

The Economist

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A special report on trade

OCTOBER 9TH-15TH 2021



The shortage economy



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¹ Source: Global Cement and Concrete Association

² Annual global cement production in 2019: 4.1 billion tons. Source: IEA.

³ Precast industry is 30% of total. Sources: The Business Research Company & Fortune Business Insights.

⁴ Typical passenger vehicle emits around 4.6 metric tons of CO₂ per year. Source: EPA.

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¹ IEA (2017), The Future of Trucks, IEA, Paris

² IEA (2020) CO₂ emissions from heavy-duty vehicles in the Sustainable Development Scenario, 2000–2030

³ One young tree absorbs 5.9kg CO₂ per year. Source: Urban Forestry Network.



COLLECTION

Fifty Fathoms



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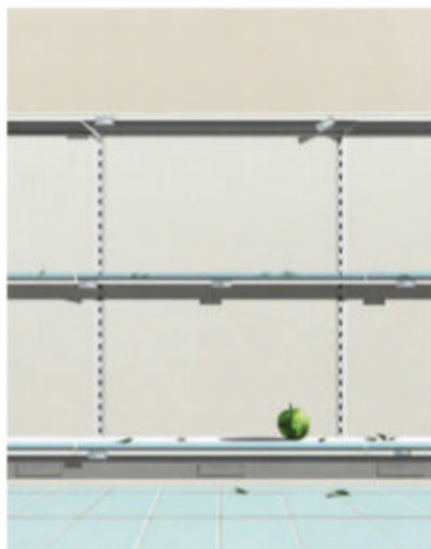
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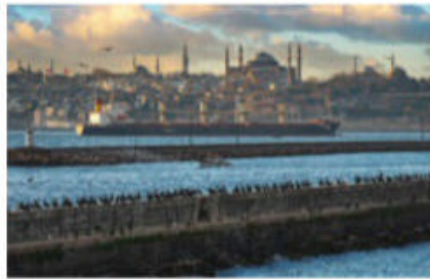
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A congressional stalemate over whether to raise **America's debt ceiling** showed signs of easing. Mitch McConnell, the top Republican in the Senate, said he would support raising the limit until December, avoiding a sovereign default as early as October 18th. As a condition, he wants Democrats to raise the borrowing cap by a fixed amount, rather than suspend it altogether until some future time. December may bring another round of brinkmanship.

A federal judge blocked an **abortion law** passed in Texas that allows anyone in America to sue anyone who helps someone in the state abort a fetus older than six weeks. Robert Pitman, whom Barack Obama nominated to the bench in 2014, forbade state courts from accepting suits under the law. Texas filed an appeal. The conservative-majority Supreme Court last month declined to prevent Texas from enacting the law.

UN investigators accused **Russian mercenaries** working for Wagner, a security firm, of killing and torturing migrants in Libya. Separately America warned Mali against signing a deal with Wagner, reportedly worth almost \$11m a month, for it to supply 1,000 mercenaries to train Mali's army and protect officials.

Somalia's long-delayed elections, which had already been rescheduled for October 10th, were postponed again. Tensions have increased between government ministers and the president, Mohamed Abdullahi Mohamed, who is accused of stalling the vote to stay in power.

Ethiopia ordered the expulsion of seven senior UN officials involved in humanitarian relief in the northern region of Tigray after accusing them of "meddling" in its internal affairs. The UN's humanitarian agencies estimate that 400,000 people in Tigray are on the brink of starvation.

The World Health Organisation endorsed use of the first **malaria vaccine** for children at risk of infection. It said that the jab, called RTS,S and made by GlaxoSmithKline, was safe and reduced by 30% cases of severe malaria in young children. Infants in much of sub-Saharan Africa contract malaria several times a year. A child under five dies of it every two minutes.

Following **Germany's** election on September 26th, three-way "traffic light" coalition talks were set to begin between the Social Democrats, the liberal Free Democrats and the Greens. If they succeed then Olaf Scholz, currently the finance minister, will take over from Angela Merkel as chancellor. The negotiations are expected to take weeks.

A two-year independent report commissioned by the French **Catholic church** concluded that between 1950 and 2020 at least 216,000 children were sexually abused by Catholic clergy in the country. If crimes by laypeople with roles in church activities are included, it found, there may have been as many as 330,000 victims.

Boris Johnson, **Britain's** prime minister, closed the Conservative Party conference with a speech focused on "levelling up". His signature policy aims to close gaps between the rich parts of Britain, mainly London and the south-east, and the rest of it, in particular northern constituencies that switched to the Tories in the most recent general election. Mr Johnson promised to change Britain's economic model to one where immigration is low and wages, skills and productivity are high.

The commissioner of London's **Metropolitan Police** announced a review of its standards and culture. The force's handling of crimes against women has come under scrutiny after an officer was sentenced to life for abducting, raping and killing a woman in March. The murder of Sarah Everard also prompted calls for stronger laws to help protect women from violent men.

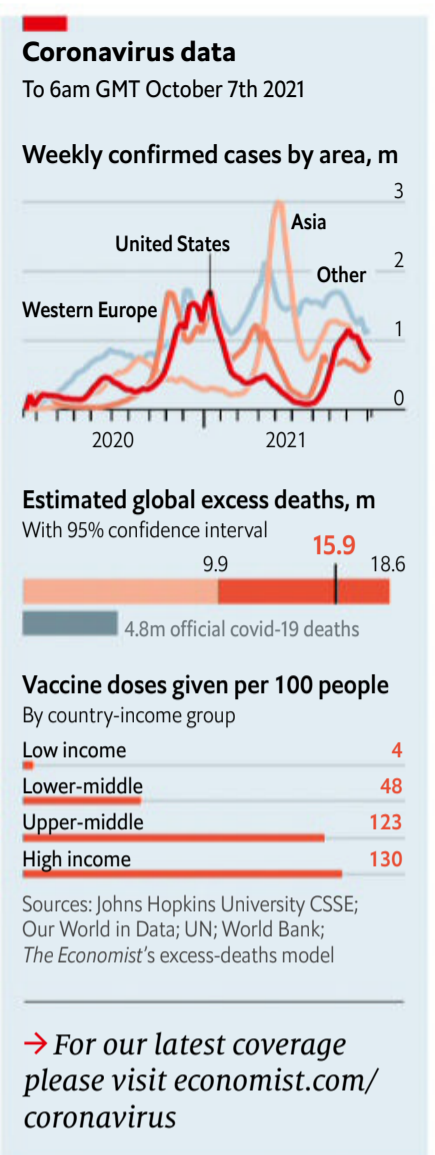
Thrilla in Manila

Rodrigo Duterte, the **Philippines'** president, said that he would retire from politics. Mr Duterte, who is forbidden from running for a second term by the constitution, had declared his candidacy for vice-president in elections in May. His retirement paves the way for his daughter, Sara, to contest the top post, although she has not yet registered to do so. Ferdinand "Bong Bong" Marcos Jr, the son of a former dictator; Manny Pacquiao, a world-champion boxer; and Isko Moreno, Manila's mayor, have said they are running.

China said it was investigating a former minister of justice, Fu Zhenghua, for "serious violations of the law and of party discipline". Mr Fu had also served as a deputy minister of public security.

Taiwan's defence minister, Chiu Kuo-cheng, said tensions with China were at their highest in 40 years. He was referring to a series of sorties involving almost 150 Chinese military aircraft near Taiwan in recent days.

A mega-leak of documents to the International Consortium of Investigative Journalists revealed the financial affairs of dozens of world leaders, public officials and billionaires. Among those facing awkward questions in the wake of the **Pandora Papers** are Andrej Babis, the Czech prime minister, and Wopke Hoekstra, the Netherlands' finance minister, both alleged to have used shell companies in tax havens for their investments. Jordan's



King Abdullah II and Uhuru Kenyatta, Kenya's president, were also linked to offshore companies.

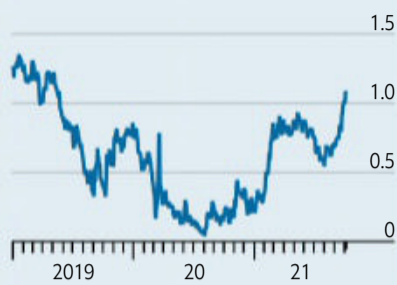
Andrés Manuel López Obrador, the president of **Mexico**, unveiled plans to change the constitution to take more control of the energy industry. Two regulators will be abolished and a big share of the power market will be reserved for the state electricity company. The state also proposes to nationalise the production of lithium, a mineral used in batteries.

Home runners

At least nine members of the **Cuban** team at the under-23s baseball World Cup in Mexico defected during the tournament. In 2018 a deal to allow Cubans to join teams in North America's Major League Baseball was cancelled by Donald Trump, in an attempt to put pressure on the communist regime. Cuban officials described the defections as "vile abandonments".

Britain

Ten-year government-bond yield, %



Source: Refinitiv Datastream

It was another roller-coaster week for **energy prices**. After OPEC and its allies resisted calls to increase output, the price of **Brent crude** surpassed \$80 per barrel and reached its highest level in three years. The cartel said it would stick to the gradual increases in output it agreed to over the summer. The energy shortage rattled other financial markets too, as investors worried about the fallout. In America and Europe government bond yields climbed. In Britain the yield on ten-year gilts jumped to its highest since May 2019.

In Europe the price of **natural gas** front-month futures jumped by more than 60% in two days. But prices soon reversed when Vladimir Putin, the Russian president, hinted that his country could supply additional gas to Europe.

In Asia the **coal shortage** dragged on. Power cuts have been reported across China. Authorities there have told miners to increase production. India is braced for power shortages. Half of its coal-fired power plants are on alert for blackouts.

In the euro area rising energy prices contributed to high **inflation**. In September the euro area's inflation rate rose to 3.4%, the highest level in 13 years. In Germany consumer prices rose by 4.1% in the same month, a 29-year high.

America's trade deficit in goods and services grew to a record \$73bn in August, up 4.3% from the previous month. Imports rose by \$4bn from July, because of an increase in consumer demand. But trade in vehicles and car

parts fell, as a result of the semiconductor shortage.

Leaks and outages

Facebook users experienced a long outage this week. The social-media platform and its subsidiaries, WhatsApp and Instagram, were down for several hours. The firm's share price fell by 4.9% on Monday. It blamed an internal malfunction and said there was no evidence that users' data had been compromised.

Meanwhile, **Frances Haugen**, a former Facebook employee who is now a whistleblower, testified before a Senate subcommittee. She claimed that Facebook's products "harm children, stoke division [and] weaken...democracy", and that documents she leaked to the *Wall Street Journal* showed the company is aware of this. In a statement Mark Zuckerberg, Facebook's boss, said that the firm's work and motives have been mischaracterised.

Tesco, Britain's biggest food retailer, announced a share buyback worth £500m (\$678m). Operating profits in the first half of the year reached £1.3bn, a 29% increase on a year earlier. Last year the covid-19 pandemic hurt the

supermarket's wholesale arm, which sells to restaurants and pubs, and added to costs, such as extra cleaning in its stores.

The Hong Kong stock exchange suspended trading in shares of **Evergrande**, an indebted Chinese property developer, and **Hopson Development**, a rival. Chinese state-backed media suggested that Hopson is considering taking a majority stake in Evergrande's property-services unit. Trading of the subsidiary's shares was also suspended.

Volvo, a Swedish carmaker owned by Geely, a Chinese auto firm, said it will raise \$2.9bn through an initial public offering on the Stockholm stock exchange. The listing will value the firm at around \$30bn. Volvo was sold by Ford, a carmaker, to Geely in 2010. Since then it has raced ahead in electrification.

The European Medicines Agency, a regulator, endorsed **covid-19 booster shots**. It said that in most cases the Pfizer-BioNTech vaccine could be given as a booster to those aged 18 and over, at least six months after their second dose. In America **Johnson & Johnson**, a pharmaceutical firm, asked the Food and Drug

Administration, another regulator, to authorise its booster.

Foxconn, the Taiwanese firm that assembles iPhones, bought an electric-vehicle manufacturing plant from Lordstown Motors, an Ohio-based carmaker. It is Foxconn's first such plant in America and it comes as part of a deal that includes a minority stake in Lordstown.

Syniverse, a firm that processes hundreds of billions of SMS text messages every year for firms including Verizon, Vodafone and China Mobile, revealed to American regulators that hackers had access to its systems for five years, beginning in 2016. It was not clear whether the text messages themselves had been compromised by the hack.

Cleaning the cesspool

Later in the week **Twitch**, an online video platform owned by Amazon, was hit by an attack that leaked a full copy of the site's source code as well as payment records for its broadcasters. The hacker claimed that the aim of this act was to inject more competition into the online streaming industry, which he described as a "disgusting toxic cesspool".



The shortage economy

A new era of scarcity threatens global prosperity

FOR A DECADE after the financial crisis the world economy's problem was a lack of spending. Worried households paid down their debts, governments imposed austerity and wary firms held back investment, especially in physical capacity, while hiring from a seemingly infinite pool of workers. Now spending has come roaring back, as governments have stimulated the economy and consumers let rip. The surge in demand is so powerful that supply is struggling to keep up. Lorry drivers are getting signing bonuses, an armada of container ships is anchored off California waiting for ports to clear and energy prices are spiralling upwards. As rising inflation spooks investors, the gluts of the 2010s have given way to a shortage economy.

The immediate cause is covid-19. Some \$10.4trn of global stimulus has unleashed a furious but lopsided rebound in which consumers are spending more on goods than normal, stretching global supply chains that have been starved of investment. Demand for electronic goods has boomed during the pandemic but a shortage of the microchips inside them has struck industrial production in some exporting economies, such as Taiwan. The spread of the Delta variant has shut down clothing factories in parts of Asia. In the rich world migration is down, stimulus has filled bank accounts and not enough workers fancy shifting from out-of-favour jobs like selling sandwiches in cities to in-demand ones such as warehousing. From Brooklyn to Brisbane, employers are in a mad scramble for extra hands.

Yet the shortage economy is also the product of two deeper forces. First, decarbonisation. The switch from coal to renewable energy has left Europe, and especially Britain, vulnerable to a natural-gas supply panic that at one point this week had sent spot prices up by over 60%. A rising carbon price in the European Union's emissions-trading scheme has made it hard to switch to other dirty forms of energy. Swathes of China have faced power cuts as some of its provinces scramble to meet strict environmental targets. High prices for shipping and tech components are now triggering increased capital expenditure to expand capacity. But when the world is trying to wean itself off dirty forms of energy, the incentive to make long-lived investments in the fossil-fuel industry is weak.

The second force is protectionism. As our special report explains, trade policy is no longer written with economic efficiency in mind, but in the pursuit of an array of goals, from imposing labour and environmental standards abroad to punishing geopolitical opponents.

This week Joe Biden's administration confirmed that it would keep Donald Trump's tariffs on China, which average 19%, promising only that firms could apply for exemptions (good luck battling the federal bureaucracy). Around the world, economic nationalism is contributing to the shortage economy. Britain's lack of lorry drivers has been exacerbated by Brexit. India has a coal shortage in part because of a misguided attempt to cut imports of fuel. After years of trade tensions, the flow of cross-border investment by companies has fallen by more than half relative to world GDP since 2015.

All this might seem eerily reminiscent of the 1970s, when many places faced petrol-pump queues, double-digit price rises and sluggish growth. But the comparison gets you only so far (see Finance section). Half a century ago politicians got economic policy badly wrong, fighting inflation with futile measures like price controls and Gerald Ford's "whip inflation now" campaign, which urged people to grow their own vegetables. Today the Federal Reserve is debating how to forecast inflation (see Free exchange), but there is a consensus that central banks have the power and the duty to keep it in check.

For now, out-of-control inflation seems unlikely. Energy prices should ease after the winter. In the next year the spread of vaccines and new treatments for covid-19 should reduce disruptions. Consumers may spend more on services. Fiscal stimulus will wind down in 2022: Mr Biden is struggling to get his jumbo spending bills through Congress and Britain plans to raise taxes (see Britain section). The risk of a housing bust in China means that demand could even fall, restoring the sluggish conditions of the 2010s. And an investment boost in some industries will eventually translate into more capacity and higher productivity.

But make no mistake, the deeper forces behind the shortage economy are not going away and politicians could easily end up with dangerously wrong-headed policies. One day, technologies

such as hydrogen should help make green power more reliable (see Leader). But that will not plug shortages right now. As fuel and electricity costs rise, there could be a backlash. If governments do not ensure that there are adequate green alternatives to fossil fuels, they may have to meet shortages by relaxing emissions targets and lurching back to dirtier sources of energy. Governments will therefore have to plan carefully

to cope with the higher energy costs and slower growth that will result from eliminating emissions. Pretending that decarbonisation will result in a miraculous economic boom is bound to lead to disappointment.

The shortage economy could also reinforce the appeal of protectionism and state intervention. Many voters blame empty shelves and energy crises on the government. Politicians can escape responsibility by excoriating fickle foreigners and fragile supply chains, and by talking up the false promise of boosting self-reliance. Britain has already bailed out a fertiliser plant to maintain the supply of carbon dioxide, an input for the food industry. The government is trying to claim that labour shortages are good, because they will raise economy-wide wages and productivity. In reality, putting up barriers to migration and trade will, on average, cause both to fall.

The wrong lessons at the wrong time

Disruptions often lead people to question economic orthodoxies. The trauma of the 1970s led to a welcome rejection of big government and crude Keynesianism. The risk now is that strains in the economy lead to a repudiation of decarbonisation and globalisation, with devastating long-term consequences. That is the real threat posed by the shortage economy. ■



Social media

Facepalm

Even when it has a point, Facebook is reviled. The problem starts at the top

DISASTER STRUCK the world's biggest social network on October 4th when Facebook and its sister apps were knocked offline for six hours. It was one of the less embarrassing moments of the company's week. The next day a whistleblower, Frances Haugen, told Congress of all manner of wickedness at the firm, from promoting eating disorders to endangering democracy (see United States section). Some wondered whether the world would be a better place if the outage were permanent.

A share of the opprobrium heaped on Facebook is incoherent. Politicians are angry but so far seem incapable of co-ordinating reform to rein it in. And investors have kept buying the stock, regardless of the bad headlines. Yet the company should take no comfort from this. The blind fury unleashed shows that its reputational problems have got out of hand.

Some of this week's criticism was tendentious. Reports highlighted internal research showing that Instagram, Facebook's photo-sharing app, makes one in five American teenagers feel worse about themselves. They paid less attention to the finding that Instagram makes twice as many feel better about themselves. Facebook's critics are right that it should be more open. But the firm has half a point when it says that the hysterical reaction to unsurprising findings will lead companies to conclude that it is safer not to do such research at all.

Other complaints are really criticisms of the broader internet. The question of how to regulate viral content for children goes beyond Facebook, as any parent who has left their child with YouTube knows. Likewise, dilemmas over how the firm amplifies attention and how to draw the line between upholding free speech and minimising harm. Facebook repeated its plea that Congress should weigh in on matters such as minimum ages, rather than leaving it to firms. It has made a better stab than most at settling free-speech questions with its "oversight board", a pompous-sounding but quietly useful body which dispenses

rulings on matters from misogyny to misinformation.

The most damaging claim this week gained the least attention. Ms Haugen alleges that Facebook has concealed a decline in its young American users. She revealed internal projections that a drop in teenagers' engagement could lead to an overall decline in American users of 45% within the next two years. Investors have long faced a lack of open disclosure. Misleading advertisers would undermine the source of nearly all the firm's sales, and potentially break the law. (The firm denies it.)

Does any of this matter? Although Facebook's share price has lagged behind some tech giants, it has risen by almost 30% in the past 12 months. Politicians threaten to break the company up, but the antitrust case is flawed. The Justice Department's claim that Facebook is a monopoly rests on defining its market so as to exclude most social networks. The nonsense of this was demonstrated by the outage, when users flocked to apps like Telegram, TikTok and Twitter. The action is more an expression of frustration than a powerful argument about competition law.

But fury may matter. Facebook is nearing a reputational point of no return. Even when it set out plausible responses to Ms Haugen, people no longer wanted to hear. The firm risks joining the ranks of corporate untouchables like big tobacco. If that idea takes hold, Facebook risks losing its young, liberal staff. Even if its ageing customers stick with the social network, Facebook has bigger ambitions that could be foiled if public opinion continues to curdle. Who wants a metaverse created by Facebook? Perhaps as many people as would like their health care provided by Philip Morris.

If rational argument alone is no longer enough to get Facebook out of its hole, the company should look hard at its public face. Mark Zuckerberg, Facebook's all-powerful founder, made a reasoned statement after this week's wave of anger. He was ignored or ridiculed and increasingly looks like a liability. ■



Climate change and innovation

H₂'s hope and hype

Hydrogen's moment has come at last

HYDROGEN HAS BEEN controversial ever since the tragedy of the *Hindenburg*, an airship filled with it that went down in flames in 1937. Boosters say that the gas is a low-carbon miracle which can power cars and homes. The hydrogen economy, they hope, will redraw the energy map. Sceptics note that several hydrogen investment drives since the 1970s have ended in tears as the gas's shortcomings were exposed. As we explain (see Briefing), the reality lies in between. Hydrogen technologies could eliminate perhaps a tenth of today's greenhouse-gas emissions by 2050. That is a sliver—but, considering the scale of the energy transition, a crucial and lucrative one.

Hydrogen is not a primary source of energy like oil or coal. It is best thought of as an energy carrier, akin to electricity, and as a means of storage, like a battery. It has to be manufactured. Low-carbon energy sources such as renewables and nuclear power can be used to separate water (H₂O) into its constituents of oxygen and hydrogen. This is inefficient and expensive, but costs are falling. Hydrogen can also be made from dirty fossil fuels but this emits a lot of pollution unless it is coupled with technologies that capture carbon and sequester it. Hydrogen is flammable and bulky compared with many fuels. The implacable laws of thermodynamics mean that converting primary energy into ▶▶

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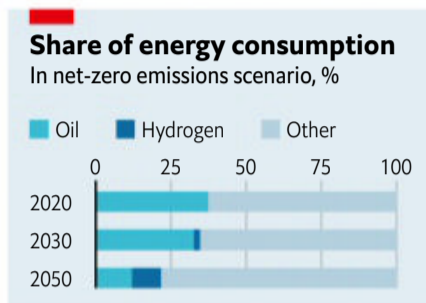
hydrogen and then hydrogen into usable power leads to waste.

All this explains the gas's tricky history. The oil shocks of the 1970s led to research into hydrogen technologies but they never went far. In the 1980s the Soviet Union even flew a hydrogen-powered passenger jet—the maiden flight lasted just 21 minutes.

Today climate change is causing another wave of enthusiasm. More than 350 big projects are under way and cumulative investment could reach \$500bn by 2030. Morgan Stanley, a bank, reckons that annual sales of hydrogen could be worth \$600bn by 2050. That is up from \$150bn of sales today, which come mainly from industrial processes, including making fertilisers. India will soon stage auctions for hydrogen and Chile is holding tenders for its production on public lands. Over a dozen countries including Britain, France, Germany, Japan and South Korea have national hydrogen plans.

Amid the excitement, it is worth being clear about what hydrogen can and cannot do. Japanese and South Korean firms are keen to sell cars using hydrogen fuel cells, but battery cars are roughly twice as energy efficient. Some European countries hope to pipe hydrogen into homes, but heat pumps are more effective and some pipes cannot handle the gas safely. Some big energy firms and petrostates want to use natural gas to make hydrogen without capturing the associated carbon effectively, but that does not eliminate emissions.

Instead, hydrogen can help in niche markets, involving complex chemical processes and high temperatures that are hard to achieve with electricity. Steel firms, spewing roughly 8% of global emissions, rely on coking coal and blast furnaces that wind power cannot replace but which hydrogen can, using a process known as direct reduction. Hybrit, a Swedish consortium, sold the world's first green steel made this way in August.



Another niche is commercial transport, particularly for journeys beyond the scope of batteries. Hydrogen lorries can beat battery-powered rivals with faster refuelling, more room for cargo and a longer range. Cummins, an American company, is betting on them. Fuels derived from hydrogen may also be useful in aviation and shipping. Alstom, a French firm, is running hydrogen-powered locomotives on European tracks.

Last, hydrogen can be used as a material to store and transport energy in bulk. Renewable grids struggle when the wind dies or it is dark. Batteries can help, but if renewable power is converted to hydrogen, it can be stored cheaply for long periods and converted to electricity on demand. A power plant in Utah plans to store the gas in caverns to supply California. Sunny and windy places that lack transmission links can export clean energy as hydrogen. Australia, Chile and Morocco hope to “ship sunshine” to the world.

With so much money piling into hydrogen the list of uses for it may expand. Much of the work is up to the private sector but governments can do their bit. One task is to crack down on greenwashing: hydrogen made from dirty fuels without high-quality carbon capture will not help the climate. New rules are needed to measure and disclose the life-cycle emissions arising from producing hydrogen and, given that it will be traded across borders, these need international agreement.

Rainmakers move in

Government should also encourage hubs where different hydrogen users cluster, minimising the need to duplicate infrastructure. These are already emerging in Humberside in Britain and Rotterdam in the Netherlands. Hydrogen has its limitations, but it can play a vital role in bringing about cleaner energy. ■

Pakistan

An all-weather frenemy

For the West to talk to Pakistan is not easy or pleasant, but it is necessary

WHEN THE last American troops departed from Kabul on August 30th, it meant not only the end of a 20-year campaign in Afghanistan but also the end of Western reliance on neighbouring Pakistan. In that time the country had been an infuriating partner that had helped NATO forces with logistics and intelligence even as it provided a haven to the Taliban's leaders. Now, perhaps America could wash its hands and walk away.

America and its allies have plenty of reasons to feel aggrieved. Pakistan is perpetually sparring with its neighbour, India—which is steadily becoming a vital regional partner for the West. It has close diplomatic and commercial ties with China, to which it provides access to the Indian Ocean, via the Karakoram highway and the port of Gwadar. It is home to lots of Muslim extremists. With a GDP per head that is just two-thirds of India's and which has in recent years been falling, Pakistan might seem a sensible country to shun.

If only. Although Pakistan is no longer so central to America's plans, it is still a pivotal—and worrying—place. It has a rapidly expanding arsenal of nuclear weapons. Those Muslim extremists have been involved in terror attacks all over the world. The

country's capacity to complicate relations between China and India means that it is too important to ignore.

However, the West needs to be realistic about what sort of cooperation is and is not possible. Realism starts by acknowledging that Pakistan will never do many of the things its Western friends would like. Exhortations to the army to stop stage-managing politics will fall on deaf ears, even though Pakistan would be better off if it did. Trying to induce Pakistan to split with China is also hopeless. The generals are too keen to have an ally against India, too eager for Chinese investment and too conscious of the West's misgivings to put all their eggs in one basket. Doing anything that smacks of siding with America against fellow Muslims is also a hard sell. Pakistan's rulers see themselves as natural leaders of the Islamic world and are reluctant to rile their most doctrinaire citizens.

Nevertheless, for all its problems, Pakistan is in a position to offer something to the West. Its politics have become calmer since the army stopped trying to run the country directly and instead entrusted the task to a pliable politician, Imran Khan (see Asia section). The Islamist terrorists who made the place look

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▶ like an incipient Afghanistan a few years ago have been largely suppressed. What is more, although Pakistan is chummy with China, it also craves Western attention. The elite speak English, send their children to American and European universities and holiday in London and Paris.

And Pakistan has something to gain. Even more than America, it benefits from tempering the zealotry of the Taliban, keeping Afghanistan stable and preventing the spread of extremism. The Pakistani version of the Taliban has killed far more Pakistanis than the Afghan Taliban killed Americans. Pakistan's rulers would also like more economic assistance, ideally on more concessionary terms than the millstone loans that have accompanied some Chinese investments. No doubt they will give in to the temptation to play China and the West off against one another. But that is better than becoming a Chinese client state.

