up. VW says up to 25% of its cars sold in 2025 will be electrified. But they will not come cheap. EVs are pricier to make than cars powered by an ICE. Daimler, which also says that up to 25% of its cars will be electrified by the same date, admits the shift will hit profits hard. Most carmakers are looking to spread the cost. Geely, a Chinese carmaker, announced on February 23rd that it had taken a 9.7% stake in Daimler, partly, it is thought, to forge an alliance to share the costs of developing EVs.

Ultimately, self-driving machines

Another problem is how to defend the carefully nurtured brands themselves from disruption. The reputation was built on superior engineering, ICEs and driving pleasure. Premium cars sell for more because they are on the cutting edge of developments in motoring. Antilock brakes, turbocharged (diesel) engines and a host of other whizzy extras all showed up first on German cars. In return carmakers can charge more and rake in fatter profits than their mass-market counterparts (margins average around 10% compared with 5% or below in the mass market).

Yet desirable brands and mechanical brilliance may be much less use as carmaking is turned upside down. EVs, mobility services and autonomous vehicles are likely to be increasing sources of profits. Electric motors are largely standardised and may not command the same premium. German cars, engineered to please their discerning drivers, are unlikely to carry the same kudos when vehicles drive themselves. BMW, which advertised its cars as “The Ultimate Driving Machine” may have to rethink its marketing.

German manufacturers, naturally, argue that there is plenty of scope for premium brands as the landscape transforms. The engine, after all, is a small part of a package that includes those plush interiors, smooth suspension and superior design, they note. That is because by using clever electronics, car manufacturers can tweak the performance of electric engines to give a premium experience, they say. To be on the safe side, BMW is even manufacturing its own electric engines. Passengers will still pay extra for a better driving experience even if they are no longer at the wheel, they contend.

Like all carmakers, Daimler, VW and BMW are trying to reinvent themselves as "mobility providers". They have pilot projects for services including sharing ones such as Daimler's car2go and BMW's DriveNow. In late 2016 VW created MOIA, a separate division dedicated to new mobility, including an investment in Gett, a ride-hailing firm, and plans for carpooling and shuttle services. It says MOIA will "generate a substantial share" of revenues by 2025. Yet it offers no details on how.

Yet even if demand for fancy vehicles is still there, the business model is highly uncertain. The convention of making money chiefly from selling cars (the industry also profits from after-sales services) will have to be augmented and perhaps eventually replaced by new sources of income. As car drivers switch from ownership to services, revenues from sales will fall. It is unclear how long it will take for robotaxis and shared services to hit car ownership but some forecasts suggest that private sales will fall dramatically once these emerge.

Neither is it clear what carmakers reckon those models will be. As Dieter Zetsche, boss of Daimler, admits, he cannot say where the big returns will come in the future. "Maybe robotaxis and a sharing model…maybe something else". He adds that for short journeys no one will much care about what brand of vehicle they are in. That leaves luxury robotaxis used on longer journeys, perhaps by wealthier commuters who are happy to pay more for added luxury and status.

Even if the road to future profits is hard to make out, at least the Germans are more advanced in some areas than many competitors. Daimler, for example, is widely acknowledged as a technological leader in developing autonomous cars. All three have teamed up to buy HERE, a mapping company of the sort that is vital for self-driving. The Germans do have the luxury of "deep pockets, deep thinking and time”, notes Max Warburton of Bernstein, a bank. It may be that the last hold-outs who drive themselves are the rich and indulgent. If so, conventional luxury cars will still have some customers. But that could be an ever dwindling niche. The onus is on carmakers to prove they can successfully reinvent themselves—and continue to keep the German economy in the fast lane.

This article appeared in the Business section of the print edition under the headline “Last lap of luxury”

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Outgunned?

American companies snub the National Rifle Association

Delta, United, Hertz and Chubb are some of the firms publicly distancing themselves from the NRA and its members

FOR all the controversy that the National Rifle Association (NRA), America's gun lobby, arouses, Americans of all political stripes have tended to regard it as nearly unassailable. The NRA and its 5m members have therefore been valued customers for companies, too. But after the latest school shooting, at Marjory Stoneman Douglas High School in Florida on February 14th, that has started to change. Not only has the political discussion shifted, but corporate America has reacted.

Snubs from big business began just a week after the shooting. On February 22nd First National Bank of Omaha, a bank, said “customer feedback” prompted it to stop issuing NRA-branded credit cards. Angry customers and riled-up activists, students from Marjory Stoneman Douglas foremost among them, have pushed a campaign to #BoycottNRA on Twitter, piling pressure on companies. In the span of just a few days, several firms ended their discounts for NRA members, including Delta and United, two airlines; MetLife, an insurer; Symantec, an antivirus-software firm; and Avis Budget Group, Hertz and Enterprise Holdings, the country’s three largest car-rental outfits.

“NRA Carry Guard”, an insurance policy meant for NRA members to cover their legal costs in shooting cases, dubbed “murder insurance” by critics, was abandoned both by Chubb, the insurer underwriting it, and Lockton, the broker managing it (in Chubb’s case, the decision was made months ago but only announced now). On February 28th, Dick’s Sporting Goods, a large retailer, said it would stop selling assault rifles and raise the minimum age to buy any sort of guns from 18 to 21, declaring that “thoughts and prayers are not enough.” That same day, Walmart, another retailer, also said it would bar firearm purchases from those under 21.

A backlash against the firms is already brewing. Conservatives and gun-rights supporters vowed to boycott them. Republicans in Georgia’s state legislature, on the verge of approving a tax cut on jet fuel meant to benefit Delta, which is based in Atlanta, threatened to spike it unless the airline reinstated its discount.

Companies that opted to do nothing face no less pressure. Noting that it “opposes assault rifles…in the hands of civilians” did nothing to save FedEx from liberal ire after the logistics firm opted to retain discounts on shipments for NRA members. It did not seem to matter that the discount was part of a routine programme that offers them to members of all sorts of large groups, including the Society of American Florists. Discounts were not the only issue at hand. Amazon and Apple, in turn, faced boycott calls for continuing to carry NRA TV, a bundle of online-only channels. These are chock-full of the gun lobby's pro-gun content (with programmes such as "Love at First Shot").

Activists and commentators on the left called on the private sector to do more. Democratic legislators in New Jersey plan to introduce a bill to bar the state's pension funds from investing in gun manufacturers. BlackRock and State Street, the world's largest and third-largest asset managers, said they would speak with the gunmakers in their portfolios. The most radical idea floated so far, in the *New York Times*, is that banks and payment systems could block transactions for assault weapons, even if the federal government brings in no new restrictions—though this was received coolly by the industry. One banker reckoned the proposal was a "slippery slope" that would force banks to become unlikely arbiters of moral acceptability.

Could companies make a difference on gun control? The NRA itself dismisses the idea. Accusing firms dropping perks of "a shameful display of political and civic cowardice", the organisation insisted that these companies would, in time, be replaced by others who saw value in serving its members. But with only 5m of them, its influence stems from speaking for a wider group of sympathisers. If the wider public is put off by well-known firms taking a stand, the NRA may be diminished.

As for firms' staying power, a cynic would argue that their moves are driven by public-relations considerations. Once the furore dies down, they may say little more on gun control. But being seen to be opportunistic in a politically fraught environment could hurt firms, warns Nien-he Hsieh of Harvard Business School. They are better off being consistent, he says.

Their own workers will be watching closely. Employee pressure has factored in a number of recent positions taken by companies. Silicon Valley firms' stance against President Donald Trump's ban last year on travel from several Muslim countries, or the outspokenness of Kenneth Frazier, the chief executive of Merck, a pharma giant, after Mr Trump refused to condemn white supremacists in Charlottesville, are just a few examples. Once again, companies and their bosses are expected to step into the void left by political dysfunction.

This article appeared in the Business section of the print edition under the headline “Outgunned?”

Drillers in the dock

Two oil majors face trial over a controversial deal in Nigeria

Royal Dutch Shell and Eni are about to go on trial over an alleged bribery scheme to secure a valuable oil field

Better uses for $1.1bn

RESOURCE-RICH Nigeria has long ignited interest from oil firms, but it can be a dangerously combustible environment when it comes to the risk of corruption. Two firms caught up in scandals are Royal Dutch Shell and Eni, Italy's state-backed energy group. In 2010 both entered into deferred-prosecution agreements with America's Department of Justice after being implicated in separate Nigerian bribery schemes. But those pale beside a case involving the two companies that is set to go to trial in Milan on March 5th.

The case centres on the purchase of a big offshore oil field known as OPL 245, and touches the top ranks of both firms. In the dock will be, among others, Eni's current CEO, Claudio Descalzi, and Shell's former exploration chief, Malcolm Brinded. Also on trial are the firms themselves, charged with failing to prevent bribery. The individuals face jail if convicted; the companies face fines. All deny wrongdoing.

In 2011 Shell and Eni jointly paid the Nigerian government $1.3bn for OPL 245. Prosecutors allege they knew the government would pass $1.1bn of the funds to a shell company called Malabu, controlled by Dan Etete, a former oil minister. They claim the companies had reason to believe Mr Etete would use much of what he received to pay off officials, including Nigeria's president at the time, Goodluck Jonathan. They also suspect that more than $50m may have gone to Shell and Eni executives as kickbacks. Mr Jonathan has denied involvement. Mr Etete faces charges in Nigeria; his whereabouts are unknown.

Shell says that based on the case files, "we do not believe there is a basis to convict Shell or any of its former employees. If the evidence ultimately proves that improper payments were made by Malabu or others…it is Shell's position that none of those payments were made with its knowledge, authorisation or on its behalf." Eni says it acted with "correctness and integrity" throughout. Its board says it has full confidence in the firm and its boss.

International investors are particularly vexed about the alleged involvement of Shell, a blue-chip oil major. Last year, after e-mails were leaked, it admitted that executives had known that much of the purchase price would go to Mr Etete, a convicted money-launderer. In the e-mails, they speculated that funds might flow on to Mr Etete's political friends. One investor says that Shell, by emphasising for so long who the contract was with, not where the money was going, honoured the letter but not the spirit of good governance—"and that's not good enough anymore".

Dutch investigators, too, are on Shell's back. They raided its offices in The Hague in 2016 and tapped the phone of Ben van Beurden, Shell's current chief executive. Mr van Beurden was not in the job when the oil block was bought and faces no charges. A sizeable team of Dutch investigators is still working on the case, though the Italians have been given the lead.

There has also been disquiet over Eni's treatment of inquisitive board members. Luigi Zingales, who teaches at the University of Chicago's Booth School of Business, was an independent director until 2015, when he left the board citing "irreconcilable differences" over how Eni tackled corruption risks. Another non-executive director with solid governance credentials, Karina Litvack, was removed in 2016 from a board risk committee that had access to OPL 245 files. The reason, Eni said, was that she had been implicated in a case of alleged defamation against the firm that was being investigated by a prosecutor in Sicily. Mr Zingales was also targeted: the prosecutor signed a notification that he was under investigation just days after Mr Zingales had informed Eni that America's FBI, which was following the OPL 245 money trail, had contacted him about testifying.

To many outsiders the defamation claims, always vague, looked like part of a dirty-tricks campaign to discredit two free-thinking board members. Eni denies trying to silence anyone or pervert the course of justice. It has confirmed that Massimo Mantovani, its general counsel at the time (now head of the gas division), is a suspect in a probe by Milan prosecutors into how the defamation case came about. Mr Mantovani declined to comment. The defamation claims have been dropped. Investors nonetheless kicked up a stink. In response, Eni has reinstated Ms Litvack to the risk committee, but tensions remain high. One large investor calls the committee, the board's most important, "dysfunctional".

Winning the case would help the two firms restore confidence. Losing would be expensive. Eni would have to replace Mr Descalzi, who is highly regarded by industry analysts. Both firms would face fines not only in Europe but possibly also in America, whose crime-busters could use the deferred-prosecution agreements from 2010 to brand Shell and Eni repeat offenders, calculating their fines accordingly.

This article appeared in the Business section of the print edition under the headline “Drillers in the dock”

Firm direction

A new boss for McKinsey

Kevin Sneader has repair work to do in South Africa—and must tackle the technology sector

THE Jesuits, the US Marines and the Freemasons: McKinsey has been compared to them all, at one time or other. The firm prides itself on being the most prestigious management consultancy, sending out its bright, young footsoldiers to advise executives and policymakers on tricky strategic issues. It is everywhere, counselling 90 of the top 100 firms (as ranked by *Forbes* magazine). Among its many government assignments it is helping Britain to leave the EU, Lebanon to fix its economy and the Saudis to wean themselves off oil.

Occasionally the company needs new leadership itself. On February 25th the result of a long election process was made public. Kevin Sneader, the Scottish chairman of McKinsey's Asia unit, will replace Dominic Barton as managing partner—the top job. He inherits a thriving business. The firm remains by far the biggest of the premium consultancies (see table). Over the past decade, annual revenues have doubled to $10bn; so too has the size of the partnership, to more than 2,000.

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The firm has also overhauled its own operations in many respects. Mr Barton claims that half of what it does today falls within capabilities that did not exist five years ago. It is working to ensure that customers turn to McKinseyites for help with all things digital. It has had to make acquisitions in some areas: recent purchases include QuantumBlack, an advanced-analytics firm in London, and LUNAR, a Silicon-Valley design company. It is increasingly recruiting outside the usual business schools to bring in seasoned data scientists and software developers.

Staying relevant to big tech firms is not easy, however. McKinsey has kept plenty of older ones as clients, such as Hewlett Packard, but it has a lot more to do to crack new tech giants and unicorns (private startups worth more than $1bn). In general, management consultancies have made fewer inroads into firms such as Facebook and Google. That is partly because consultants typically help struggling firms cut costs; they have less appeal to firms already on the cutting edge. Cash-rich tech firms also tend to prefer keeping things in-house rather than bringing in consultants. They compete with McKinsey in some ways, too. Amazon has become the largest recruiter at some business schools, and the firm's own consultants are lured away by tech firms' generous pay packages.

McKinsey's response is to try to gain a foothold earlier on in tech firms' life-cycles. It is targeting medium-sized companies, which would not have been able to afford its fees, by offering shorter projects with smaller "startup-sized" teams. As it chases growth, the firm is also doing things it used to eschew as being insufficiently glamorous. In 2010 it moved into business restructuring and it has also set up a global strategy "implementation" practice. That is a far cry from the days when its consultants stuck mainly to blue-sky thoughts in their ivory towers. Mr Barton has also overseen a shift towards a results-based fee model, bringing the firm into line with its nearest competitors, the Boston Consulting Group and Bain & Company.

As McKinsey takes on more people and practices, cracks in its distinctive "One Firm" ethos, and its reputation for discretion, might start to show. It is under investigation in South Africa for working with Trillian, a local consulting firm owned by an associate of the controversial Gupta family, on a contract worth hundreds of millions of dollars for Eskom, a state-owned utility. The firm says it never worked for the Guptas, but admits to "errors of judgment", particularly in starting work with Trillian before its internal due diligence was complete. The fallout so far has been limited to South Africa, with a few local clients, including Coca-Cola's local unit and some banks, saying they will not give McKinsey any new work.

Events in South Africa may be an aberration, rather than a consequence of rapid growth. But the tension between profit and principle is not new. It manifested itself most clearly when Rajat Gupta, a former managing partner, was convicted of insider trading in 2012. Can McKinsey continue to grow rapidly while keeping its key asset—its reputation as a trusted adviser—

intact? Now there is a question worthy of the world's best consultants.

This article appeared in the Business section of the print edition under the headline "Firm direction"

Excuse me while I bid for Sky

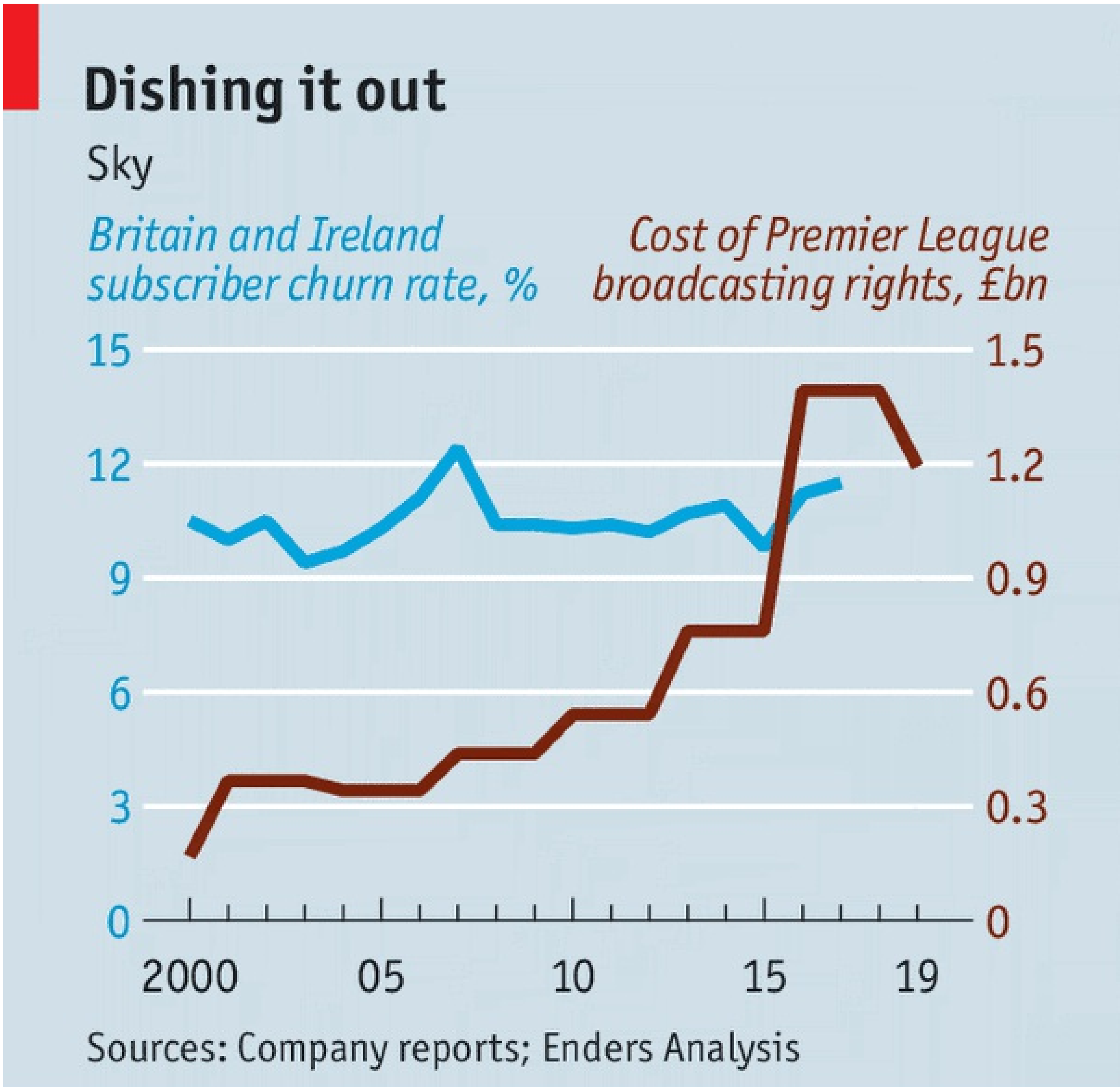
Comcast announces a surprise offer for the British television firm

A bid from the cable giant could disrupt Disney’s pending deal to buy much of 21st Century Fox

HAVING failed to get Rupert Murdoch’s attention before, Brian Roberts, chief executive of Comcast, certainly has it now. On February 27th the American pay-television giant said it would make a £22.1bn ($30.7bn) offer for Sky, the European satellite broadcaster, potentially disrupting Disney’s agreed $66bn purchase of much of 21st Century Fox.