The ultimate prize would be some sort of detente between Pakistan and India. That will not come easily, or quickly. Politicians and soldiers in both countries find railing against the oth-

er lot too useful to abandon lightly. But Pakistanis know they cannot compete with India in the long run. And after border scuffles in the Himalayas, Indians are coming to see that deterring China is much more important than bickering with Pakistan. There is surely scope to make the region safer, and to build a stronger network of alliances, if the West is willing to remain sufficiently engaged and to plan for the long term.

Dial D for diplomacy

Although its Taliban allies won in Afghanistan, Pakistan is in a difficult position in a dangerous neighbourhood. The generals know that the West blows hot and cold, but their narrow self-interest leaves scope for co-operation. Some glad-handing would be a good start. Joe Biden, America's president, has held two summits with Narendra Modi, India's prime minister—one in person and one by video link. He has not yet deigned to give Mr Khan a call, much less invite him to the White House. Now that America has left Afghanistan, a bit of courtesy makes sense. ■

Ethiopia's war in Tigray

No favours for killers

Ethiopia is deliberately starving its own citizens. It must be stopped

IT IS ALMOST a year since Abiy Ahmed, the prime minister of Ethiopia, launched a "law enforcement" operation against the government of the northern region of Tigray, which he accused of rebellion. Since the beginning, the ensuing conflict has been marked by war crimes. Late last year in the city of Axum, for instance, Eritrean troops fighting alongside Ethiopian forces murdered hundreds of civilians, mostly men and boys. Some were lined up and shot in the back. Others were gunned down as they came out of church or murdered while lying in bed in hospital. And the Tigrayans have been accused, among other atrocities, of raping and killing Eritrean refugees in UN camps.

Horrifying as these crimes are, they are now being eclipsed by an even more heinous one: a deliberate attempt by the Ethiopian government to starve its own citizens. Since the fighting broke out Tigray has suffered an increasingly restrictive blockade by government forces. Since July it has received only a fraction of the food needed to keep its 6m inhabitants alive, hardly any fuel and no medical supplies at all. More than 5m people do not have enough to eat. Some 400,000 of those are facing what aid agencies call "catastrophic" hunger—the last step on the path to mass starvation. Aid workers compare the crisis to Ethiopia's famine of the 1980s, when 400,000-700,000 died.

Ethiopia's government insists it is doing all it can to help the hungry in Tigray and, in particular, that it is letting aid pass through its blockade. Data from the UN tell a different story.

Aid agencies reckon that 100 trucks of food and medicine must enter the state each day to avert famine. Only about a tenth of that is being let through by the government and its allies. Instead of asking international agencies for help to feed its citizens, the government is impeding their efforts. It has suspended the work of two of them, Médecins Sans Frontières and the Norwegian Refugee Council, and has also expelled seven senior UN

officials, accusing them of "meddling" in its internal affairs.

America and the European Union have taken a few steps to press Ethiopia and the Tigrayans to stop the war and end abuses, including halting the sale of weapons and withholding some bilateral aid. America has also threatened to impose financial sanctions on people implicated in war crimes or in fanning the conflict's flames.

But the impact has been negligible. To replace arms previously supplied by France, Germany and Israel, Ethiopia has turned to Turkey and Iran, among others. To make up for the reduction in aid, it has asked the IMF for a bail-out and its creditors for forgiveness of some of its \$30bn in external debt.

It would take an arms embargo by the UN to stop the government getting hold of deadly weapons. Yet China and Russia are preventing the UN Security Council, which on October 6th discussed the conflict in Tigray for the tenth time, from even condemning the expulsion of UN officials, much less imposing strict sanctions.

Fortunately, Western countries still have considerable leverage. The emergency loan that Ethiopia wants from the IMF and the forbearance it is seeking from creditors depend on the acquiescence of America and Europe. They should not yield until the blockade ends. Trade is another point of pressure. Ethiopia exports about \$250m a year to America under the African Growth and Opportunity Act, a duty-free scheme. Each country eligible to take part is reviewed by the American authorities every year. They should remove Ethiopia from the list unless Tigray is fed.

These steps may not work. Abiy, who won the Nobel peace prize in 2019 for ending a long conflict with Eritrea, seems increasingly paranoid and erratic (see Middle East & Africa section). But to do anything less would be to stand by as mass murder is taking place. To avert a calamity, Western governments must pull every lever they have. ■





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Angela Merkel's legacy

I found myself nodding along to your assessment of the many problems facing Angela Merkel's successor as chancellor of Germany ("The mess Merkel leaves behind", September 25th). That said, I am rather bemused by the fact that it took you four legislative periods to acknowledge that many, if not most, of these problems were created by Mrs Merkel. The undoubted achievement of clinging to power for 16 years cannot mask the fact that successive governments under her leadership have failed to deal with every major challenge facing Germany in the coming decades.

Mrs Merkel rode on the success of unpopular economic reforms implemented by her predecessor, but Germany's economic competitiveness has seen a steady decline. Companies and individuals pay some of the highest tax rates in the OECD. Investment is sorely lacking in technology and the green economy and stifled by red tape. The ideologically driven implementation of a ruinous centrally planned energy policy has pushed up electricity prices to the highest levels in the European Union, yet Germany's carbon-dioxide emissions per person remain high. The sustainability of the welfare state has become ever more doubtful as the reality of demographic change has been wilfully ignored.

Furthermore, her stifling of traditional conservative voices in a nominally still-conservative party has allowed the AfD, an anti-democratic and populist-right party, to emerge to the right of the Christian Democrats, threatening the stability of German society.

Although Mrs Merkel deserves credit for her ability to manage the many crises that have emerged during her tenure, I must say that I, and many other Germans, would have rather preferred a succession of shorter-lived, yet more forward-looking heads of government.

MARK BAUER
Adelschlag, Germany

What is Arabic?

I was surprised to read that the closest dialect to Modern Standard Arabic "is spoken by Palestinians" ("No book at bedtime", September 18th). It is something of a trope in Arabic linguistics that every Arab thinks their dialect is the closest to MSA. And, in a way, they are all right. Tunisians can point to the fact that they preserve almost all the standard Arabic consonants, though their love of consonant clusters makes their speech sound very different. Some desert Bedouins can boast that they maintain grammatical distinctions that disappeared from other spoken varieties long ago. Egyptians note that the non-standard G for J in their dialect is actually the most ancient form. From a linguistic perspective, there is no established method for determining the "closeness" of language varieties. People do try, but the answer you get depends very much on which features you compare, and how you weigh them.

You were right on another matter, though: even the "closest" dialect is still quite far from standard Arabic. MSA is based on classical Arabic, which ceased to be a spoken language at least 1,000 years ago, and all the vernaculars are closer to each other by any measure than they are to MSA. As you observe, this may play a role in the fact that Arabs do not read much for fun. You might also consider that some of the bestselling novels in the Arab world in recent years have been heretical ones that were written in the vernacular.

KAREN MCNEIL
Washington, DC

Your critique of the teaching of the Arabic language in Arab countries noted that "regimes are nervous of the free expression a more liberal approach may inspire" and that their censors "are banning books as keenly as ever". The fate of our recently published "The Political Economy of Education in the Arab World" reaffirms your point. This edited collection

identifies governmental repression as the primary obstacle to improving education in Arab countries and suggests various liberalising reforms. We had it translated into Arabic in the hopes of reaching a wider Arab audience. Alas, fearful of retribution by Arab regimes, potential publishers demanded we tone down the criticism. We refused and they declined to publish it, thereby inadvertently making our case.

HICHAM ALAOUI

Rabat

ROBERT SPRINGBORG

Vancouver

Defy DeFi

I read your briefing on decentralised finance, so please let me know if I got it straight ("Adventures in DeFi-land", September 18th). It seems that punters are supposed to buy tokens (streams of digits) of no inherent worth and which may change in value by a factor of ten or more in either direction for no obvious reason. Some tokens take vast amounts of energy to generate, and tokens are stored in ethereal "wallets" which live on Cloud Nine, from where they can be (and have been) stolen at the click of a hacker's mouse.

The market in tokens is not regulated and no substantial organisation stands behind them. However, cryptocurrency tokens are greatly valued by gamblers and by criminals as they enable the anonymous transfer of ransom money from schools, hospitals and businesses after their data have been encrypted or stolen. You also mentioned possibly cheaper payment mechanisms, but I prefer to stick with my expensive Swiss bank.

DAVID MYERS
Commugny, Switzerland

Cracking properly encrypted data with today's supercomputers that would now take millions of years could well be possible in next to no time with a quantum computer. I am greatly attracted by the efficiencies promised by DeFi, but am fearful that the whole edifice could be dreadfully

exposed as and when quantum computing becomes a reality. Is anyone addressing this threat before it's too late?

BRUCE MANFORD

London

Political satire

Canada has just had "A pointless election" (September 25th), which makes me pine for the old Rhinoceros Party. It consistently offered tantalising election promises that spiced up the discourse. These included: providing higher education by building taller schools; instituting English, French and illiteracy as Canada's three official languages; ending crime by abolishing all laws; and adopting the British system of driving on the left, but phasing it in gradually with only buses driving on the left to begin with. In the 1970s the Rhinos offered a package of corruption and incompetence, and claimed that the then ruling Liberal Party stole their party platform. *Plus ça change, plus c'est la même chose.*

PAUL GREENBERG
Brookline, Massachusetts

The voice of reason

Religious opposition to vaccinations ("Bodies and temples", September 18th) reminds me of a joke our minister told as part of a sermon. There was extreme flooding and the authorities decided to evacuate the area. Despite numerous measures, including finally a helicopter, one man refused all offers of help, saying God would rescue him. Finally he died and at the pearly gates said he was sure that God would have helped him. A voice said, "I sent you someone to tell you to evacuate, a boat and a helicopter. What more did you want?"

MORRIS SHAPIRO
East Kilbride, South Lanarkshire

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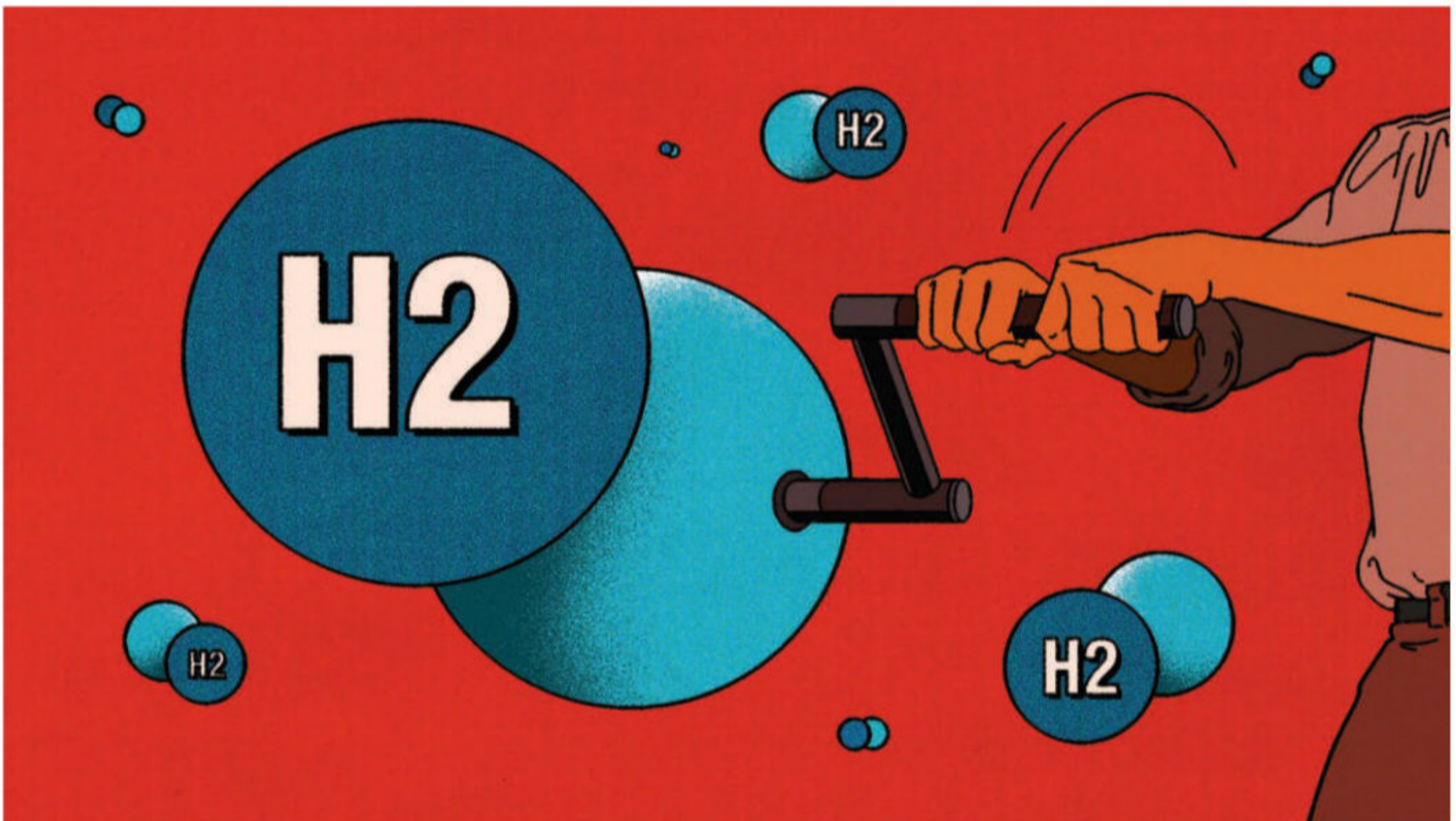
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A very big balancing act

NEW YORK

Creating the new hydrogen economy is both a massive undertaking and a delicate one

TODAY'S HYDROGEN business is, in global terms, reasonably small, very dirty and completely vital. Some 90m tonnes of the stuff are produced each year, providing revenues of over \$150bn—approaching those of ExxonMobil, an oil and gas company. This is done almost entirely by burning fossil fuels with air and steam—a process which uses up 6% of the world's natural gas and 2% of its coal and emits more than 800m tonnes of carbon dioxide, putting the industry's emissions on the same level as those of Germany.

The vital nature of this comes from one of the subsequent uses of the gas. As well as being used to process oil in refineries and to produce methanol for use in plastics, hydrogen is also, crucially, used for the production of almost all the world's industrial ammonia. Ammonia is the main ingredient in the artificial fertilisers which account for a significant part of the world's crop yields. Without it, agricultural productivity would plummet and hundreds of millions would face starvation.

Tomorrow's hydrogen business, according to green-policy planners around

the world, will be vital in a different way: as a means of decarbonising the parts of the economy that other industrial transformations cannot reach, and thus allowing countries to achieve their stated goal of stabilising the climate. But for that vital goal to be met everything else about the industry has to change. It can no longer stay small. Morgan Stanley, an investment bank, reckons that, if governments take their green commitments seriously, today's market could increase more than five-fold to over 500m tonnes by 2050 as these new applications grow (see chart 1 on next page). And it has to become clean, cutting its carbon-dioxide emissions to zero.

Clean hydrogen is quite plausible. The current method of making it from fossil fuels could be combined with technology which separates out the carbon dioxide given off and stores it away underground, an option known as carbon capture and storage (ccs). Alternatively, fossil fuels could be taken out of the process altogether. Electricity generated from renewables or some other clean source could be used to tear water molecules apart, thus liberat-

ing their constituent hydrogen and oxygen, a process called electrolysis.

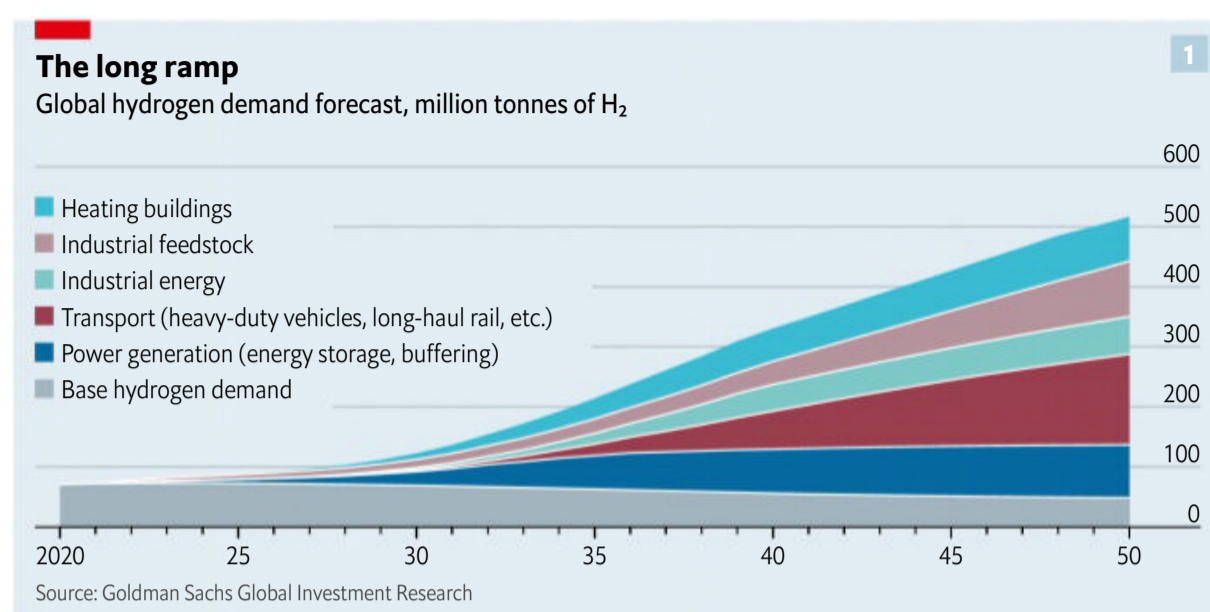
One way to make these technologies cheap quickly would be with a carbon price high enough to make the current industry adopt them. That looks highly unlikely. In its absence governments are trying to spur demand for clean-hydrogen capacity through industrial policy and subsidy, rather as they spurred the growth of renewables. As the European Union's hydrogen strategy puts it, "From 2030 onwards and towards 2050, renewable hydrogen technologies should reach maturity and be deployed at large scale to reach all hard-to-decarbonise sectors." Forcing the industry to the level of maturity which will allow that deployment is set to soak up \$100bn-150bn in public money around the world in the decade to 2030. Some \$1bn of that will be spent this year, according to BloombergNEF, a data company.

The problem with all this is that hydrogen is not like renewable electricity, the green transformation it seeks to build on. Green electricity helps the climate simply by replacing dirty electricity. For the most part hydrogen helps the climate only when used for new purposes and in new kit. For companies to build or purchase that kit, they need to be sure there will be plentiful and affordable clean hydrogen. For companies to produce clean hydrogen in bulk, they need to know that there will be users to sell it to. That is the rationale for public money being pumped in to prime both supply and demand. ▶▶

▶ The Hydrogen Council, an industry consortium, reckons some 350 big projects are under way globally to develop clean-hydrogen production, hydrogen-distribution facilities and industrial plants which will use hydrogen for processes which now use fossil fuels (see map). They will have electricity demands in the tens and hundreds of gigawatts, on a par with those of large countries, and are slated to receive \$500bn of public and private investment between now and 2030. That expenditure could end up embarrassing governments and enraging shareholders if today's high expectations do not pan out.

Hydrogen had its enthusiasts long before climate change became an issue. Its appeal was threefold. It is very energy-dense: burning a kilogram of it provides 2.6 times more energy than burning a kilogram of natural gas. When burned in air it produces none of the sulphates or carbon monoxide through which fossil fuels damage air quality both outdoors and in, though it does produce some oxides of nitrogen; when used in a fuel cell, a device that uses the reaction between hydrogen and oxygen to produce electricity without combustion, it produces nothing but water. And because it can be made by electrolysis, or from coal, it was held to free its consumers from the tyranny of oil producers—an advantage which, after the oil shocks of the 1970s, accounted for the first serious spurt of interest in hydrogen on the part of governments, as opposed to maverick visionaries.

The fact that the enthusiasm dates back so far, though, has become an energy industry joke: “Hydrogen is the fuel of the future—and it always will be.” The problem is that there is no natural source of hydrogen; on Earth, most of it is bound up with other molecules like those of fossil fuels, or biomass, or water. The laws of thermodynam-



ics dictate that making hydrogen from one of these precursors will always require putting more energy in than you will get out when you use the hydrogen. That is why hydrogen is today used for processes where chemically adding hydrogen atoms to things is of the essence, such as the manufacture of ammonia for fertilisers and explosives. Only in very niche applications, such as the highest-performance rocket motors, is it burned as a fuel.

Two paths you can go by

The reason that the old joke now looks set to lose its punchline is that even with lots of clean electricity—a huge challenge in itself, but also a *sine qua non* for deep decarbonisation—there are parts of the economy which currently look likely to resist electrification. Windmills and Teslas alone are not enough to save the world.

Energy pundits have taken to describing the emissions-free hydrogen industry they imagine meeting these very-hard-to-electrify needs with the help of a conceptual pantone chart. Today's high-emissions hydrogen is known as grey, if made with

natural gas, or black, if made with coal. The same technologies with added CCS are known as blue. The product of electrolyzers running off renewable energy is deemed green; that of electrolyzers which use nuclear power is pink. Hydrogen produced by pyrolysis—simply heating methane until the hydrogen departs, leaving solid carbon behind—is turquoise.

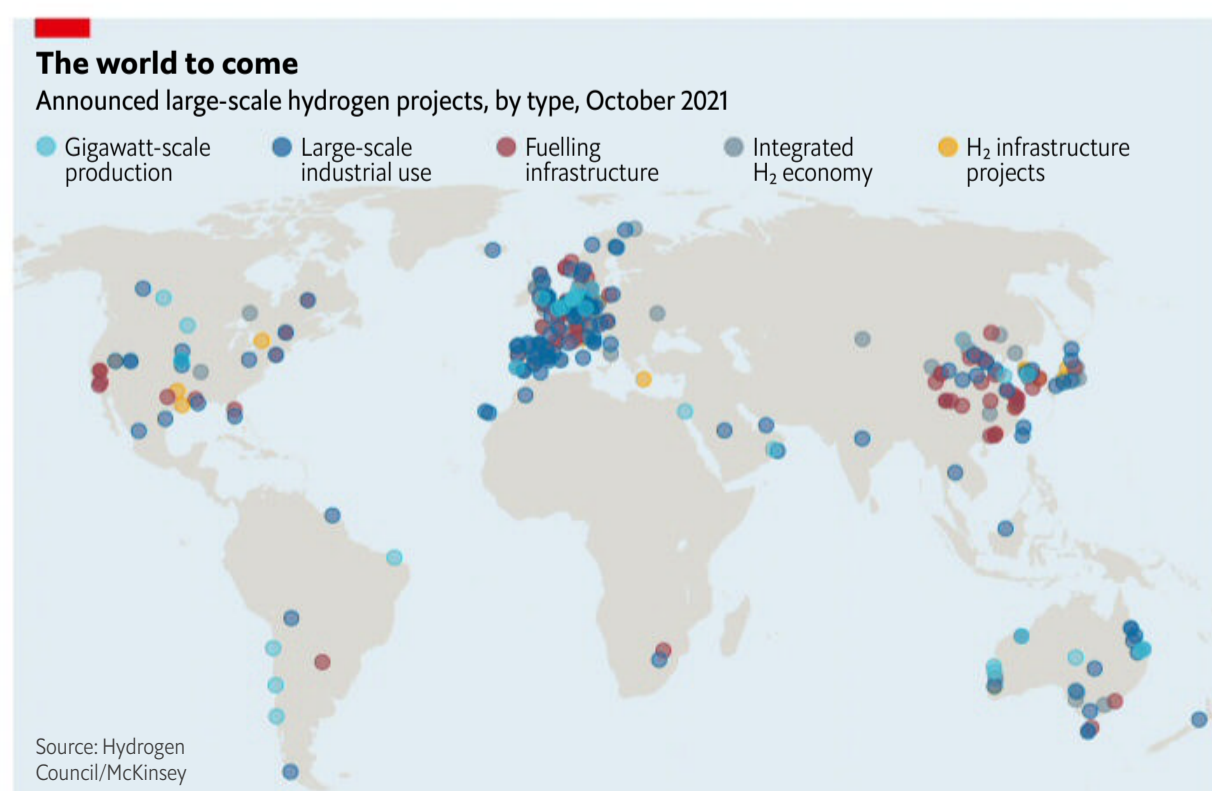
At present, grey hydrogen costs about \$1 a kilogram—the cost depends largely on the natural-gas price. Add colour, and you add a premium. No one is yet making blue hydrogen at scale, but when they start doing so the costs will probably be double those for the grey. Green hydrogen, meanwhile, costs over \$5/kg in the West. In China, which typically uses alkaline electrolyzers, cheaper but less capable than those preferred in the West, prices can be lower.

In June America's Department of Energy unveiled a “Hydrogen Shot” initiative that aims to slash the cost of green, pink, turquoise or blue hydrogen by roughly four-fifths to \$1/kg by 2030—a decline similar to those seen in the solar panel and battery businesses. It will benefit from a number of following winds.

The first is the continuing decline in the cost of renewable electricity. This matters because electricity typically makes up most of the cost of electrolysed hydrogen. The second is that electrolyzers are getting better and cheaper.

Bloom Energy, an American company which first came to prominence in the abortive hydrogen boom of the 2000s, recently unveiled a solid-oxide electrolyser which it reckons could be 15-45% more efficient than rival products, in part because it operates at a very high temperature. Technology based on proton-exchange membranes (PEM) is also getting better. The promise of big hydrogen projects has also made it plausible to design and build much larger electrolyzers than have been seen before, which brings down the cost per kilogram.

Prices will fall as a result of growing experience, just as they have in the solar sec-▶▶



► tor. Today the world has about three gigawatts (GW) of electrolyser capacity—a gigawatt being the power output of a nuclear plant or a very large solar farm. McKinsey, a consultancy, expects that to grow to over 100GW of capacity by 2030. Bernd Heid, one of the company's experts in the field, reckons this scaling up could in itself cut the cost per gigawatt of capacity by 65-75%. In short, a grown-up and dynamic industry is emerging out of a business which until recently bordered on the artisanal.

ITM Power, a British maker of electrolyser equipment, has seen its tender pipeline more than double in the past year. The firm raised £172m (\$226m at the time) last year to expand capacity to 2.5GW per year. Graham Cooley, its boss, says his firm “now has a blueprint for a gigawatt factory, we can cut and paste”. His firm is involved with Siemens Gamesa, a turbine-maker, in a big “hydrogen hub” to be built on the shores of Britain's Humber estuary.

A sign on the wall

As a result of these forces, the price of hydrogen made from renewable sources is plunging, and seems likely to keep doing so. BloombergNEF predicts the price of green hydrogen using PEM electrolysis could fall to just \$2 per kg by 2030, making it competitive with blue hydrogen (see chart 2). Morgan Stanley goes significantly further, arguing that at the very best locations for renewables in America, green hydrogen will be able to match grey hydrogen's \$1/kg “in 2-3 years”.

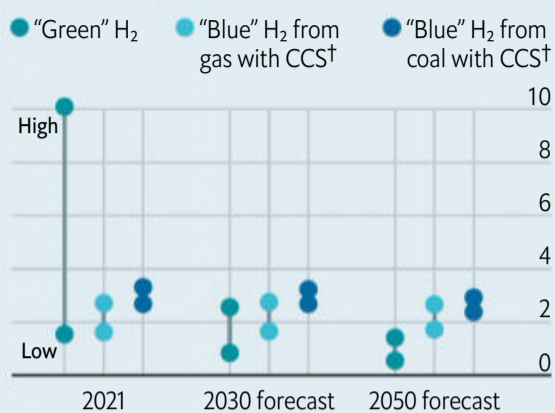
The markets that will matter for green, blue and pink hydrogen will be those where they offer a clear advantage over other non-fossil-fuel-based approaches, most notably renewable electricity. One of those is in the electricity sector itself. This month the New York Power Authority, a utility, is starting a pilot project in which green hydrogen made from hydroelectric power is blended into natural gas, in concentrations up to roughly 30%, to generate electricity from a normal gas turbine.