The surprise announcement comes as Fox, which owns 39% of Sky, is trying to get regulatory approval in Britain for its own purchase of the remaining 61% of the satellite broadcaster, which it would then hand over to Disney after shareholders and regulators approve that deal (perhaps by the end of this year). By putting himself in the middle of that complex transaction, with an all-cash offer 16% richer than that of Fox, Mr Roberts is causing people to wonder what his goal is. He had tried to outbid Disney for Fox’s assets in the autumn, but gave up due to a lack of engagement from Mr Murdoch. He may now only be after Sky, or he may intend to make a still bigger hostile bid to top Disney’s.

In American media-industry circles the betting is on the latter, as investors there take a dim view of the prospects of Sky, which relies on a declining form of distribution in satellite and whose pay-TV subscribers are increasingly fickle (see chart). “It’s hard to see it as anything other than a prelude for a bigger bid for Fox,” says Craig Moffett of MoffettNathanson, a research firm. Such a bid is not realistic at the moment because American regulators have sued to block a similar vertical merger, AT&T;’s purchase of Time Warner. If AT&T; were to win that case, Mr Roberts might feel emboldened to make a play for Fox’s other assets, including its film studio and TV networks.



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For now Mr Roberts is telling investors that his bid makes sense, partly because he views Sky as being more than a satellite broadcaster. Like Comcast, which bought NBCUniversal in 2011, Sky operates TV networks in sports, news and entertainment, produces original shows and holds sports rights in key markets (which are getting cheaper in Europe, in contrast to sports-rights inflation in America). Sky has 23m retail customers in Europe, compared to Comcast's 29m at home. "Operationally we do very similar things," Mr Roberts says. That makes for a good fit now, he says, while building scale for the challenges posed by Netflix and Amazon. Sky also has a Netflix-like product, Now TV, that has gained in popularity as customers drop its more expensive satellite packages.

Despite disapproval from Comcast investors, who would probably prefer the company to buy back shares (Comcast's share price has fallen by 8.5% since the announcement), there is a case to be made for buying Sky. In January it posted strong results for the last six months of 2017, with 5% revenue growth and 10% growth in earnings before interest, taxes, depreciation and amortisation, to £1.1bn. Then in February Sky secured the next three years of Premier League football rights for less than it paid last time, a surprise to some that increased the value of the company.

What Bob Iger, Disney's chief, and Mr Murdoch will make of the timing is another question. For Mr Murdoch the Comcast announcement complicates the years-long drama that has been his effort to take full control of Sky. In February Fox promised to regulators that Sky News would get an independent editorial board, a move that was expected to help satisfy concerns that the network not be influenced by the Murdochs, who have a big presence in British media and operate Fox News in America. Mr Roberts notes that Comcast has been a reliable steward of NBC News.

Fox has reiterated its commitment to its offer of £11.7bn for the other 61% of Sky, made in December 2016. Disney has said nothing. If Mr Iger wants to safeguard Disney's acquisition of the Fox assets, he can ask Fox to increase its offer for Sky, a cost that would eventually be borne by Disney. Either way it is clear Sky is worth more now, whether on its merits or as a pawn in a larger game.

This article appeared in the Business section of the print edition under the headline "Excuse me while I bid for Sky"

Living the high life

Some airport terminals are learning from the luxury-hotel business

Private-jet terminals now compete as much on service as price

Harder to expense

THE private-jet industry advertises itself as the height of luxury for the rich. But travelling through the ramshackle, ugly buildings it used to use as terminals was rather like going commercial. No longer. At one of Dubai's newest facilities for private jets—built by Jetex, a fast-growing chain—passengers strum guitars on hammock-shaped sofas around a coffee table dressed up as a campfire, before being whisked away to their planes in limousines. Others amuse themselves playing table football or having elaborate spa treatments.

It is unsurprising that such a facility has emerged in Dubai. But the boom in luxurious terminals that look more like playpens for adults than somewhere to fly from is spreading. Jetex has opened 39 of them in more than 20 countries since 2005. Adel Mardini, the firm's boss, is clear about how he wants to disrupt the industry. He says he wants airport facilities to feel "like a five-star hotel".

Often little more than a Portakabin filled with stained sofas, private-jet terminals—or "fixed-base operators" (FBOs) in industry jargon—used to be grim affairs, mostly run by individual, family-run firms. They competed on price rather than quality, losing money on their facilities in return for steep mark-ups on jet fuel, notes Adam Twidell of PrivateFly, a booking service. But the financial crisis blew up this model. Businesspeople used to account for over 80% of the FBOs' trade and were generally in too much of a hurry to note the tattiness. But now they use private jets much less, and wealthy individuals have taken up the slack.

They have the time and the money to be pampered at airports with all the services a smart hotel can provide, says Mr Mardini. Terminals must compete as much on service as cost. That gives branded chains of luxury facilities an edge over the mom-and-pop outfits of old, which are being swept away by consolidation. Over the past 15 years the number of independent operators has fallen by a third in America.

Mr Mardini also wants to imitate the hospitality business in other ways. He plans to franchise out the Jetex brand, just as hotel groups do. Independent FBO operators, meanwhile, are preparing to resist the new global chains such as Jetex and Signature by pooling their marketing budgets and loyalty schemes.

Luxury brands that currently have little to do with aviation are muscling in. Harrods, a department store, has opened FBOs under its own brand at Luton and Stansted airports in Britain, and wants to franchise out its name. Hotel chains, too, see FBOs as their natural habitat. The first Hilton-branded hotel in an FBO opened last summer on the idyllic St Simons Island in the state of Georgia. Three chains—Peninsula, Aman and Four Seasons—operate their own private jets and are considering moving into ground facilities. The luxury-FBO upstarts could be disrupted by the very firms they are seeking to emulate.

This article appeared in the Business section of the print edition under the headline "Time for an upgrade"

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Schumpeter

Are China’s state giants reformable?

SASAC, the Chinese agency that oversees a hundred or so state-owned enterprises, sets out its case

AMONG investors it is fashionable to say that China's state-owned enterprises (SOEs) do not matter much any more and that entrepreneurs now power the world's second-largest economy. But China's SOEs are still hard to avoid. They account for 40% of its stockmarket and a third of its investment, and they dominate heavy industry. On the global stage, SOEs' appetites sway commodity prices and many are expanding abroad.

These empires of men and machines account for 45 cents of every dollar of debt in China, so their health determines whether the country's financial system will escape a crisis or blow up. And SOEs have become a loaded gun on the negotiating table between China and America. Treasury officials argue that China has broken the promises it made upon joining the World Trade Organisation in 2001 about further liberalising its economy. According to one negotiator, it is "abusing the system" by subsidising SOEs which in turn rig markets, dump cheap exports abroad and deter foreign firms from winning market share in China.

Schumpeter is sympathetic to the complaints, but to hear the other side, he met the State-owned Assets Supervision and Administration Commission (SASAC), an agency at the heart of China's industrial deep state. It controls 100-odd of the largest SOEs. The overall impression is of an organisation that wants to modernise state firms, but which is struggling to reconcile goals that appear to be fundamentally contradictory.

Forty years ago most industries were government departments without proper book-keeping or independent regulators. Today 63% of SASAC's portfolio is listed on the stockmarket. Reform was intended to make firms more efficient and responsive to market signals. In the 2000s it was possible to dream that China might eventually relinquish control of its SOEs.

But after the subprime crisis in 2008 things went in the other direction. China's stimulus programme led SOEs to expand and run up debts. Since Xi Jinping became China's leader in 2012, he has bossed about both SOEs and private firms. On February 22nd the state seized control of Anbang, a private insurer that is accused of fraud (see article). Some reckon the Chinese government may have indirectly helped fund Geely's purchase of a 9.7% stake in Daimler, which was announced on February 24th. At least 30 SOEs listed in Hong Kong have changed their constitutions since 2016, to give the Communist Party a formal role in their governance. The top 60 listed SOEs, excluding banks, collectively trade at a lowly 1.2 times capital employed—suggesting investors are unsure if they are run for politicians or shareholders.

While SASAC is not explicit about it, it has three, conflicting, objectives: to boost profits and cut debts; to persuade foreigners that SOEs have more autonomy, and to cement the party's muscular role. According to SASAC, the Party wants to guide the conduct of SOE bosses but not micromanage. SASAC itself does not want to be responsible for firms' results, but wants to set the boundaries of strategy. So if PetroChina, an energy giant, bought an oilfield, for example, SASAC says it would not intervene, but if it tried to buy a goldfield it would. Likewise, SASAC caps the salaries of SOEs' top brass whereas it is relaxed about underlings' pay.

One option would be to copy Singapore. It has Temasek, an independent firm with holdings in "strategic" listed firms. Temasek is expected to maximise long-term returns and rarely meddles. SASAC replies that China's SOEs are too big for this structure to work well. The top 60, excluding banks, have a market value of $1.5trn, seven times that of Temasek's holdings. SASAC argues that a Chinese Temasek, huge and with autonomy, would have too much power (SASAC is also enormous but part of the government and subservient to it).

Is there any way to square the circle? SASAC's experiments fall into two buckets. In the first are less-than-convincing initiatives, such as changing SOEs' culture so that they allocate resources more like private firms. That is impossible to verify. It has promoted "mixed ownership" in which SOEs raise private capital. Last year China Unicom, a telecoms firm, raised $12bn from a consortium that included Tencent and Alibaba. But Unicom, like most SOEs, already had private minority investors so it is not clear what has really changed. SASAC has also pushed for mega-mergers, such as that between Shenhua Group, a coal firm, and China Guodian Group, a power company. It is likely that such combinations cut costs, improve profits and lower debt. But they might also create a new class of monster SOEs with even more clout.

In the other bucket are SASAC ideas that could make some difference. It says that in "competitive" industries (including coal, steel, pharmaceuticals and construction) it will let its stake drop well below 50%. That could signal a willingness on the part of the state to concede some ground. And SASAC wants SOEs to find ways to expand abroad while containing political tensions. An example is ChemChina, which in 2016 bought Syngenta, a Swiss chemicals firm, for $46bn. The deal was controversial and in order to convince customers and the Swiss that Syngenta is not run from the party's leadership compound, Zhongnanhai, ChemChina gave its target an unusual degree of autonomy—it will keep its headquarters in Basel and is to have independent directors.

Show them the money

SASAC has a hard task to sway critics. At the very least it should press SOEs to boost returns as a way of showing that they are not underpricing products or being subsidised. Total operating profits for the top 60 listed SOEs (excluding banks) have risen by 17% since 2016, according to Bloomberg data, and leverage has stabilised. That is progress, yet returns on capital are still a dismal 5%, half the level expected of private firms. Mr Xi clearly sees business as an arm of state power. SASAC will therefore struggle to show the world that SOEs are free from interference. But demonstrating that they make commercial rates of return would help.

This article appeared in the Business section of the print edition

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Finance and economics

Emerging from the shadows

Narendra Modi wants to boost formalisation. How is he faring?

Electronic banking is good news for the Indian taxman

WATCHING money drain from your bank account has never been so much fun. On WhatsApp, a messaging service ubiquitous in India, sending rupees is now as easy as posting a selfie. Set-up is a breeze, because all Indian banks have been corralled onto a common payment platform on which anyone, from Google and Samsung to local payment firms and banks themselves, can build their own user interface. Money zips instantly from one bank account to the other, without any need to set up a pesky digital wallet or download some new app. At least outside China, there is no simpler way to shift money today.

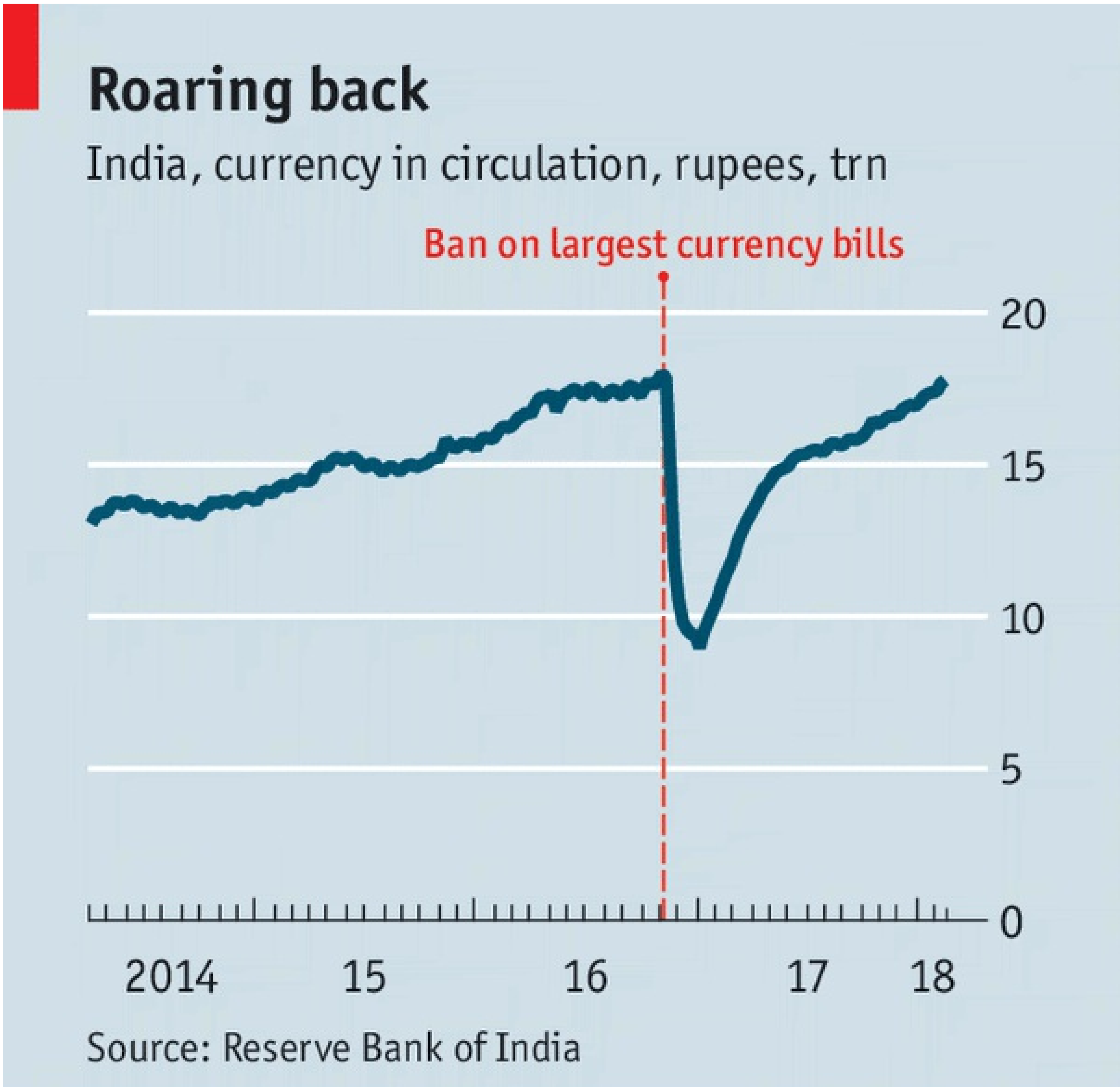
WhatsApp's offering is being rolled out gradually. The number of transactions routed through the United Payments Interface (UPI), the system on which WhatsApp and the rest are riding, has soared from almost nothing in early 2017 to over 150m a month in January. On current trends, UPI transfers will overtake cash withdrawals from banks within weeks. Some 665bn rupees ($10.2bn) will have shifted hands—or phones—in the year to March.

All this is good news for tech-savvy Indian citizens. It is even better news for the taxman. Electronic transactions, unlike those in hard currency, leave a digital trail that makes it harder to do business informally. Just as an Uber driver cannot hide his income in the same way as a cash-in-hand cabbie can, money routed through bank accounts is easier to track, trace and tax. That is helpful because pushing more of the Indian economy out of the shadows, where perhaps half of all activity takes place, and onto the authorities' radar has been a central policy of Narendra Modi, the prime minister.

Informality has long been the norm in India. Economists estimate that nine in ten workers toil in the grey economy (recent research from the finance ministry suggests the figure may be somewhat lower). Informal outfits, often small, employ two-thirds of all manufacturing workers, at far lower pay than in formal manufacturing jobs. The informal sector remains the employer of last resort. So Mr Modi's claim that widespread formalisation would be akin to turning "an old civilisation into a modern society" is no overstatement.

As so often in India, data are patchy. But Mr Modi can claim some success. A new Goods and Services Tax (GST) introduced in July has boosted the number of firms registered to pay indirect taxes by 50%, to nearly 10m. This has become the most serious challenge to those looking to do business under the radar. It subsumed a plethora of nationwide and state taxes adding up to 40% of India's total take. A sort of value-added tax, it compels businesses to declare both their purchases and their sales if they are to qualify for tax refunds. Plenty of loopholes have been built in, and lots of features have had to be delayed because of IT problems. But the miseries of implementation—and the nearly two decades of political bickering it took to get GST passed—should yield more gain than pain.

That is more than can be said for "demonetisation", which in November 2016 compelled Indians to trade or deposit most of their cash holdings at banks before their notes turned to worthless pieces of paper. It led to the abrupt withdrawal of 86% of all bank notes from circulation. Only now is currency in circulation, which some see as a proxy for informality, creeping up to previous levels even as the economy has grown (see chart).



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The costs were clear: India's economy slowed markedly. Fans argued, though, that it jolted India onto a new, more formal track. But if so, that track has not visibly diverged from the one it was on before. Though there was a rise in the number of Indians signing up to pay income tax, the revenue from income tax is expected to come in at 2.3% of GDP, up only a little from around 2% in previous years. Even the jump in indirect-tax registrants because of GST has led to a relatively modest increase in revenue. But at least there is a sense that dodging taxes is less acceptable in polite society than it used to be.

Saurabh Mukherjea of Ambit, an investment bank, argues that market forces have done more to nudge businesses to go formal than any government scheme has. Better infrastructure and logistics have made it easier for formal businesses to achieve economies of scale, and so to take on informal rivals whose sole competitive advantage is their ability to dodge taxes and regulation. Moderate inflation, due in part to the low price of crude oil, of which India imports oodles, has allowed for lower interest rates. That has made financing cheaper for formal firms, while informal ones have still had to make do with loans whose interest is measured in monthly, not annual, rates.

But whatever edge a formal business might have gained is more than undone by a thicket of labour laws that prevent small firms from growing into mid-sized or big ones, which tend to be more formal. These have barely been touched since Mr Modi came to office in 2014. The fear of being shaken down by venal bureaucrats and taxmen remains a powerful reason to stay below the radar. As a result, only one in 20 Indian workers toil in firms that employ more than 25 people, compared with around one in four in China.

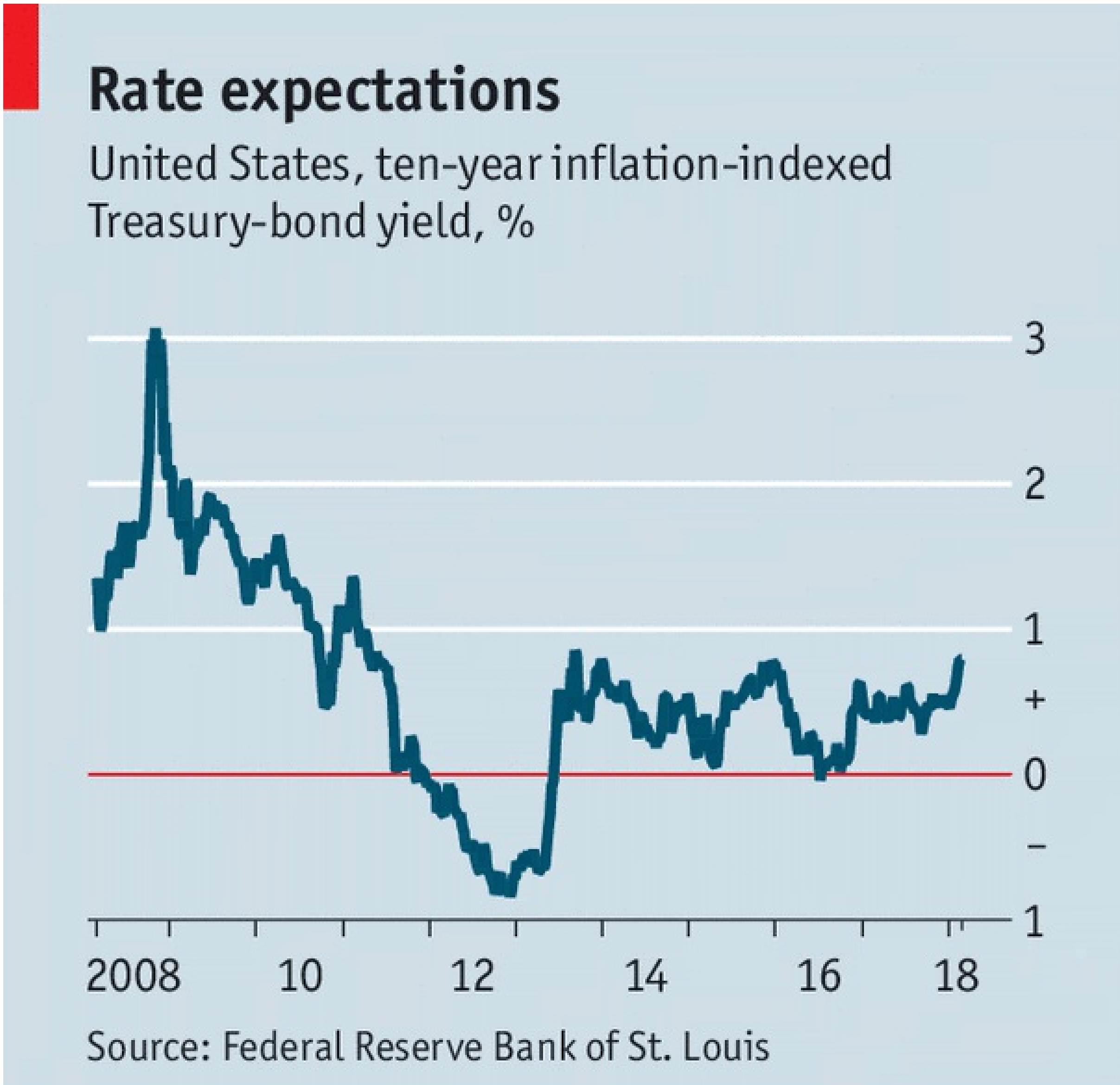
Indians have everything they need to lead a formal life. Thanks to a financial inclusion drive launched by the previous government and enthusiastically continued under Mr Modi, nearly all have bank accounts. Hundreds of millions receive government subsidies for fertiliser or gas as digital payments, rather than as in-kind rations, which were often pilfered. As paying digitally becomes easier than paying in cash, India's government should ask itself why so many citizens would still rather the authorities know nothing about them.

This article appeared in the Finance and economics section of the print edition under the headline "Emerging from the shadows"

Buttonwood

Automation will drive interest rates higher, a new report concludes

As rates rise, stress levels will, too



Economist.com

REAL interest rates in the developed world have been low ever since the financial crisis of 2008-09 (see chart). The global economy might have struggled to recover had that not been the case; higher rates would have caused many more companies and homeowners to default.

Central banks are now starting to push rates slightly higher. And according to a new paper* from Bain, a management consultancy, the trend towards robotics will push them higher still—at least for a decade. That could be a shock for the financial markets.

Bain estimates that by 2030 American companies will have invested as much as $8trn in automation. As companies scramble to borrow money in order to buy machinery and robots, the resulting investment boom will drive up rates.

Automation will boost productivity, which has grown sluggishly in recent years. This slowdown may have been caused by the shift from manufacturing to services, where productivity gains are harder to achieve. Between 1993 and 2014, the American car industry more than doubled its productivity, but lost 28% of its workforce. By contrast, over the same period hospitals added 28% more jobs and increased productivity by just 16%.

But automation is about to come to a wide range of service industries. Though that will be a boon for productivity, Bain estimates that 20-25% of current jobs could be eliminated by 2030. This shift will be much faster than previous labour-market transformations, such as that from agriculture to industry at the start of the 20th century. Lower-skilled workers, such as waiters, will take the biggest hit.

The result would be an even more unequal economy, because a greater share of income would go to highly paid workers. They are more likely to save and invest than lower-paid workers, who spend virtually all their income. So after the initial interest-rate surge, the increase in saving and the hit to demand could cause interest rates to plunge again, falling back to zero in real terms.

In a paper** written last year for the Bank for International Settlements, a central-bankers' club, Charles Goodhart and Manoj Pradhan came up with similar predictions for interest rates using a different chain of reasoning. They thought demography would be the main reason interest rates would rise. Real rates adjust to balance the desired levels of savings and investment. The current low level of real rates indicates that the former has exceeded the latter as the baby boomers have made provision for their old age. But global population growth is slowing and the size of working-age cohorts in the advanced economies and China will decline.

As workers retire, they will run down their savings pots. Companies will substitute capital for labour as the workforce shrinks. A smaller pool of workers will earn higher wages, pushing up the labour share of GDP and (in a divergence from the Bain line of reasoning) thereby reducing inequality, but also driving up inflation. Keeping it under control will require higher nominal interest rates. Furthermore, desired savings will fall faster than desired investment, and real rates will rise.

What about the argument that "secular stagnation" will keep interest rates low? Andrew Smithers, an independent economist based in London, says that because there is no reason to expect world growth to be slower than average over the next decade, global interest rates could well rise to more normal levels. However, he adds, growth may be less important for rates than is the balance between fiscal and monetary policy. With fiscal policy easing in both America and Europe, monetary policy will need to be tightened, he reckons.

That would make the road to higher rates a bumpy one. The piles of debt accumulated before the financial crisis have been redistributed rather than eliminated. A sudden rise in rates might hurt economic activity, and thus be self-limiting, if central banks have to reverse policy. Financial markets have translated low rates into high valuations. Equities are priced as the discounted value of future profits; the lower the discount rate, the higher the price. But in the Goodhart/Pradhan scenario, shares might face a double whammy. As employers compete for scarce workers, the discount rate would rise and profits would be squeezed. Homeowners, and companies with lots of debt on their balance-sheets, would get a nasty shock. As rates rise, stress levels will, too.

* Labour 2030: The Collision of Demographics, Automation and Inequality

** Demographics will reverse three multi-decade global trends, BIS Working Papers No 656

[This article appeared in the Finance and economics section of the print edition under the headline "The only way is up?"]

Back to zero

China starts unwinding Anbang, its would-be financial giant

The nationalisation of Anbang makes for good regulation but murky politics

Terminal velocity

“WHEN it comes to the meaning of life, we will all return to zero one day.” So philosophised Wu Xiaohui, a Chinese tycoon, as he reflected on his success in 2015. Little did he realise how soon his words would be proved true. He founded his firm, Anbang, as a small car-insurance company just over a decade ago. By 2017 it ranked among the world's biggest insurers, with some $300bn of assets, including stakes in hotels and financial firms in America, Europe and Asia. But then, even more vertiginous than its ascent, came its fall. On February 23rd China's government said it had taken over Anbang and would prosecute Mr Wu for economic crimes.

Rarely in corporate history has a giant grown and collapsed so quickly. But Anbang's tale is also interesting for what it reveals about China's economic landscape. It is the clearest demonstration that regulators are serious about defusing debt risks that have built up in recent years. And it reveals the murky political waters running through the financial system. As Xi Jinping, China's president, consolidates his grip on power, these seem to be getting rougher.

On the surface, nationalising Anbang is a case of smart, preventive regulation. The insurance watchdog said it intervened because illegal operations had "seriously endangered" Anbang's solvency. It did not spell out Anbang's alleged offences, but two features of its business were problematic. The first was its method of raising cash. It sold high-yielding, short-term investment products disguised as insurance, turning what should have been the safest part of the financial system, the insurance sector, into one of the most dangerous.

The second was what it did with that cash. It was an aggressive, some say foolhardy, investor overseas. It paid $2bn for New York's Waldorf Astoria hotel and $6.5bn for hotels owned by Blackstone Group, the world's largest private-equity firm. When Mr Xi last year called for a crackdown on "financial crocodiles"—companies destabilising the economy with reckless borrowing and investment—Anbang's misery deepened. The regulator blocked its overseas deals, reined in its insurance business and detained Mr Wu.

Beneath the surface, though, there are political currents. The overseas investments of other high-flyers, notably HNA and Wanda, two of China's biggest private conglomerates, have also faced close scrutiny. They, too, are racing to sell assets to repay debts. But none has come under as much pressure as Anbang.

That may be because Anbang lacks defenders in high places. State-owned banks are some of the main creditors to HNA and Wanda, whereas Anbang has relied more on premiums from insurance sales. For a time, Mr Wu was backed by powerful princelings, as the descendants of revolutionary leaders are known. He was married to the granddaughter of Deng Xiaoping, China's revered former leader. Chen Xiaolu, the son of a military commander under Mao, was listed as a company director. Mr Wu was also reputed to have a close relationship with Xiang Junbo, the top insurance regulator during Anbang's rise.

But under Mr Xi, these connections appear to have frayed. In 2015 *Caixin*, a Chinese financial magazine, reported that Deng's granddaughter had separated from Mr Wu. Mr Chen distanced himself as well, saying he was merely an adviser. He died this week of natural causes. And early last year Mr Xiang, the regulator, was detained for corruption.

There will be three things to watch in the coming months. The first is whether regulators can limit the collateral damage as they unwind Anbang's excesses. The stated goal is to manage the firm for one year, stabilise its operations and return it to private hands. The real goal, according to two executives with other insurers, is to pay off policy-holders and honour its debts by selling its assets. Although Anbang might have overpaid on its international forays, it bought into domestic banks and property developers when they were priced more cheaply. Its stakes in Minsheng Bank and China Merchants Bank, two of the country's top lenders, will be sought after by other insurers.

The second is the impact on the financial sector. With its reliance on short-term debt and undisciplined deal-making, Anbang's business model was inherently unstable. Closing the loopholes it exploited should put China's economy on a more stable footing. Credit Suisse, a bank, says that Anbang's rush to expand generated "irrational competition" in the insurance sector. Its takeover will help stop that.

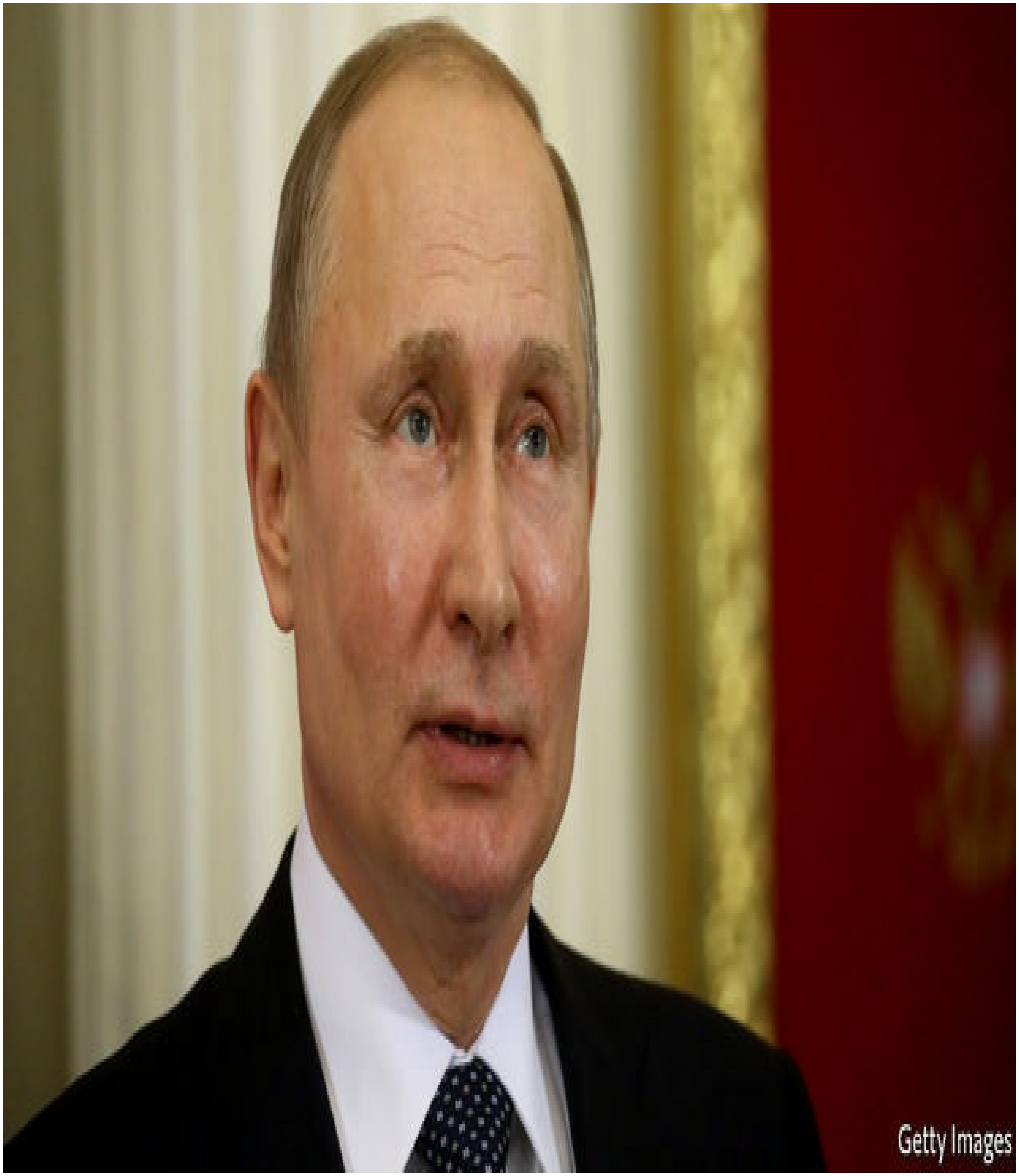
Finally, there is the political backdrop. Mr Xi has warned many times that no one is immune from his crackdown on corruption. But princelings have, for the most part, been less affected. The question is whether Mr Wu's takedown is a sign that all tycoons, no matter how well connected, are now vulnerable—or whether his protection had simply evaporated.

This article appeared in the Finance and economics section of the print edition under the headline "Out with a whimper"

Putin’s fiscal fortress

Russia’s credit rating rises; Brazil’s falls

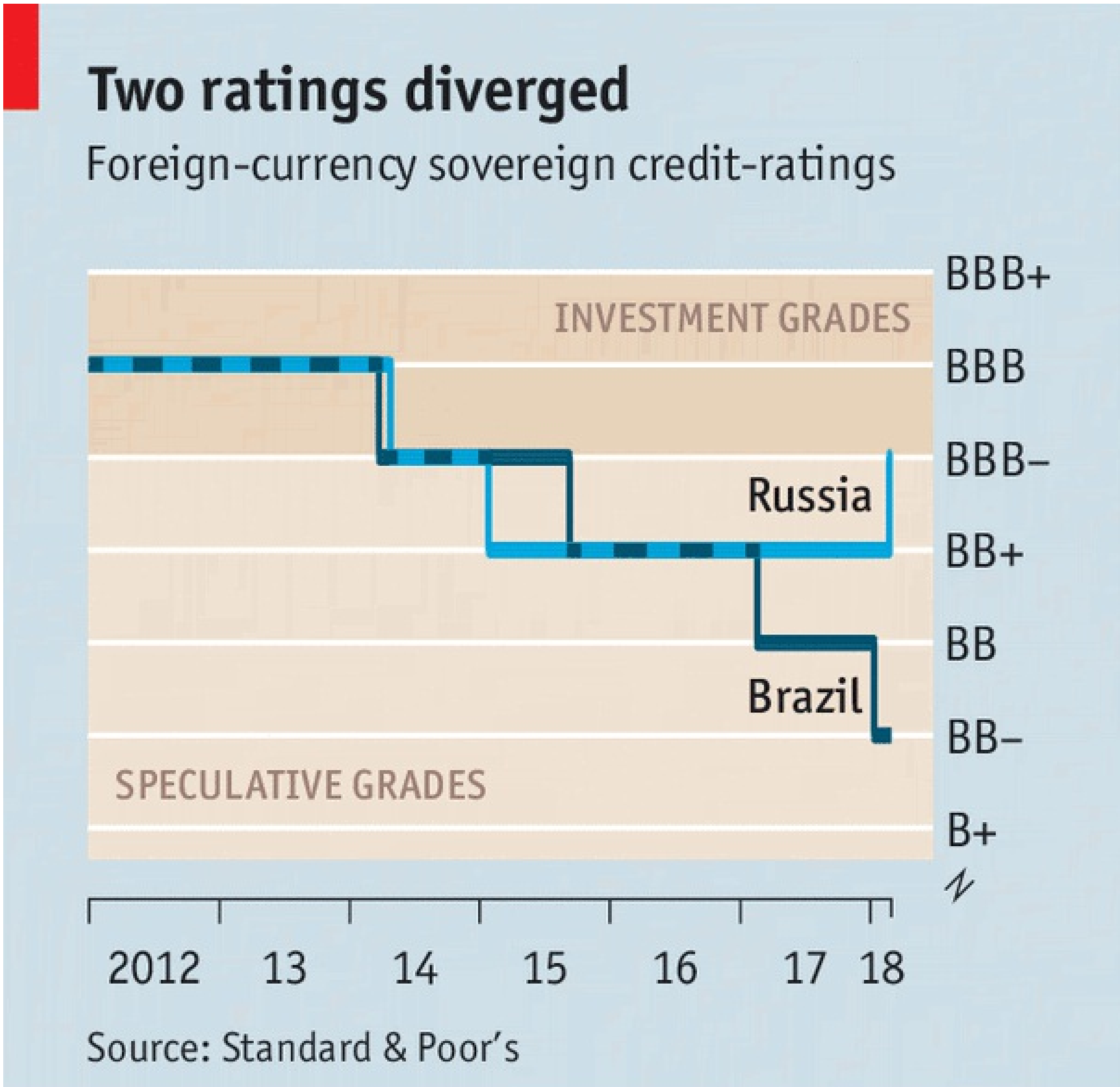
Sanctions can be good for deleveraging



BRAZIL and Russia, the third-and fourth-biggest emerging economies, have much in common beyond their size. Each boasts annual GDP per person of around $10,000, which depends more than either would like on natural riches. After commodity prices tumbled in 2014, their economies shrank and their currencies sank. Their central banks have fought hard against the ensuing inflation, driving it below 3%. That has allowed both to cut interest rates, contributing to modest economic recoveries.