This looks like thermodynamic nonsense, as the amount of electricity produced by burning hydrogen in a turbine can never be as much as the amount that was used to make it; feeding the energy used to power the electrolyser directly into the grid would provide more kilowatt-hours. But not all kilowatt-hours are equal. Sometimes renewables produce electricity in excess, driving its price down to zero or even, on occasion, below—there are some situations when people get paid to take electricity off the grid, or charged for producing it. In a system with a carbon price it could make sense to use green hydrogen produced when electricity is cheap to lower the cost of meeting supply with gas turbines when electricity is dear.

The same also holds if the hydrogen is

A long way down

Cost of hydrogen*, \$ per kg, 2020 prices



*Includes cost of plant and capital over plant lifetime

†Carbon capture and storage Source: BloombergNEF

grey but the hydrogen producer does not have to pay the price of its emissions. That provides no environmental benefit—the net emissions are higher, even though the emissions from the power plant are lower. Nevertheless some argue, possibly sincerely, that it is a way of increasing demand for hydrogen and thus priming the market for a greener future.

Hydrogen is not the only way to balance the times and places where electricity is in surplus with those where it is in high demand; large interconnected grids help a lot, as does battery storage and smart-grid technology that reduces loads when necessary. But for long-term storage that can deal with differences from season to season and even year to year, hydrogen looks better than any of its competitors.

An intriguing project under way in Utah involving the American arm of Mitsubishi, a Japanese conglomerate, will make hydrogen from local renewables, store it in nearby salt caverns and use it as a fuel to power a giant turbine producing clean electricity that will ultimately reach Los Angeles. Longer term, pure hydrogen could be sourced from far away. Marco Alverà, boss of Italy's Snam, one of the world's largest pipeline operators, and author of a recent book on hydrogen, believes green hydrogen can be shipped from Tunisia to Bavaria

economically using a mix of existing and new pipelines. Australia and Chile are hoping to export hydrogen made from abundant local solar energy by ship.

Another market where hydrogen has an apparent edge over renewable electricity is steel. Coking coal is integral to today's steelmaking, which accounts for about 8% of greenhouse-gas emissions; it provides not just the heat needed for the process but also the chemically necessary carbon. An alternative process, called direct-reduction, uses hydrogen to do much of the chemical work that carbon does in current smelters. ArcelorMittal, a European steel giant, recently committed \$10bn to slashing greenhouse-gas emissions and is looking to hydrogen as a way to do it. US Steel has formed a partnership with Norway's Equinor, an oil and gas company which is a CCS pioneer and now moving into blue hydrogen. Hybrit, a Swedish industrial coalition, delivered the world's first batch of green steel to a customer in August.

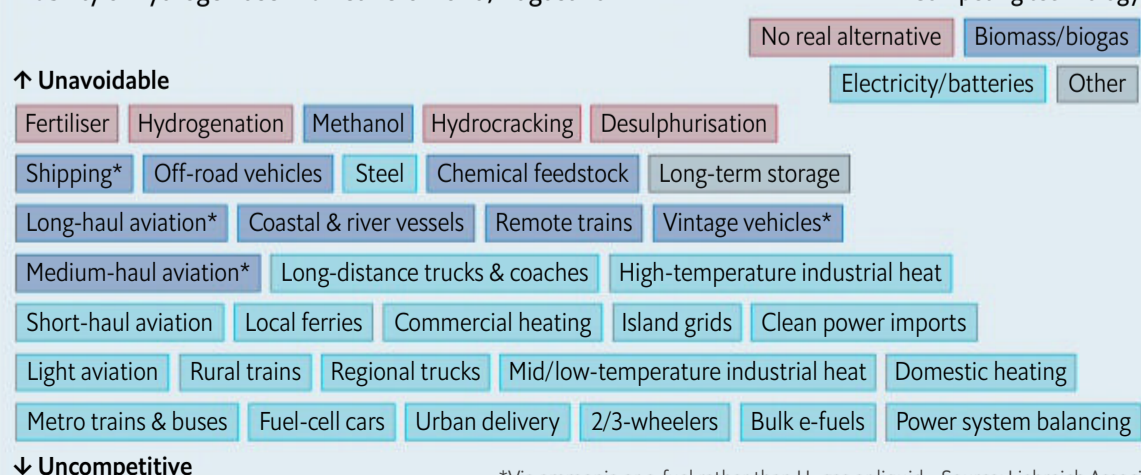
Industrial processes like chemical reactors, cement kilns and glassmaking also require high temperatures, a requirement not always easily provided by electricity. In a recent report on the hydrogen economy the International Energy Agency (IEA), a think-tank operated by rich-world governments, notes that hydrogen can directly replace natural gas in some processes already. Ammonia can also sometimes be “dropped in” as an easy substitute.

Crying for leaving

When it comes to aviation and shipping the role of hydrogen is a matter of intense debate. For short trips batteries might suffice. But planes using fuel cells could give battery-electric alternatives a run for their money. ZeroAvia, a startup backed by British Airways and Jeff Bezos, Amazon's billionaire founder, completed the first fuel-cell-powered flight in a commercial-sized aircraft in Britain a year ago. Ferry operators in Norway and on America's west coast are now experimenting with short-haul ferries powered by hydrogen fuel cells. ►►

Steppin' up

Viability of hydrogen use in a net-zero world, August 2021



*Via ammonia or e-fuel rather than H₂ gas or liquid Source: Liebreich Associates

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12 Silky California Pinot Noir



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10 Rare Italian Cabernet-Primitivo



9 Luscious Old-Vine Zinfandel



8 Gold-Medal French Cabernet



7 Family-Grown Rioja



6 Châteauneuf Star's Exclusive



5 Handcrafted Chianti Classic



4 Multi-Gold Portuguese Favorite



3 Gold-Medal Bordeaux



2 Mighty Argentine Malbec



1 97-Point Italian Champion



Airbus, a European aeroplane-maker, is giving hydrogen its full-throated support. In September, it confirmed a plan to power planes using hydrogen by 2035. Guillaume Faury, the company's boss, extolled its virtues: "Hydrogen has an energy density three times that of kerosene...[it] is made for aviation."

On the basis of weight, that is true. On the basis of volume, alas, it is not. At room temperature and pressure, hydrogen is the least dense gas in the universe. So although by the kilogram it may carry three times more energy than kerosene, by the litre it carries 3,000 times less. The gas can be pressurised, which helps, especially for applications where big tanks are not a problem. But to get to within a factor of three of kerosene's performance per litre hydrogen has to be liquefied. That requires chilling it down to -253°C (-423°F).

Little surprise, then, that Boeing, Airbus's American rival, is more guarded. Its boffins agree that "hydrogen is fundamental to all sustainable aviation fuels". But they reckon that flying a 747 across the Atlantic using liquid hydrogen would require filling all its passenger and cargo space with fuel. That is why for longer journeys, planes may end up using clean-hydrogen-based ammonia (as many large ships may do, too) or, more likely, synthetic hydrocarbons. In aviation, those synthetic fuels will have to be able to compete with advanced biofuels, the obvious alternative.

Michael Liebreich, a clean-energy guru, notes that, as one moves away from applications where hydrogen has clear benefits over renewable electricity, it becomes harder to see serious markets for the gas. To illustrate his point he has developed a "hydrogen ladder" which ranks uses from indispensable to unaffordable (see diagram on previous page).

An intriguing borderline case is afforded by domestic heating. On an efficiency basis, electrically powered heat pumps beat domestic boilers fired by hydrogen

quite handily. But retrofitting urban housing already equipped with boilers to burn hydrogen may be more attractive in some places than trying to fit heat pumps on to every building. Britain is likely to be a test case for this trade-off. In August, its government unveiled plans for 5GW of low-carbon hydrogen production capacity by 2030 to replace natural gas in domestic and industrial applications.

Stairway to heaven

Near the bottom of Mr Liebreich's ladder are fuel-cell electric vehicles (FCEVs) used as cars. Toyota, a Japanese automobile giant, has longed to build them since the early 1990s, investing billions in the technology. Official visitors were ferried around Tokyo in such vehicles during the recent Olympic games, and the Japanese government has plans to expand the country's fleet of FCEVs, which numbered just 3,600 in 2019, to 200,000 by 2025. The Chinese government says it wants 1m of the things by 2030.

But as Mr Liebreich and many others point out, this does not seem sensible if the competition is a battery-powered electric car. Fuel cells add to an electric car's price and complexity while offering no benefit in performance. They are also inefficient. About four-fifths of the power fed into a battery-powered electric vehicle gets used; conversion losses mean that an FCEV is likely to manage only half that level of efficiency. A veteran Japanese utility executive whispers that Toyota's stance makes no sense: "Millions of fuel-cell cars won't happen. Even Honda gave up. Pride is why Toyota is sticking with it."

That does not rule out other forms of road transport. Many of the world's big lorry-makers, including Europe's Volvo and Daimler, are racing against startups like Hyzon to bring hydrogen-fuelled heavy lorries to market on the basis that the weight and recharging time of batteries means they are not able to be used. Accord-

ing to DHL, a logistics company, when lorries with heavy loads need to travel farther than 200km (120 miles) batteries become unattractive.

America's Cummins, known for decades for its conventional engines, is betting big on hydrogen, having acquired firms making electrolysers, fuel cells and hydrogen tanks. Tom Linebarger, its chief executive, says he is highly confident that hydrogen lorries will be "even money" with diesel lorries on total cost of ownership by 2030. Customers, he says, are worried about the reliability of vehicles with batteries. "If I am a distribution company and have fuel-cell vehicles using hydrogen, I don't need to depend on the grid."

As on road so, perhaps, on rail. France's Alstom, the biggest rail manufacturer outside China, is already running hydrogen-powered trains in Germany. Compared with diesel trains, these whizzy locomotives emit no local air pollution, make very little noise and offer a ride as smooth as that of conventional electric trains. The firm thinks many of the 5,000 diesel trains to be retired in Europe by 2035 could economically be replaced by hydrogen trains. By 2030, hydrogen trains could make up a tenth of those not already electrified.

The Boston Consulting Group (BCG) reckons that hydrogen could be competitive on price with other ways of fuelling trains by 2030 even with no carbon pricing. The other big early market it sees is in construction equipment and other applications where the high torque provided by electric motors is useful and the long charging time for batteries a frustration (fork-lift trucks have proved to be one such niche). BCG expects heavy lorries, ships and applications in the chemicals industry will be close behind, and predicts an annual \$200bn market for hydrogen-related machinery and components by 2050.

But this makes sense only if supply and demand grow in tandem. A business-as-usual approach in which supply was not stimulated would lead companies to double down on incumbent dirty technologies, particularly in industrial applications, as they update ageing capital equipment, leading to a pernicious lock-in of legacy equipment. But stimulating supply will generate resistance, both from incumbents in other fields and from finance ministries, unless demand is visibly increasing alongside it and delivering things which people want.

Comparing it to the renewables industry, which could feed in to existing grids, Mr Heid of McKinsey likens the hydrogen economy to a heavy flywheel: "It takes more to get it spinning, but once it's going it really goes." He might also add that spinning up a flywheel is a tricky business; let it go even a little off balance and you risk having it tear apart. ■





The debt ceiling

Groundhog days

WASHINGTON, DC

Why can't America quit flirting with financial ruin?

FOR GOOD REASON, countries avoid defaulting on their sovereign debts if they can. Argentina, Greece and Lebanon can all attest to the pain of that experience. America is exceptional, however. Every few years, it ends up precariously close to a partial default, only to yield right before taking the country's full faith and credit (and global markets) over the precipice. The precipitating events are never economic, but always political. The most recent flare-up of this self-destructive habit was particularly senseless. And it is almost certain to not be the last.

The reason is an abstruse mechanism called the debt ceiling. Since 1917, Congress has, in one form or another, retained a limit on the amount of debt the Treasury can issue. Because Congress tends to run budget deficits, this has needed raising or suspension more than 100 times since its inception. The only other Western country to retain a similar debt limit is Denmark, though it is set much higher than actual debt and is thus not close to "binding".

In contemporary America the nearing

of a binding debt ceiling is perversely seen as a moment of maximal leverage. As the latest deadline became pressing, Republicans in Congress employed the filibuster (a parliamentary stalling tactic allowed in the Senate) to prevent Democrats from easily raising the ceiling. Janet Yellen, the treasury secretary, warned that the federal government could be nearing default as soon as October 18th. The Treasury calls the day that it no longer has the ability to pay for both its debt service and essential programmes like Social Security the "x-date". Wall Street types cheerily call it the "drop-

dead date". On October 6th, a deal seemed at hand between stalemated Democrats and Republicans—who seemed poised to carry on the game of chicken until the moment of economic cataclysm was nigh—to push the problem off until December. At that point, the rigmarole starts up again.

Previous debt-ceiling fights have been destructive. In 2011, Republicans brought the country close to the brink of default in order to force budget cuts, resulting in a downgrade to the country's credit rating for the first time. Borrowing costs for the federal government rose by \$1.3bn in that year alone. Another near-miss came in 2013, when Republicans unsuccessfully tried to force Barack Obama to defund his signature health-care programme. This time, though, Republicans do not seem to have any policy objectives.

Before the standoff was put off, Republicans were insisting that Democrats trek around their filibuster using a special process called reconciliation. This was doable, though it would have wasted ten to 15 days of floor time on the Senate in order to complete. Mitch McConnell, the Republican leader in the Senate and the chief architect of debt-ceiling standoffs past and present, had argued against providing any "shortcut" to these procedural hurdles that he had erected. Reluctant to go that route, Democrats leapt on Mr McConnell's later offer to table the matter until December.

That deal only offers a temporary reprieve to this maddening cycle. What were ▶▶

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31 Lexington: Democratic discipline

once emergency measures are now routine. The Treasury must employ “extraordinary measures” to stave off an imminent default (such as pausing payments on certain kinds of retirement accounts) so often now that they are barely noticed. These had been in effect since August. Another round may begin when the December deadline approaches but eventually they will be exhausted, a new x-date will arrive, and frantic negotiations will begin again.

The more often Congress plays this game, the higher the chances of a miscalculation. On the other side of it would be a painful economic crisis—all the more because it would be entirely self-inflicted. Without the ability to issue more debt and without any accounting gimmicks to secure more headroom, the Treasury would need to make difficult decisions. Daily out-

lays would have to match daily receipts, resulting in overnight spending cuts of as much as 40%. If the government prioritised paying interest on its debt, that would require cessation of vital payments like social security checks and health-care payments or salaries for soldiers and federal employees. That would certainly also invite lawsuits. But the risk of defaulting on the debt is potentially calamitous: a memo from researchers at the Federal Reserve written during the 2013 debt-ceiling crisis predicted that yields on American debt would spike, the dollar would plunge in value, equities would fall by a third and a mild recession would ensue.

Almost everyone agrees that this outcome is chaotic, destructive, and entirely senseless. So naturally Congress will be here again in a couple of months. ■

Facebook

Whistle while you work

DALLAS

Why the latest series of leaks is more politically potent than previous ones

“YOU ARE a twenty-first century American hero,” Ed Markey, a Democratic senator from Massachusetts, said on October 5th. He was not addressing the founder of one of the country’s largest companies, Facebook, but the woman who found fault with it. Frances Haugen, who previously worked at the social-media giant before becoming a whistleblower, testified in front of a Senate subcommittee for over three hours, highlighting Facebook’s “moral bankruptcy” and the firm’s downplaying of its harmful impact, including fanning teenage depression and ethnic violence.

The public has long suspected Facebook of two-faced toxicity but lacked fresh internal communiqués to prove it. That changed when Ms Haugen released a trove of corporate documents to regulators and the Wall Street Journal. Facebook’s own private research, for example, found that its photo-sharing site, Instagram, worsened teens’ suicidal thoughts and eating disorders, yet it still prioritised sending young users engaging content that stoked their anxiety, all while proceeding to develop a version of its site for those under the age of 13. (Facebook has since paused those plans, due to public pressure.)

Senators, who cannot agree on such uncontroversial things as paying for the government’s expenses, united against a common enemy and promised Ms Haugen that they would hold Facebook to account. Could that happen at last?

Facebook has survived scandals before. Congress has repeatedly called in tech bosses for angry questioning and public shaming without taking direct action afterward. Congressional hearings “have become like ‘Groundhog Day’ and haven’t really mattered”, is how Paul Gallant of Cowen Washington Research Group, which tracks tech policy, bluntly puts it. In 2018 a different whistleblower outed Facebook for its sketchy collaboration with a research organisation, Cambridge Analytica, which allowed users’ data to be collected without their consent and used for political profiling by Donald Trump’s campaign. Facebook’s founder, Mark Zuckerberg, went to Washington to apologise, and in 2019 America’s consumer-protection agency, the Federal Trade Commission, agreed to a \$5bn settlement with Facebook. That is the largest fine ever levied against a tech firm. However, no laws were ever changed to rein in the company’s misbehaviour. ▶▶

Incomes Piketty lines

WASHINGTON, DC

Ever-widening inequality is not an immutable law of a modern economy

THE PAST year and a half has served up a reminder, if one were needed, of how unequal America is. The wealthiest Americans have seen their assets increase in value thanks to a stockmarket rally, especially in the tech sector. At the opposite end of the ladder, millions of mostly low-wage workers have lost their jobs, while also facing a higher risk of death from covid-19. But there is also some good news to set against this: the incomes of poor Americans have grown more quickly than those of rich ones.

The earnings out-performance for poorer Americans started in 2018. JPMorgan Chase Institute, a think-tank within the bank, parsed data on more than 7m households. Early in the 2010s, as the economy recovered from the global financial crisis, the top quartile of income earners reaped the fastest income gains and the bottom quartile brought up the rear. However, a few years ago their positions flipped. And over the course of the pandemic the gap has widened, such that, by May, incomes for the lowest earners were growing by about 7% annually, compared with 4.5% for the highest earners (see chart).

What explains the shift in fortunes? Some of the credit goes to policymakers’ willingness to run a hot economy before the pandemic. Traditionally, economists have worried that low unemployment pushes up wages and, by extension, inflation. But even with unemployment rates below 4%, inflation remained subdued. At the same time, wage growth was most pronounced at the lowest

Playing catch-up


United States, median income growth*, %
By quartile of household income



rungs of the income ladder (given an additional boost in some states by higher minimum wages), a relationship that was first observed by Arthur Okun, an American economist, in a paper in 1973 about how “high-pressure” economies tend to promote upward labour mobility as companies pay more for workers.

The spread of covid-19 created a low-pressure economy, almost overnight. Unemployment, which would normally depress wage growth, soared. And without any help from the federal government, that is what would have happened. But thanks to an expansion of unemployment insurance as well as a series of stimulus cheques, the reality was very different. Poorer Americans have been the main beneficiaries, with far fewer suffering drops in incomes than would have otherwise been the case.



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▶ This new whistleblowing incident could be a turning point, says Blair Levin, a former chief-of-staff to the Federal Communications Commission and now of New Street Research, a private company. Social media's harmful effects on children and teenagers is a concern that transcends partisanship and is easier to understand than sneaky data-gathering, viral misinformation and other social-networking sins.

If Congress does follow through with legislation, it is likely to focus narrowly on protecting children online, as opposed to broader reforms, for which there is still no political consensus. For example, Congress could update and strengthen the Children's Online Privacy Protection Act (COPPA), which was passed in 1998 and bars data-collection of children under the age of 13. Some want to extend protections to teenagers over the age of 13, as well. Other legislative proposals take aim at marketing and design features that make social media so addictive for the young.

However, Ms Haugen's most significant impact on big tech may be inspiring others to come forward and blow the whistle on their employers' practices. Whistleblower Aid, a legal support group that has helped Ms Haugen's case, has seen more inbound calls since her revelations were made public. "A case like this one opens the floodgates and will trigger hundreds more cases," predicts Steve Kohn, a lawyer who has represented several high-profile whistleblowers. Just look at Swiss banking or pharma to understand the viral spread of whistleblowing, he says. According to Siri Nelson of the National Whistleblower Centre, a legal defence firm, whistleblowers do not just change companies: they "change whole industries."

There are several factors that make tech ripe for whistleblowing. One is the industry's culture of flouting rules. Another is a legal framework that makes whistleblow-

ing less intimidating than it used to be. The Dodd-Frank Act, which was enacted in 2010, gives greater protections to whistleblowers by preventing retaliation from employers and by offering monetary rewards to successful cases of up to 30% of the money collected from sanctions against a firm. To date, the Securities and Exchange Commission has paid out \$1bn to 207 whistleblowers, including more than \$500m in its 2021 fiscal year.

If the threat of public shaming encourages corporate accountability, that is a good thing. But it could also make tech less inclusive and transparent, predicts Matt Perault, a former Facebook executive who is director of the Centre for Technology Policy at the University of North Carolina at Chapel Hill. People may become less willing to share ideas if they worry about

public leaks; companies may become less open with their staff; and executives could start including only a handful of trusted senior staff in meetings that might have otherwise been less restricted.

Executives are going to have to get used to more leaks. Nick Clegg, Facebook's vice-president of policy and global affairs, has defended the company and pushed back against Ms Haugen's allegations in a memo to the company's staff, in which he pointed out that last year the company removed 30m posts that violated its policies on terrorism and 19m posts that crossed company lines for inciting hatred. It was barely any time at all before the memo was shared with journalists. Facebook and other big tech firms, which have been criticised for violating people's privacy online, can no longer count on any privacy either. ■

Political science

Polarisation explorers

SEATTLE

America's political scientists are worried about "lethal partisanship"

THE TAGLINE for the annual meeting of the American Political Science Association (APSA) held in Seattle last weekend read "Promoting Pluralism." Under the sunny geometric windows of the city's convention centre, and through the poorly lit rectangles of Zoom rooms, scholars met to discuss, among other things, the various threats to American democracy, and whether the country's polarised political parties could peacefully coexist. Like experts on the use of nuclear weapons during the Cold War, the spectre of some disastrous future hung over the discussions and was made only slightly less alarming by the technical language used to describe it.

Scholars of American politics are particularly dismayed by rising levels of "affective polarisation," the political science term for the hostility one person feels towards members of the other party relative to the feelings they have towards members of their own party. Levels of affective polarisation have risen more than two-fold since the 1970s when the American National Election Studies, a quadrennial academic survey started at the University of Michigan, began asking citizens to rate how they felt about members of either major party. In 1978, according to the survey, the difference between Americans' ratings of members of their own and ratings of members of the other party on a 100-point "feeling thermometer" scale was 27 points. The gap had widened to 56 by 2020.

Lilliana Mason of Johns Hopkins Uni-

versity calls this phenomenon "identity-based" polarisation. In her 2018 book "Uncivil Agreement" Ms Mason crunched a mass of survey data to reveal how ideological, religious and racial identities have become "sorted" into overlapping mega-identities captured almost entirely by the words "Democrat" and "Republican." One result, she concludes, is that isolated and warring tribes have become "relatively unresponsive to changing information or real national problems."

That problem—that people's political affiliations determine what information ▶▶




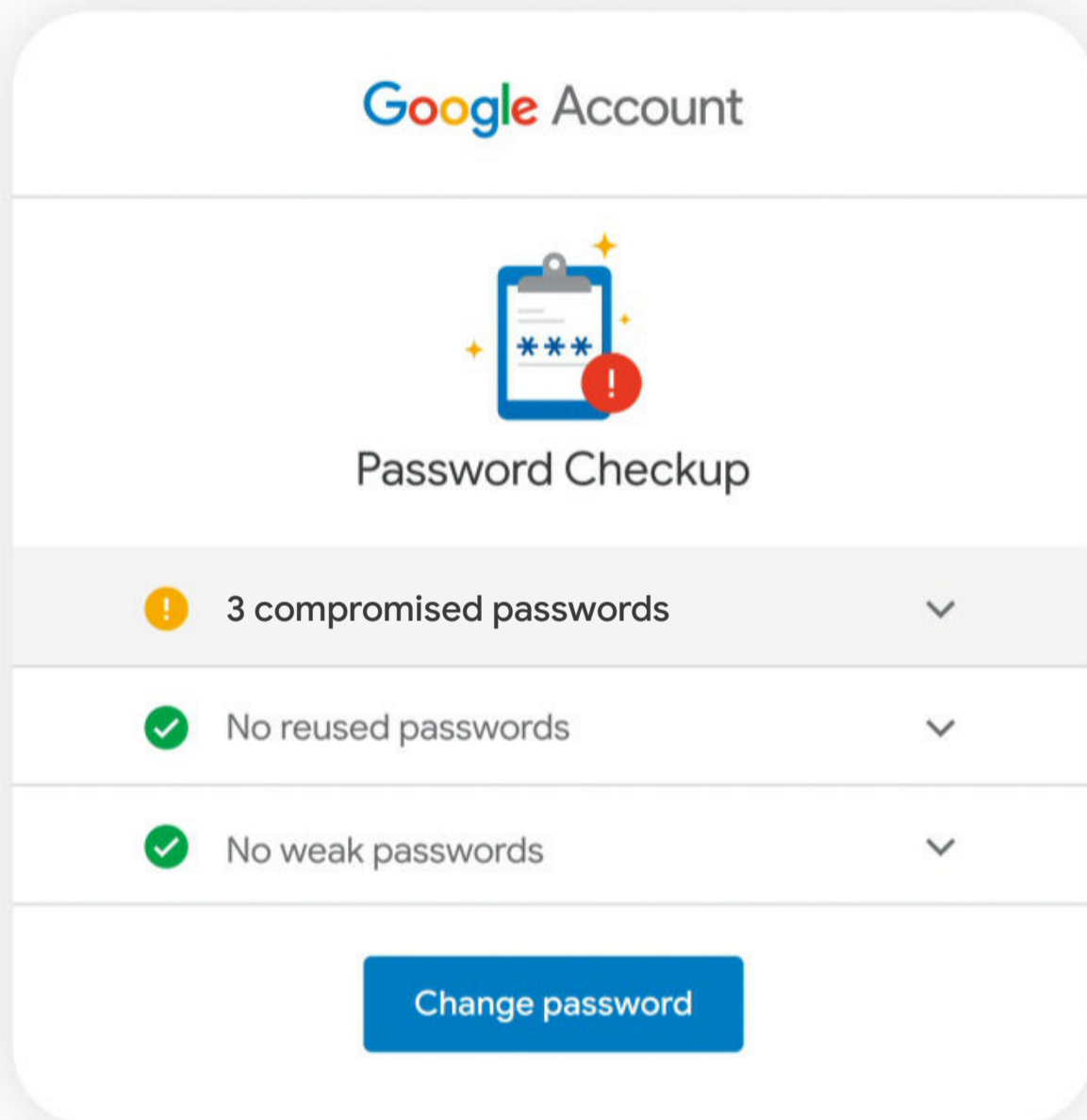
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secure by default, private by design, and put you in control.

▶ they absorb, rather than the other way around—is bad enough. Yet the degree of contempt partisans have for each other is even more troubling. In a paper Ms Mason presented at the conference alongside Nathan Kalmoe and Julie Wronski, two of her frequent co-authors, the researchers conducted a series of experiments to gauge the extent to which Americans thought certain groups deserved life-saving aid if they were infected with covid-19; if the economy should be reopened even if it would hurt certain groups; and whether disproportionate deaths among the opposing party were deserved or not. They found that respondents were much likelier to say disproportionate deaths among supporters of the other party were more acceptable than deaths among their own.

Discounting suffering on the other side destroys the empathy that liberal democracies require. In a 2019 paper, Mr Kalmoe and Ms Mason studied the extent to which voters rationalise partisan violence against their opponents or express outright support for it—what they call “moral disengagement” and “lethal partisanship”. They also found that 60% of partisans said the opposition was “a serious threat to the United States”, and 40% said opponents were “downright evil”. People with strong attachments to either political party were more likely to exhibit such views.

Between 5% and 15% of Americans in either party endorse violence depending on the circumstances. Mr Kalmoe and Ms Mason are updating their work on partisan violence for an upcoming book, “Radical American Partisanship”. According to new data, Americans of both parties have become more morally disengaged and more likely to endorse violence since the authors’ first study in 2019. They also find that since the 2020 elections Republican voters have become more likely to hold these views, and to endorse violence against political leaders—presumably because their champion lost.

Even though the strength of these feelings is striking, polarisation is such a familiar problem that merely mentioning it can act as a mental sedative. Suggestions as to how to lessen polarisation sometimes have the same quality, though the assembled political scientists deserve credit for trying. Erin Rossiter, of the University of Notre Dame, has found that even imagining a conversation with an opponent can cause at least a temporary reduction in hostility to supporters of the other party. Ms Mason and Mr Kalmoe find, in a final set of experimental studies, that telling Republican voters that Mr Trump had asked them to abstain from violence decreased the share of them that thought it was acceptable in pursuit of political goals. What party leaders say, and how they conduct themselves, really matters. ■



Chicago history

From the ashes

CHICAGO

Chicago re-examines its origin story 150 years after the great fire

ON OCTOBER 8th 1871 Catherine O’Leary’s cow kicked over a lantern and sparked the fire that incinerated one-third of Chicago—or so legend has it. The story of the blaze and Chicago’s triumphant rebuilding is often retold with more than a dash of Whiggish inevitability: the fire was the catalyst by which Chicago became America’s commodity capital. But this year, on the 150th anniversary of the great fire, Chicagoans are looking anew at their city’s creation myth, and finding the truth to be much more compelling.

The fire was a disaster. Property records were destroyed when the courthouse burned, but Carl Smith of Northwestern University estimates the damage done in his book “Chicago’s Great Fire: The Destruction and Resurrection of an Iconic American City”. An area roughly three square miles was scorched, leveling nearly 18,000 buildings and killing about 300 people. About one in three Chicagoans was suddenly homeless. The entire business district—now known as the Loop—was torched, resulting in about \$200m in property damage (about \$4.5bn today).

It turns out the popular history of the fire is flawed. But its two central myths give some insight into the city then and now. First, consider poor Mrs O’Leary and her cow. Historians are sure the fire originated near the O’Learys’ barn, but have exonerated Catherine herself. Yet her supposed culpability persists, says Mr Smith, and reveals the prejudices that roiled America in the late 19th century. “Who could be a better scapegoat than an Irish-Catholic woman?”, he asks.

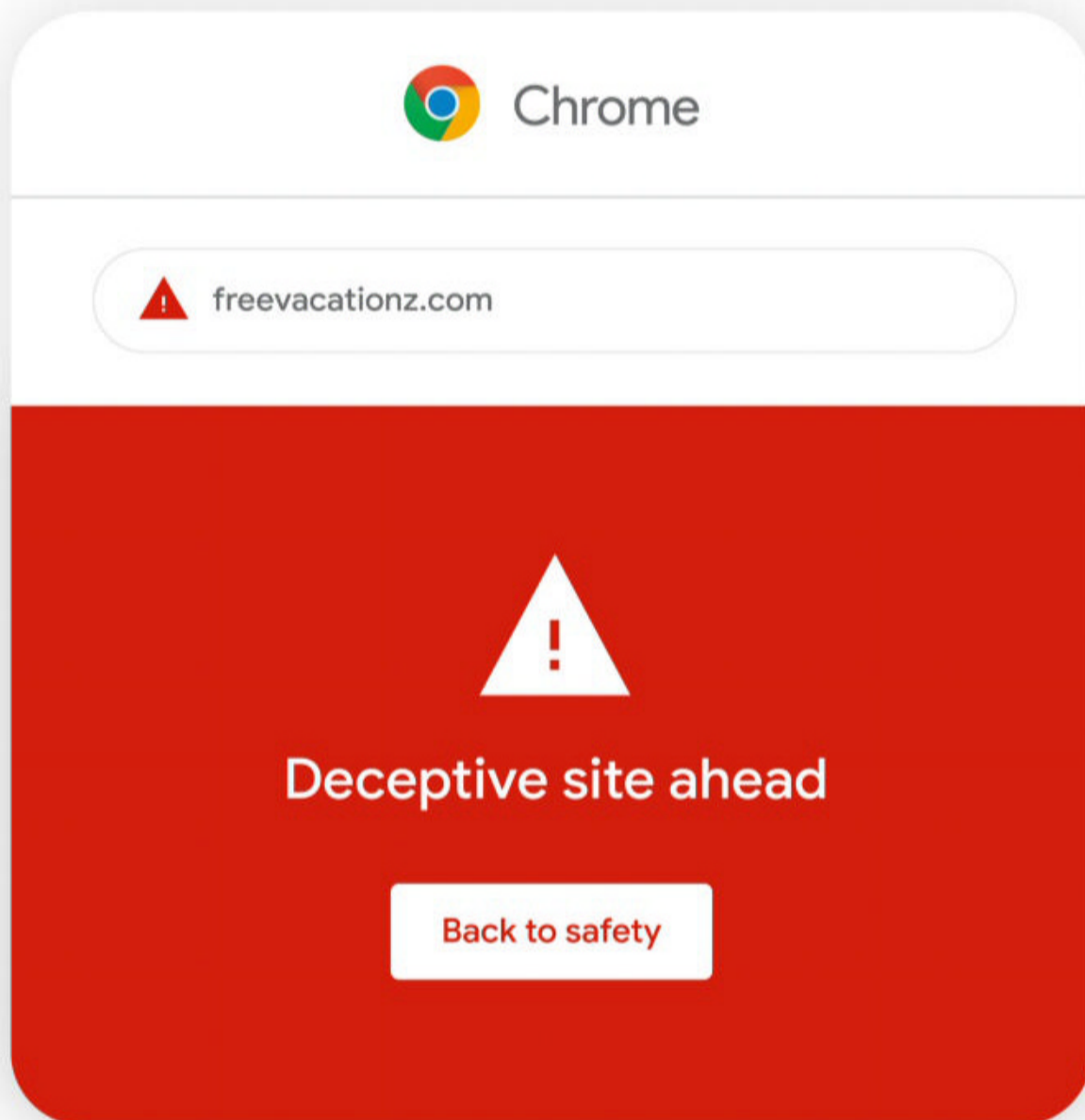
The second myth is that the break-neck pace at which the city rebuilt (the downtown was revived in two years) changed Chicago in a way that sparked the city’s rapid growth. In reality, the fire accelerated shifts already underfoot. After the civil war Chicago became an entrepot that was integral to the national economy, thanks in large part to its location. About 30,000 people lived in Chicago in 1850; that number ballooned to 300,000 by 1870 and reached 1m by 1890. “The fire is a speed bump on that upward trajectory,” says Julius Jones of the Chicago History Museum. “It doesn’t fundamentally alter the city.”

As Chicago reflects on the anniversary, it is tempting to compare the tragedy to that of covid-19, which has killed more than 12,000 Chicagoans. Both crises revealed inequality (some could not afford to rebuild their charred homes) and provided funds to rebuild. But drawing other parallels is tricky. In 1871 “the lesson people took away from the destruction of Chicago was that it was indestructible,” says Mr Smith. Today Chicago’s trajectory is less clear.

The city’s population grew by 2% in the past decade, a welcome change from the 7% decline seen between 2000 and 2010. But the pandemic has left Chicago’s unemployment rate roughly twice as high as it was in 2019 and nearly 17% of downtown offices are vacant, according to Colliers, a property firm. After the fire, says Mr Jones, Chicago’s residents likened their city to a phoenix, “resurrected from its own ashes to be better than it was before.” Some of that same spirit is needed again.



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War from a distance

Droning on

WASHINGTON, DC

The president is weighing how extensively to use drones. More civilian casualties abroad seem the likeliest outcome

DRONES HAVE BEEN a common sight in the skies above Afghanistan, but rarely had one trained its gaze on the capital, Kabul. On August 29th, as America was hastily withdrawing its remaining soldiers and Afghan refugees through the city's airport, a drone struck a white Toyota Corolla. After the strike, General Mark Milley, America's top military official, called it a "righteous" strike, and the Pentagon claimed it had thwarted an imminent attack on American forces. In fact no terrorists had been killed and seven of the ten victims were children. President Joe Biden broke with his former boss, Barack Obama, in withdrawing troops from Afghanistan. Like Mr Obama, he now faces a choice on how extensively to use drones to replace soldiers and pilots.

Mr Biden has pledged to conduct "over-the-horizon" counterterrorism operations, chiefly using armed drones, in Afghanistan, to pursue terrorists while reducing the toll of the war on terror on Americans. Yet as the experience of Mr Obama and his successor, Donald Trump, suggests, drone strikes have hardly proved a strategic success. As Samuel Moyn of Yale University argues in his recently published book "Humane," such attempts to make the war less lethal may have made it harder to end. Mr Biden's strategy appears to be just the formula for a more sustainable, but no less brutal, war on terror.

As troop casualties mounted and the public opinion turned under President George W. Bush, drones emerged as a means of long-distance fighting. First deployed just weeks after September 11th, it was Mr Obama who greatly expanded their use. The rationale was clear. America would no longer rely on vulnerable ground forces. Drones could strike as far afield as Pakistan, Libya, Yemen, and Somalia—places where America was not, officially, at war. Killing terrorists, rather than seizing them in battle, could also solve the Guantánamo problem. "If no one was captured, no one could be mistreated," writes Mr Moyn.

Keen to withdraw troops from Iraq and, eventually, Afghanistan, Mr Obama directed more drone strikes in his first year than Mr Bush had in his entire presidency. A brief prepared in March of 2009 by the Department of Justice laid out the administration's contorted legal justification. It declared that the war on terror operated on a global battlefield. Nor would it be limited to al-Qaeda and "associated forces": even

those with tenuous ties like al-Shabab in Somalia, were fair game. Mr Moyn argues this gave permission to strike targets that did not pose an "imminent" threat, as international law demands. At the height of Mr Obama's drone campaign in 2010, America's armed forces launched 128 strikes in Pakistan alone.

Despite Mr Obama's insistence that drones could precisely target America's enemies, the rising volume of strikes ensured civilian casualties rose also. With up to 560 civilian deaths in Pakistan alone from 2009 to 2011, the UN and civil society called for reform. Guidance issued by the White House in 2013 attempted to place limits on the lethality of the drone campaign beyond Afghanistan and Iraq. The document pledged strikes would not occur without a "near certainty" that non-terrorists would not be killed.

It helped stem the worst excesses: by 2016, strikes caused fewer than ten civilian deaths in Pakistan, Somalia and Yemen combined. On the battlefield in Afghanistan, Iraq and, after 2014, Syria, military lawyers counselled commanders on targeting decisions—above a certain threshold for predicted civilian casualties, a strike would require permission from higher authorities. Mr Obama expressed hope that this "legal architecture" could ensure "any president's reined in."

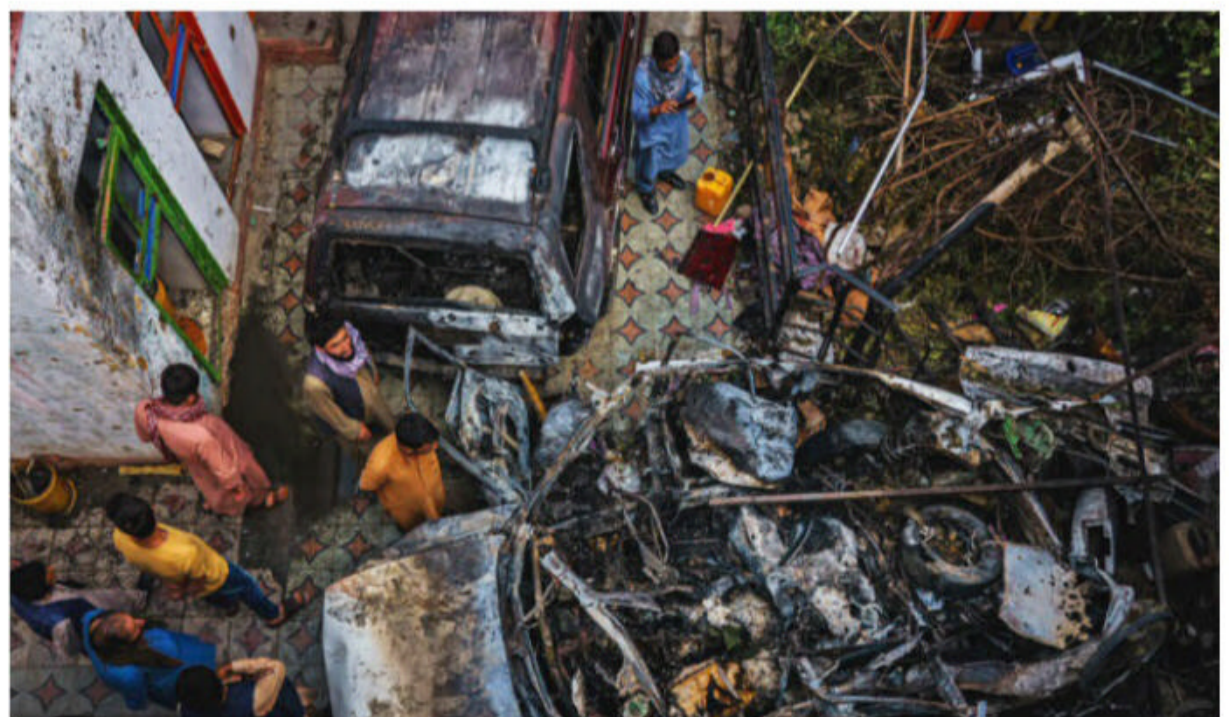
President Donald Trump easily discarded Mr Obama's rules in his first year in office, giving commanders greater flexibility

in choosing their targets. The tempo of operations rose, and their reach expanded to new places like Niger. Nowhere was this escalation more dramatic than in Afghanistan, where as many as 130 civilians perished in strikes in 2017. Even so, their effectiveness is open to debate. In the two decades since 2001, estimates the Centre for Strategic and International Studies in Washington, DC, the number of Sunni Islamic militants grew fourfold, though thankfully they have not pulled-off a devastating attack on American soil. "The assumption that there was no substitutability was wrong," says Sarah Kreps of Cornell University, with new terrorist leaders replacing the dead.

Buzz on

Mr Biden has sought to rein in the excesses of his predecessor and return to a more restrained policy. While his administration prepares new guidance, Mr Biden has required the Pentagon and CIA to seek White House approval for strikes outside Afghanistan, Iraq and Syria. But Mr Biden has no intention of ending their use. He boasts that even without a presence in Afghanistan, his administration will continue to strike terrorist organisations in Afghanistan from the safety of America's ships at sea and bases in the Middle East.

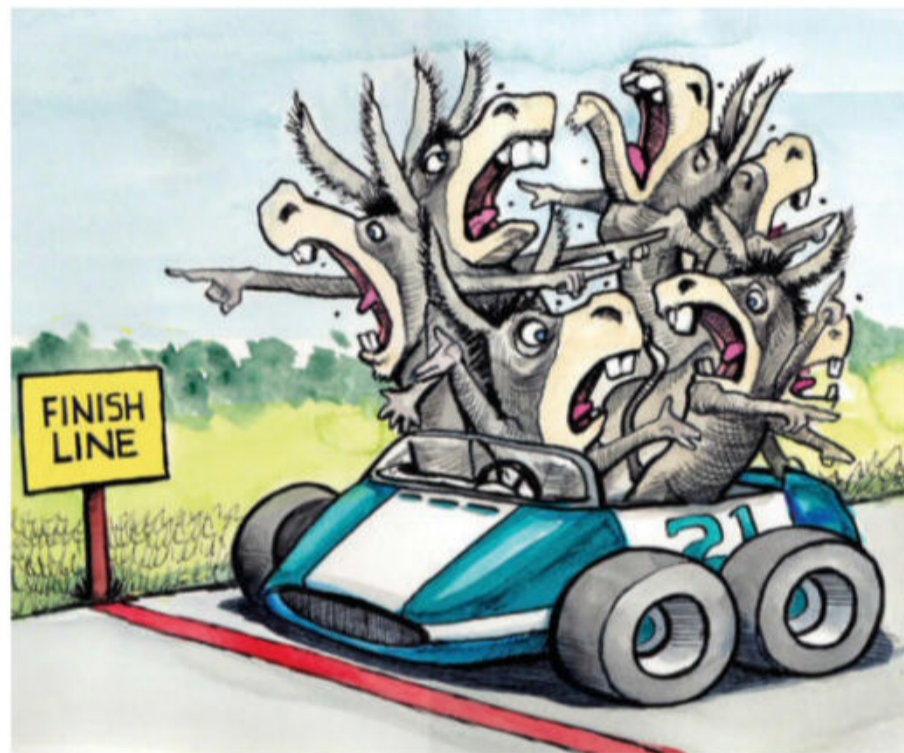
Such a strategy may not prove effective, or humane. As General Kenneth "Frank" McKenzie, America's top military official in the Middle East and Central Asia, admitted to Congress in testimony on September 28th, long-distance drone attacks necessarily rely on weaker intelligence without nearby bases and local partner forces. More mistakes, like the August 29th strike in Kabul, are thus likely even after the Pentagon completes its investigation. Ms Kreps is not sure Americans will give drones much mind. "After the dust settles, we will still be using them." ■



Somewhere, over the horizon

Lexington | Democratic discipline

Despite its recent breakdown, Joe Biden's party looks likely to pass his domestic agenda into law



IF PERCEPTION IS a construct of language, as an American anthropologist called Benjamin Lee Whorf argued, how Joe Biden's party must rue the phrase "Democrats in disarray". Ever since its first appearance, in local newspapers during the 1960s, journalists have reached for the alliterative term whenever Democrats have argued among themselves—whether existentially, as during their 1980s wilderness years; or in the normal course of hammering out a consensus among their many parts. Perusal of the *New York Times* website finds Democrats in deep disarray during the 1992 presidential primary, shortly before they nominated Bill Clinton, and straight after the 2006 mid-terms, at which they became the first party to control the House and Senate in over a decade.

Their recent performance on the Hill—to which the epithet has also been applied—might appear more deserving of it. After Senate Democrats struck an impressive bipartisan infrastructure deal, the party's slightly bigger majority in the House failed to pass it. Left-wingers insisted the bill had to move in tandem with a partisan budget bill, containing trillions of dollars of climate and social-policy spending that had been making some moderates queasy. Together the bills represent most of Joe Biden's domestic policy ambitions. Yet Nancy Pelosi, the Democratic House Speaker, was forced to set them aside.

For Representative Josh Gottheimer, this was a case of the "far left" of his party employing "Freedom Caucus tactics" to "destroy the president's agenda". Strong stuff—which must have resonated with Mr Gottheimer's many conservative constituents (he became in 2017 the first Democrat to win his New Jersey district since 1933). Yet it was inaccurate. The contents of the budget package are also Mr Biden's agenda. Harnessing the two bills, as the president himself later acknowledged, has made it likelier that both will eventually pass. Moreover, far from aping the headbangers of the Republican Freedom Caucus, House left-wingers, led by Pramila Jayapal of Washington, have suggested they will make whatever compromise is necessary.

At the outset of this process, the left demanded that the budget bill contain \$6trn worth of largely unfunded tax cuts and spending. After moderates demurred, they came down to \$3.5trn, paid for by tax rises and spread over a decade. Most Democrats were

happy with that. But among a handful of holdouts, Senator Joe Manchin, a conservative and opponent of ambitious climate-change policy, said he could not countenance a package costing more than \$1.5trn. Ms Jayapal suggested this week she would settle for \$2.5trn, and Mr Manchin, an inveterate wheeler-dealer, that he "ruled nothing out." Without underestimating the difficulties the party still faces in trying to push through its agenda, this looks less like a genuine crisis than the cut and thrust of legislating.

That is something, as the infrastructure deal briefly recalled, that the parties used to engage in together. The idea was that by winning over a sufficient number of sensibiles from the other side the governing party could render its own radicals irrelevant. The fact that the Democrats now have no option but to go it alone on climate change and other big problems that the do-nothing Republicans ignore has therefore given the party's extremists a bigger say. Especially considering its tiny majorities: to pass the budget bill, the Democrats can afford to lose only three votes from their caucus in the House and none in the Senate. Yet the intra-party wrestling this has occasioned is distracting from another big change. The Democrats are for the most part unanimous.

According to score-keeping by the website FiveThirtyEight, House Democrats are the most unified caucus of the past three Congresses; 203 of their 223 members have voted with Mr Biden 100% of the time. So, for that matter, has Mr Manchin. There are a few reasons for this strange togetherness.

Lacking a central creed—of the sort that Republicans once found in conservatism and now find in Donald Trump—the Democrats are more a collaboration of interest groups. Hence their periodic quarrelsomeness. Yet they have in recent years become less ideologically diverse, especially on economic policy, on which they have reached an interventionist consensus. Moderates and leftists still disagree—often wildly—about the details. Yet Mr Biden, the Democratic centre-of-gravity made flesh, has set parameters that both seem able to live within. During last year's primary, left-wingers spoke of abolishing private health insurance. Their current wrangle with Mr Manchin over renewable-power incentives seems constrained by comparison.

That is less a testament to Mr Biden's authority (which has been tested in recent weeks, as his ratings have plummeted) than the fact that all Democrats are keen to govern. The party's base expects them to; no Democrat has been elected on a promise to torpedo its agenda as members of the right-wing Freedom Caucus were. Even the most ardent left-wingers have therefore, in the end, proved willing to compromise. And the spectre of Mr Trump—whose rise Democrats often attribute to the failures of the governing system over many years—makes it even likelier that this pattern will endure. "We will get it done," Ms Jayapal assured your columnist, when asked whether she would in any circumstance be willing to let the bills fail. Even with such little margin for slippage, that still seems the likeliest outcome.

The wages of governing

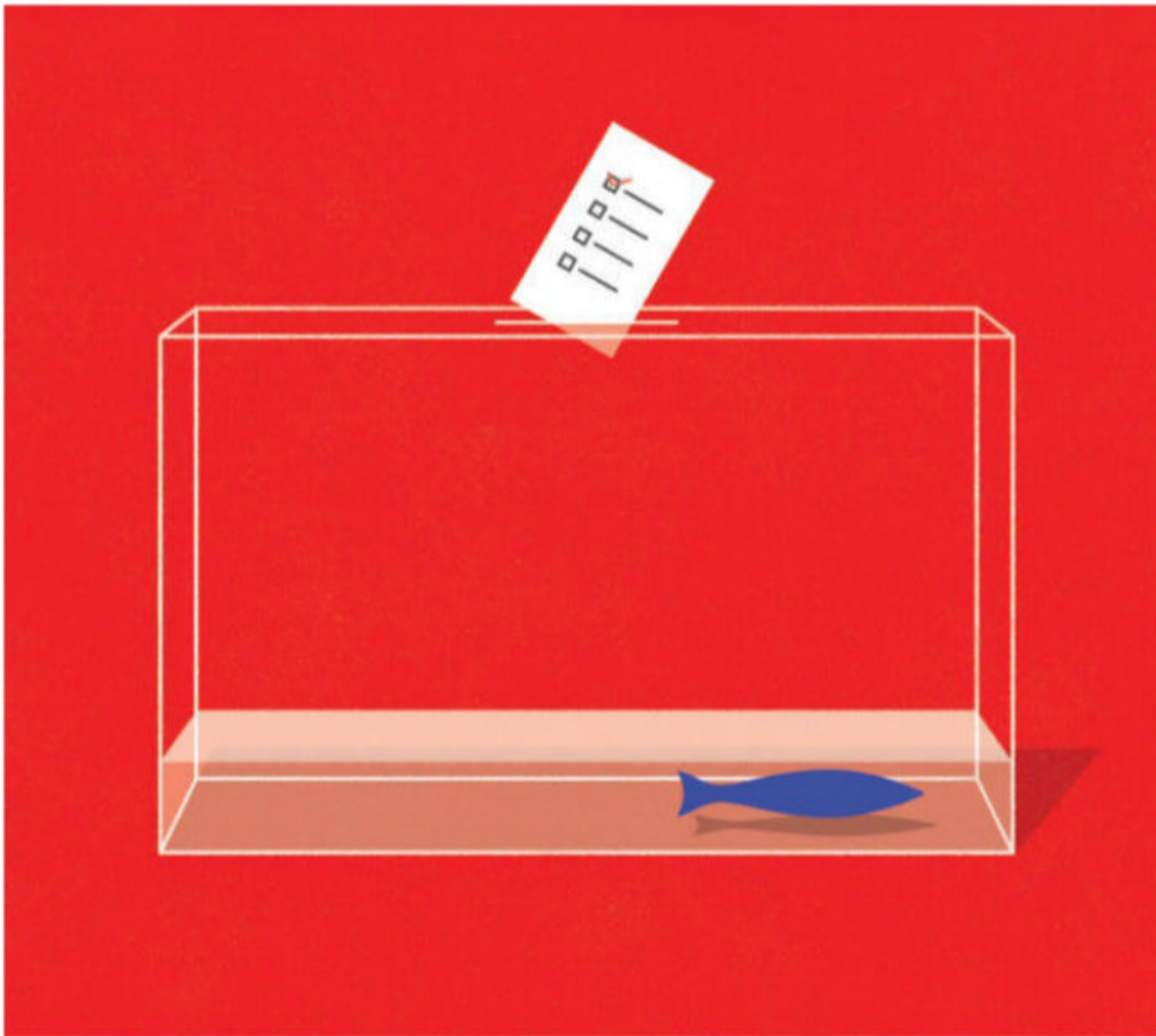
Whether such a victory would improve Mr Biden's miserable ratings is another matter entirely. Among the many depressing truths lurking in political-science books is the fact that voters mostly ignore a government's legislative record. Elections are decided by tribal emotions and fundamentals, not by child-tax credits. The increasingly tribal Republicans—who released no manifesto ahead of the last election—have taken that on board. By comparison, it is good that the Democrats are still overlooking it. ■

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— Bello is away



The Latinobarómetro poll

Democracy's scorecard

The pandemic did not immediately upend political attitudes

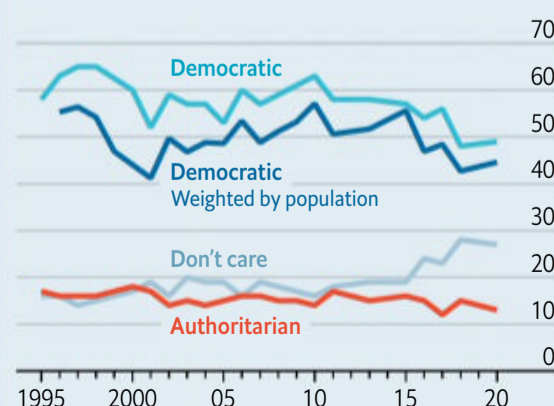
LESS THAN half of Latin Americans are committed democrats and a growing number are indifferent towards their country's political regime. A large majority remain deeply dissatisfied with the way their democracies work in practice and they place little trust in their institutions or in each other. They are opposed to military government but a growing number are prepared to accept elected *caudillos* (strongmen). And they continue to have more trust in the United States than China.

These are some of the findings of the latest Latinobarómetro poll, taken in 18 countries and published exclusively in *The Economist*. Because the poll has been taken regularly since 1995 it shows how attitudes in the region are evolving. The latest poll reflects views after the first seven months or so of the pandemic, which complicated the fieldwork. Face-to-face interviews were conducted in 17 countries between October and December 2020. That was not possible in Argentina, because of a prolonged lockdown. On-line interviews were conducted there in May 2021.