But their fiscal fortunes have diverged. Brazil’s credit rating was cut by Fitch on February 18th, making its sovereign bonds even “junkier” (ie, more speculative). Russia’s rating, by contrast, was raised a few days later by S&P; Global, which became the second agency to rate Russian sovereign debt as “investment grade”.

That might seem an odd description for a country embroiled in two wars and encumbered by sanctions. But Russia’s upgrade is not hard to justify. Though its approach to geopolitics is adventurous, its approach to macroeconomics is deeply conservative. Indeed, in many ways Russia’s geopolitical adventurism has necessitated its economic conservatism.



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"The whole Russian economic policy, starting from the president, is focused on keeping inflation low, ensuring that the budget is stable, and that reserves are moving up," says Oleg Kouzmin of Renaissance Capital, an investment bank. It is a "very defensive" strategy, argues Timothy Ash of BlueBay Asset Management, designed to help Russia weather future sanctions and build defences against the West.

When oil prices fell in 2014, Russia's government realised that belts needed to be tightened. After a brief struggle, it let the rouble fall. It squeezed demand by hiking interest rates and cutting public spending. From 2013 to 2016, GDP per person fell by over 40% in dollar terms. In its realism and rapidity, Russia's response to its crisis was the best of any emerging market this decade, says Mr Kouzmin.

The government's deficit now stands at just 1.5% of GDP. Its net debt is only 8.4% of GDP. This conservatism may persist. Its latest fiscal rule requires it to assume an oil price of $40 a barrel, even though the Urals oil price is now over $64.

Brazil also has a stringent fiscal rule, obliging it to freeze federal spending in real terms for 20 years. But the government has yet to bring its other commitments into line with this limit. An attempt to delay pay hikes for civil servants was blocked by the supreme court. And an essential reform of pensions was watered down in negotiations with congress, which then refused to support it anyway.

Brazil suffers from a fiscal "tragedy of the commons". Its jostling lawmakers overgraze, demanding too much from the state, because if they do not, they know their rivals will. By contrast, Russia's president and chief policymaker, Vladimir Putin, has few rivals for his fiscal pasture. That makes him keen to preserve it.

Russia's economic defensiveness is good for its credit rating, but may have an unwelcome side-effect: squashing growth. More relaxed fiscal and monetary policy would give the economy room to breathe, argues Mr Ash. "What is the point of having a good balance-sheet if your economy is not growing?"

And Mr Putin's reluctance to cede control may be stymieing the reforms Russia needs. If it is to grow, the state must allow new entrants, including foreigners, to prosper at the expense of incumbents. Instead, entrepreneurs are well aware that they prosper only at the regime's pleasure. "Do you ever really own anything in Russia?" asks Mr Ash. Fiscal entitlements are too secure in Brazil. But in Russia, property rights are not secure enough.

This article appeared in the Finance and economics section of the print

edition under the headline “Putin’s fiscal fortress”

Duelling exchanges

Hong Kong and Singapore succumb to the lure of dual-class shares

The trend is a threat to the time-honoured idea of “one share, one vote”

FOR Charles Li, Alibaba was the one that got away. The head of the Hong Kong stock exchange (HKEX) courted the Chinese e-commerce giant when it sought a venue for its listing five years ago, but he could not push through rule changes wanted by Alibaba to keep control of the company in its leaders' hands. It opted instead for an initial public offering (IPO) in New York. "Losing one or two listing candidates is not a big deal for Hong Kong," he wrote at the time. "But losing a generation of companies from China's new economy is." Since then he has been determined to make the next big catch.

It is finally within his grasp. After a debate that has trundled on for several years HKEX is, in the coming weeks, poised to allow companies to issue shares with different voting rights. Known as dual-class shares, these give founders the ability to control their firms, even as minority owners. This should make Hong Kong the favoured destination for the next wave of Chinese tech firms to go public, from Xiaomi, a smartphone maker, to Ant Financial, Alibaba's fintech spin-off. It should also bolster the city's claim to being Asia's leading financial centre.

But Mr Li's success is controversial. Some of the biggest investors in Hong Kong warn that the changes will undermine corporate governance and harm most shareholders. They fear a "race to the bottom" around the region, as David Smith of Aberdeen Asset Management Asia puts it. Singapore, Hong Kong's rival for financial pre-eminence in Asia, is on track to be the next market to allow dual-class shares. There are murmurings that some of the bigger exchanges in South-East Asia might follow.

The erosion of "one share, one vote", long a cornerstone of equity markets, began in the 1980s on the New York Stock Exchange. The tech boom of the past decade accelerated the shift to dual-class shares, starting with Google's IPO in 2004. Companies say unequal voting rights enable them to escape the short-termism of stockmarkets. Critics counter that conventional shareholding structures can serve long-term goals just as well, with less chance of mismanagement. Ironically, as Asia adopts dual-class shares, opposition is mounting in America. Last year FTSE Russell and S&P;, two big index providers, barred companies from joining their stockmarket gauges if they list only non-voting shares.

The Hong Kong and Singapore exchanges have both pledged safeguards. HKEX has proposed that companies with dual-class shares must have an additional corporate-governance committee to ensure they are managed for the benefit of all shareholders. More boldly, Singapore might include a sunset clause, establishing a date at which shares with extra voting rights convert into ordinary shares. And both exchanges say they want to restrict dual-class shares to firms in innovative, emerging sectors.

But Jamie Allen of the Asian Corporate Governance Association predicts they will have a hard time holding the line against powerful companies in other sectors. “Once the genie is out of the bottle, it’s out,” he says. Over time, the fear is that if the standards of their stockmarkets slip, the reputation of Asia’s financial centres as generally clean, reliable places to do business will suffer, too.

In recent years the fortunes of the two exchanges have diverged. HKEX gained momentum from a flurry of initiatives, most notably a channel for cross-border trading with Chinese mainland stockmarkets. Singapore, meanwhile, faces stiffer competition from exchanges in the surrounding region. HKEX hopes dual-class shares will boost it further. For the Singapore exchange, they are a way to defend its turf. Concerns about shareholder rights are unlikely to stop either of them.

This article appeared in the Finance and economics section of the print edition under the headline “Duelling exchanges”

Greenback

Capital is on its way to America, but for bad reasons

Why government borrowing, not corporate repatriations, will drive the dollar in 2018

ACCORDING to President Donald Trump, money is pouring into America from abroad. The tax reform he signed into law in December means American firms can no longer defer paying taxes on profits left sitting in foreign subsidiaries. The change has led to some uplifting headlines. Apple said that it would make a one-off tax payment of $38bn relating to its past accumulation of $252bn in foreign earnings. Presumably, it will now start to bring this cash home. “Huge win for American workers and the USA!” tweeted Mr Trump. Yet despite the prospect of large-scale profit repatriations, the dollar has been strangely weak of late. Since the start of November, when tax reform began looking likely to pass, the greenback has fallen by about 3%. What is going on?

Start with the fact that repatriations are mostly not true capital inflows. An analysis by Zoltan Pozsar of Credit Suisse finds that, as of March 2017, American corporations had amassed around $2.2trn of earnings in overseas subsidiaries. About half was tied up in illiquid investments such as local firms and factories. Most of the rest—the money that could “come home”—is already in dollar-denominated assets.

Take Apple. In its most recent annual report, it said that its $252bn was “generally based in…dollar-denominated holdings”. According to Mr Pozsar, Apple holds more Treasuries and other government securities than Bank of America does. The same is true of Microsoft. Repatriation makes these funds available for distribution to shareholders, but neither increases demand for dollars nor sharpens the incentive to invest in America. In fact, argues Mr Pozsar, if firms start selling bonds, it could lead to tighter credit.

Even if repatriation is a damp squib, however, America can expect capital inflows in 2018. They will be needed to plug the hole tax cuts have made in the federal budget. Tax reform will increase borrowing by $1.1trn over a decade, according to official projections. In 2019 America’s budget deficit may surpass $1trn, or 5% of GDP. Someone must lend the government this money. American households are unlikely to do so. In December the personal-savings rate was just 2.4%. So the government will probably borrow more from abroad. In other words, the current-account deficit, as well as the fiscal deficit, will rise.

Economist.com

The implication for the dollar of these "twin deficits" is ambiguous, says Zach Pandl of Goldman Sachs. Should the Federal Reserve raise interest rates to stop tax cuts from overheating the economy, America's bonds will automatically become more attractive to foreigners. The dollar should rise as investors take advantage of higher returns, as when Ronald Reagan cut taxes in the 1980s. Alternatively, foreigners might be enticed to buy American bonds by the prospect of a cheap currency with room to rise. So if the Fed refrains from tightening in response to the fiscal stimulus, the need for more external financing could explain a cheaper greenback today.

The current value of the dollar seems to reflect a mix of both effects, says Brad Setser of the Council on Foreign Relations, a think-tank. Good economic news elsewhere, particularly in Europe, has made investors think twice about where to park their funds. Yet the dollar remains relatively strong by the standards of the past decade, reflecting America's higher interest rates. On February 27th Jerome Powell, the Fed's new chairman, told Congress that the outlook for the economy had strengthened since December, in part because of the fiscal stimulus. Markets took this as a sign that the Fed might raise interest rates four times in 2018, rather than three, as previously expected, and the dollar rose.

Capital inflows are awkward for Mr Trump. He has promised to cut America's trade deficit, which, as a matter of national accounting, goes hand in hand with borrowing from abroad. His best hope is thatgrowth and more domestic saving keep the twin deficits down, at least as a share of GDP. If not, capital flooding into America may not be something he should cheer.

[This article appeared in the Finance and economics section of the print edition under the headline "Greenback"]

Trade and the dollar

New research suggests the dollar’s level drives world trade

A stronger greenback crimps trade outside America

AGUS SACCHAL sells sheets and blankets from a warehouse in Buenos Aires, for which he is paid in Argentine pesos. While the pesos go into his wallet, two other banknotes are stuck to his office window. One is a ten-yuan note from a visit to China, where he went in search of cheap textiles. The other is a $5 bill, pinned next to an invoice, also in dollars. Though he does not trade with America directly, when importing he uses the greenback.

Argentina's rocky financial history makes the dollar's dominance there unsurprising. Still, it is an extreme case of a wider phenomenon. After gathering data on 91% of the world's imports, by value, Gita Gopinath of Harvard University found that America accounts for nearly 10%. But its currency is used in over 40% of invoicing.

Recent research suggests that this creates a link between a weak dollar and buoyant trade flows—and vice versa. Trends since 1999 are suggestive (see chart). During 2017 the dollar depreciated by 7% against a basket of other currencies, as global trade flows surged by 4.5%. Some other factors could be driving both. But a recent paper by Ms Gopinath, Emine Boz of the IMF and Mikkel Plagborg-Møller of Princeton University found that, even after adjusting for countries' business cycles, a 1% dollar strengthening predicted a fall in trade volumes outside America of 0.6%.

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They explain the connection by upending the standard way of thinking about the impact of exchange rates on trade. Textbook models tend to assume that importers face prices in the exporting country's currency, which are hard to renegotiate. An importer whose currency falls against the exporter's is squeezed. But his countrymen who export in the opposite direction get a fillip, as their wares become more competitive. In this neat and symmetric world, as a country's imports fall because of a weaker currency, its exports rise.

But what of importers like Mr Sacchal, who buy in dollars? The researchers argue that here, the symmetry breaks down. A stronger dollar squashes his demand for Chinese products, without Argentine exporters to China gaining a countervailing bump. A strong dollar would then mean that trade volumes outside America fall.

Supporting their theory, they find that dollar exchange rates seem to be more useful than those of other currencies when predicting changes in trade flows and prices. This is particularly so in places that invoice a higher share of imports in dollars.

Alternatively, as suggested in a recent working paper published by the Bank for International Settlements, a strong dollar could tighten global credit conditions, making it harder to finance long supply chains and so crimping trade flows. The authors find that a strong dollar is associated with slower-growing company inventories (shorter supply chains require less stock to be held along the way).

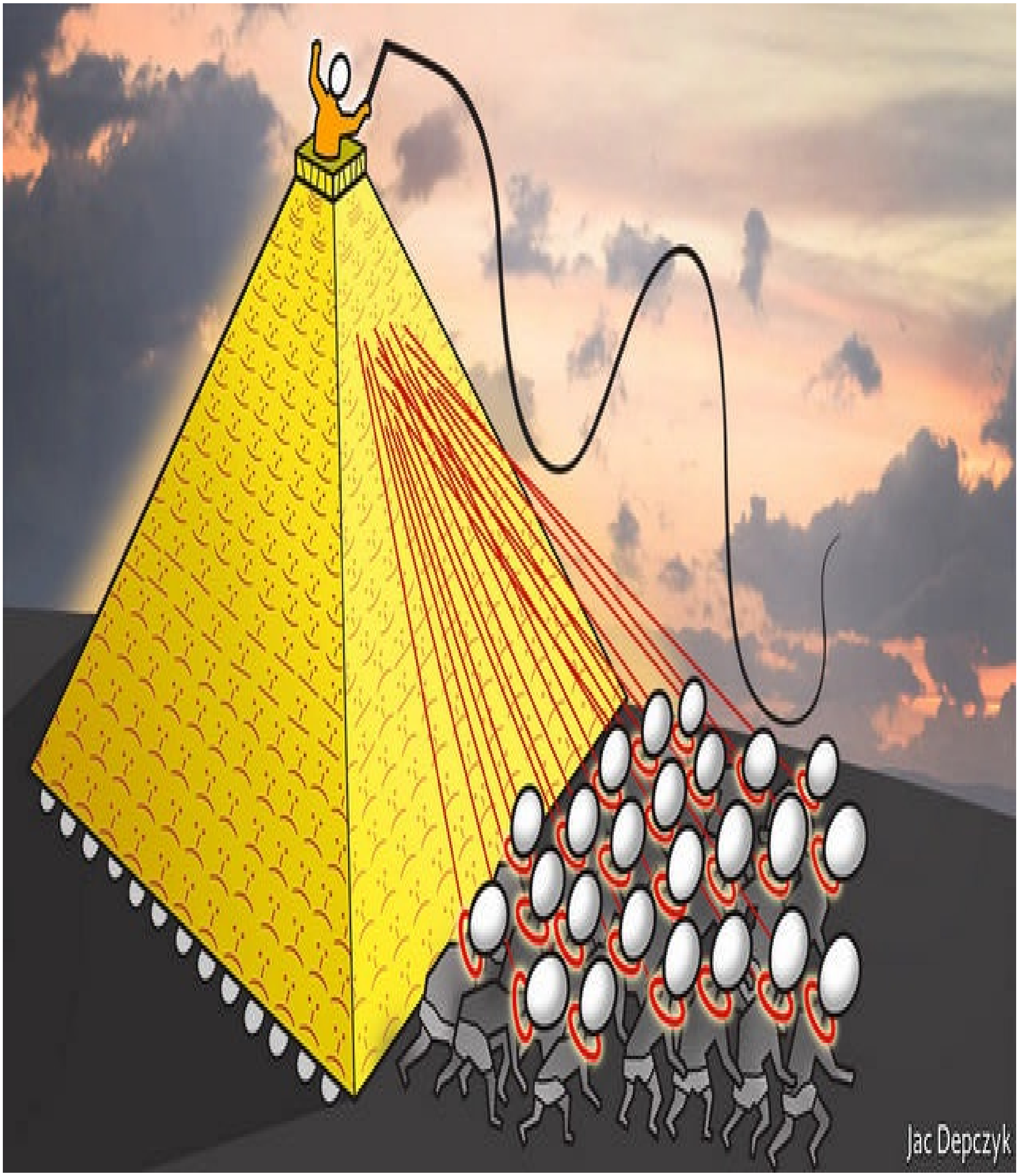
Given the dollar's recent weakness, what does all this suggest about future trade flows? The recent trade surge might be only temporary, if traders renegotiate dollar prices. The results of Ms Gopinath and her coauthors suggest otherwise. They find that, since 2002, the effects of dollar movements on trade have persisted. Gabriel Sterne of Oxford Economics, a consultancy, reckons that about half of the increase in trade flows due to the weak dollar since 2017 is yet to come.

This article appeared in the Finance and economics section of the print edition under the headline "Bills, bills, bills"

Free exchange: Productivity

Labour-monitoring technologies raise efficiency—and hard questions

Pushing back against controlling bosses leaves workers more likely to be replaced by robots



BOSSES have always sought control over how workers do their jobs. Whatever subtlety there once was to this art, technology is now obliterating. In February Amazon received patents for a wristband apparently intended to shepherd labourers in its warehouses through their jobs with maximum efficiency. The device, were Amazon to produce and use it, could collect detailed information about each worker's whereabouts and movements, and strategically vibrate in order to guide their actions. Using such technology seems an obvious step for firms seeking to maximise productivity. Whether workers should welcome the trend, or fear it, is harder to say.

Workplace discipline came into its own during the Industrial Revolution. As production came to depend ever more on expensive capital equipment, bosses, not keen to see that equipment sitting idle, curtailed their workers' freedom, demanding they work during set hours, in co-ordination with other employees, at a pace dictated by the firm. Technology creates new opportunities for oversight. Editors can see which of their journalists attract the most readers (though many wisely focus on other measures of quality). Referees at sporting events are subject to reviews that check their decisions to within millimetres.

Workers and labour activists have often attacked strict discipline as coercive, unfair and potentially counterproductive. Textbook economics suggests, though, that in a competitive labour market any attempt to coerce people into working harder than they want will fail, since workers can simply switch jobs. Studies of factory work paint a more complicated picture, however. People would like to work hard and earn high wages, this story goes. But they struggle with self-control and do not work as hard as they wish they would. They consequently choose to work for firms that use disciplinary measures to push them. During industrialisation, workers "effectively hired capitalists to make them work harder", says Gregory Clark of the University of California, Davis, in a seminal paper on the subject.

If that seems an implausibly sunny description of life in 19th-century factories, researchers have found evidence for such behaviour in modern contexts. Supreet Kaur, of Columbia University, and Michael Kremer and Sendhil Mullainathan, of Harvard University, ran a 13-month experiment using data-entry workers, who were paid according to the amount of work successfully completed. Some struggled with self-control, the authors determined, as shown by their tendency to slack off for much of each month but put in more effort as payday approached. When workers were offered contracts that penalised them for failing to hit performance targets, those who struggled to stay on-task disproportionately accepted, and achieved big gains in output and pay as a result.

In many settings, pay is less clearly linked to performance. Whether additional effort translates into higher wages depends on the other options available to workers and on their bargaining power—in particular, whether they feel able to leave if the pay is not worth the trouble. Indeed, in the past, high turnover helped motivate some factory owners to share the gains from workplace discipline with workers. The "$5 day" introduced by Henry Ford in 1914 was an "efficiency wage", according to Daniel Raff, of the University of Pennsylvania, and Larry Summers, of Harvard University. Workers on Ford's assembly lines spent entire shifts doing mind-numbingly repetitive work, and many could not stick it for long. Ford's solution was to pay a wage well above what workers could earn elsewhere. That helped compensate them for their suffering. More important, it led to a long queue of eager applicants, and the knowledge that anyone who left would quickly be replaced and could not easily return.

But high turnover does not appear to bother Amazon much. The past decade's weak labour markets have meant queues of willing workers even without the promise of above-market pay. The same technologies that monitor workers can also reduce the training time needed to prepare new employees, since the gadgets around them guide most of their activity.

And new disciplinary technologies create an additional risk for workers. Heaps of data about their activities within a workspace are gathered, while their cognitive contribution is reduced. In both ways, such technologies pave the way for automation, much as the introduction of regimentation and discipline in factories facilitated the replacement of humans by machines. The potential for automation increases the power of firms over workers. Anyone thinking of demanding higher pay, or of joining a union in the hope of organising to grab a share of the returns to increased efficiency, can be cowed with the threat of robots.

Who watches the watch, man

White-collar workers are not spared oppressive bosses. Indeed, as the *New York Times* reported in 2015, Amazon has experimented with data-driven management techniques known to drive some white-collar workers to tears. (Others, though, told the *Times* that they thrived at Amazon, “because it pushed them past what they thought were their limits”.)

The high pay of workers with exacting jobs in finance or technology can reasonably be seen as compensation for their burdensome working conditions. And unhappy professionals can usually find less oppressive work that pays a lower but still decent wage. As Amazon and other firms embrace new tools to monitor and direct their workers, the difference between progress and dystopia comes down to whether workers feel comfortable demanding raises, and whether they can quit without fear of serious hardship. Indeed, firms could ponder such matters themselves before the inevitable backlash.

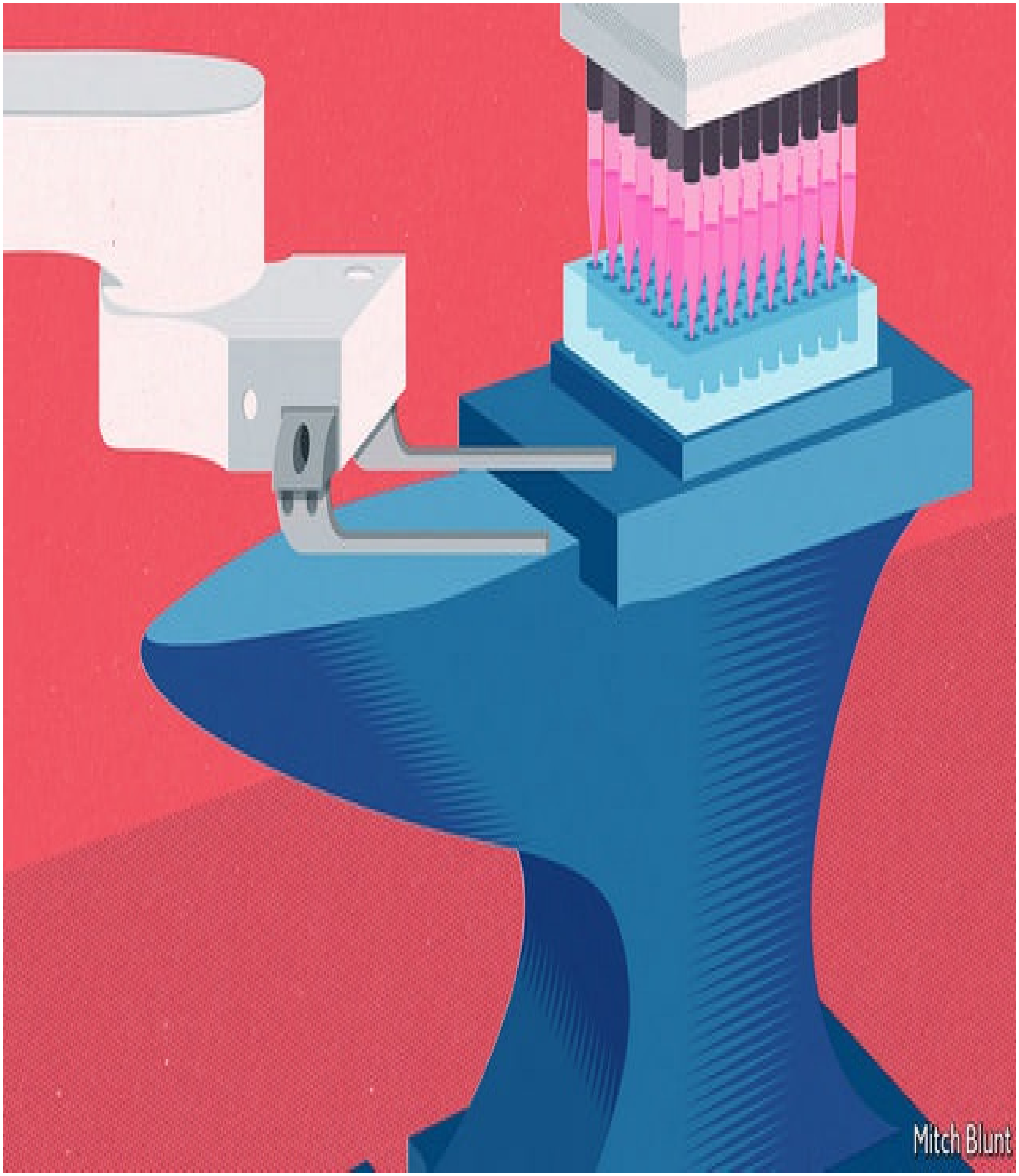
This article appeared in the Finance and economics section of the print edition under the headline “Better, stronger, faster”

Science and technology

The gene machine

Robotic labs for high-speed genetic research are on the rise

The design of synthetic lifeforms could become a new industry



IN THE basement of Imperial College sits the London DNA Foundry. The word “foundry” calls forth images of liquid metal being poured into moulds—of the early phase of the Industrial Revolution, in other words. This foundry is, however, determinedly modern. Liquid is indeed being moved around and poured. But it is in minuscule quantities, and it is not metal. Instead, it is an aqueous suspension of the genetic codes of life.

The laboratory is an example of a wider movement. Similar biofoundries are being set up around the world, from the Broad Institute in Cambridge, Massachusetts, via Silicon Valley, to the National University of Singapore. All offer ways of centralising the donkey work of genetic-engineering research. Instead of biotechnology companies buying and operating their own laboratories, foundries will do it for them.

London DNA Foundry's operations room is filled with boxy devices, each designed to do one particular operation, such as pipetting, repeatedly and quickly. A robotic arm shuttles small plastic dishes between the machines. Each dish contains up to 1,536 minuscule wells. And in each of those wells sits several microlitres of liquid and a few strands of DNA. Using this arrangement, the foundry can mix, in the precise concentrations required, 150,000 samples of DNA in a morning.

The starting-point for the process is a library of what David McClymont, the foundry's head of automation, calls "parts". These are snippets of genetic code from which different genetic "circuits" can be assembled. A circuit, in biotech speak, is a collection of genes that work together towards a common goal—for example, generating a series of enzymes that convert one type of chemical into another. The genes comprising a potential circuit are then assembled into circular DNA molecules called plasmids.

To obtain appropriate plasmids the foundry's customers may simply order parts from the library. They may also provide their own proprietary snippets. All the required parts are then transferred to bar-coded wells in the dishes and their contents mixed automatically. The whole process is controlled by a piece of computer code, provided by the customer, that describes the experiment.

Once the mixture is correct, the test plates are whisked into a machine which multiplies the number of plasmids in each well using a process called a polymerase chain reaction (PCR). And then, when the PCR has done its work, the plasmids are introduced into living cells—either bacterial or yeast. After that, the cells are incubated, and the result is tested to see which, if any, of the circuits performs as expected.

Such is the London DNA Foundry's scale that it can build and test about 15,000 different genetic designs in a day. True to its name, the foundry is set up to build and test DNA plasmids only. Some other biofoundries, however, offer a wider range of services. For example Transcriptic, a firm in Silicon Valley, will also allow customers to store entire cell lines that may be tested later, or to grow tissues from them for testing.

One of Transcriptic's particular specialities is preclinical drug screening. This involves testing vast numbers of compounds that might possibly end up as drugs. A drug might, for example, be intended to alter the operation of a particular protein that shuttles, say, calcium in and out of a cell. In that case, potential drugs might be screened against both the protein in free suspension, and intact cells that have such channels in their membranes.

Little and large

Many of Transcriptic's customers are small, newly founded firms that cannot afford their own test facilities. One such, Pliant Therapeutics, also in Silicon Valley, is using Transcriptic to test treatments for fibrotic disease—the formation of scar tissue in places like the lungs and the heart. Large, established firms use its facilities, too, though. It is often cheaper for them to do so than to carry out tests in house.

At the moment, each foundry is going its own way, as the industry finds its feet. But Paul Freemont, a director of the London DNA Foundry, hopes that once it is clear what processes are of most interest to customers, the sorts of industrial standards which are commonplace in other industries will start to emerge among biofoundries. That will make it easier for the process of designing new synthetic lifeforms to be scaled up from the bespoke boutique business it is now to something more like a global industry. That day is not yet here. But if there is demand, then biofoundries will surely play their part in the next phase of the Industrial Revolution.

This article appeared in the Science and technology section of the print edition under the headline “Gene machines”

For better or worse

Spraying herbicides changes the flavour and nutritional value of crops

The role of agricultural chemicals in food

Your sweetness is my weakness

GARDENERS know only too well how hard it is to keep on top of weeds, because hoeing and pulling them out is back-breaking work. With big fields to look after, most farmers turn to herbicides. Over the years these chemicals have become better at knocking out weeds but leaving commercial crops alone. Organic farmers do not use artificial herbicides, and can suffer lower yields as a result. Which system produces the “better” crop is open to debate, although it is known that crops sprayed with herbicides are biochemically transformed in subtle ways. New work shows those changes in treated crops are substantial enough to change both their nutritional value and flavour.

The investigation was led by Matthew Cutulle, a horticulturalist at Clemson University in South Carolina, in collaboration with Greg Armel at the University of Tennessee, Knoxville, and their colleagues. They ran an extensive series of trials on large fields growing sweetcorn, a widely eaten vegetable.

The team worked with the four commonly used herbicides: mesotrione, topramezone, nicosulfuron and atrazine. These are often used in combination with safeners, which are chemicals that selectively help protect crops from herbicide damage. Hence a safener called isoxadifen-ethyl was also included in the experiment, sometimes pairing it with the herbicides and sometimes allowing the herbicides to work on their own.

The researchers planted sweetcorn in several plots split between two different locations. When the plants were between five and ten centimetres in height, they exposed each plot to one of seven different herbicide/safener combinations. As a control, one field was treated with atrazine before the corn was planted (a full control using no herbicides at all would have been destroyed by weeds without an overwhelming amount of hand weeding). After 45 days the sweetcorn was gathered. The mature kernels were analysed for levels of antioxidants, sugars, amino acids, proteins, fatty acids, minerals and fibre.

Sugary outcome

The results, just published in the *Journal of Agricultural and Food Chemistry*, revealed that applying herbicides increased the amount of protein that the plants stored in their kernels by as little as 4% and as much as 12%

when nicosulfuron was combined with the safener. The amounts of mineral taken up by the plants increased as well, with levels of phosphorous, magnesium and manganese going up by between 14% and 51% and iron content rising by 67% in plants exposed to the nicosulfuron/safener combination. The balance of sugars found in the tissues of the sweetcorn changed as well. Fructose concentrations shot up by 48% upon exposure to nicosulfuron; 63% to topramezone and 68% to the nicosulfuron/safener combination. Glucose concentrations increased by 19% with mesotrione, 40% with topramezone and 43% with the nicosulfuron/safener combination. In contrast, sucrose levels in the corn dropped.

It remains unclear precisely how these changes affect the flavour of sweetcorn, although Dr Cutulle thinks they are probably big enough to be noticeable. He suggests that further studies are carried out to look into the matter using panels of people carrying out tastings. Perhaps more importantly, the findings show that pesticides are capable of transforming crops in ways that shape their nutritional value. Some of these, like the iron-enhancing property of nicosulfuron combined with the safener, could help with iron deficiency in diets, which is responsible for a number of severe health conditions, such as anaemia.

Other factors, however, might not be so welcome. The fructose-enriching aspects of herbicides may make sweetcorn even sweeter, but that could be detrimental to health because fructose is increasingly being implicated in a number of illnesses, such as fatty-liver disease and diabetes. Working out how to grow the best crops has become a lot more complicated.

This article appeared in the Science and technology section of the print edition under the headline “For better or worse”

Waiting for rain

Life clings on in the driest corners of the Earth

Living in the Atacama desert

Down desolation road

IT DOES not rain much in the Atacama desert. A 1,000km strip of land running along the Chilean coast, it is Earth’s driest desert outside its poles.

Average annual rainfall in certain parts can be as low as a millimetre or two a year, and some Atacaman weather stations have never seen a drop of water.

Yet it does rain occasionally. And as Dirk Schulze-Makuch, an astrobiologist at the Technical University of Berlin, and his colleagues report in *Proceedings of the National Academy of Sciences*, a desert downpour in 2015 offered the perfect natural experiment for probing the limits of what sorts of conditions life can tolerate.

The Atacama is not quite lifeless. A few specialised animals and plants scrape a living in the less arid parts. And scientists have found evidence of microbial life even in the very driest areas. What is less clear, though, is whether those microbes are natives able to endure such extreme aridity, perhaps by becoming dormant, or whether they are merely the dead remains of interlopers, blown in on the wind but unable to survive in their harsh new environment.

The rains offered a chance to check. If the microbes were alive, or dormant, then the rain should have ushered in a brief golden age of growth, as the scarcest resource in the ecosystem—water—became briefly abundant. If the desert was merely strewn with corpses, though, then it would have made no difference.

Shortly after the rains in 2015, therefore, Dr Schulze-Makuch and his colleagues dug trenches in the desert and took samples from the soils at various depths. They returned in 2016 and 2017 to get more samples. The ones from 2015 showed evidence of microbial metabolism, including molecules like adenosine triphosphate, or ATP, which is used by all cells to store energy, as well as enzymes, fatty acids and the by-products of biochemical processes. Crucially, when they turned to the later samples, all those chemicals had become dramatically scarcer. Levels of ATP in 2017 were around a thousandth of their value in 2015. There were similar falls for other biological molecules, too. Those results were bolstered by others showing that different kinds of bacteria and fungi were present in different layers of desert soil. That suggests organised ecosystems rather than mere bacterial boneyards.

The driest soils on Earth, in other words, do indeed seem to play host to microbial ecosystems that can flourish when the rains eventually come. As a demonstration of life's resilience, that is interesting enough. But it may have broader implications. Astrobiologists such as Dr Schulze-Makuch see the Atacama as the closest Earthly analogue for the surface of Mars. There is plenty of geological evidence to suggest that the Mars of billions of years ago was much wetter than it is today. And results from orbiting probes suggest that dribbles of water occasionally appear on the modern planet's surface, possibly caused by the intermittent melting of subterranean ice. If life did arise on Mars, then it may still be clinging on, lying dormant in the regolith and waiting for the next brief pulse of meltwater.

Admittedly, Mars is even less hospitable than the Atacama. Besides the aridity, the Martian surface is bitterly cold and blasted by solar radiation. That radiation creates powerful oxidants that would likely destroy any living cells. If anything does survive, it will be deeply buried. That is one reason why the ExoMars rover—built by Roscosmos and the European Space Agency, and due to blast off in 2020—carries a drill capable of digging almost two metres below the surface.

This article appeared in the Science and technology section of the print edition under the headline "Waiting for rain"

Sniffing out authoritarianism

How your sense of smell may affect your politics

An ancient trait creates political leanings

HUMANS, like other animals, have evolved to notice and avoid sources of infection, whether that be rotten food or sickly members of their own species. This "behavioural immune system" can have unexpected consequences. Studies have, for instance, shown that those whose noses are more easily offended are also more likely to shun foreigners or disapprove of homosexuals. More broadly, people who live in regions with more to fear from pathogens tend to be less promiscuous and gregarious (such risky behaviour may spread disease). These effects are, by their nature, generally small but evidence has been amassed that they do in fact exist.

This led Marco Liuzza of the Magna Graecia University of Catanzaro, in Italy, and his colleagues to wonder whether there might be a link between a person's sensitivity to malodorousness and the likelihood of them being sympathetic to right-wing authoritarian views. In work published this week in *Royal Society Open Science*, he shows that there is.

Members of the team have developed a body-odour disgust scale (BODS). This is based on asking volunteers a series of questions about different scenarios, such as noticing that a friend's feet smell. From this it can be established how strongly, on a scale of one to five, a person reacts to bad smells. To see if this ranking reflected a person's authoritarian leanings, the team recruited 201 volunteers through Amazon Mechanical Turk, a website where people from all over the world carry out small tasks in exchange for cash.

Passing the smell test

The volunteers completed the BODS questionnaire and others that gauged the extent to which they sympathised with certain authoritarian views ("Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today", for instance) and with more socially, fiscally or morally conservative views. The researchers found that those scoring highly on the BODS scale did indeed hold more authoritarian views. They found no such correlation between the BODS score and more broadly conservative opinions.

As their work was being conducted in 2016, when Donald Trump's campaign to become president of the United States was in full swing, the researchers wondered if such a relationship would hold true for Americans. If so, would there be any hint of an increased sensitivity to bad smells among his supporters?

To test this idea, they recruited 159 more participants solely from the United States and repeated the experiment. They found a similar pattern with their American volunteers: those sensitive to bad smells tended to hold authoritarian views. The effect was small, enough to explain between 4% and 16% of the difference in viewpoints (family background, economic circumstances and other factors would presumably account for much of the rest).

Last, the team recruited more Americans to test whether the BODS score would tell them anything about voting intentions in the presidential election. Expecting an even weaker correlation this time, they used 391 participants in the hope that they would be able to discern an effect, if it were there. They did indeed find such a relationship. High BODS scores were a feature of those intending to vote for Mr Trump, but not the Democratic Party's nominee, Hillary Clinton. This time, however, the association was even weaker—enough to account for only about 1% of voting intention.

A tiny effect, but an effect nevertheless. The work of Dr Liuzza and his colleagues adds to the persistent evidence suggesting that prejudices and political views can be influenced by a person's desire to avoid disease and bad smells.

This article appeared in the Science and technology section of the print edition under the headline "Sniffing out authoritarianism"

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After the fall

The aftermath of the Weinstein scandal

The furore in Hollywood will result in different stories making it to the screen

IN 2009 Nina Jacobson—formerly president of a Walt Disney studio, by then an independent film producer—was pitching a new franchise to Hollywood bigwigs. “The Hunger Games”, based on a bestselling novel, was the sort of dystopian sci-fi epic that might seem an easy sell. Yet several executives passed, partly because the heroes were teenagers—and partly because the central character was a woman. “I was taught as though it were a common-knowledge truth that girls will identify with a male protagonist, but boys will not identify with a female protagonist,” says Ms Jacobson, who eventually sold the project to Lionsgate, a minor studio. Starring Jennifer Lawrence, it became a huge hit.

Ms Jacobson describes the industry’s rules of thumb about women on screen as “bias disguised as knowledge”. The trouble was, she says, that “there weren’t enough cases to prove the theories wrong.” There may be soon.