The pandemic has hit Latin America disproportionately hard: with 8% of the world's population it has suffered around 14% of total excess deaths, according to *The Economist's* estimates (or 44% more than the already prodigious number registered in the region officially). Despite this shock, the poll did not show a drastic change in

Increasingly indifferent

Latin America, preferred form of government
% responding



Source: Latinobarómetro

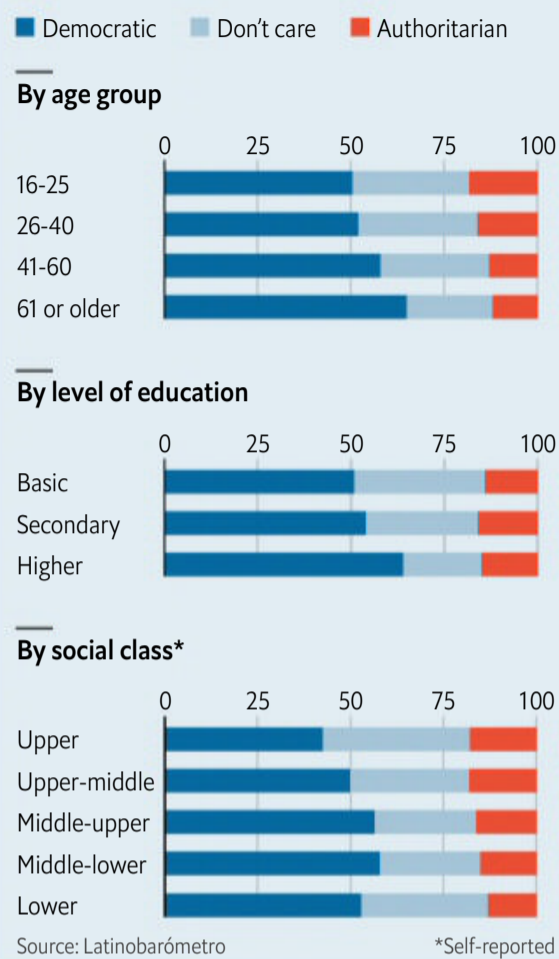
political attitudes compared with the previous one in 2018. "I expected a fall in support for democracy," says Marta Lagos, Latinobarómetro's director. That this didn't happen may reflect "the sense of solidarity" the pandemic generated, at least in its early months.

But the broad trend, expressed in recent protests in several countries, comes over loud and clear. Compared with the late 1990s, when the transition from dictatorship to democracy was still fresh in many countries, support for democracy in the region has waned (see chart 1). Only 49% say that democracy is their preferred form of government. Support for authoritarian government is low, at 13%. But, worryingly, more than a quarter of respondents say they don't care whether or not their country is democratic, a figure that has risen from 16% in 2010. Ask the question in a different, Churchillian way and 63% think that, while democracy may have problems, it is the best system, down from a peak of 79% in 2013.

Support for democracy is highest where it is most consolidated, in Uruguay, Costa Rica and Chile. It is high, too, in Venezuela, which is now a dictatorship. Changes of government following elections tend to bring fresh hope in democracy. That applied in 2020 to El Salvador, Guatemala and Paraguay. El Salvador is an example of a demand for strong populist leadership: Nayib Bukele was elected president in 2019, bullied the congress and the supreme

A feckless elite

Latin America, preferred form of government
2020, % responding



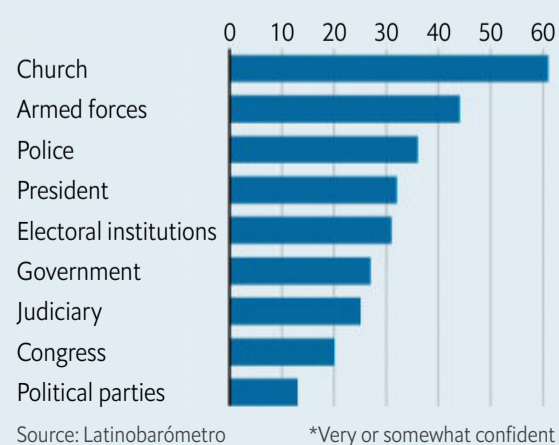
court in 2020 and imposed a tight lockdown against the pandemic. His reward is that 66% of respondents in El Salvador think the country is progressing, compared with a regional average of just 19%.

Support for democracy in Brazil and Mexico, Latin America's two giants, is well below the regional average. Another worrying trend concerns the profile of the typical democrat in Latin America. Younger people and especially those of the upper classes tend to be indifferent towards the political regime (see chart 2). That points to the disdain of elites for democracy.

In 2020 70% of Latin Americans were dissatisfied with the way their democracy works in practice. That is little changed from 72% in 2018, but those are the two

Cloud of suspicion

Latin America, confidence* in institutions
2020, % of respondents



Canadian football

Shrinking balls, shrinking interest

VANCOUVER

Canadian football is wasting away

IN CANADA, FOOTBALL (meaning the Canadian version of the American sort) generally comes far below ice hockey in terms of the emotions it generates. The latter occasionally sparks riots by demoralized young fans; the former is watched mostly by a dedicated but older crowd, who huddle in cold stadiums with Thermos flasks. But it is not for lack of effort by its promoters. In the 1990s the Canadian Football League's (CFL) marketers tried to attract American football fans with the slogan "Our balls are bigger". Last year the pandemic stopped the league entirely, but this year the games restarted and they are trying again. October 11th, Canadian Thanksgiving, will be a big day of sport. It is a chance to boost the fanbase.

Canadian football differs from the American variant in that its teams are of 12, not 11, players and the playing field is somewhat larger (the balls were bigger once but since 2018 have been the same size). The rules slightly differ too. The season usually starts in June, when the NFL, America's league, is not running. The sport has been in decline for years, particularly beyond the interior plains, its heartland. The BC Lions, a team based in Vancouver, drew an average of 18,000 fans to its games at BC Place in 2019. Fifteen years ago they routinely had

twice as many. Derek Mager, a data analyst who consults for CFL teams, describes the fans as mostly hardy old timers: "They've been doing it for as long as they can remember and as long as their grandparents can remember."

Executives such as Amar Doman, the new owner of the BC Lions, hope that they can bring in new blood. In 2019, before the pandemic shut things down, the league recruited players from Europe and Mexico in the hope of bringing in an audience outside Canada. It has also signed television broadcast deals in the United States and in Mexico to simulcast Canadian games. Earlier this year the CFL announced that it was in talks on a partnership with the XFL, an alternative American football league owned in part by Dwayne "The Rock" Johnson, a Hollywood star. It came to nothing.

Years ago the NFL and the CFL used to compete for talent, most notably in 1991 when Raghieb "Rocket" Ismail, a star player for Notre Dame, an American university, passed up a spot in the NFL and took \$26m to play in Toronto instead. Nowadays salaries in the NFL are over 30 times higher than further north. Canadian football has to compete not only with other sports, but also with Netflix and the like. It will take more than a Hail Mary pass to turn it around.

highest numbers since the poll began.

The reasons for disillusionment are not hard to detect. Only 22% say their country is governed for the benefit of everyone, rather than the powerful few, though that is up from 17% in 2018, reflecting the common effort to fight the virus. Only 17% think the distribution of wealth in their country is fair. Clear majorities think that access to health care, education and justice is unequal. In Chile 93% think access to health care is unfair—an issue that has been at the heart of recent protests there. Overall, more than half of respondents say they are in favour of protests, especially for better health and education and against corruption and other abuses.

Approval of governments rose significantly, to 40% from 32% in 2018. That again reflects a rallying round in the early months of the pandemic. But trust in institutions in general continues to fall (see chart 3). And only 12% of respondents say they trust most people, the lowest figure ever. Not surprisingly, economic problems and unemployment top the list of public

concerns. The majority of respondents (58%, down from 62% in 2018) continue to think a market economy is the only way for their country to develop. Most are opposed to immigration from Venezuela and Haiti.

Although China plays a much bigger role in Latin American trade and investment than in the past, more respondents think its influence is a negative one compared with that of the United States. In another finding 64% now think their country's relations with the United States are good, up from 57% in 2017.

In summary, while their faith in democracy has been tested, Latin Americans want to vote and want their voices to be heard. Despite the sense of solidarity generated by the pandemic, their underlying discontent is hardening. The politicians have been warned. ■



Latinobarómetro is a non-profit organisation based in Santiago, Chile, which has carried out regular opinion surveys across Latin America since 1995. To see more data visit: economist.com/latinobarometro

Argentina's libertarians

No me pises

BUENOS AIRES

What Javier Milei, a comic-book-loving libertarian, says about Argentina's politics

LONG LIVE liberty, goddammit!" proclaimed Javier Milei, a 50-year-old economist, at a meeting of comic-book aficionados in Buenos Aires in 2019. He went dressed as General Ancap, a character he invented who is the fictional leader of Liberland, a plot of land covering seven square kilometres that is disputed between Croatia and Serbia and which a Czech libertarian politician declared sovereign in 2015. Ancap is a portmanteau for anarcho-capitalist, a strand of libertarianism that seeks to abolish the state in favour of unfettered free markets. Mr Milei's superhero mission is to "kick Keynesians and collectivists in the ass."

Today Mr Milei is poised to become a national deputy for the real country of Argentina. In the first round of voting on September 12th (technically a form of primary) the alliance he leads got the third-highest number of votes in the city of Buenos Aires, the only place where it was on the ballot. It had been registered less than two months before the election. If the results are repeated in November, which is likely, it could win two seats in Congress. This would make Mr Milei the first self-described libertarian in Argentina's legislature, says Martin D'Alessandro, a political scientist at the University of Buenos Aires.

Mr Milei won recognition as an eccentric guest on talk-shows, eventually becoming the country's most interviewed economist on television and radio. A self-styled professor of tantric sex and one-time frontman of an obscure rock band, he claims not to have brushed his hair since he was 13, preferring to let "the invisible hand" do the work. His five mastiffs are named after economists, including Murray Rothbard, an anarcho-capitalist, and Milton Friedman, a more conventional one. To "make Argentina a great power again", he wants to reduce regulations, lower taxes and eliminate the central bank. He dislikes abortion, believing liberty to be unattainable if one cannot first be born. But same-sex marriage should be legal, as should most narcotics.

Libertarianism is finding fertile ground among youngsters. One candidate on Mr Milei's list for city legislators is 18 years old and still in secondary school. "My generation has grown up in recession—obviously that makes me think that what we have tried so far isn't working," says Iñaki Gutiérrez, a 20-year-old who voted for Mr

Milei. Lilia Lemoine, a cosplayer who has over 100,000 followers on Instagram and is Mr Milei's make-up artist, promotes his ideas by occasionally posting raunchy selfies wearing T-shirts with such slogans as "Free Market & Private Property".

Some analysts see Mr Milei as part of a resurgence of liberal ideas of all sorts. Ricardo López Murphy, a liberal economist and former presidential candidate, competed after a ten-year hiatus from politics and got 11% of the votes in the capital (he ran within the main opposition coalition). José Luis Espert, a liberal candidate in the wider province of Buenos Aires, where a third of the country's voters live, got 5% of votes there. In Argentina's crowded primaries those are big numbers. "This is a response against the Peronist logic of solving all problems through the state," says Lucas Romero, a political analyst, referring to the movement that has governed Argentina for most of the past 70 years.

The interest in libertarianism also reflects a backlash against conventional politics. The particular brand of Peronism promoted by the current vice-president, Cristina Fernández de Kirchner, who was president from 2007 to 2015, left Argentina with a currency nobody trusts, sky-high inflation and economic stagnation. The opposition, in power between 2015 and 2019, piled up debt but failed to improve things. "If Kirchnerism has become the establishment, libertarianism has become the reaction to the status quo," says Juan Germano,

head of Isonomía Consultants, a pollster. Almost half of voters do not identify with any of the big parties, up from 39% in 2019. Turnout was the lowest it has been since such elections were introduced in 2011. Mr Milei, who attacks government and opposition members together as a "political caste", is a big winner, but other parties, such as Marxists, got record results too.

Indeed, many of the people Mr Milei draws in are more conventionally right-wing, opposed to government policies such as legalising abortion and creating a quota for trans people in government jobs. "I will ally with all those who believe that the left is the enemy," Mr Milei told *The Economist*. He recently signed a letter sponsored by Vox, an ultranationalist party in Spain, that rails against "the advance of communism" in the Spanish-speaking world. Even climate change, he claims, is a "socialist lie". Eduardo Bolsonaro, the son of Brazil's president, and José Antonio Kast, a far-right presidential candidate in Chile currently polling in second place, have endorsed Mr Milei.

Will this growing popularity last? "If the next government manages to stabilise the economy, Milei's discourse will lose its appeal," says Sergio Berensztein, a political consultant. Third parties have done well before in the capital, especially in times of crisis, only to implode soon after.

Nonetheless, Mr Milei is having an impact. The head of the main opposition party has adopted his term "political caste". Even President Alberto Fernández seems nervous. He told a young audience shortly before the primaries that being rebellious should mean embracing "hippy and rock culture" and "May 1968", not "liberal" ideas that, he said, "caused catastrophe and penury for millions". Liberland may be no match for Argentina's 2.7m square kilometres, but General Ancap is conquering ground in the battle of ideas. ■



Always twirling, twirling, twirling towards freedom



Pakistan and the world

Now what?

DELHI AND ISLAMABAD

Pakistan wanted the Taliban to prevail. But the militants' victory may exacerbate its diplomatic and economic problems

UNTIL 2013 Salma Tanveer ran a private school in a suburb of Lahore, Pakistan's second biggest city. She and her husband, a civil engineer, were pious Muslims who had travelled to Mecca six times. Then things went wrong. The preacher in a local mosque accused her of blasphemy, claiming she had suggested that Muhammad might not have been the last prophet. On September 27th a lower court in the city pronounced its verdict. Ms Tanveer is to be fined 50,000 rupees (\$290), and also "hanged by her neck until death".

That may never happen. So far no one sentenced to death for blasphemy in Pakistan has actually been executed—although of the nearly 2,000 people charged with the crime since the law was made more ferocious in the 1980s, 128 have been killed by angry mobs. In Ms Tanveer's case it is the supposed experts who have run amok: in 2014 a panel of psychiatrists had declared her mentally ill and so unfit for trial, only to change its mind five years later.

Ms Tanveer's situation is extreme, yet her predicament is in some ways a reflection of the peculiar, precarious balance

that Pakistan itself has long sustained. In one avatar it is a nuclear-armed modern state that can hold elections, rely on scientific advice from highly qualified professionals and run courts where simple decency sometimes prevails. Yet its other face is a country of cruel and primitive laws, ill-educated mobs and people in power who are happy to make use of both.

Pakistanis are skilled at smoothing over such tensions, or simply ignoring them, but at crucial moments it is hard to do either. The dramatic return to power of the Taliban in Afghanistan, which shares a 2,640km-long border with Pakistan, has been one of those moments. Since the ignominious collapse of Afghanistan's Western-backed regime last month, after an expensive and violent 20-year experiment in

democratisation, Pakistan has oscillated uncomfortably between relief and anxiety. Pakistan's powerful deep state has for decades quietly backed the Taliban. Now, as the group's closest friend and main conduit to the outside world, Pakistan bears a big responsibility for Afghanistan's fate. Yet it is far from clear whether the tactical advantage won by chasing other players out will translate into longer term gains—boosting Pakistan's diplomatic weight and opening opportunities for commerce—or whether this unsteady country of 220m will be sucked into yet more Afghan turmoil, this time with no one else to blame.

Many in Pakistan—55% according to a recent Gallup poll—are pleased to have the Taliban ruling next door again, and delighted to see a bunch of sandal-clad Muslim peasants humiliate an infidel horde equipped with drones and satellites. "It is a great achievement," crows Zainullah Achakzai, a soft-drink vendor in the border town of Chaman, midway between Quetta in Pakistan and Kandahar in Afghanistan.

Other Pakistanis see the end of the Western-sponsored regime in Kabul as an ominous warning. They fear the return of old disorders associated with Afghanistan, such as jihadist terror, an influx of destitute refugees and ostracism by other countries. Already radical Islamists have raised the Taliban flag over mosques in Islamabad, the Pakistani capital, and attacks by Muslim radicals within Pakistan have ticked up again after several years of decline. According to the South Asia Terror-

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► rism Portal, a monitoring site, Pakistan saw more big incidents in the first nine months of this year—67, with 329 people killed—than in all of 2020. The steepest rise has come in the past two months, in areas along the Afghan border.

All the more worrying for Pakistanis is the fact that the Taliban, on capturing Kabul, opened prisons and freed, among others, Faqir Muhammad, a leader of the Tehrik-i-Taliban Pakistan (TTP), a terrorist group responsible for some of the worst massacres in Pakistani history. The TTP is thought to have as many as 5,000 men hiding in Afghanistan. On his release Mr Muhammad declared that the imposition of sharia in Afghanistan proves that it is possible to adopt it in Pakistan, too. He was referring to the same violent interpretation of religious law that the Taliban practise, and meant that his group would fight to bring it to Pakistan. “Every day brings renewed evidence of the extreme dangers posed to Pakistan,” tweets Mosharraf Zaidi, a columnist. “Taliban enthusiasts have to choose between the (Pakistani) republic and their ridiculous juvenile fantasies.”

You know my other side

In some ways Imran Khan, Pakistan's prime minister, also embodies the country's contradictions. A product of its privileged Anglophone elite, a former cricket star and global playboy, he is also a moralising religious conservative, an economic populist and an obedient servant of the generals who call the shots in Pakistan. His government recently proposed a law that would prescribe up to two years in jail for any civilian who “ridicules, brings into disrepute or defames the armed forces of Pakistan”. The draft stipulates that such cases should be tried in military courts. In a meeting with Islamic scholars last month, Mr Khan declared that under his rule no new law would ever go against religious guidelines.

Dismissed by some as “Taliban Khan”, and so far not even accorded a phone call from President Joe Biden, the prime minister has been a passionate and articulate defender of Pakistan's Afghan policy. Given space on the opinion pages of the *Washington Post*, he detailed the heavy cost in lives and money that Pakistan has paid because of the troubles next door, and voiced exasperation that Western governments failed to grasp that many Afghans viewed NATO troops as no different from the Soviet ones who invaded two decades earlier. “Surely Pakistan is not to blame for the fact that 300,000 well-trained and well-equipped Afghan security forces saw no reason to fight the lightly-armed Taliban,” he wrote.

Mr Khan left out other pieces of the puzzle. He did not mention that much of the Taliban leadership has enjoyed a long and close relationship with both Pakistani Is-

lamists and the ISI, the country's intelligence service. He failed to note a crucial difference in perspective: for Pakistan's generals the danger of blowback from jihadism in Afghanistan, while real—Mr Khan says his country suffered 16,000 terror attacks between 2006 and 2015—was always weighed against the crucial mission of keeping Pakistan's greatest enemy, India, out of their backyard.

The prime minister also neglected to explain that Pakistan's spies have long favoured the Taliban because, unlike traditional Afghan nationalists, the religious fanatics care little for historic Afghan claims to bits of Pakistani territory and do not speak of uniting Pushtuns, a 60m-strong ethnic group that is divided by the border. And needless to say Mr Khan did not remind his American audience that Osama bin Laden, the al-Qaeda leader, spent years concealed in a big house in Pakistan, next door to an army base and retired army officers, before being found and dispatched by American Navy Seals.

Still, the outcome in Afghanistan would seem to be good for Mr Khan. Since winning power in 2018 the prime minister has struggled to maintain popularity. Many Pakistanis, aware that the army is the real power in the land and more concerned with rising prices than political antics, see little change in their lot. Mr Khan's relentless crusade against allegedly corrupt former officials, which included hounding the previous prime minister, Nawaz Sharif, out of the country, has proved more divisive than popular, although it has succeeded in disrupting and weakening opposition parties. His government's clumsy efforts to tame Pakistan's often surprisingly feisty press, by threatening reporters and owners, blocking websites and proposing a

law to create a mostly state-appointed oversight board for all media, has not so much won kinder coverage as generated mistrust of the government.

Yet Pakistan's victory-by-proxy in Afghanistan now makes Mr Khan look prescient, with his forthright argument for the world to accept the reality of the Taliban and to send aid to Pakistan's poor “brothers”. It helps, too, that for reasons that are not yet understood, covid-19 appears to have hit Pakistan far less hard than its neighbours. The death rate per million in Iran is more than ten times Pakistan's. Criticised in spring last year for his decision not to impose a sweeping lockdown as India did, Mr Khan now appears wise. An opinion poll at the end of August gave the prime minister a 48% approval rating, his highest yet. With the full backing of the deep state guaranteed, and opposition parties reduced to regional rumps, there is no one significant to stand against him in the next election, in 2023. Not only may Mr Khan become the country's first prime minister to complete a full term. He may be the first to serve two consecutive ones.

Can no longer hide

That would please Rawalpindi, the twin city to Islamabad that houses army HQ and is synonymous with its overweening power. Having tried coups d'état in the past, Pakistan's generals, fixated on the struggle against a far bigger India and enjoying a comfortable lifestyle of “cantonments”, have learned that it is better to erect a presentable political facade than to get too involved in the messy business of direct rule. But this can be tricky. The previous prime minister, Mr Sharif, often chafed against orders. Not so Mr Khan. “Both sides seem to be working very well together, essentially as one unit, in this government,” says Madiha Afzal of the Brookings Institution, a think-tank in Washington.

From the generals' point of view there is no ambiguity about the outcome in Afghanistan. It is, after all, what they have worked for, stealthily and patiently, for years. They viewed the departed regime as at best unreliable and at worst hostile. Correctly or not, Pakistani intelligence has long obsessed over Indian spies using Afghanistan as a springboard for sabotage. Now Pakistan can with greater assurance face an India that has grown more aggressive under the Hindu-nationalist government of Narendra Modi.

That the collapse in Kabul was swift and almost bloodless was an added bonus. Another plus is that Pakistan has shown its closest ally, China, that it was right all along: that the Americans would not last, and that Pakistan, which has been a sink for Chinese aid without really extending the Asian power's strategic reach, may in the end have something to deliver. ►



► In the Taliban Pakistan's generals have gained not perfect allies, but a group over which they exercise more leverage than anyone else. Significantly, the interim government announced by the Taliban in September appeared to demote several figures seen as estranged from Pakistan and to promote those closest to it. Senior members of the Haqqani network, widely seen as a cat's paw of the ISI, hold several positions in the cabinet, including minister of the interior. Mohammed Yaqoob, the new defence minister and son of Mullah Omar, a Taliban founder, is also pally with Pakistan. It was no coincidence that a relaxed-looking Faiz Hameed, then the Pakistani intelligence chief, had himself appeared in Kabul shortly before the announcement. Many in Islamabad caution, however, that, although the Taliban clearly listen to advice, they may not always do as they are told, and may indeed split into factions and thus be unable to do so in any case.

If Pakistan's military and civilian bosses have both profited from the change of guard in Kabul, what about everyone else? Despite escaping the worst effects of covid-19, the country is not in good health. Over the past decade GDP per person has grown by less than 2% a year on average (see chart 1). At barely \$1,200 it is not even two-thirds of India's.

By other development indicators, too, Pakistan trails its region. The only South Asian country with a lower life expectancy is Afghanistan. With its exports performing poorly and imports from China soaring (and crushing many local industries), Pakistan has grown increasingly reliant on remittances—worth \$21bn in 2019—to prop up its balance of payments. Its other crutch has been bail-outs from the IMF: Pakistan has received 22, more than any other country (see chart 2).

Though the prospect of becoming a regional trading hub remains a distant dream, Pakistan faces a more immediate crunch. Mr Khan ran for office promising to build an Islamic welfare state. What Pakistanis have experienced instead is inflation—which reached 11% in April but has now cooled to 9%—and a currency that has lost a quarter of its value against the dollar since he became prime minister. Rising global oil prices are set to deliver another unwelcome jolt.

Shaukat Tareen, Mr Khan's fourth finance minister, has been trying to persuade the IMF to ease terms on a \$6bn bail-out that was agreed in 2019, but then delayed until February this year after the prime minister balked at the required belt-tightening. The release of an added \$2.75bn in special drawing rights in August, Pakistan's automatic share of the IMF's global push to compensate countries for covid troubles, came in the nick of time to prop up sliding confidence. In July the stock of

Land of the poor

Pakistan, GDP per person
% change on a year earlier



Pakistan's foreign debt swelled to some \$122bn, close to 50% of GDP and, more worryingly, almost five times the value of its net foreign-currency reserves.

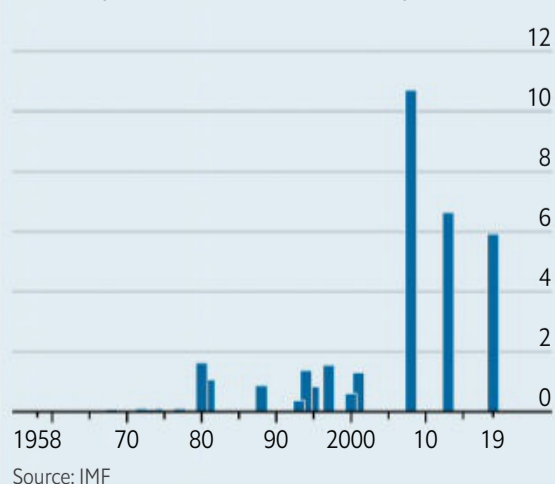
Much of this debt is now held by China, Pakistan's "all-weather friend" and its partner in one of the most ambitious branches of the Belt and Road Initiative. The China-Pakistan Economic Corridor (CPEC) is supposed to see some \$67bn of Chinese investments in Pakistan (see map on previous page), much of it in vital power plants and transport links. But according to a new study by AidData, a research group, of the \$34.3bn in assistance promised by China between 2000 and 2017, at least \$27.8bn has come in the form of loans on commercial terms, rather than the concessional lending typical of Western aid.

To the discomfort of Pakistan's generals, who might wish for greater independence, the country has also grown increasingly dependent on China for arms. Pakistan alone soaked up a hefty 38% of total Chinese weapons exports between 2016 and 2020, according to the Stockholm International Peace Research Institute, a think-tank.

Yet China has not always been happy with what is, in effect, its closest ally of any size. Repeated terrorist attacks targeting Chinese workers, including one in July

Very well, a loan

Pakistan, value of loans from the IMF, \$bn



that left nine of the visitors and four Pakistanis dead, have diminished trust. The remoteness of China's border with Pakistan from its industrial heartland and still-poor road linkages mean there is little overland trade. Whatever the alignment of their interests, Pakistan's economy is just 1.75% of China's. Small wonder that Mr Khan, a champion of Islamic causes everywhere else, keeps quiet about the incarceration of China's Muslim citizens in Xinjiang.

The payoff to Pakistan for such loyalty is that China lends immense and increasing weight to its otherwise disadvantageous balance of power with India. This has a downside for regional stability, in that it makes Pakistan unwilling to compromise over its eternal claims to the Indian-controlled part of Kashmir, which in turn provokes Indian mulishness over its own counterclaims. In 2019 a suicide bomb, for which a Pakistani group claimed responsibility, killed some 40 Indian soldiers in Kashmir, provoking clashes that came close to open warfare between the nuclear rivals. Later that year Mr Modi's government stripped Kashmir of its limited autonomy. This might in the past have roused international condemnation. The lack of it has painfully exposed Pakistan's waning influence.

Let you down so many times

Mr Khan's current diplomatic offensive comes in the context of the dwindling options bequeathed by his country's feeble economy, hypocrisy over Xinjiang and long history of double-dealing. "Pakistan is trying to use Afghanistan to rehabilitate itself," says Michael Kugelman of the Wilson Center, an American think-tank. "Its message is that we were right all along, there never was a military solution, so it is wrong to blame us." What Pakistan now wants is for other countries to lend a hand, and help shore up the Taliban government as the only way of sustaining regional stability. The trouble is that, just as Pakistan's leaders imagine the country's strategic significance to have grown because it holds unique influence over the Taliban, the West's withdrawal has entailed a steep decline in its interest in the region.

Mr Khan may well be right that the best hope for preventing a humanitarian disaster in Afghanistan now, and for keeping a grip on jihadist groups that linger on its soil, is to help the Taliban keep a lid on things. "If Afghanistan destabilises, the spillover effect comes to Pakistan," says Moeed Yusuf, Mr Khan's national security adviser. "After Afghanistan we are the biggest victim of the past four decades and we are not interested in going there again." But coming from a country that has for so long run with the foxes while hunting with the hounds, as Pakistan has, such words carry limited credibility. ■

Asian cultural exports

Tentacular spectacular

SEOUL

South Koreans are bemused by the global success of “Squid Game”

WHEN “SQUID GAME” appeared on Netflix in mid-September, many South Korean reviewers were underwhelmed by the home-grown survival drama. They found the characters clichéd, the plot unconvincing and the violence gratuitous. The whole thing, they complained, was too similar to older films, such as the Japanese “Battle Royale”, and added nothing new to the survival genre, notwithstanding the striking set designs and star-studded cast. “Even though every genre has its clichés, too much in ‘Squid Game’ reminds you of every other movie you’ve ever seen,” complained one critic.

“Squid Game”, which takes its name from a common Korean schoolyard game, follows a group of debt-ridden losers, including an unemployed gambling addict, a North Korean refugee and a Pakistani migrant worker. Dressed in green tracksuits evoking those worn by Korean pupils during school sports and policed by shadowy supervisors in black masks and hot-pink jumpsuits, they fight for a nearly \$40m prize—and their lives—in violent versions of traditional Korean children’s games. Rich spectators in embroidered robes watch from a VIP lounge filled with exotic plants and crystal chandeliers. Hwang Dong-hyuk, the director, says the show is an allegory about modern capitalism.

“Squid Game” has taken the world by storm. It is currently the most-streamed show on Netflix in all but a handful of the company’s markets. It has entered mainstream cultural consciousness, spawning millions of videos on TikTok, thousands of memes and dozens of earnest articles dissecting the show’s meaning. Cafés all over the world have started selling their own takes on *dalgonna*, a Korean candy featured in one episode. In Paris fights broke out as fans tried to force their way into a pop-up shop where visitors could pose with staff dressed like the pink-suited enforcers from the show.

The brutality of the competition has also rung true for ordinary South Koreans struggling with unaffordable housing and a sluggish labour market. Politicians have begun referring to the show when attacking opponents. Yet after a brief spell at the top of the Korean Netflix charts, “Squid Game” has been overtaken by “Hometown Cha-Cha-Cha”, a saccharine K-drama.

The global craze has prompted bemusement in South Korea. “Nobody around me understands the global hype, and neither do I,” says In-young, a 26-year-old from Seoul who stopped watching after a couple of episodes because it disturbed her to see her childhood games depicted as a brutal struggle for survival. One Korean critic speculates that the combination of violent entertainment with a very on-trend critique of capitalism explains the show’s appeal to Western audiences, who are used to such themes from American productions such as “The Hunger Games”, set in a dystopian world of grave social injustice.

No doubt the hypnotic geometry of the design, the lush costumes and eminently meme-able stills also help—as does Netflix’s strategy of dubbing and subtitling its productions in dozens of languages. That had already created hits such as “Lupin”, a French thriller with an underlying theme of social injustice, which the Korean show is likely to dethrone as the company’s most successful non-English production.

The embrace of “Squid Game” is a reflection of South Korea’s outsize cultural power on the global stage. It may also have benefited from following in the footsteps of “Parasite”, a film about—what else—social injustice, which won the Oscar for best picture in 2020. But most of all, it shows that, like love and money, complaints about inequality have no language.



Cephalo soldiers

Rohingyas in Bangladesh

Shadowed by violence

A Rohingya leader’s murder highlights rising insecurity in refugee camps

DEATH THREATS did not appear to faze Mohib Ullah. “If I die, I’m fine. I will give my life,” he told reporters in 2019. A science teacher in Myanmar before he and hundreds of thousands of other Rohingya refugees were forced to flee in 2017, the 46-year-old became one of the displaced community’s most prominent voices on the international stage. He compiled databases of Rohingyas killed in Myanmar, organised huge rallies and spoke at the UN. Yet his fame and his resistance to violence also earned him enemies. On September 29th gunmen burst into his shack in the Kutupalong refugee camp in southern Bangladesh and shot him dead.

A persecuted ethnic minority in their native Myanmar, some 700,000 Rohingyas were chased from their homes by the Burmese army and allied militias four years ago. Their accounts of rape, murder, and mutilation shocked the world. Yet the violence did not stop at the border. The sprawling refugee camps in Bangladesh—now home to more than 1m refugees—have become bases for Rohingya militant groups and criminal gangs. The most powerful is the Arakan Rohingya Salvation Army (ARSA), a cross-border insurgency. (Bangladeshi security forces deny that there are any militants in the camps.)

Mr Mohib Ullah’s brother, who was with him when he died, blamed ARSA for the assassination. The insurgents opposed Mr Mohib Ullah’s peaceful approach and tried to co-opt him, which he resisted. ARSA denied responsibility for his shooting, pointing the finger instead at criminal gangs.

These gangs run drug- and people-trafficking rings and wage bloody feuds against one another, terrorising the camps’ residents. Violent crimes take place “all the time at night”, says a Rohingya woman. These include robberies, assaults, hostage-takings and killings. So afraid is she to go outside after dark, she says, that she uses a corner of her tiny shelter as a toilet. Kidnappings are common, too. One Rohingya man tells of a friend who was abducted by an armed group. They threatened to kill him if his family did not pay 50,000 taka (US\$583), says the man.

Rohingya women have come under particular attack, as men—often linked to gangs or militias—try to impose conservative gender norms. When Nur (not her real name), a young Rohingya woman, won a scholarship to university, men affiliated



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▶ with ARSA from within her camp gang-raped her and then extorted money from her family, she says. They continue to harass her parents, insisting her father marries her off. He refuses. Other women, especially those who work with NGOs, are threatened with violence if they do not stay home or hand over a slice of their earnings.

Covid has made matters worse. Tight restrictions imposed on the camps by the Bangladeshi government have slashed the number of aid workers allowed inside. Bangladeshi forces still patrol the camps, including after dark, but their presence is

patchy, says John Quinley of Fortify Rights, an advocacy group. They drive through the main road maybe once or twice at night, says the Rohingya woman. Many parts of the camps are inaccessible by road. Naimul Haque, a commander of Cox's Bazar Armed Police Battalion, which is responsible for security in the camps, disagrees, saying that police patrol in cars and on foot throughout the day and night. The Rohingya "are living here very peacefully", he says. "They're very happy."

In the past reports of rising insecurity in the camps have been met with curbs on

residents' freedoms. In 2019 Bangladesh's government banned refugees from owning SIM cards and cut mobile-internet networks in the camps. At the start of 2020 it erected barbed-wire fences and watchtowers around them.

Bangladeshi authorities have launched an investigation into the murder of Mr Mohib Ullah, and have arrested five suspects. The foreign minister has vowed to bring the killers to justice. Yet even as Rohingyas in the camps mourn Mr Mohib Ullah, some fear the fallout will be yet more restrictions on their lives. ■

Banyan Nil and void

Despite the risks, Asian countries are right to abandon zero-covid strategies

FOR MUCH of the pandemic, many of the wealthier countries and territories in the Asia-Pacific region have pursued a "zero-covid" strategy, whether explicit or not. The success of the approach, involving closed borders, quarantine hotels and severe lockdowns, has generally been spectacular. Hong Kong has had no locally transmitted infections since mid-August. In the pandemic's first year, Taiwan officially counted about a dozen deaths from covid-19. New Zealand is the standout zero-covid state, with just 27 deaths. Indeed, because fewer people died of things like flu or road accidents in lockdown, both countries recorded fewer overall deaths than in a normal year, according to *The Economist's* excess-deaths tracker.

Yet those with a good first act are struggling in the second. The coronavirus, especially the highly infectious Delta variant, usually has the last word. In Taiwan cases leapt in May, and the official death toll has risen to nearly 850. In Singapore daily infections have risen from low double digits in early July to more than 3,000 now. Australia, with some 2,000-odd daily cases, is following a similar trajectory. Even in New Zealand, now with double-digit daily cases, the dam has broken.

"The Delta variant is already out there. It's too late to stop it," says Tikki Pangesu, the WHO's former head of research policy, now at the National University of Singapore. It is therefore appropriate for countries to abandon zero-covid strategies. Singapore was the first. In June its government said it was time to live with the virus. Singapore's vaccination programme is Asia's most successful, with 82% of the population fully jabbed. That boosts the case for reopening.

In late August Scott Morrison, Australia's



prime minister, announced the end of his country's "covid zero" approach. Cases would be allowed to rise, provided that hospitals could cope with them. Once vaccination rates top 80%, perhaps by the end of the year, most restrictions would be eased. "It is time", as Mr Morrison puts it, "to give Australians their lives back."

Vietnam ditched its zero-covid strategy last week. This week came New Zealand's capitulation. Though the prime minister, Jacinda Ardern, won praise for her sure handling of the pandemic, the mood has soured. On October 2nd Auckland residents defied stay-at-home orders to protest against restrictions. Two days later Ms Ardern acknowledged, "The return to zero is incredibly difficult." She announced a "new way of doing things" that included lifting lockdown restrictions.

It remains unclear what abandonment means in practice. In New Zealand less than half the population is fully jabbed. The vaccination programme is about to go into overdrive. Yet lockdowns will probably remain on the menu, and open borders are still a long way off. Ms Ardern

seems to want it both ways, promising to continue a "very aggressive approach".

Likewise, Australia's ending of zero covid still leaves the full reopening of borders a distant prospect. The first goal, from next month, is to allow all citizens and permanent residents back in. Many of them, astonishingly, have struggled for 18 months to get home. The idea is to let vaccinated returnees quarantine at home rather than force them into hotels. Even for such small moves, Australians deliberate every detail. The country is a long way from accepting risk and getting on with living with the virus.

As for Singapore, jitters are growing with rising cases. A rare public petition calls for mandatory quarantine for all overseas travellers. The government has reimposed local restrictions, including home-based schooling for children. One innovation, "vaccinated travel lanes" allowing quarantine-free travel with certain countries, is likely to be expanded only slowly from the current jurisdictions of Germany and Brunei.

Yet if abandonment looks like no strategy at all, then consider the alternative. Hong Kong has stuck doggedly with zero covid. A harsh, mediocre government whose public-health messaging either goes unheard or is little trusted has meant a slow vaccination drive. Less than 15% of those over 80 have had at least one jab. Because the virus is not present (for now) in Hong Kong, no level of herd immunity has been bestowed by past infections there or in the other zero-covid countries. And the low risk of infection dissuades people from getting their shots. Hong Kong's approach condemns the territory to endless limbo. Abandonment of zero covid—for all the inevitable hesitations and temporary reversals—is the way to go.





Menacing Taiwan

Too close for comfort

NEW YORK

China is sending near-daily sorties near Taiwan, raising fears of a crisis

IT WAS A deliberate provocation, patriotically timed. On October 1st, the country's national day, China flew 38 aircraft, including fighter jets and bombers, towards Taiwan (one type, the J-16, is pictured). They entered the island's Air Defence Identification Zone (ADIZ), a buffer region where intrusions often prompt military alerts. It was the year's daily record. Over the next three days China sent another 111 planes. In response, Taiwan scrambled jets, broadcast warnings and tracked the Chinese aircraft with missile systems. The island's defence minister, Chiu Kuo-cheng, called it "the toughest situation I have seen in more than 40 years of my military life".

The skies around Taiwan were quieter as *The Economist* went to press. On October 6th China flew no military planes through the ADIZ. So far none of the flights has crossed into Taiwan's territorial airspace, which extends 12 nautical miles (about 22km) from the island. The intruders typically fly 35 nautical miles or more from the Taiwanese coast. But American officials clearly share Mr Chiu's anxiety. On October 6th America's secretary of state, Antony Blinken, called on China to halt its "provo-

cative" activity near Taiwan. Also that day, Jake Sullivan, President Joe Biden's national security adviser, conveyed America's concern at a meeting in Switzerland with Yang Jiechi, China's most senior diplomat and a member of the ruling Politburo.

China is unabashed. Its state media have described the sorties as a demonstra-



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tion of the country's ability to conduct "a wartime air attack". In recent years China has been ratcheting up displays of its growing military capability, especially at sea and in the air, as a warning to Taiwan. Its message is that if the island refuses to accept China's claim to sovereignty over Taiwan, China may use force. Mr Chiu, a retired general, told Taiwan's parliament on October 6th that China would be able to mount a full-scale invasion of Taiwan by 2025, at a cost that the Communist Party in Beijing may consider bearable.

Taiwan's ADIZ extends over a part of China's coast, so it is not surprising that Chinese military aircraft often fly into it (see map). But China has taken to probing parts of the ADIZ that are much closer to the island, skirting around the south-western end of what is known as the "median line", an informal boundary in the Taiwan Strait midway between the island and the mainland. China now conducts such flights near southern Taiwan almost every day. They could be intended to wear down Taiwan's defences (its air force is much smaller than China's) and condition it into treating big sorties as normal in order to make it easier for China to disguise the early phase of an attack as an exercise.

Assessing China's intentions is extremely difficult. It is fond of sabre-rattling when it believes that Taiwan is moving too close to asserting permanent separation from China, or when America cosies up to the island. Recent sorties may relate to such developments. Earlier this year the Biden administration secured public state-

ments of support for Taiwan from the European Union, the G7, Japan and South Korea. September was an especially irksome month: Taiwan sought entry to a trans-Pacific free-trade group just after China had made the same request (see Chaguan) and American and British naval ships sailed through the Taiwan Strait. On September 15th America, Britain and Australia agreed to a security partnership, AUKUS, that is viewed in Beijing as an alliance aimed at keeping China in check. In the days that followed, China ramped up its flights into Taiwan's ADIZ.

If China's planes were to edge closer to airspace over the island itself, it is unclear how Taiwan would respond. Tsai Ing-wen, Taiwan's president, has said that Taiwanese pilots should not be the ones to shoot first—at least not without explicit orders. Taiwan's latest Quadrennial Defence Review, produced this year, was vague about this, saying only that the island's responses should get stronger the closer that Chinese aircraft get to the island.

Some analysts wonder whether a Taiwanese fighter would be authorised to fire anything more than a warning shot, even if a Chinese plane were to fly over Taiwanese land. In a forthcoming article, two think-tankers in America, Bonny Lin of the Centre for Strategic and International Studies and David Sacks of the Council on Foreign Relations, note Taiwanese press reports which say that Taiwan may have divided its airspace into three zones of engagement: a "surveillance zone" of 30 nautical miles, a "warning zone" of 24 nautical miles and a "destruction zone" of 12 nautical miles. Ms Lin and Mr Sacks say that if any engagement were to lead to the death of a pilot, even accidentally, "both sides would be ill-equipped" to keep tensions under control.

There has been no such casualty since 1958. But accidents have happened nearby. In 2001 a mid-air collision off the coast of southern China between a Chinese fighter and an American naval spy-plane killed the Chinese pilot. The crippled American plane landed at a Chinese military airbase. Ten days of tension ensued before the crew were allowed to leave. Twenty years later, such an encounter may be far harder to resolve. Relations between America and China are considerably worse. China suspended official contacts with Taiwan after Ms Tsai became president in 2016 and she failed to endorse the view of leaders in Beijing that there is only "one China".

Should a crisis occur in Taiwan's skies, nationalist sentiment in China could further complicate matters. *Global Times*, a jingoistic party tabloid in Beijing, declared in April that if Ms Tsai's government were to continue its "hostile" behaviour (working closely with America counts as such, it suggested), China's fighter planes would be prepared to fly across the island and dis-

regard the "red line" relating to territorial airspace. Ms Tsai appears unfazed. In an upcoming issue of *Foreign Affairs*, she writes that Taiwan hopes to "shoulder more responsibility by being a close political and economic partner of the United States and other like-minded countries". She warns that people in Taiwan will "rise up should the very existence of Taiwan be under threat". Such words will not stop the sorties, nor assuage fears that a mishap could turn into something far bloodier. ■

Old Beijing

Bells and whistles

BEIJING

Artists and master craftsmen join forces to preserve sounds of old Beijing

WITH ONE'S eyes closed, Beijing's main roads sound like any Chinese city. All around is the roar of traffic, punctuated by honks from delivery scooters, recorded safety warnings from buses and the occasional bell of a rental-bicycle. But in the capital's last *hutongs*, as its ancient grey-walled alleys are known, fragments of an older soundscape can be heard.

The chirping of caged crickets is one. Hung in the doorways of courtyard homes or small shops, the insects bring a rural note into the city. A quarter-century ago their song was common. Beijing was still home to cycle rickshaws and delivery tricycles. Some riders hung crickets from their handlebars, inside spherical cages woven from reeds. Today, cricket-sellers cling on, lurking near a motorway bridge in southern Beijing. A big specimen sells for 20 yuan (\$3). They are heirs to a grand tradition. In imperial times, bored courtiers and Manchu army officers spent for-

tunes on caged crickets and songbirds.

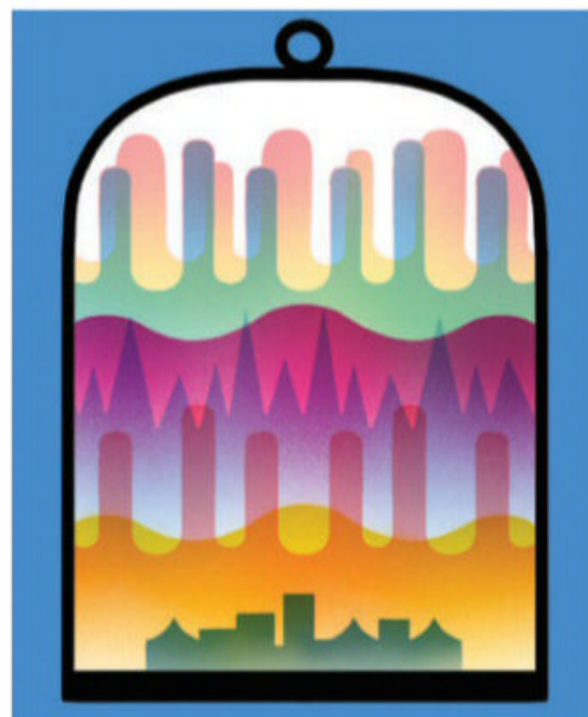
Another relic is the musical clanking of steel plates strung on a cord, announcing a knife sharpener's arrival. Several such specialists still work Beijing's streets. Their sounding-plates, sometimes supplemented with a distinctive cry, summon customers from *hutong* homes and high-rise flats. But numbers are falling. "What young man would study this?" asks Craftsman Liu, a sharpener for 40 years, as he hones a cleaver on a whetstone mounted on his bike.

An almost-vanished Beijing sound is one of the strangest. An eerie thrumming, like the noise of flying saucers in an old science-fiction film, it is made by homing pigeons, or more precisely by pigeon whistles. Tiny flutes made from bamboo or gourds, these are sewn into the tail feathers of pigeons kept in rooftop coops. The birds are released twice a day to circle in the sky. Even 20 years ago, it was possible to hear this melancholy noise in the *hutongs*. It was particularly associated with cold winter skies, for pigeons moult in summer, making feathers too weak to hold whistles. Alas, modern Beijing is a city in a hurry. Many *hutongs* have been razed to make way for wide avenues and shiny skyscrapers, leaving no room for pigeon lofts.

Zhang Baotong is one of Beijing's last master pigeon-whistle makers. As a child in the 1950s he heard the dong of camel bells as dusty caravans carried coal to a nearby railway station. He learned to make whistles in boyhood from a famed master who shared a courtyard with his family. Today Mr Zhang has apprentices and a workshop lined with certificates calling him a living treasure. But many of his whistles are sold to collectors and never see the sky.

Mr Zhang is advising a museum of sound that will open next May in Songzhuang, a suburb of Beijing that is popular with artists. A rooftop coop is planned, with more than 100 pigeons that will take to the skies for visitors. It is hoped that pigeon-whistles will be heard each day over Songzhuang, at least in cooler months.

The co-founder of Fen Sonic HQ, a cultural institute that will run the museum, is Colin Siyuan Chinnery, a British-Chinese artist and collector of Beijing's sounds. He lists the gongs, rattles and rhythmic cries used by fortune tellers and medicine sellers, doctors, barbers and knife sharpeners, until private enterprise was crushed in the 1950s. Many of these will feature in an exhibit about old Beijing narrated by an animation of Mr Zhang, among others. Other places had hawkers' cries, but true Beijingers dismiss peddlers elsewhere as mere bellowers, Mr Chinnery says. Beijingers' pride is one tradition that never fades. ■



To hear some of the sounds described, listen to our podcast, *The Intelligence*: economist.com/oldbeijing

HOW PROCUREMENT CAN MITIGATE TRADE PRESSURES

Trade remains complex and vexing, even for enterprises that have operated globally for decades. There are huge inconsistencies in how world powers approach trade, apply restrictions and implement tariffs that will affect every business — directly and indirectly.

The pressures aren't waning. The U.S.-China trade war, which intensified over the past few years, remains a factor. In addition, the European Commission recently adopted a proposal for a new Carbon Border Adjustment Mechanism that will put a carbon price on imports of a targeted selection of products. And the list goes on.

What Can Enterprises Do?

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Expand collaboration across the supply chain. An integrated approach is a linchpin to lessening the effect of trade disruptions. If new tariffs are levied or a trade war breaks

out, procurement can't remain in a vacuum. Procurement and supply chain leadership must work together to assess the potential impact that future tariffs will have on their bottom line and address the risks.

Build agile and strong relations with the supply base. Partnership must extend beyond the enterprise. To assuage the impact of tariffs, procurement must collaborate with suppliers and other parties in the extended supply chain to plan and implement innovative solutions.

Be prepared to switch suppliers. Tariffs don't (normally) affect a single supplier within any ecosystem. However, their ability to respond and react to these tariffs will vary significantly. If it becomes too costly to work with a supplier and they cannot minimize the impact of tariffs, procurement needs to find a new supplier. That can create a new set of challenges.

Deploy the right tools. While trade issues are complicated and won't be resolved soon, enterprises can blunt the impact of trade uncertainty through collaboration, visibility and supplier relationship management tools within the supply chain.

For those who are unwilling to act, they will certainly be on the losing side of the equation.

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Trade issues will continue to impact procurement.

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Chaguan | China's vision of free trade

China's motives for joining the CPTPP range from benign to worrying



SOMETIMES CHINA makes shrewd decisions. At other times it is capable of grave mistakes, even acts of wickedness. But the Chinese government is rarely silly. In particular, officials do not stake the prestige of their supreme leader, President Xi Jinping, on a whim. That makes it worth revisiting dismissive foreign reactions to a move that, though dry-looking, is important and revealing.

On September 16th China formally asked to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), an 11-nation trading block that is home to 500m consumers in Asia and the Americas. Though China's timing was sudden, the move was predictable. Months ago Mr Xi said China would "favourably consider" applying. His word is law. But many foreign analysts (and in private, some foreign government officials) confidently predict that China will never be admitted.

Scepticism is understandable. In the name of market opening and fair competition, the CPTPP's current members—Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam—agree to limit subsidies for large state-owned enterprises (SOEs), permit most cross-border flows of data and outlaw forced labour, among many other promises. If those standards seem hard for China to meet, given its statist, security-obsessed turn in recent years, that is no accident. The CPTPP is the orphaned offspring of an earlier, American-led agreement, the TPP. That was crafted by the Bush and Obama administrations with the aim of making Asia and the Pacific into a bastion of rules-based free trade, leaving China with the choice of reforming its model of state-dominated capitalism or remaining on the outside. Then came President Donald Trump, whose scorn for free trade and indeed rules led him to quit the TPP on his first full day in office. When Japan guided other founding members to forge a Trump-less alternative, the CPTPP, China spotted an opening.

Officials in Beijing have spent two years studying how hard it will be for China to join. Their conclusion is that China will find accession arduous, not least because of strained relations with existing members who have a veto, notably Australia, Canada and Japan. But they also reckoned that China would face still harsher scrutiny were America to be inside the CPTPP—a distant prospect currently, due to Biden administration pledges to put American

workers ahead of corporate profits and expanded global trade.

China, in short, is serious. Its ambition is best explained by different forms of rising confidence, some more alarming than others. Start with a benign, cautious optimism among those sometimes called reformers. That camp once promoted economic liberalisation. In a China intently focused on political control, stability, security and self-reliance, reformers now find it safer to push for a more efficient state, not a smaller one. These scholars, technocratic officials and business types argue that China is so strong and technologically advanced that it gains, on balance, from removing barriers to trade and upholding common international rules, for instance to protect Chinese intellectual property. Such advocates of openness believe that China can compete in a free-trading world, but is not yet ready to write trade regulations on its own. They welcome a chance to help shape norms during negotiations such as the CPTPP-accession process, which they expect to take years. They hope that external pressure will overcome special interests at home, as happened when China joined the World Trade Organisation (WTO) in 2001. Given the consensus in official Beijing that America is bent on thwarting China's rise, pressure from the CPTPP—a pact without America in it—is especially welcome. Wang Huiyao runs the Centre for China and Globalisation, a think-tank that champions CPTPP entry. China's economy has grown 11-fold since admission to the WTO, he notes. It is "an easy sell" to call CPTPP a new chance to join a mini-WTO.

A different sort of confidence moves nationalists, including government leaders, who embrace the CPTPP. They do not just think China's state-led system capable of competing in the world. They think it is manifestly superior. Nationalist-minded Chinese officials and scholars think that market forces bring desirable efficiencies, but their priority is stability, which they see as China's secret weapon. As exhibit A they point to their strict, collective handling of the covid-19 pandemic, in contrast with grim death tolls in the freedom-obsessed West. Their gamble is that joining the CPTPP will increase foreign trade and impose useful disciplines, without undermining strong political control of the economy. They sense a historic chance to advance a cherished goal, namely to make the world respect China's political system.

Sceptics about China's chances assert that CPTPP rules ban subsidies and aid for state firms. In fact there are exemptions for local-government SOEs and those delivering unprofitable domestic services. In accession talks China may accept regulation of SOEs operating abroad in profitmaking commercial sectors, while insisting that state firms at home are needed to supply jobs, manage critical resources or maintain an orderly financial system. China's ever-stricter rules about cross-border data flows will be harder to finesse, though public-order exemptions may help. China simply denies it has forced labour, daring trade partners to disbelieve it.