The scandal over Harvey Weinstein’s treatment of women, and over the other reprobates exposed in his wake, is changing Hollywood irrevocably. The #MeToo and #TimesUp movements have forced a reckoning of the industry’s monsters, of the countless careers that were destroyed by them, and of a sexist culture that let it all happen. Regal men have been dethroned. The furore will colour the Academy Awards ceremony on March 4th.

But there are signs, too, of what may prove an equally important shift, in the stories Hollywood tells. The most powerful people in the industry—who are mainly men—have justified their decisions about what to put on screen by what they say sells tickets. Ms Jacobson’s experience suggests many have been operating on flawed and myopic hunches. So does “Wonder Woman”, directed by and starring women (pictured), which last year was the third-highest-grossing film at the North American box office. Likewise “Black Panther”, with its black director and stars, is poised to become one of the most successful Marvel films ever—dispelling another assumption, that predominantly African-American films do not succeed internationally.

Back to the future

In the past such successes have typically been isolated blips. Now, as women demand more power in the production of film and television—and begin to get it—that pattern may be changing. The business of mass entertainment, and its output, are set to become more diverse, in ways subtle and profound.

The trend began before the scandal but has been accelerated by it. It promises to be good for female actors and directors, for the studios, and, above all, for audiences.

In recent years women have made some headway on the small screen. In pay-TV and streaming television, female-dominated shows such as “Big Little Lies” and “The Handmaid’s Tale” have thrived on a business model that depends less on overall viewership than on passionate support, via subscriptions. The sprawling medium forces producers to be more original. As one executive notes, it would be difficult for another television show about a white, heterosexual, male doctor to get noticed. Some of the most influential people in TV are women, including Shonda Rhimes, a producer who signed a lucrative development deal with Netflix last year. Reese Witherspoon, producer and star of “Big Little Lies”, has acquired multiple women-centred stories to develop at her company. Women (and minorities) are increasingly being hired as directors, though they are still underrepresented: about one in six TV episodes is directed by a woman.

Mainstream Hollywood is strikingly ossified in comparison. As it happens, the first person to direct fictional films was a woman. Alice Guy was an employee of Gaumont when in 1896 she began telling short stories with film. She went on to make popular features, including action films with women in leading roles and narratives that captured an enlightened view of marriage. Eventually, though, as filmmaking became industrialised under the male-run studio system, women directors all but disappeared. Behind the camera, as in front of it, the studios’ woman problem is as deep as it is entrenched.

Male actors command about twice the screen time of female ones. Men are the heroes and villains and do most of the talking, with (at the last count) two-thirds of speaking parts in successful films, a ratio only slightly better than in the late 1940s. Women, still, are often ornaments or victims, love interests or damsels in distress: useful for being disrobed, attacked or both.

So one of the simple ways that studios can be more inclusive is to put more women and minorities in central roles. The Geena Davis Institute on Gender in Media, founded by the co-star of “Thelma and Louise”, has been lobbying them for years to do this on a broad scale. Disney’s Lucasfilm, run by Kathleen Kennedy, made women the heroines of its new “Star Wars” trilogy and a spin-off, “Rogue One: A Star Wars Story”. Next year Brie Larson will star in “Captain Marvel”, the first female-led feature from Marvel Studios (now owned by Disney).

This rebalancing might seem like common sense, given that women buy half the cinema tickets. The same logic holds for minority actors, considering non-white moviegoers buy more tickets per person in North America than white ones; altogether they too account for half of total sales. Yet in the past female-led hits such as “The Hunger Games” have not been widely emulated. Perhaps “Wonder Woman”, a female superhero flick with a male star as the sidekick, will buck that trend. Flops, meanwhile, have been taken to confirm the old chauvinist biases. After “Catwoman” bombed in 2004, it took Warner Bros 13 years to release “Wonder Woman”.

Thus the number of female characters in action films has risen only slightly since 2007, from 20% to 23% in 2016, says Stacy Smith, who analyses screen portrayals of women and minorities at the University of Southern California. (Her research also found that women are much more likely to be given only one shot at directing a studio film.) Females are nudged out of the picture in varied ways. Ms Jacobson says that when she was doing research for “Antz”, an animated movie released in 1998, she learned that females had a lot of the most important jobs in ant colonies. Then an executive at DreamWorks SKG, she wanted to switch a leading role from a male ant to a female one, but was rebuffed.

Of the top 100 films at the North American box office in 2016, 34 featured women in leading or co-leading roles, compared with 20 in 2007, according to Ms Smith’s research. That looks like progress—but women are not being deployed more imaginatively. About one in four were shown nude or partially nude in that sample, almost treble the rate for men. That includes 35% of females aged 13-20, up from 23% in 2007. The #MeToo movement has produced chilling accounts of actors being intimidated into taking their clothes off on camera. Salma Hayek wrote a harrowing article in the *New York Times* in which she alleged that Mr Weinstein pressured her into a lesbian-sex scene in “Frida”, a film about Frida Kahlo, an artist. (Mr Weinstein “does not recall” pressuring her into the scene.)

Nobody thinks sex is going to vanish from screen. After all, women enjoy erotica, too. “Women are just as game as men are,” says Ms Jacobson; “it’s just a matter of who gets to tell the stories.” But the Weinstein convulsions are spurring a rethink. The change won’t mean “purifying” entertainment, says a senior movie agent, but will mean films offer a more “balanced” view of sexuality. Figures in the industry whispered to the *Hollywood Reporter* that executives have become skittish about greenlighting films with gratuitous sex.

Like a better equilibrium between male and female roles, a less pornographic approach to sex might actually be good for business. Data suggest female viewers are turned off by the exploitative sexualisation of women and girls. Nick Meaney of Epagogix, a consultancy that evaluates screenplays algorithmically to predict box-office takings, says that sex scenes can indeed help films make money, but only when they fit organically into the story.

Hollywood, the sequel

If sex on screen is under scrutiny, so is misogynistic violence. Films portraying women in distress are unlikely to go out of fashion, but they might be made in a style that is less crass and demeaning. As it happens, says Mr Meaney, that would also help at the box office. ‘Woman in peril’ films fare best, he finds, when the woman fights back and wins at the end. This advance from primitive victimisation may already be under way. Keira Knightley recently said that, reviewing scripts set in the present, she had noticed a welcome uptick in women who “aren’t raped in the first five pages and aren’t simply there to be the loving girlfriend or wife”.

Making up for lost time

Another, more concrete ramification of Hollywood’s Weinstein moment, observes Ms Jacobson, is that fewer careers of ambitious young women will be crushed by harassment. Fewer abusive men will mentor acolytes in their image. In time that will mean more women taking decisions. Two big agencies have pledged to achieve equal representation in senior posts by 2020. Some redistribution has already begun. The former boss of Amazon Studios, who left under a cloud, has been replaced by a woman, Jennifer Salke.

Change has begun in the director's chair as well. Martha Lauzen of San Diego State University found that, for the top 100 films in 2017, 8% of directors were women. That seems paltry, but in 2016 the figure was 4%; in 2010, it was 2%. Greta Gerwig, one of that minority, has been nominated for the best-director Oscar for "Lady Bird". A female cinematographer has been nominated for the first time (Rachel Morrison for "Mudbound"). The link between more female artists and more rounded pictures is hard to quantify, but it is real. John Landgraf, president of FX, a network that has raised its share of female and non-white directors to around a half, notes that "broadening the diversity of our roster" has "yielded a wider and often times more surprising range of choices".

All this matters beyond Hollywood because of the example it sets to viewers everywhere. To take one small but telling instance of that influence, after the release of "The Hunger Games" there was a surge in girls' interest in archery, the heroine's speciality. Almost two-thirds of women say that watching a strong role model on screen made them more ambitious or assertive, says Rachel Pashley of J. Walter Thompson, a marketing firm. Women report seeing greater possibilities in the real world if their avatars realise them on celluloid: "What they said was, 'if we saw more female scientists or female leaders or female politicians on screen, it would make it easier for that to happen in real life'."

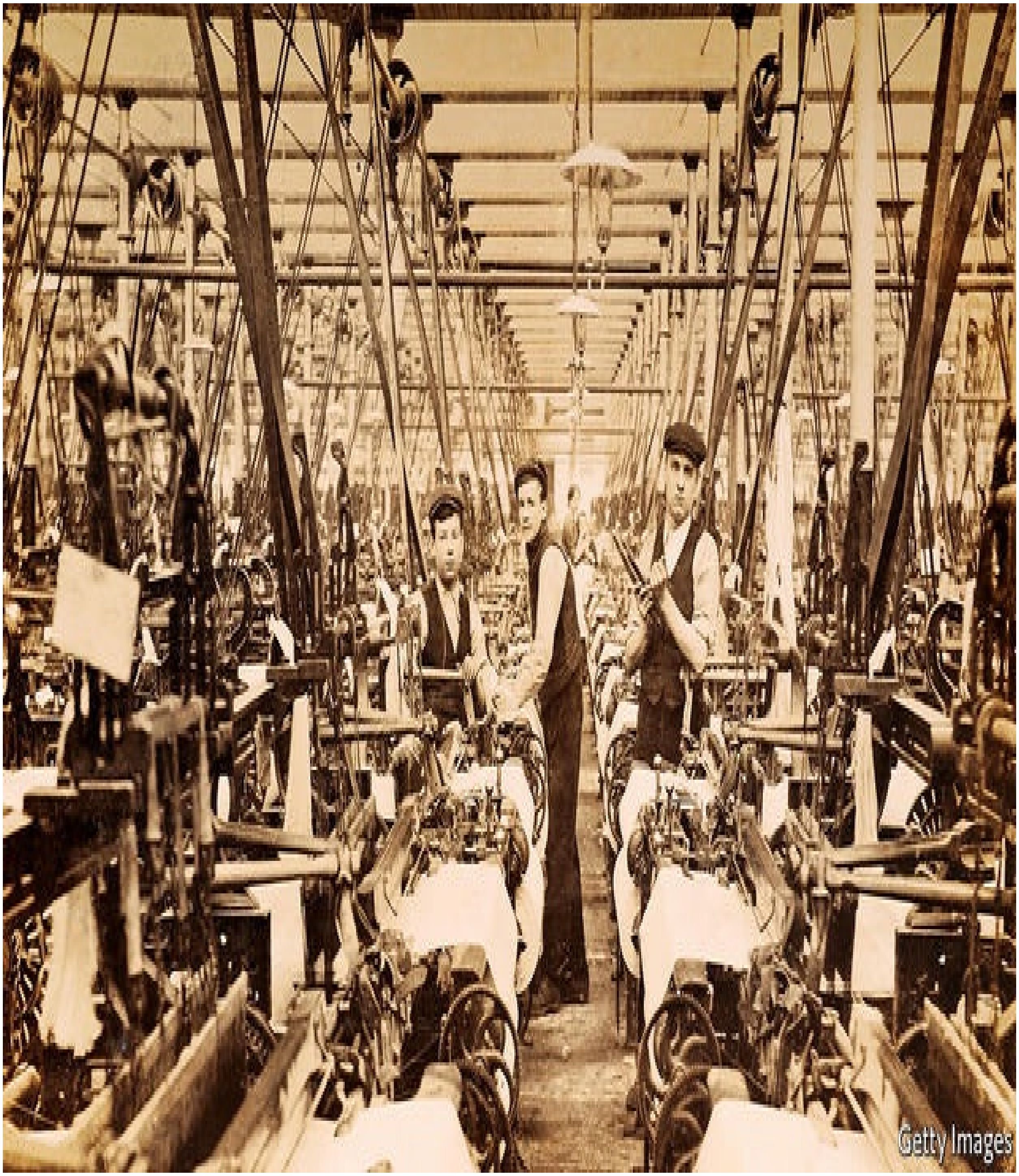
A new kind of storytelling does not mean homogenising men and women, or eliminating sex and violence. It means telling much the same stories, but with a different eye. Recent television provides a template. "Big Little Lies" is in part a saga of domestic abuse. "The Handmaid's Tale" is a parable of women being systematically controlled. But they are told from the perspective of the women. Similarly, "Wonder Woman" was a superhero film in more than name. Some people who went to see it waited with trepidation for the scene in which the heroine is reduced to a fetish object; that scene never came. Instead women and girls walked out of screenings ready to conquer the world.

This article appeared in the Books and arts section of the print edition under the headline “After the fall”

When giants ruled the world

An insightful history of giant factories

Which may turn out to be their epitaph



In the belly of the beast

Behemoth: A History of the Factory and the Making of the Modern World. By Joshua Freeman. *W.W. Norton & Company; 448 pages; $27.95* *and £22.*

WHEN it was built in 1721 beside the River Derwent, in Britain’s East Midlands, Lombe’s silk mill became something of a tourist attraction. Daniel Defoe, one of its many visitors, described its “vast bulk” as “a curiosity of a very extraordinary nature”. Employing some 300 people, mostly children in ghastly conditions, the mill was not large by modern standards. But it is widely regarded as the first successful mechanised factory, an innovation that over the next 100 years transformed the way people lived and worked.

Lombe’s mill is the natural starting-point for Joshua Freeman’s lively chronicle of the factory, which as the title of his book “Behemoth” implies, concentrates on the largest specimens of their time. Mr Freeman, a historian at Queens College in New York, travels from Britain’s textile mills, which centralised tasks that were previously carried out in homes and small workshops, to monster steel and carmaking factories in 20th-century America, Europe and the Soviet Union. His journey ends in southern China at Foxconn’s city-sized plant, which makes iPhones and other electronic gadgets.

Mr Freeman rolls up his sleeves and delves into the nitty-gritty of manufacturing. He successfully melds together those nuggets with social history, on the shop floor and beyond the factory walls, from union battles to worker exploitation and, in the case of Foxconn, suicides. Consider, for example, his account of one of the most famous factory bosses of all.

Henry Ford launched his Model T in 1908, turning the car from a luxury into a mass-manufactured product. Ford’s original factory, just outside Detroit, used standardised parts and fitted them to vehicles as they travelled along a moving assembly line. By 1914 this cut the labour time needed to assemble a Model T from 12.5 hours to 93 minutes. Before long the nearby River Rouge complex became the centre of a vertically integrated empire, designed to produce everything required to make a car.

The Model T, however, soon became obsolete. As Mr Freeman describes, this exposed the weakness of the Ford system: it is extremely expensive and slow to switch a giant factory from one product to another. In 1927 Ford halted production and laid off 60,000 workers, causing a social crisis in the Detroit area. After six months 15,000 machine tools had been replaced and 25,000 others rebuilt, so that the Rouge was ready to make the new Model A. At its zenith the factory employed 100,000 people. But it was a brutal place to work, with employees subject to harsh discipline and tyrannical foremen. “A man checks ’is brains and ’is freedom at the door,” one Rouge worker complained.

As the switch from Model T to Model A plunged Ford into loss, Alfred P. Sloan, president of General Motors, presciently observed that carmakers would need to “adopt the ‘laws’ of Paris dressmakers”. That meant bringing out new models more often. The shortening of product cycles and the fickle nature of modern markets has duly seen manufacturing atomise into smaller, nimbler, more specialist factories. The Rouge, for instance, lives on, but with just 6,000 workers making pick-up trucks.

Some see offshoring to low-wage countries, particularly in Asia, as the mega-factory’s last hurrah. Yet long supply chains and distant plants are leaving producers vulnerable to rapid changes in their home markets, so production has been trickling back. Meanwhile new materials and manufacturing methods, such as 3D printing, are demolishing the economies of scale that giant factories have relied on. Although Mr Freeman is not ready to write off his behemoths, he has probably written their obituary.

This article appeared in the Books and arts section of the print edition under the headline “When giants ruled the world”

Fragments and ruins

An American marine’s eloquent memoir

Matt Young conveys the boredom and horror of life on the front line

Eat the Apple. By Matt Young. *Bloomsbury; 272 pages; $26 and £14.99.*

WHAT is it like to wage war? Correspondents and film-makers try to depict it, while veterans often struggle to convey the reality. Matt Young manages to answer better than most.

As an alienated young man he joined the Marines in 2005 and served three tours in Iraq during the bloodiest years of the American occupation. In "Eat the Apple" he offers a series of vignettes drawn from his experience, changing tone and voice with each. Sometimes he refers to himself as "this recruit", at others he is "the boy". Rarely does he write as "I", more often referring to "we" and "us". Here he narrates with cold distance, there he is close and grisly. Some pages are tender and wistful, others repulsive, still others funny.

The experimental, jagged account matches the disjointed life of the soldier: long periods of boredom, interspersed with terror and confusion in battle, and drunken brawls on leave. The comradeship of men at arms becomes a refuge from the incomprehension of family. The Marines' dog-tags become talismans, both remnants of fallen friends and "a foretelling of violent anonymous death".

Mr Young draws, too. One sketch describes how, with a towel and rubber glove, a serviceman can fashion a home-made aid to onanism. "Masturbation is a means of survival. Jerking off has saved countless lives through countless wars," he writes, noting how it helps keep men awake on long nights of guard duty.

His scenes recall the body-and soul-deadening training; the urge to desert on the eve of his first deployment to conflict; the exhilaration and struggle to survive amid the heat and insects. Violence explodes on the pages suddenly, like improvised explosive devices (IEDs). After a car-bomb blasts his Humvee, he becomes a "person-thing". Confronting the Iraqi onlookers, he steps on a fleshy pile, which turns out to be the suicide-bomber's face. "The person-thing thinks it is wonderful and hilarious and physically amazing. It holds the bomber's face in front of his own and screams at the crowd through plump, blood-flecked lips, watching the crowd's reaction through empty eyeholes."

He has an eye for the absurd. After his patrol is blown up by an IED, he recovers in a field hospital, upset that the doctors are cutting away his favourite boots. At a strip club back home, he emphasises the “undulating stretch marks and caesarean scars” of the naked girls.

On occasion he reflects on America’s wars. A night patrol prompts the observation that: “There is no light pollution in Iraq. There might’ve been once, but not any more. Bombs dropped, buildings collapsed, people died. But now there are stars.” He imagines a letter to a dark-skinned taxi-driver he punched. Recalling that many cabbies are Somalis, he asks, “Are you one of them?…It seems I can’t go anywhere without running into someone whose country the Marine Corps has fucked over.”

“Eat the Apple” is not a treatise on grand strategy. It offers no lessons on defeating insurgencies or the intricacies of countries in which America fights. This is a grunt’s story, of the world seen through gun-sights and the reinforced glass of armoured vehicles. The enemy is unknown and generic: *muj*, *hajji* and “raghead”.

Instead, Mr Young’s is a tale of pathos. A young man tries to find himself by going to war, but fails. “I didn’t even get to kill anyone,” he laments. He has only shot dogs, guiltily at that. Yet, in writing about war, he has found a purpose and his voice.

This article appeared in the Books and arts section of the print edition under the headline “Fragments and ruins”

Johnson

In the court of common usage, an old pronoun is losing its case

For whom, the bell tolls

LAST week *The Economist* considered the new South African president's in-tray, advertising our advice on the cover with the words "Who Cyril Ramaphosa should fire". Some readers might have wondered whether someone should fire our proofreaders. Shouldn't that be "Whom Cyril Ramaphosa should fire"?

It wasn't a cock-up. On its face, our editors agreed, the grammar was clear. It should be *whom*. *Who* is used for subjects, *whom* for objects, including direct objects such as that of the verb *to fire*. "He fires him", not "He fires he". Thus, "He fires whom".

The issue is not as simple as that. *Whom* is one of the few remaining vestiges of case in English. At the time of "Beowulf", the great monster-slaying Anglo-Saxon epic, English nouns, pronouns and adjectives, plus words like *the*, all had an ending showing case. Four different cases in Old English tell you whether a word is a subject, direct object, indirect object or possessor. Other languages, from Ancient Greek to Russian to Estonian, have far richer case systems still.

More than 1,000 years later, that system has vanished almost entirely—probably fatally weakened by foreign invaders. When foreign speakers learn a second language, as the Vikings and then the Normans did when they conquered England, cases are tricky to pick up, as any student of Russian knows. If they can be dispensed with, they often will be. Those Vikings and Normans feebly learning Old English helped turn it into Middle English, in which case was far less often visible.

Yet fans of *whom* might ask, how can you dispense with case without throwing out intelligibility? It's important to know what word in a sentence is the subject, which the direct object, and so on. That is true—so true that every language on Earth has a way of solving the problem, whether it has cases or not. In English and other case-poor languages, from Swedish to Vietnamese, the solution is word order.

In Old English, Latin or Russian subjects, objects and other words can appear in different orders; this gives speakers and writers a way to play with rhythm and emphasis. The loss of case in modern English means that word order must be relatively fixed, usually subject, verb and object in that sequence. *Steve loves Sally* means that Steve is the lover, Sally the loved. This could be reversed in Old English, with the meaning unchanged, because the case-endings would show who loved whom.

In English today just six words still show a distinction between subject and object: *I*, *he*, *she*, *we*, *they* and *who*. For the first five, making the case-distinction is mandatory nearly all of the time. You cannot say “I love she and she loves I”. Admittedly, some people say “between you and I”. (It should be *between you and me*, because both *you* and *me* are objects of the preposition.) But this is a marginal mistake, made mostly by educated people taking to excess the childhood lesson not to say “you and me” in sentences such as “you and me are going to be friends.” Regardless, that children say “you and me are going” and grown-ups say “between you and I”, and both are perfectly understood, illustrates the point: case just isn’t important to meaning in English.

Whom is special. It is used in questions and relative clauses, which are rarer and more complex than “he saw him” type sentences. It is not always obvious whether the relevant word is a subject or an object, as in sentences such as, “He’s the candidate who(m) we think will win”. (It should be *who*.) Perhaps because these sentences are tricky, and swapping *who* and *whom* rarely causes confusion, the two words have been collapsing into just one combined form: *who*, which is used, just like *you*, as both subject and object.

Whom isstuffier in some places than in others. The pomposity of Sideshow Bob from “The Simpsons” is clear when he asks his audience “Whoooom do you love?” By contrast Twitter recommends “Who to follow”. (Changing the site language to British English oddly changes this to “Whom to follow”, though Britons do not actually use *whom* any more than Americans.) After a preposition, *whom* still feels necessary: “people for whom a holiday is a far-off dream”. But in cases like our cover flash, “Whom Cyril Ramaphosa should fire” felt so unacceptably stilted that our editors decided against it.

The case, as it were, is getting stronger against *whom*. Except in the most formal language—think courtrooms and prayers—this little word may not survive. For whom, the bell tolls.

This article appeared in the Books and arts section of the print edition under the headline “For whom, the bell tolls”

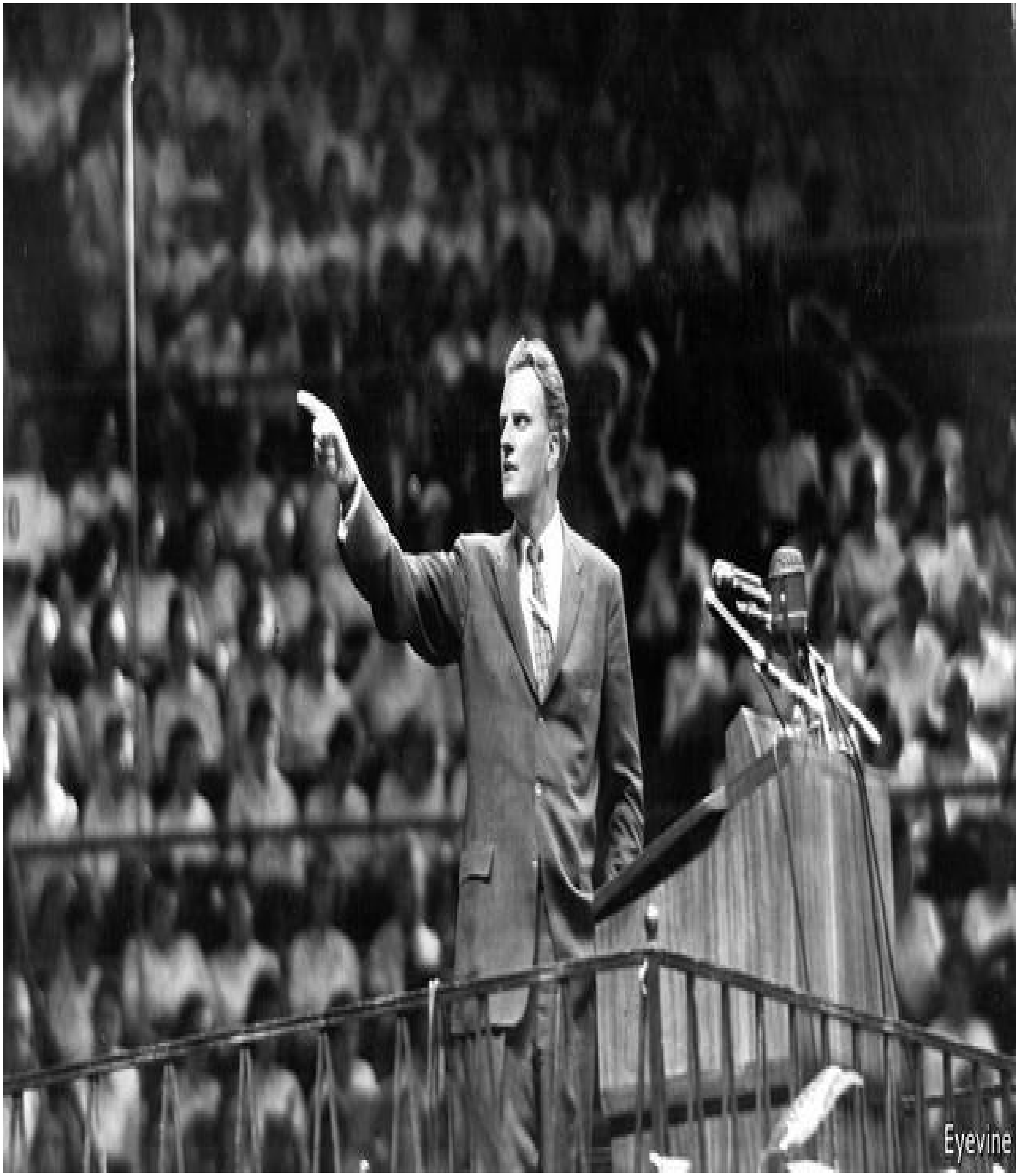
Obituary

- **Billy Graham: The hour of decision** [Fri, 02 Mar 06:00]

The hour of decision

Billy Graham died on February 21st

America’s most influential preacher of the 20th century was 99



WHEN the moment came, Billy Graham did not feel any special emotion. The woman next to him had tears streaming down her face, but he was calm, full of peace, as he returned to his seat. He had committed himself to Christ as his Lord and Saviour at the invitation of Preacher Mordecai Ham at a rally in Charlotte, North Carolina. He was 15, just a farm boy with poor grades, and already the Lord was preparing mighty works in him. But He worked quietly. Three years later, when the calm had worn off and the wrestling had started, the Holy Spirit moved in him again as he wandered disconsolate one night across a golf course in Florida. At the edge of the 18th green he was urged to kneel, pray and accept the call to ministry. Again, there were no signs in the heavens. But this time the tears that flowed were his.

On the strength of that promise made to the Lord, who now controlled each step of his life, he set out to preach the Gospel in every land. Over more than half a century, as he changed from a strapping, vigorous, shiny-suit evangelist to a frail patriarch with a white mane, around 215m people in 185 countries heard him live at more than 400 Crusades. In 1957 he packed Madison Square Garden every night for 16 weeks, and in Seoul in 1973 he drew a crowd of more than a million. In Moscow in 1992, so hungry for God, 155,000 came to hear him.

Technology advanced as he did, spreading the message. From 1947 to 2008 around 2.2bn people watched the Crusades on television, video or webcast, or listened to his “Hour of Decision” radio talk, which aired weekly for more than 60 years. His magazine, *Decision*, had 2m subscribers. All this was God’s wondrous doing, not his. And the number that really mattered was that over his years of ministry, when he issued the Invitation to come forward, at least 3.2m people walked to the Cross to receive Jesus Christ as their Saviour.

His way of preaching was not hellfire and brimstone in the old revivalist style, though it started that way at the Florida Bible Institute, where he would go into the swamps to shout at alligators with a voice already resonant from practising Tarzan yells as a boy, the pulling voice that preachers needed. As he got better at it—working up from a basement church in Illinois to local radio broadcasts to his first revivalist meetings, in two old circus tents in Los Angeles in 1949—his delivery modulated, but not his urgency. Men and women had allowed their souls to shrivel up in sin. They had forgotten God. Yet God had sent His only Son into the world to save sinners. Jesus had hung, and bled, and died on the Cross, for them. When were they going to give their lives to Him? When would they repent and earn God's forgiveness? Now was the time, today! For at any moment God might call them to His judgment.

This was not a political message. "Evangelical" simply meant, of the Gospel. Yet it drew in presidents, not least because a Godly America was bound to prevail against Soviet evil. He prayed beside the deathbed of Eisenhower and the sickbed of Johnson; put his strong arm round Nixon's shoulders after his early election defeats; helped George W. Bush to give up drink, and told all of them that God's grace alone, not any works of theirs, would assure them of Heaven. Through all this he struggled not to be partisan, kneeling down (and playing golf) with Republicans and Democrats alike and managing, too, to like Kennedy, though he had not wanted this Catholic in the White House. When the evangelical right, inspired by him, rose up in power, he kept his distance.

Because his mission was to save souls, he was bound to love everyone in Christ. The ground at the foot of the Cross was level. When he received Him he began to see people without colour, which in the Deep South astounded him. It led him to tear down the ropes separating whites from blacks in his early southern Crusades, and to a friendship with Martin Luther King that extended to bailing him out of jail. With other groups, God's command was harder. At times both Jews and Muslims bothered him. As for homosexuals, though he refused to join the ultra-conservative Moral Majority, he prayed they would repent of their perversion.

The Bible was clear on that point. God's inspired Word defined marriage as between a man and a woman and stipulated, too, that the man should lead and the woman should follow. So while he travelled the world, bringing the Good News to its leaders, his wife Ruth held everything together at home. And their marriage endured, built on the rock of daily prayer and Bible readings. The children rebelled, then returned to Christ. He was not a fundamentalist, not a Bible-pounding Old Testament man, but handed out the Gospel of John at his Crusades. John's message was redeeming love, pure and simple.

On the mountaintop

In his heart he would have been quite happy as the pastor of some little church up in the Blue Ridge Mountains, where he loved to walk and talk with God. He did not need the global adulation or his star on the Hollywood Walk of Fame. All he needed was Jesus Christ. But God had mysteriously planned his life otherwise. And he trusted that, sinner though he was, the Holy Spirit would testify to his faithfulness; and that after all his travelling he would have the assurance of Heaven, truly home.

This article appeared in the Obituary section of the print edition under the headline "The hour of decision"

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Economic and financial indicators

Output, prices and jobs

Output, prices and jobs

% change on year ago

	Gross domestic product				Industrial production	Consumer prices			Unemployment rate, %
	latest	qtr*	2017†	2018†	latest	latest	year ago	2017†	
United States	+2.5 Q4	+2.5	+2.3	+2.7	+3.7 Jan	+2.1 Jan	+2.5	+2.1	4.1 Jan
China	+6.8 Q4	+6.6	+6.8	+6.5	+6.2 Dec	+1.5 Jan	+2.5	+1.6	3.9 Q4§
Japan	+1.5 Q4	+0.5	+1.7	+1.5	+2.7 Jan	+1.3 Jan	+0.5	+0.5	2.8 Dec
Britain	+1.4 Q4	+1.6	+1.7	+1.5	nil Dec	+3.0 Jan	+1.8	+2.7	4.4 Nov††
Canada	+3.0 Q3	+1.7	+3.1	+2.3	+4.7 Nov	+1.7 Jan	+2.1	+1.6	5.9 Jan
Euro area	+2.7 Q4	+2.4	+2.4	+2.4	+5.2 Dec	+1.2 Feb	+2.0	+1.5	8.7 Dec
Austria	+2.9 Q4	+1.6	+2.9	+2.5	+3.5 Dec	+1.8 Jan	+2.0	+2.2	5.3 Dec
Belgium	+1.9 Q4	+2.1	+1.7	+1.9	-2.8 Dec	+1.5 Feb	+3.0	+2.2	6.6 Dec
France	+2.5 Q4	+2.6	+1.9	+2.1	+4.5 Dec	+1.2 Feb	+1.2	+1.1	9.2 Dec
Germany	+2.9 Q4	+2.4	+2.5	+2.6	+6.7 Dec	+1.4 Feb	+2.2	+1.7	3.6 Dec‡
Greece	+1.3 Q3	+1.2	+1.3	+1.6	+0.2 Dec	-0.2 Jan	+1.2	+1.1	20.9 Nov
Italy	+1.6 Q4	+1.2	+1.5	+1.5	+4.9 Dec	+0.6 Feb	+1.6	+1.3	10.8 Dec
Netherlands	+2.9 Q4	+3.2	+3.2	+2.8	+5.2 Dec	+1.5 Jan	+1.7	+1.3	5.2 Jan
Spain	+3.1 Q4	+2.8	+3.1	+2.7	+2.8 Dec	+1.0 Feb	+3.0	+2.0	16.4 Dec
Czech Republic	+4.7 Q3	+2.0	+4.4	+3.3	+2.7 Dec	+2.2 Jan	+2.2	+2.5	2.4 Dec‡
Denmark	+1.2 Q4	+3.9	+2.0	+2.0	-3.1 Dec	+0.7 Jan	+0.9	+1.1	4.2 Dec
Hungary	+4.4 Q4	+5.3	+4.2	+3.6	+4.6 Dec	+2.1 Jan	+2.3	+2.4	3.8 Jan§††
Norway	+1.4 Q4	-1.1	+1.9	+1.7	-3.2 Dec	+1.6 Jan	+2.8	+1.9	4.1 Dec‡‡
Poland	+4.3 Q4	+4.1	+4.6	+3.8	+8.6 Jan	+1.9 Jan	+1.7	+2.0	6.9 Jan§
Russia	+1.8 Q3	na	+1.7	+2.0	+2.8 Jan	+2.2 Jan	+5.0	+3.5	5.2 Jan§
Sweden	+3.3 Q4	+3.5	+2.7	+2.7	+8.1 Dec	+1.6 Jan	+1.4	+1.8	7.0 Jan§
Switzerland	+1.2 Q3	+2.5	+1.0	+2.0	+8.7 Q4	+0.7 Jan	+0.3	+0.5	3.0 Jan
Turkey	+11.1 Q3	na	+6.7	+3.8	+6.5 Dec	+10.3 Jan	+9.2	+11.1	10.3 Nov§
Australia	+2.8 Q3	+2.4	+2.3	+2.8	+3.5 Q3	+1.9 Q4	+1.5	+1.9	5.5 Jan
Hong Kong	+3.4 Q4	+3.3	+3.7	+2.6	+0.4 Q3	+1.6 Jan	+1.3	+1.5	2.9 Jan‡‡
India	+7.2 Q4	+6.6	+6.4	+7.2	+7.1 Dec	+5.1 Jan	+3.2	+3.5	6.1 Feb
Indonesia	+5.2 Q4	na	+5.1	+5.4	+3.4 Dec	+3.3 Jan	+3.5	+3.8	5.5 Q3§
Malaysia	+5.9 Q4	na	+6.0	+5.5	+2.8 Dec	+2.7 Jan	+3.1	+3.8	3.3 Dec§
Pakistan	+5.7 2017**	na	+5.7	+5.3	-1.4 Dec	+4.4 Jan	+3.7	+4.1	5.9 2015
Singapore	+3.6 Q4	+2.1	+3.5	+3.0	+17.9 Jan	nil Jan	+0.6	+0.6	2.1 Q4
South Korea	+3.0 Q4	-0.9	+3.1	+3.0	-6.0 Dec	+1.0 Jan	+2.0	+2.0	3.7 Jan§
Taiwan	+3.3 Q4	+4.3	+2.9	+2.4	+1.2 Dec	+0.9 Jan	+2.2	+0.6	3.7 Jan
Thailand	+4.0 Q4	+1.8	+3.7	+3.8	+3.4 Jan	+0.7 Jan	+1.6	+0.7	1.3 Jan§
Argentina	+4.2 Q3	+3.6	+2.9	+3.2	+1.1 Jan	+25.4 Jan	na	+25.2	8.3 Q3§
Brazil	+1.4 Q3	+0.6	+1.0	+2.7	+4.4 Dec	+2.9 Jan	+5.4	+3.3	12.2 Jan§
Chile	+2.2 Q3	+6.0	+1.4	+3.0	+5.3 Jan	+2.2 Jan	+2.8	+2.2	6.5 Jan§‡‡
Colombia	+1.6 Q4	+1.1	+1.6	+2.5	-0.8 Dec	+3.7 Jan	+5.5	+4.3	11.8 Jan§
Mexico	+1.5 Q4	+3.2	+2.1	+2.1	-0.7 Dec	+5.5 Jan	+4.7	+6.0	3.4 Jan
Venezuela	-8.8 Q4~	-6.2	-13.6	-13.9	na	na	na	1,123.3	7.3 Apr§
Egypt	na	na	+4.2	+5.0	+19.5 Dec	+17.1 Jan	+28.2	+29.5	11.3 Q4§
Israel	+2.9 Q4	+3.6	+3.3	+3.9	+1.5 Dec	+0.1 Jan	+0.1	+0.2	3.7 Jan
Saudi Arabia	-0.7 2017	na	-0.7	+1.0	na	+3.0 Jan	-0.6	-0.2	5.8 Q3
South Africa	+0.8 Q3	+2.0	+0.9	+1.4	+2.8 Dec	+4.4 Jan	+6.6	+5.3	26.7 Q4§
Estonia	+5.0 Q4	+9.2	+4.6	+3.4	+7.1 Dec	+3.5 Jan	+2.7	+3.5	5.3 Q4§
Finland	+2.6 Q4	+2.8	+3.2	+2.3	+4.2 Dec	+0.8 Jan	+0.8	+0.8	8.8 Jan§
Iceland	+3.1 Q3	+9.2	+3.6	+4.1	na	+2.2 Feb	+1.9	+1.8	2.4 Jan§
Ireland	+10.5 Q3	+18.1	+6.5	+4.0	+3.4 Dec	+0.2 Jan	+0.3	+0.3	6.0 Feb
Latvia	+4.2 Q4	+2.0	+5.1	+3.1	+5.5 Dec	+2.0 Jan	+2.9	+2.9	8.1 Q4§
Lithuania	+3.9 Q4	+6.0	+3.5	+3.4	+7.5 Jan	+4.0 Jan	+2.3	+3.6	9.0 Jan§
Luxembourg	+3.2 Q3	+6.8	+3.0	+3.4	-2.0 Dec	+1.1 Jan	+1.7	+2.1	6.0 Jan§
New Zealand	+3.0 Q3	+3.8	+2.4	+3.0	+1.6 Q3	+1.6 Q4	+1.3	+1.9	4.5 Q4
Peru	+2.2 Q4	-1.3	+2.5	+3.7	-12.5 Dec	+1.3 Jan	+3.1	+2.8	6.9 Dec§
Philippines	+6.6 Q4	+6.1	+6.7	+6.1	-9.7 Dec	+4.0 Jan	+2.7	+3.2	5.0 Q4§
Portugal	+2.4 Q4	+2.9	+2.6	+2.1	+1.2 Dec	+0.6 Feb	+1.6	+1.6	8.1 Q4§
Slovakia	+3.5 Q4	+5.5	+3.4	+3.7	-1.0 Dec	+2.4 Jan	+0.7	+1.4	5.9 Jan§
Slovenia	+6.0 Q4	na	+5.0	+3.7	+5.8 Dec	+1.2 Feb	+2.3	+1.6	9.0 Dec§
Ukraine	+1.8 Q4	+0.7	+2.2	+3.0	+3.6 Jan	+14.1 Jan	+12.6	+14.4	1.4 Jan§
Vietnam	+6.8 2017	na	+6.8	+6.7	+8.0 Feb	+3.2 Feb	+5.0	+3.5	2.3 2016

Source: Haver Analytics. *% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. ~2015 **Year ending June. ††Latest 3 months. ‡‡3-month moving average.