America vows to work with allies, then doesn't

The biggest barrier to China's entry is not this or that rule, but trust. A senior Japanese official expresses worry about China offering to write domestic laws that purport to comply with the CPTPP, but fall short. It would be easier to challenge such moves with America at the table, he sighs. Fears are justified. China has a free-trade pact with Australia, but is currently blocking many exports from that country, in an unofficial boycott imposed after Australian leaders called for a global probe into covid-19's origins. Some CPTPP members think China is too big a bully to join. China's bet is that, for a decisive number, it is too big to keep out. ■

**SPECIAL
REPORT:**
World trade

→ October 9th 2021

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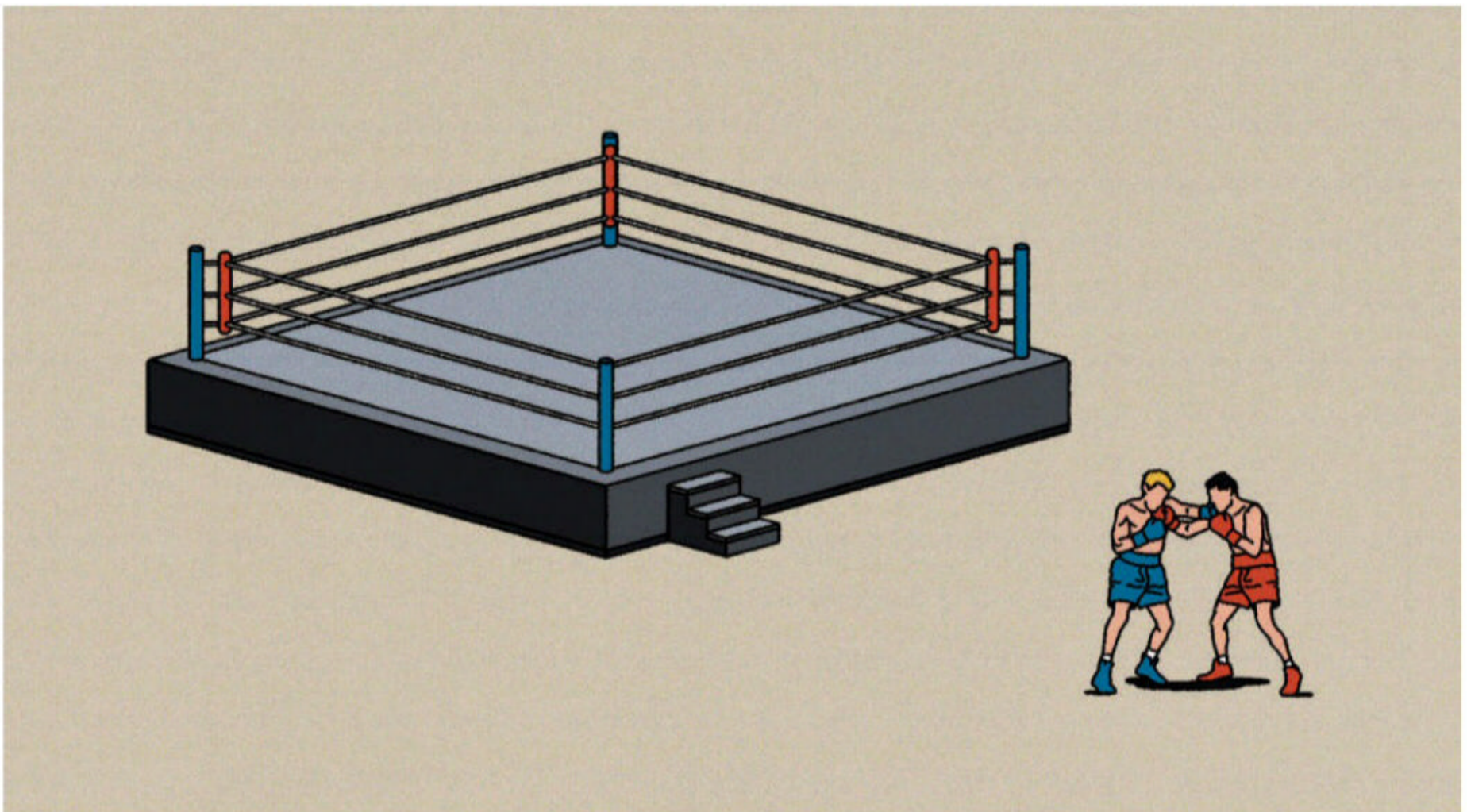
12 The new rules



The new order

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The new order of trade

Free trade has promoted growth and efficiency. Now other goals are competing for attention, says Soumaya Keynes

THIS NEWSPAPER was founded in 1843 to campaign for the repeal of Britain's protectionist corn laws (which was achieved three years later). The case it made for free trade was that tariffs enrich the wealthy at the expense of the poor, and that discrimination against foreigners leads to copycat retaliation, making everybody worse off. Our introductory issue lamented that governments, classes and individuals "have been too apt to conclude that their benefit could be secured by a policy injurious to others".

For over 200 years, economists have largely accepted such arguments, although some politicians have displayed an atavistic fondness for protection. But after 1945, most leaders around the world converged on support for freer trade. Taken by the idea that more open markets promote innovation, competition and growth, they pursued them, first in the General Agreement on Tariffs and Trade (GATT), founded in 1948, and then after the GATT was transformed into the World Trade Organisation (WTO) in 1995.

The WTO was an extraordinary achievement. For the first time—and almost uniquely for international institutions—the system included binding dispute settlement, so that victims of rule-breaking could win redress. No longer could big countries throw their weight around and assume that any injury to others was consequence-free. Such was the faith placed in the new institution that, when China belatedly joined it in 2001, many in the West hoped that it would lead to economic and political convergence with rich democracies.

Exceptions were permitted within the rules-based system, but they were carefully policed. One for national security was invoked sparingly, as everybody saw it could too easily be abused. Environ-

mental protection was allowed as a justification for some trade restrictions, but no more than was absolutely necessary. Labour lobbyists complaining of unfair competition were denounced as protectionist by those who saw cost differentials as legitimate forms of comparative advantage. Indeed, economic integration was seen as a way to help achieve these other goals. Not only would economies benefit from being bound together, but faster growth would mean higher environmental and labour standards.

All this translated into generally lower tariffs. Between 1990 and 2017 the trade-weighted average global tariff applied under WTO rules fell by 4.2 percentage points. The drop was greatest in poorer countries: in the same period China's tariffs fell by 28 points, India's by 51 and Brazil's by 10. It also prompted a push for bilateral and regional trade deals, which expanded from around 50 in the early 1990s to as many as 300 in 2019. These have cut trade-weighted applied tariffs by a further 2.3 percentage points.

This system supported an explosion of global trade as a share of gross output, from around 30% in the early 1970s to 60% in the early 2010s. Over the same period complex global supply chains grew from around 37% to 50% of total trade. The stunning collapse in transport costs boosted international commerce. But so did stability. After China joined the WTO, one study by Kyle Handley of the University of California, San Diego, and Nuno Limão of the University of Maryland found that reduction in uncertainty was responsible for around a third of the growth in Chinese exports between 2000 and 2005.

As those early campaigners predicted, freer trade has brought higher living standards. A report by the World Bank in 2019 con-

cluded that a 1% rise in participation in global value chains is linked with an increase in income per head of more than 1% in the long run. A survey of the literature by Douglas Irwin of Dartmouth College found that poor countries which liberalised trade enjoyed higher growth of 1-1.5 percentage points, cumulating to 10-20% after a decade. The United States International Trade Commission, an independent government agency, reckons America's bilateral and regional trade agreements have raised real incomes by 0.6%.

Stretch and protect

Some moves towards further liberalisation have continued. In November 2020 15 Asia-Pacific countries signed the Regional Comprehensive Economic Partnership, the world's biggest trade block. Trading in the African Continental Free Trade Area, a deal ratified by 38 countries, began on January 1st this year. Post-Brexit Britain is trying to cover 80% of its trade with preferential deals, albeit after erecting large new barriers with its closest neighbour, the European Union. And America and the EU are discussing common international standards for the digital economy.

Yet the appetite for freer trade is not what it was. There has not been a general round of liberalisation since the mid-1990s. Other dealmaking has also slowed. Partly that is down to a widespread perception that the ideology of free trade has failed to deliver its promises. In the rich world, politicians have seen furious backlashes against trade agreements and complaints that liberalisation has created losers as well as winners, leaving many workers behind. President Donald Trump embodied a rejection of the rules-based trade system. Although the Biden administration no longer hands out random tariff threats, few think America is incapable of electing a protectionist like Mr Trump again.

Meanwhile the WTO faces gridlock. Many believe that China took most of the benefits they were promised without offering enough in return. It has become impossible to update the rules in a group with 164 members that all need to agree. And the system that is meant to stop trade disputes spiralling out of control no longer works. The covid-19 pandemic has revealed how quickly panicked nationalism can gum up global supply chains. Over two-thirds of countries applying export controls on medical devices in 2020 still had restrictions in place in August 2021.

For all the post-war embrace of free trade, political support for it seems to rest on fragile foundations. That could jeopardise growth. According to one study, the uncertainty associated with Mr Trump's trade wars may have depressed global growth by 0.75 percentage points in 2019. The WTO's economists reckon that between 2000 and 2016 the cost of trade associated with policy fell

from the equivalent of a 9% tariff in 2000 to a 6% tariff in 2016, but this includes an uptick since 2012. A simulation from the IMF found that the equivalent of a 10% tariff would reduce global output by around 1% after three years, and by 1.5% if productivity losses from the protection of inefficient firms are added.

As freer trade loses favour, other priorities have crowded in. There was so much focus on liberalisation and what it would bring that, as time went on, "trade became a negotiating thing—trade for trade itself," says Ngozi Okonjo-Iweala, director-general of the WTO. Now, she notes, non-trade goals that had lost out to the cause of greater liberalisation are coming back. This special report explores how trade policy is being used to achieve non-trade objectives, including greater resilience, human rights and a healthier planet. And it asks whether the open trading system can survive this shift. The place to start is with a look at the strains created by America's turn away from the rules-based multilateral trading system that it did so much to create. ■

Trade law

A fraying system

In global trade, power increasingly trumps rules

MITCHELL TAYLOR, an Australian winemaker, got advice from his agent when he tried to uncork the Chinese market in the 1990s: "it's all about relationships." But after Australia became China's top wine supplier in 2019, this fruitful relationship soured. In November 2020 the Chinese government imposed tariffs on wine from Australia of more than 200%, allegedly because it was being "dumped" on its market at excessively low prices, but in reality as a response to the Australian government's call for an investigation into the origins of covid-19. Mr Taylor lost a third of his export sales. He reckons the Chinese were sending a message to the world: "don't upset us."

This is by no means the first time that China has flaunted its market power. But today's context is different. Over the past few years, even as China has defied the spirit, if not the letter, of the WTO's rules, America has also broken the organisation's dispute-settlement mechanism, brandished tariffs against allies and imposed trade restrictions for national security. As the two giants have become locked in economic conflict, both have flouted the underlying principle of the multilateral system, which is that trade should be governed by rules not power.

America has long been central to the system, as both an architect and an enforcer. Despite flirting with unilateralism in the 1970s and 1980s, it accepted that a more stable trade system served its interests. After helping to write the WTO rules in the early 1990s, it beckoned China into the club in 2001. And it worked to preserve the WTO's core principle of non-discrimination. Between 1995 and early 2017 American governments filed 114 complaints against other countries at the WTO, over four-fifths of them for problems that affected other members too. (For comparison, over half of the 434 disputes filed by other countries were purely bilateral.)

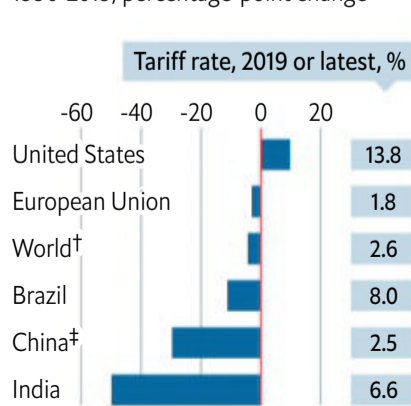
Yet critics always said this permissive approach hurt American workers. And in 2017 they came to power. Robert Lighthizer, a former United States Trade Representative (USTR), reckons one of the Trump administration's big contributions to trade politics was its interest in matters other than maximising company profits. In 2017, rejecting the idea that rules-based dispute settlement serves

Liberal logic

World, merchandise exports
% of GDP



Trade-weighted average tariff rate
1990-2019, percentage-point change



Sources: "Two Centuries of Bilateral Trade and Gravity Data: 1827-2014", by M. Fouquin and J. Hugot (2016); Our World in Data; World Bank

*New series
†1990-2017 ‡1992-2019

American interests, it began blocking appointments to the WTO's appellate body. If the government thought another country was undermining its interests, it would decide unilaterally on suitable punishment. France received tariff threats after proposing to tax American tech giants, and China was hit with tariffs.

Mr Lighthizer says the second contribution was to see that "China is an adversary and not a friend." China's economic model, with its murky relations between state and private sector, had long strained the legalistic WTO system. The autocratic tendency of China's president, Xi Jinping, shifted American thinking. Under the Obama administration, China's prosperity was thought to be good for America and the world, but now it was often seen as conflicting with the goal of maintaining American military, technological and economic supremacy. That implied less open trade and more investment screening, plus tariffs and export controls.

The Biden administration is chummier towards allies. But on China and the WTO, it is not much different from its predecessor. Enforcement of rules through the WTO does not seem to be part of its plan, so it continues to block appointments to the appellate body. Based on a narrow view of self-interest, this may seem to make sense, as it has no big offensive disputes to win, and faces defensive ones it might lose. (One example is China's complaint about America's tariffs, which the Trump administration sent into legal limbo by appealing against it last October.) There is a perception that European-minded lawyers in Geneva read more into rules than America wishes, and have been too eager to constrain its use of defensive trade remedies. "It's not going to be a quick fix," comments a USTR official.

Nor does a tougher approach to China include efforts to update multilateral rules. There is little appetite in America to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which has provisions on state-owned enterprises and competition policy once aimed at China. Trilateral talks between America, the EU and Japan to rewrite rules against subsidies that China might sign up to have stalled. One USTR official says the path from either the CPTPP or the trilateral process to a change in China's behaviour is "very amorphous", and "agreeing to rules among ourselves is not imposing those rules on China."

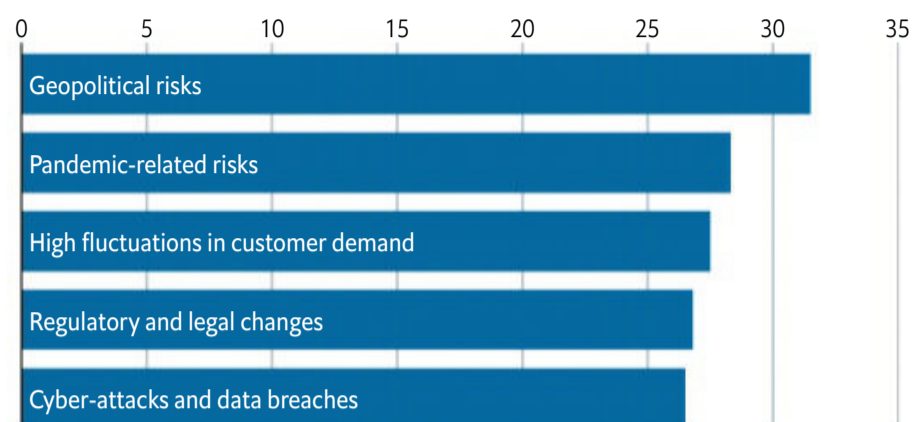
All this makes the future of trade relations between the world's two biggest economies extraordinarily murky. For now, American tariffs are in place on hundreds of billions of dollars of Chinese imports. (Mr Lighthizer calls this a defence against Chinese subsidies.) On October 3rd the Biden administration announced frank conversations with its Chinese counterparts about their delivery of the deal forged by the Trump administration. If those talks go badly, it promised no action would be off the table. An official also pledged to address the harm caused by Chinese industrial policies "as we see fit". That could mean even more trade restrictions.

As economic relations sour, the distinction between them and national security concerns grows blurrier. The conception of risk over China has broadened from narrow concerns of military rivalry and intelligence gathering to include American technological leadership. Acting on such a broad front is hugely complicated. Stephanie Segal of the Centre for Strategic and International Studies (CSIS), a Washington-based think-tank, points out that, in areas America's allies are unlikely to join, or where China is already at or near the technological frontier, disengagement can be self-defeating. If Chinese companies can simply buy elsewhere, the only result will be lower American profits and less innovation.

This is tricky for firms eager to sell in China. Export controls appear to have become a bit more predictable under the Biden administration, but Craig Allen of the US-China Business Council (USCBC) still concludes that "it's becoming very, very difficult for American companies to figure out who they can do business with in China." Scott Kennedy, also from the CSIS, blames the conflict

Rating risks

Risks most likely to impact supply chains up to 2025, % responding*



Source: Economist Intelligence Unit

*Based on a survey of 400 senior supply-chain and procurement executives in eight countries, November-December 2020

for the Chinese expanding their own techno-nationalist approach. A survey of USCBC members found that 39% thought that American-Chinese trade frictions had accelerated preferential support for China's private and state-owned enterprises.

The Chinese government forcefully rejects the idea that it is anything less than a responsible stakeholder in the multilateral global trading system. Last year it signed the Regional Comprehensive Economic Partnership (RCEP) trade deal and agreed the EU-China Comprehensive Agreement on Investment (CAI). In September it formally asked to join the CPTPP. But China is in no rush to loosen its grip at home. The RCEP is shallow, a hoohah over sanctions has put the CAI into the deep freeze, and existing members of the CPTPP are well aware of China's divergence from their standards. China is also beefing up its own unilateral defences, with new laws to punish those people and companies that comply with foreign sanctions.

Not choosing sides

Elsewhere in the world, many see America and China brawling outside the WTO's rule-based system, and braying to allies to join in support. China is too central to Asian supply chains for this to be wise. Shortly before America's vice-president, Kamala Harris, met Pham Minh Chinh, the Vietnamese prime minister, in late August, Mr Chinh had pointedly promised the Chinese ambassador that his country would not pick sides. Moon Chung-in, a senior adviser to South Korea's president, says American pressure on South Korean companies to move away from China would be an "outright violation of WTO norms and principles".

Yet security-minded thinking is spreading. In 2020 Japan opened an economic section in its national security secretariat, where officials consider how to counter the economic statecraft of countries with different values. Louise McGrath of the Australian Industry Group, a business association, says there are more briefings from Australian security agencies, as

Many see America and China brawling outside the WTO's rule-based system

"they realise they can't just keep saying that China is a threat without actually talking to business." Since the start of 2020 the United Nations counted at least 25 countries and the EU reinforcing screening regimes for foreign investment or adopting new ones. As many as 34 countries, accounting for 50% of global direct investment flows, now screen them.

Those with the heft and inclination are arming themselves. The Biden administra-

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tion has paused but not rescinded planned retaliation to European digital services taxes. Even ardent multilateralists in the European Commission recognise that, if such a threat re-emerges, they cannot wait 18 months for the result of a WTO action. China's harsh treatment of Australia has not gone unnoticed, nor its threats to EU members for their negative attitude to Huawei. Officials are exploring a new anti-coercion tool to deter bullying of individual EU countries. In July 2020 Britain tweaked its legislation to avoid the need for authorisation under international law to raise tariffs during a trade dispute.

Many would prefer America to repair the WTO's dispute-settlement system. Mr Moon says the WTO is "one of the greatest inventions of the human race, but we are destroying it." Some 121 WTO members, including China, make monthly appeals to America to restore appointments to the appellate body. Damien O'Connor, New Zealand's trade minister, calls this the only way to ensure fairness, and warns of a return to a lawlessness "that allowed the big countries to simply dominate and often destroy opportunities for others." Fully 25 WTO members, including China and the EU, have tried setting up their own appeal system. But big traders like Britain, Japan, India, Russia and South Korea have not joined up, so as of June it was being used in only seven of 60 active disputes.

In a world without secure dispute settlement, the risk of miscommunication or of trade being dragged into geopolitical fights has risen. Industries affected by trade sanctions account for half of Australian exports to China. Dan Tehan, Australia's trade minister, wishes his Chinese counterparts would explain their concerns. The danger is that trade disputes descend into politically toxic accusations of bullying. The WTO is not perfect, but as a mutually agreed set of rules it has more legitimacy than a system based on warring giants carving up trade as they see fit. Yet even as it weakens, it is also being tested by the pandemic. ■

Precautionism

In search of resilience

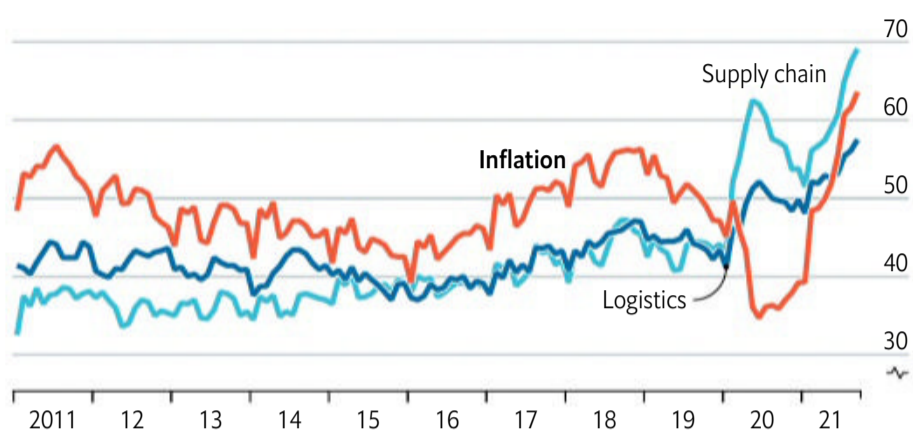
The quest for resilience involves reaching for facts, friends and fortification

WHEN COVID-19 led to a scramble for face masks, Lloyd Armbrust saw America's shortage as "a really dumb problem to have". But after his company's first face mask came off the production line in Austin, Texas, he faced problems of his own. A small sensor went down, halting operations, and he realised that a replacement would take five days to arrive from Taiwan. He found himself competing for American customers with Chinese companies selling masks for less than they cost to ship. Without government intervention, he warned that America would again face shortages of crucial protective equipment. "We need to make some of this locally," he says. "We just do."

Mr Armbrust is not alone in thinking supply chains warrant government intervention. The virus came with a flurry of export restrictions on medical products and a plunge in Chinese exports that raised doubts over whether its production clusters had exposed the world to excessive risk. The private sector promises to adapt. Jacob Wallenberg of the European Round Table for Industry reports more plan Bs in place than two years ago, as well as supply-chain issues appearing on boardroom agendas. But inflation has now popped up as often as logistics, so the emphasis on just-in-case rather than just-in-time may prove fleeting.

Cares and worries

World, company earnings and guidance calls*, % mentioning:
Three-month moving average



Source: Panjiva Research *Based on over 8,000 public companies with open calls in over 50 countries

Policymakers are unlikely to leave everything to private companies. Indeed, the Biden administration has blamed some vulnerabilities on the drive for corporate efficiency, and a goal of greater resilience now frames its trade policy. Luz María de la Mora, Mexico's undersecretary for foreign trade, says "there's a reassessment of how far we can go in this globalisation." That means looking at strengthening domestic industry according to criteria beyond just the market. In Japan officials are considering how to maintain industrial bases in sensitive technologies and industries. The European Commission has adopted resilience as a "new compass for EU policymaking", persuading even champions of open trade to fret about "strategic dependence".

The rhetoric around greater resilience is further advanced than any concrete action. And over time, some will turn out to be little more than hype, or window-dressing for policies that were planned already. Many poor countries worry that the pandemic has exposed long-standing vulnerabilities that are hard to fix, most obviously their dependence on tourism. But in richer places the policy responses will involve a grab for three things: facts, friends and fortification.

The urge to gather information has taken the form of a wave of supply-chain reviews. The Biden administration is doing one, as is the British government, which has a secretive "Project Defend" to identify supply-chain vulnerabilities. These reviews seek to dig into individual industries and identify sources of supply so concentrated that they justify intervention. Such investigations can be hard, requiring data that often do not exist. The extent of dependence will vary according to domestic production, the concentration of foreign sourcing and the availability of close substitutes. The American review found that the Food and Drug Administration did not know how many pharmaceutical ingredients were sourced from abroad, only the number of registered facilities. As important as knowing what is made and imported is knowing what could be made or procured in a pinch. Such information is even harder to find.

Some results are trickling in. A review by the European Commission identified 137 of 5,000 imported products with a dominant foreign supplier. Of those, only around 34 were hard to substitute by using other suppliers, representing just 0.6% of EU imports by value. That sort of finding has prompted Simon Evenett of Global Trade Alert, a trade watchdog, to describe the problem of resilience as "a bit like a Russian doll—there's less and less there." Such exercises may understate the problem, however. The sensor Mr Armbrust needed was worth more to his operation than the \$5 it cost him. And if a single-sourced input is processed in different places, a buyer may miss a key vulnerability. In June the G7 floated ▶▶

▶ the idea of supply-chain stress tests, rather like those that are now carried out for banks.

The information gathering will continue—and with it demands on private companies to share data. Policymakers appear to be coalescing around a set of products of particular concern. In a review of critical supply chains that was published in June, the Biden administration honed in on electric vehicles, active pharmaceutical ingredients, semiconductors and rare earths. (In 2019 Taiwan accounted for 92% of high-end semiconductor production.) The European Commission emphasised lithium batteries for electric vehicles, active pharmaceutical ingredients, semiconductors and raw materials (including rare earths), as well as cloud and edge computing.

The second strand of actions to foster resilience involves bolstering alliances between like-minded allies, to diversify and “friend-shore” production away from China. Some of this has an air of performance, though after four years of Donald Trump bad-mouthing America’s allies, some public schmoozing may be welcome. But much responds to problems that have been recognised for years, such as the heavily concentrated business of mining and processing rare earths. Possible collaborations include one between America, Australia and Japan to increase processing capacity outside China, and another between the EU and Canada to match investors with potential projects.

Subsidy wars

Much of this co-ordination is only at an early stage. In June a long-running dispute over aircraft subsidies between America, Britain and the EU was settled by creating two new co-operative frameworks, to analyse jointly “non-market practices”—that means Chinese subsidies—“with the goal of establishing the basis for joint or parallel action in the future”. Other links are meant to manage a shift of supply chains, like the agreement in April between Japan and America to collaborate over semiconductors.

The third prong of governments’ quest for greater resilience involves fortifying domestic economies. This implies sharpening defensive trade tools. In May Katherine Tai, the US trade representative, called for new defensive tools to deal with prospective damage to American business from foreign competition rather than responding only after the fact. Britain is also reviewing trade remedies, out of concern that in 2020 33% of goods exports were potentially in competition with companies benefiting from state subsidies, up from 7% in 2010. And the EU is creating defences in its single market against foreign subsidies.

It also implies an inward turn. The “Buy America” laws that the Biden administration hopes to strengthen will further reduce foreign access to a massive public-procurement market. Mr Armbrust has heard that help from the government is coming; the innovation and competition bill before Congress includes a supply-chain resilience programme to reshore production of personal protective equipment and medicines. In China, where the authorities were rattled by American restrictions on exports of some technologies, the government has reportedly issued new procurement guidelines setting local content requirements of up to 100% for 315 items, including medical equipment and seismic instruments. The government’s 14th five-year plan in March included a strategy to increase self-reliance by raising spending on research by 7% a year.

This fits with a general tilt towards industrial policy. In the pandemic, the fear was that foreign suppliers might protect national interests at the expense of trade flows. When British and American cash for vaccine-makers came on condition that production would go first to their populations, other countries like Australia, Canada, South Africa and South Korea that wanted to secure supplies invested in the final stage of production. In July the

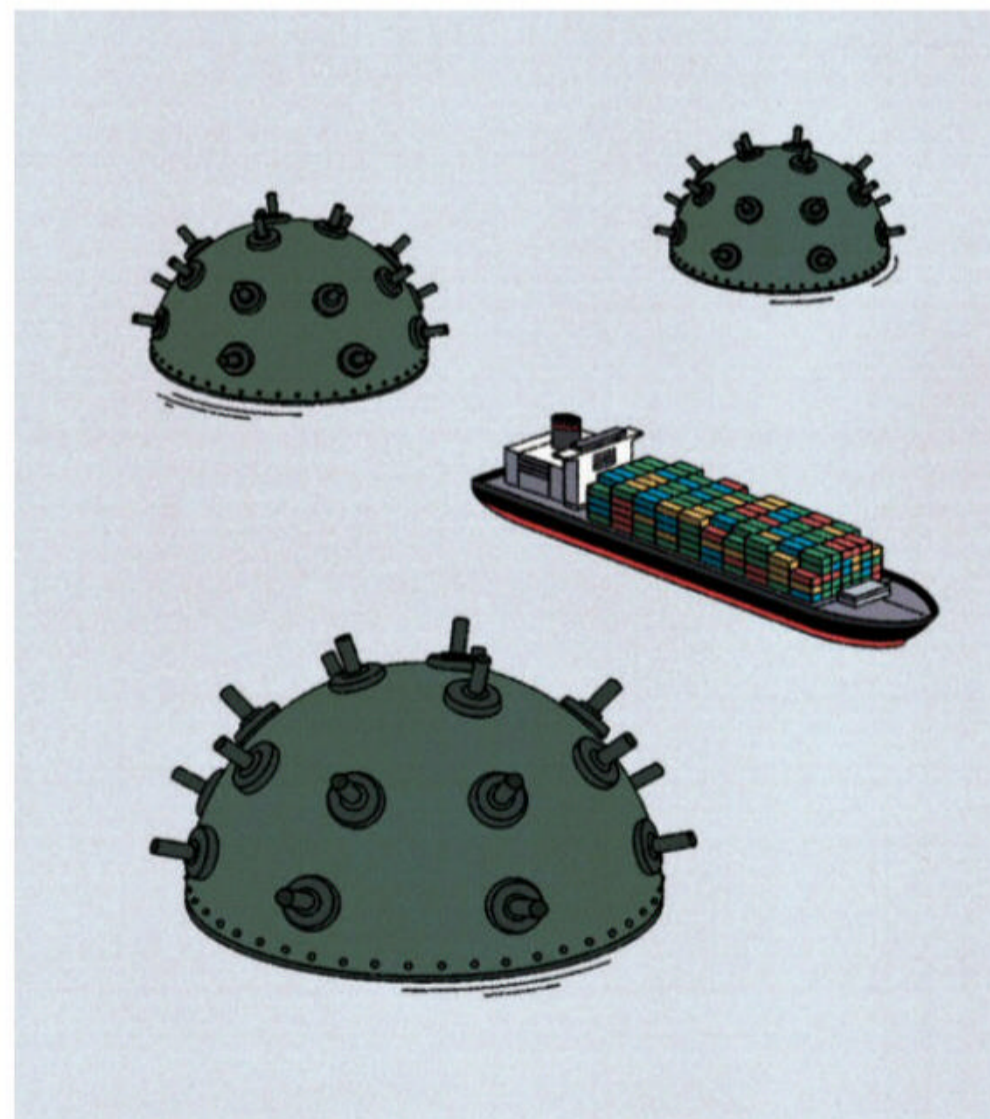
Many politicians now believe that in a crisis foreign suppliers are unreliable

WTO valiantly published a list of vaccine inputs, to help governments assess which trade flows not to impede. Many politicians now believe that in a crisis foreign suppliers are unreliable.