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Trade, exchange rates, budget balances and interest rates

Trade, exchange rates, budget balances and interest rates

	Trade balance latest 12 months, $bn	Current-account balance latest 12 months, $bn	Current-account balance % of GDP 2017†	Currency units, per $ Feb 28th	Currency units, per $ year ago	Budget balance % of GDP 2017†	Interest rates 3-month latest	Interest rates 10-year gov't bonds, latest
United States	-810.0 Dec	-452.5 Q3	-2.4	-	-	-3.5	2.01	2.88
China	+394.0 Jan	+172.0 Q4	+1.2	6.33	6.87	-3.7	4.71	3.76§§
Japan	+43.8 Dec	+195.5 Dec	+3.9	107	112	-4.4	-0.06	0.04
Britain	-178.0 Dec	-118.1 Q3	-4.5	0.73	0.80	-2.9	0.58	1.55
Canada	-18.7 Dec	-45.8 Q3	-2.9	1.28	1.32	-1.6	1.62	2.23
Euro area	+270.7 Dec	+448.0 Dec	+3.2	0.82	0.94	-1.0	-0.33	0.66
Austria	-6.0 Nov	+8.5 Q3	+2.2	0.82	0.94	-1.1	-0.33	0.77
Belgium	+23.8 Dec	-3.9 Sep	-0.7	0.82	0.94	-1.7	-0.33	0.92
France	-70.2 Dec	-28.5 Dec	-1.3	0.82	0.94	-2.9	-0.33	0.93
Germany	+276.8 Dec	+291.4 Dec	+7.9	0.82	0.94	+1.2	-0.33	0.66
Greece	-22.0 Dec	-1.4 Dec	-0.4	0.82	0.94	-0.6	-0.33	4.41
Italy	+54.1 Dec	+57.3 Dec	+2.7	0.82	0.94	-2.3	-0.33	2.09
Netherlands	+66.3 Dec	+80.7 Q3	+9.6	0.82	0.94	+0.9	-0.33	0.73
Spain	-28.0 Dec	+23.0 Dec	+1.6	0.82	0.94	-3.0	-0.33	1.48
Czech Republic	+18.4 Dec	+0.9 Q3	+1.0	20.8	25.4	+0.7	0.91	1.93
Denmark	+9.3 Dec	+24.8 Dec	+8.3	6.10	7.00	-0.3	-0.30	0.73
Hungary	+9.2 Nov	+5.2 Q3	+4.9	257	290	-2.1	0.02	2.58
Norway	+19.9 Jan	+21.1 Q3	+4.6	7.89	8.36	+4.9	1.01	1.99
Poland	+0.4 Dec	+0.2 Dec	nil	3.43	4.06	-1.3	1.52	3.35
Russia	+115.3 Dec	+40.2 Q4	+2.4	56.3	58.4	-1.5	5.00	8.13
Sweden	-1.1 Jan	+21.1 Q3	+4.7	8.29	9.01	+1.0	-0.46	0.83
Switzerland	+32.8 Jan	+66.4 Q3	+9.3	0.95	1.00	+0.8	-0.74	0.12
Turkey	-81.5 Jan	-47.1 Dec	-5.0	3.81	3.63	-1.5	14.0	11.9
Australia	+9.4 Dec	-22.2 Q3	-1.7	1.28	1.30	-1.5	2.07	2.81
Hong Kong	-64.4 Jan	+14.8 Q3	+4.3	7.83	7.76	+4.2	1.08	2.02
India	-155.1 Jan	-33.6 Q3	-1.6	65.2	66.7	-3.5	6.32	7.72
Indonesia	+9.8 Jan	-17.3 Q4	-1.6	13,749	13,336	-2.8	5.31	6.57
Malaysia	+22.7 Dec	+9.4 Q4	+2.6	3.92	4.44	-2.9	3.68	4.05
Pakistan	-36.8 Jan	-15.3 Q4	-4.8	111	105	-5.9	6.38	8.80†††
Singapore	+47.3 Jan	+61.0 Q4	+18.5	1.32	1.40	-1.0	na	2.39
South Korea	+92.6 Feb	+78.5 Dec	+5.3	1,083	1,131	+1.1	1.64	2.74
Taiwan	+17.2 Jan	+84.1 Q4	+13.8	29.2	30.7	-0.1	0.66	1.04
Thailand	+13.0 Jan	+49.3 Q4	+11.6	31.4	34.9	-2.5	0.79	2.51
Argentina	-9.4 Jan	-26.6 Q3	-4.2	20.1	15.5	-5.8	22.2	4.19
Brazil	+67.1 Jan	-9.0 Jan	-0.6	3.25	3.11	-8.0	6.55	8.37
Chile	+7.4 Jan	-4.6 Q3	-1.3	595	650	-2.7	0.44	4.56
Colombia	-8.3 Dec	-11.1 Q3	-3.4	2,868	2,922	-2.3	5.10	6.62
Mexico	-11.8 Jan	-18.8 Q4	-1.7	18.9	20.0	-1.1	7.83	7.65
Venezuela	-36.2 Oct~	-17.8 Q3~	+0.5	28,960	9.99	-19.3	14.5	8.24
Egypt	-32.2 Dec	-12.2 Q3	-7.1	17.7	15.8	-11.0	18.9	na
Israel	-15.5 Jan	+10.5 Q3	+3.0	3.47	3.64	-2.0	0.12	1.77
Saudi Arabia	+43.4 2016	+12.4 Q3	+2.7	3.75	3.75	-8.9	1.92	na
South Africa	+4.6 Jan	-7.3 Q3	-2.2	11.8	13.1	-3.9	7.13	8.15
Estonia	-2.2 Dec	+0.7 Dec	+1.9	0.82	0.94	-0.7	-0.33	na
Finland	-2.8 Dec	+1.7 Dec	+1.0	0.82	0.94	-1.3	-0.33	0.78
Iceland	-1.7 Jan	+1.2 Q3	+6.4	101	107	+1.0	4.65	na
Ireland	+51.0 Dec	+27.7 Q3	+5.7	0.82	0.94	-0.5	-0.33	1.08
Latvia	-3.0 Dec	-0.2 Dec	-0.8	0.82	0.94	+0.2	-0.33	na
Lithuania	-2.6 Dec	nil Q3	-0.8	0.82	0.94	+0.1	-0.33	1.25
Luxembourg	-7.1 Dec	+2.4 Q3	+5.0	0.82	0.94	+1.4	-0.33	na
New Zealand	-2.3 Jan	-5.1 Q3	-2.8	1.38	1.38	+1.6	1.92	2.97
Peru	+6.3 Dec	-2.7 Q4	-2.1	3.26	3.27	-3.3	2.84	na
Philippines	-29.8 Dec	-0.5 Sep	-0.3	52.1	50.2	-2.1	3.07	6.73
Portugal	-15.7 Dec	+1.1 Dec	+0.3	0.82	0.94	-1.2	-0.33	2.01
Slovakia	+3.6 Dec	-1.8 Dec	-1.5	0.82	0.94	-1.3	-0.33	0.69
Slovenia	nil Nov	+3.2 Dec	+6.0	0.82	0.94	-0.7	-0.33	na
Ukraine	-6.2 Dec	-3.8 Q4	-3.6	26.8	27.2	-1.4	16.0	na
Vietnam	+4.8 Feb	+8.5 2016	+0.3	22,757	22,764	-6.7	4.80	4.31

Source: Haver Analytics. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. ~2015 §§5-year yield. †††Dollar-denominated bonds.

This article appeared in the Economic and financial indicators section of the print edition

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The Economist commodity-price index

The Economist commodity-price index

2005=100

	Feb 20th	Feb 27th*	% change on one month	% change on one year
Dollar Index				
All Items	154.0	155.1	+1.0	+5.7
Food	155.1	157.0	+2.2	+0.4
Industrials				
All	152.9	153.0	-0.1	+11.9
Nfa†	138.7	142.4	+2.4	-1.3
Metals	159.0	157.6	-1.1	+18.0
Sterling Index				
All items	200.0	203.2	+2.8	-5.3
Euro Index				
All items	155.1	157.5	+2.5	-8.2
Gold				
$ per oz	1,336.3	1,318.5	-1.6	+4.9
West Texas Intermediate				
$ per barrel	61.8	63.0	-2.3	+16.7

Sources: Bloomberg; CME Group; Cotlook; Darmenn & Curl; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Thomson Reuters; Urner Barry; WSJ. *Provisional
†Non-food agriculturals.

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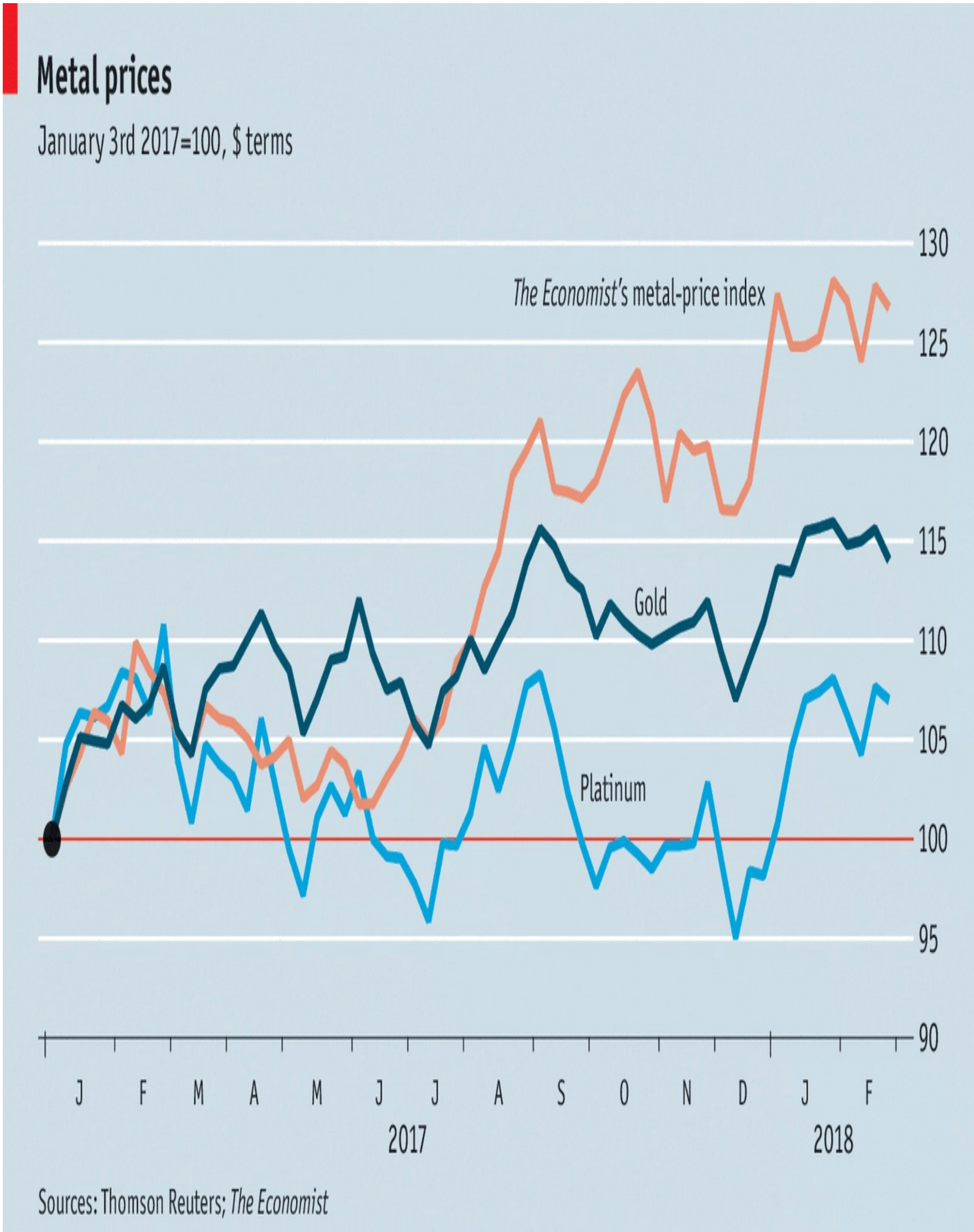
Metal prices



Economist.com

The gold price rose by 13% in 2017, its best performance in seven years. A stuttering dollar and a boost in demand from lunar new-year celebrations has helped the rally continue. Gold is up by 7% since mid-December and recently hit a near 18-month high. Platinum, used in emissions-reduction technology, has also seen its price rebound from a mid-December slump, benefiting from its strong correlation with gold and China's crackdown on pollution. Base-metal prices have risen even faster. *The Economist*'s metal-price index, which excludes precious metals, rose by 23% in 2017. This was largely driven by factory closures in China and the hope that electric vehicles, full of copper, are coming of age.

This article appeared in the Economic and financial indicators section of the print edition

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Markets

Markets

		% change on		
			Dec 29th 2017	
	Index Feb 28th	one week	in local currency	in $ terms
United States (DJIA)	25,029.2	+0.9	+1.3	+1.3
United States (S&P 500)	2,713.8	+0.5	+1.5	+1.5
United States (NAScomp)	7,273.0	+0.8	+5.4	+5.4
China (SSEA)	3,413.7	+1.9	-1.4	+1.4
China (SSEB, $ terms)	327.9	+1.2	-4.1	-4.1
Japan (Nikkei 225)	22,068.2	+0.4	-3.1	+2.3
Japan (Topix)	1,768.2	+0.4	-2.7	+2.7
Britain (FTSE 100)	7,231.9	-0.7	-5.9	-4.2
Canada (S&P TSX)	15,442.7	-0.5	-4.7	-6.8
Euro area (FTSE Euro 100)	1,198.5	+0.3	-0.9	+0.6
Euro area (EURO STOXX 50)	3,439.0	+0.3	-1.9	-0.3
Austria (ATX)	3,476.0	+1.4	+1.6	+3.2
Belgium (Bel 20)	3,994.5	+1.1	+0.4	+2.0
France (CAC 40)	5,320.5	+0.3	+0.1	+1.7
Germany (DAX)*	12,435.9	-0.3	-3.7	-2.2
Greece (Athex Comp)	835.7	-0.4	+4.1	+5.8
Italy (FTSE/MIB)	22,607.6	-0.2	+3.5	+5.1
Netherlands (AEX)	535.6	+0.3	-1.7	-0.1
Spain (IBEX 35)	9,840.3	+0.2	-2.0	-0.5
Czech Republic (PX)	1,120.5	+0.8	+3.9	+6.1
Denmark (OMXCB)	919.6	+1.3	-0.8	+0.7
Hungary (BUX)	38,112.0	-2.2	-3.2	-2.9
Norway (OSEAX)	918.7	+1.0	+1.3	+5.0
Poland (WIG)	61,703.2	-1.4	-3.2	-1.8
Russia (RTS, $ terms)	1,285.5	-0.4	+11.4	+11.4
Sweden (OMXS30)	1,583.4	+0.5	+0.4	-0.8
Switzerland (SMI)	8,906.4	-0.9	-5.1	-2.1
Turkey (BIST)	118,950.8	+2.3	+3.1	+2.7
Australia (All Ord.)	6,117.3	+1.2	-0.8	-1.3
Hong Kong (Hang Seng)	30,844.7	-1.9	+3.1	+3.0
India (BSE)	34,184.0	+1.0	+0.4	-1.7
Indonesia (JSX)	6,597.2	-0.7	+3.8	+2.4
Malaysia (KLSE)	1,856.2	-0.1	+3.3	+6.7
Pakistan (KSE)	43,239.4	+0.7	+6.8	+6.7
Singapore (STI)	3,517.9	nil	+3.4	+4.4
South Korea (KOSPI)	2,427.4	-0.1	-1.6	-2.7
Taiwan (TWI)	10,815.5	+0.9	+1.6	+3.6
Thailand (SET)	1,830.1	+1.6	+4.4	+8.3
Argentina (MERV)	33,010.9	-0.1	+9.8	+2.7
Brazil (BVSP)	85,353.6	-0.8	+11.7	+14.1
Chile (IGPA)	28,132.2	-1.7	+0.5	+4.0
Colombia (IGBC)	11,411.1	-3.0	-0.6	+3.4
Mexico (IPC)	47,437.9	-2.3	-3.9	-0.3
Peru (S&P/BVL)*	20,831.8	+0.6	+4.3	+3.6
Egypt (EGX 30)	15,472.7	+1.5	+3.0	+3.7
Israel (TA-125)	1,362.0	-0.3	-0.2	-0.3
Saudi Arabia (Tadawul)	7,418.8	-1.2	+2.7	+2.7
South Africa (JSE AS)	58,325.1	-0.5	-2.0	+2.8
Europe (FTSEurofirst 300)	1,487.2	-0.3	-2.8	-1.2
World, dev'd (MSCI)	2,118.0	nil	+0.7	+0.7
Emerging markets (MSCI)	1,195.2	-1.2	+3.2	+3.2
World, all (MSCI)	518.1	-0.2	+1.0	+1.0
World bonds (Citigroup)	959.1	+0.1	+0.9	+0.9
EMBI+ (JPMorgan)	815.0	+0.4	-2.5	-2.5
Hedge funds (HFRX)	1,280.6§	-0.8	+0.4	+0.4
Volatility, US (VIX)	19.9	+20.0	+11.0	(levels)
CDSs, Eur (iTRAXX)†	52.4	+1.6	+16.2	+18.0
CDSs, N Am (CDX)†	56.1	+1.0	+14.4	+14.4
Carbon trading (EU ETS) €	10.1	+3.8	+24.2	+26.2

Sources: IHS Markit; Thomson Reuters. *Total return index.
†Credit-default-swap spreads, basis points. §Feb 27th.

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