The semiconductor industry is being vigorously chased by government cash, in part because of the perception that existing production sites arose from public subsidy. The Biden administration’s review noted that the Taiwanese government covers 50% of land costs and 45% of construction and facility costs for semiconductor fabrication facilities; and that South Korean subsidies cut the cost of owning a semiconductor manufacturing facility by 25-30%. A bill to support semiconductor manufacturing to the tune of \$52bn is currently going through Congress. Japan is dangling financial incentives to entice TSMC, a Taiwanese company, to set up a facility. EU members are similarly eyeing a partnership with Intel.

It remains to be seen how far such spending might spread. The European Commission has funnelled €6bn (\$7bn) to a pan-European research and innovation project to support the battery supply chain since December 2019, but it faces sharp budget constraints. Japan has allocated up to ¥457bn (\$4.2bn) in grants for companies to diversify supply chains, with little enough effect to show how expensive incentives can be.

Mr Evenett worries that these behind-the-border measures will further distort trade. Places already comfortable with the idea of localising production may be emboldened. Trudi Hartzenberg of the Trade Law Centre, a South African think-tank, says the pandemic has bolstered the resolve to develop productive capacity in South Africa, which is linked to the government’s push to waive ▶



▶ intellectual-property provisions in WTO rules. In April 2020, as part of its resilience drive, India introduced “production-linked incentives”, first for large-scale electronics manufacturing and pharmaceutical ingredients, and from November for ten other industries, including textiles, car parts and solar modules. If qualifying companies increase sales by a certain amount, they receive cash equal to 4-6% of the gain.

If governments successfully foster critical industries, their alliances will go from nice to necessary. For when supply shoots up, prices crash and everyone tries to export the same subsidised products, trade tensions quickly increase. That was the lesson from Mr Armbrust’s complaints about Chinese competitors, and indeed from the fight between America and the EU over aircraft subsidies. And if conflict seems likely over supply-chain reshoring, it is even more inevitable from another source of strain on the trading system: the wish to fight human-rights abuses. ■

Labour rights

The urge to protect

How trade restrictions are being used as a tool to protect human rights

ON AUGUST 19TH Ms Tai, the US Trade Representative, claimed a success. Over the preceding two days, thousands of pickup-truck makers in Silao, Mexico voted to reject the union claiming to represent them, rerunning an earlier vote in April that they said was neither free nor fair. Ms Tai was fighting their corner. In May she triggered a “rapid response mechanism” in the USMCA, a trade deal between America, Canada and Mexico, which could have led to tariffs of 25% on exports to America—or worse. In her eyes, the vote showed that the threat had delivered “prompt and meaningful results for workers”.

The case is part of a shift to the use of trade policy as an instrument to deter human-rights abuses. Led by America, this is happening in three ways: reciprocal trade deals like the USMCA; the special access richer countries grant to poorer ones; and most explosively, unilateral bans. There have long been complaints in rich countries about shoddy labour standards in poor countries. But when it comes to the narrower issue of human rights, these are now turning into action.

Over the past couple of decades reciprocal trade deals have increasingly included labour-related provisions on collective bargaining rights, forced labour, child labour and employment discrimination. Evidence that these have much effect is scarce. One study in 2021 into the impact of the EU’s non-trade provisions found no consistent effect on respect for workers’ rights. In some cases the offer of a trade deal with America seemed effective in encouraging trade partners to pass labour reforms, but after the deal was signed, implementation stalled.

For labour advocates, there is an obvious explanation: the virtuous commitments embedded in trade deals lack teeth. America, which boasts the toughest language in its deals, lost the only dispute it filed, on the grounds that, although the Guatemalan government had failed to enforce its labour laws, it had not done so in a way that affected trade. The EU, which enforces trade deals with dialogue and stern statements, has struggled to get Vietnam to stick to labour commitments made as recently as June 2019.

Arguments against sanctions often turn into claims of old colonial meddling in countries’ sovereign affairs, of vulnerable

workers losing their jobs and of abuse by protectionist interests. But the European Commission is reviewing its trade deals to consider sanctions if countries do not live up to their commitments or (as the French and Dutch suggested in 2020) to offer tariff cuts as a reward for pursuing reforms. America is further ahead with the USMCA, which was implemented in July 2020 and includes lower legal thresholds that make disputes easier to win, as well as a rapid-response mechanism. Eric Gottwald, a trade specialist at the AFL-CIO, an American union group, dismisses concerns about protectionism as an “easy way to dismiss the work that we’re doing”, which is dealing with unfair competition and preserving Mexicans’ human rights.

The USTR sees enforcement of the USMCA as a core part of its “worker-centred trade policy”, and boasts that it is already yielding results. Besides the vote in Silao, it announced in August that it had used the rapid-response mechanism to defend workers’ rights at a Mexican car-parts maker, agreeing a deal to give them back pay and “a commitment to neutrality in future union elections”. Sometimes this looks like pandering to domestic political constituents, chief among them the AFL-CIO. And the extent to which it reinforces Mexico’s labour reforms is still unclear. A monitoring report in July found that, although the Mexican government was meeting its obligations as part of the USMCA, many of its promised changes “remain to be implemented”.

USTR officials expect the volume of cases to increase as labour advocates in America and Mexico learn how to bring them, but hope that it then falls as Mexico’s institutions advance. That is not much comfort for companies that are worried about disruption to supply chains. The US Chamber of Commerce, an industry group, has complained about a lack of clarity over enforcement, which could lead to products being blocked at the border within 120 days of a case being filed. “The regulations are clear,” says one USTR official. If companies are insufficiently aware of whether rights in their Mexican facilities are being respected, she adds, “sorry, you don’t get certainty.”

The second way governments are toughening sanctions over human rights is through non-reciprocal trade deals between rich and poor countries. The EU is strengthening its generalised system of preferences, which makes tariff cuts for developing countries conditional on a swathe of labour standards and better human rights. That should mean more stringent conditions and more careful monitoring. In 2017 the Trump administration announced a more “proactive” approach to enforcement, and later it launched investigations into workers’ rights in Azerbaijan, Bolivia, Eritrea and Zimbabwe. Since the scheme lapsed in December 2020, Congress has been discussing the addition of conditions including non-discrimination and women’s empowerment.

The evidence that this type of enforcement actually improves respect for human rights is thin, though in the EU’s case that may be because it has rarely been used, and in America incentives are blunted by the scheme’s expiry every few years. In theory too many strings attached could be counter-productive. Britain’s Department for International Trade is mulling a reduction in the number of conventions of the International Labour Organisation that developing countries must ratify to win enhanced access, reasoning that if conditions are easier to meet, governments are likely to make more effort.

Both these turns in trade deals have been driven largely by political dynamics in rich countries, and a sense that they are necessary to sustain support for free trade. The third form has a different root, in Xinjiang, China, where a vast number of Uygh-▶

Arguments against sanctions often turn into claims of old colonial meddling

► urs, a mainly Muslim ethnic group, are being detained in camps and forced to work. Many are also sent to work in factories and farms outside Xinjiang. Since China does not allow independent, unfettered inspections of camps or factories where forced labour is suspected, it is impossible to gauge the extent of the problem.

Xinjiang blues

Governments around the world are co-ordinating in a bid to tell businesses to get out of Xinjiang. In June G7 leaders stated their common concern over forced labour in supply chains, “including in the agricultural, solar and garment sectors,” all areas of activity in Xinjiang. In July American government agencies including the State, Treasury and Commerce departments formally advised businesses with supply chains in Xinjiang, China, of the risks for those with investments there. Japanese businesses are also being warned by the government to be careful about supply chains through the area.

At the same time, governments are pushing companies to gather more information about their supply chains—and dealing in it themselves. Following similar French and German efforts, the EU is working on “due diligence” legislation obliging firms to check that their operations and suppliers are not engaging in human-rights abuses. America’s Customs and Border Protection (CBP) authorities have started to quiz importers about their supply chains. And G7 trade ministers are discussing ways to help smaller firms tell which suppliers are operating in problematic places.

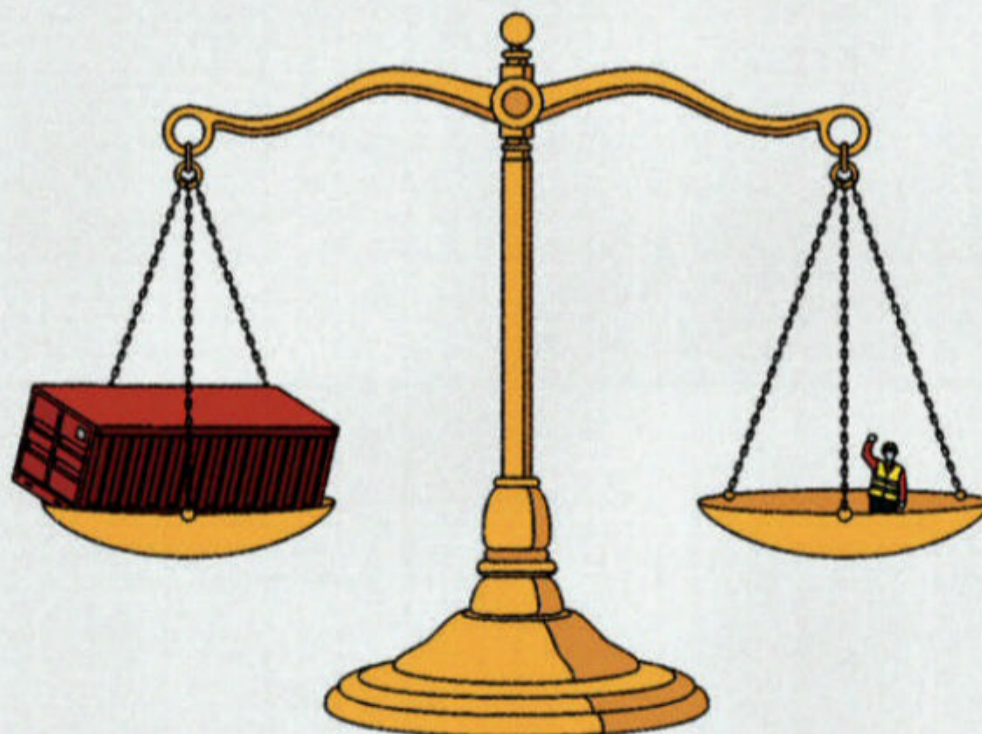
Behind these requests is a growing number of bans, either in place or in the works. Once again, America is at the forefront, as a law change in 2015 allows the CBP to block imports suspected of being made with forced labour, unless the importer can prove otherwise. Between 1953 and 2016 the CBP issued 58 of these “withhold release orders” (WROs). In 2020 alone it issued 15, and so far this year it has issued five more, including on cotton, tomatoes and silica products from certain Chinese suppliers. That means T-shirts made with the offending cotton, or solar panels or semiconduc-

tors made with the offending silica, are affected as well.

Congress is itching to go further, and is pushing a bill that would block all imports from Xinjiang unless importers show that they were not made with forced labour—a high hurdle. Canada and Mexico have committed to bans of their own. Recently the European Commission’s president, Ursula von der Leyen, promised to put forward a ban on imports made with forced labour. In August the Australian Senate passed a bill banning all goods made in part or in whole with forced labour, though Senator Eric Abetz represented the government’s position when he said “my heart says yes to this bill but my head says not yet.”

The goal does not seem to be to eliminate unfair competition, but to establish moral grounds to block goods made in terrible conditions. The biggest difficulty lies in knowing what to stop. It is reasonably straightforward to seize raw materials shipped directly from Xinjiang, but much more complicated to block products when abuses happen earlier in the supply chain. Xinjiang produces around 20% of the world’s cotton, and in 2020 made 50% of the world’s polysilicon, an ingredient in the manufacture of solar panels. So far only \$370m of imports has been detained under all WROs since October 2020 (up from an annual average of \$1m between October 2016 and October 2019). But if applied strictly, the scope of the bans could be greater.

There are examples where import bans have changed behaviour. In 2020 the CBP issued WROs against Top Glove in Malaysia, the world’s biggest rubber-glove maker. Two weeks later the company agreed to refund workers’ recruitment fees and improve their accommodation. Yet less than a year on, the CBP issued another WRO against imports from the same company. A study by the Modern Slavery & Human Rights Policy & Evidence Centre concluded that, in cases where the implementing country was a large source of demand, bans could have short-term effects (shipments from the two subsidiaries affected by the first WRO accounted for 12.5% of the company’s sales), but added “there is still limited evidence on their longer-term impact.” ►►



▶ It seems less likely that bans will change the Chinese government's behaviour, even in the short term. Its spokespeople have reacted furiously to the advice for businesses to disengage. Sanctions on individuals and companies connected to forced labour applied by America and the EU have already elicited Chinese counter-sanctions. Any economic fallout may be only temporary. Polysilicon supply from the rest of China is growing so fast that it could conceivably supply all foreign demand.

As this type of enforcement increases, policymakers must grapple with the hard realities of monitoring and evidence-gathering while studying what they are actually achieving. Shutting tainted goods out of markets may be enough, in a case where the Chinese Communist Party's actions amount to a crime against humanity. But in other fuzzier cases, it may not be, and trade restrictions as a simple answer to a complex problem could easily fall short. That risk applies in spades to the use of trade policy as a tool to promote greenery. ■

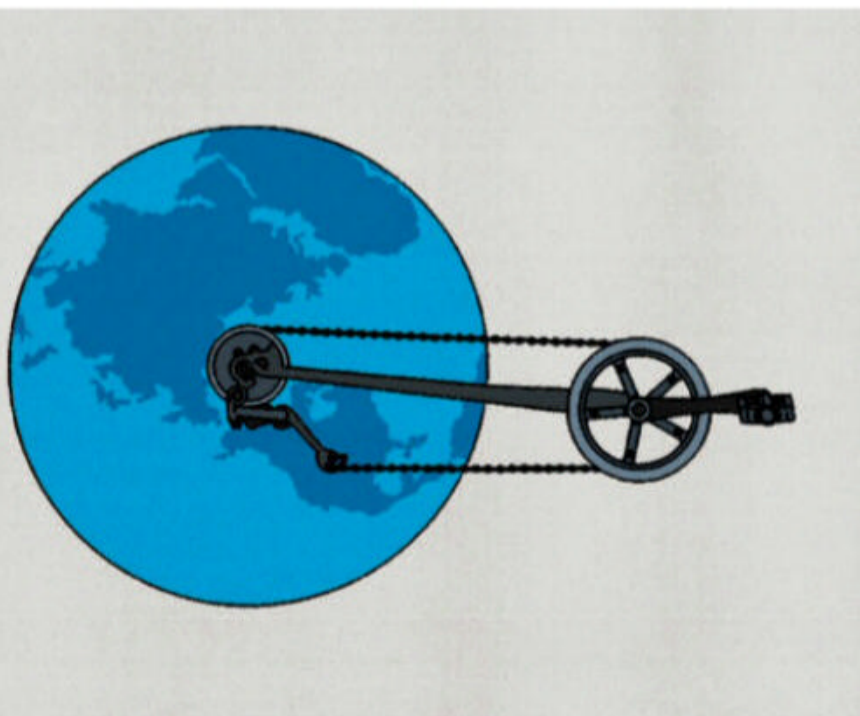
The environment

Making trade greener

When environmental protection turns into trade protection

FOR DECADES, the dominant view among policymakers was that trade and environmental policy should be kept out of each other's way. Limited measures to help the environment were allowed under WTO rules, but only so long as they restricted trade no more than was deemed absolutely necessary. Environmental provisions crept into trade deals, but were usually framed as a way to stop partners from gaining an unfair competitive advantage by exploiting natural resources. Trade negotiators tried to slash tariffs on greener goods, including those that measure or reduce pollution, and to agree rules to curb damaging subsidies. But this broadly supported multilateralism while eliminating distortions that they mostly wanted to get rid of anyway.

The most obvious change in recent years has been in the priority that politicians (and voters) now place on environmental goals.



In 2008 41% of American adults told the Pew Research Centre, a think-tank and pollster, that protecting the environment should be a top priority for the president and Congress, but that number rose to 64% in 2020. A survey of Europeans in 2021 found nearly one in five saying that climate change was the world's most serious problem, slightly ahead of poverty, hunger, lack of drinking water and infectious diseases. Ambition has been codified in the Paris agreement on climate change of 2015 and in the UN's sustainable development goals.

These commitments have increased the pressure on trade policy to contribute by giving unenforceable agreements more teeth. They also point to greater support for direct environmental goals through deals to cut damaging subsidies or to slash barriers to trade in green goods. There is plenty of scope for improvement. According to the IMF, governments spend the equivalent of 0.4% of GDP a year on fossil-fuel subsidies. One study by Joseph Shapiro of the University of California, Berkeley, compares tariffs on products made by polluting industries with those made by cleaner ones, and finds that the more carbon-intensive products are actually taxed less. The difference is equivalent to an implicit subsidy for carbon emissions of between \$85 and \$120 per tonne.

There is growing acceptance of the links between trade and the environment. Estimates from the OECD, a club of mostly rich countries, find that CO₂ emissions associated with trade make up over a quarter of the global total. Although economists in the 1990s failed to find much evidence that differences in environmental policy affected trade flows, a newer body of work suggests that they matter. One study found that changed regulatory costs account for as much as 10% of the rise in American trade flows to Canada and Mexico between 1977 and 1986. Another found that new Canadian air-quality standards in the late 2000s had cut export revenues by around a fifth.

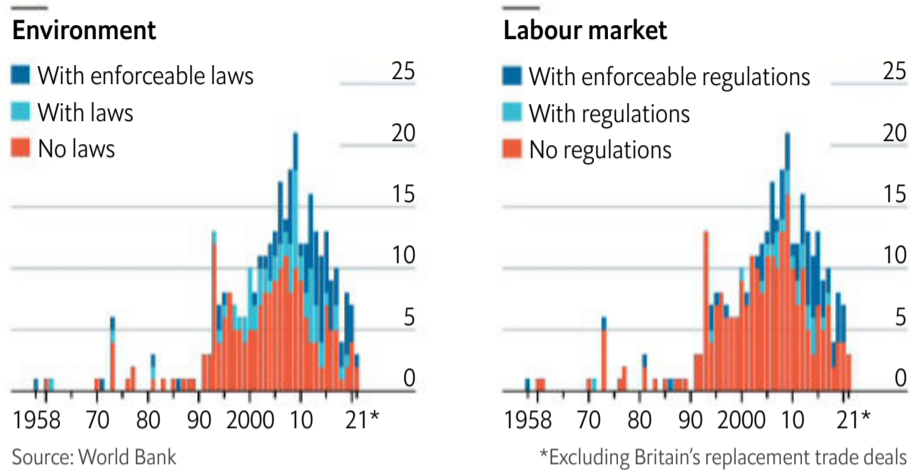
It is less clear that trade liberalisation is likely to prompt polluters to relocate to places with laxer environmental standards. Other factors seem more important. But if policymakers want to toughen standards at home, they will also need to take trade into account. Economic modelling has found that, if countries take certain steps to cut carbon emissions, a little under a third of that will "leak" abroad in the form of higher foreign emissions than otherwise. In heavily traded, carbon-intensive industries, like steel and aluminium, the leakage rate can be even higher.

In theory, the WTO should be an ideal forum in which to consider environmental issues. Global problems of the commons require global solutions. The WTO's 164 members have in the past agreed to curb farm subsidies, as well as to cut tariffs. "I see the WTO and trade as part of the solution to climate change," insists Ms Ngozi Okonjo-Iweala, the director-general. Yet the WTO's trade negotiators do not seem to be much good at environmental deals. Talks to liberalise trade in green goods collapsed in 2016 partly because the EU did not want to expose bicycle producers to Chinese competition. Negotiations to curb subsidies for fisheries have been going on for over two decades. According to scientists at the University of California, Santa Barbara, an ambitious deal to remove all capacity-enhancing subsidies could raise fish stocks by 12.5% between now and 2050. But the deal under discussion would increase them by just 1.6%.

Some are also frustrated by the insistence in the WTO's rules that environmental measures must be applied so as to minimise their effect on trade. In April Ms Tai said that exceptions allowing trade restrictions had been difficult to invoke, one reason why "today, the WTO is considered by many as an institution that not only has no solutions to offer on environmental concerns, but is part of the problem." This reputation is worse than the WTO deserves. America lost two cases not because it had tried to help the environment, but because it sought to do so in a discriminatory way. ▶▶

Using the trade lever

World, new trade agreements enforced, by obligations



► But the WTO's lawyers tend not to approve of discrimination based on how products are made, which is crucial if carbon-intensive products are to be treated differently from cleaner ones.

Without the option of agreements at the WTO, policymakers are pursuing environmental goals in other ways. One is to use trade to reinforce international climate agreements, though so far this has been mainly a European project. The EU refuses to sign new trade deals with countries that have not ratified the Paris agreement or taken steps to combat global warming, and it may add compliance with Paris as a condition for poor countries to gain enhanced access to its market. Its Brexit trade deal with Britain includes "acts or omissions that would materially defeat the object and purpose of the Paris agreement" as potential grounds for suspension.

Greasing the palms

Another idea is to link trade policy and environmental outcomes directly. A trade deal approved in April between Indonesia and the European Free Trade Association, a trade bloc, offers Indonesian palm-oil exporters lower tariffs if they meet certain environmental standards. In May APEC trade ministers launched a process for identifying environmental services to inform future talks. Several countries are trying to conclude an "agreement on climate change, trade and sustainability" by the end of this year, to curb fossil-fuel subsidies, liberalise tariffs on environmental goods and offer eco-labelling guidelines. "It may be hard to get everyone on the same page," says Damien O'Connor, New Zealand's trade minister; but he adds, "let's start with those who do agree."

Bigger players are also throwing their support behind environmental measures. In 2018 China banned the import of plastic waste. The EU is working on legislation to require companies to show that their supply chains meet certain green standards. It is also considering "digital passports" to contain information on environmental and material characteristics. In theory the European Commission's negotiators have agreed a trade deal with Mercosur, a South American trade bloc. But after some members protested about Brazilian deforestation and the European Parliament resolved that it could not approve the deal as it stands, the commission is demanding new green commitments before the ratification process is resumed.

A final idea is to find ways to allow ambitious policies at home, while protecting domestic producers against the possibility of leakage and shutting out foreign suppliers from the benefits of green investments. At the forefront, the EU has operated an emissions trading system (ETS) for years, making companies it covers buy permits if they want to emit CO₂. Some sectors have been protected from foreign competition with free permits, a handout the

commission wants to scrap. In July it unveiled plans for a carbon border adjustment mechanism (CBAM) that would gradually extend the ETS to importers. Where a carbon price has already been paid, the charge will be lower. This is designed to encourage foreign governments to introduce carbon pricing.

Others are watching carefully. Canada's government has announced plans to develop its own carbon border adjustment mechanism. The Biden administration has called the CBAM a potentially useful tool, and the British government took care in a recent report on greening trade not to rule out the idea. Concerns for consistency with the multilateral rules-based system vary. Valdis Dombrovskis, the EU trade commissioner, stresses that the CBAM was designed in a WTO-compatible way. But American officials, who talk about the environment and national security in the same breath seem less fussed about whether this is true.

Ms Okonjo-Iweala believes it is possible to design carbon border adjustments in a way that is not protectionist, but "the devil is in the detail." Many other measures designed to shore up domestic support for the green transition are less successful in avoiding the label, such as the Indian government's plans for tariffs of 40% on imported solar modules from 2022, or the Biden administration's Buy America conditions for infrastructure spending. As governments cultivate more climate-related investments, one can expect similar naked grabs for more jobs at home.

A generous assessment of this mish-mash of trade and environmental policies is that, given the scale of the challenge, it is worth reaching for anything that might work. Waiting while 164 WTO members struggle to reach a consensus might mean waiting a lifetime. Unilateralism from countries with enough clout could deliver quicker results. Carolyn Deere Birkbeck of the Forum on Trade, Environment and the Sustainable Development Goals, a research outfit, says that bans on plastic waste imports started by China have pushed rich countries to take more responsibility for the stuff.

A harsher view would be that policymakers are being pulled along by a mix of evolving domestic green policies and populist outrage, rather than a considered assessment of the right measures to help the environment. Arguably, the collection of countries trying to curb fossil-fuel subsidies are showing more leadership than the many Europeans who are breathlessly demanding that market access be made vaguely conditional on adherence to climate commitments.

Policymakers would be wise to remember a lesson from the old regime: that trade restrictions can have unintended consequences. When a country applying one represents only a small share of the exporter's market, it is unlikely to effect policy change. Tariffs and local content requirements can cut off cheap suppliers, making environmental goals even more expensive to reach. Pamela Coke-Hamilton, executive director of the International Trade Centre, a UN development agency, says the rising number of sustainability standards, from around 15 in 1990 to more than 250 today, has "significantly increased the stress on a lot of businesses". She thinks there should be more financing so that companies can build the capacity to become greener.

"The WTO [is] part of the solution to climate change," insists Ms Ngozi Okonjo-Iweala

Policymakers face a delicate balancing act between domestic and foreign interests. Trade liberalisation is supposed to be win-win. Yet climate mitigation involves short-term costs for all, and there will always be a temptation to push these elsewhere. Go too far, and that will have other costs, including retaliation, ill will and less co-operation. Trade policy may sometimes seem like an easy short cut to climate improvement. Unfortunately it is not. ■



The new rules

A changed world

International commerce needs firmer underpinnings

WHAT IS THE biggest threat to world trade? Stressed supply-chain managers might say new logistical bottlenecks that have seen the cost of shipping rocket recently. Macroeconomists could offer demand change, notably the depressive effect of a possible renewed pandemic. But those taking a longer view might point to the new order of trade policy, which involves more intimidation, discrimination and ultimately, isolation. In short, the very foundations of the multilateral trading system are under assault, from several directions at once.

Some of this reflects adaptation to changed political objectives, such as new concerns to respond to human-rights abuses or to climate change. A back-of-the-envelope calculation based on estimates by the OECD suggests that a carbon tariff based on a CO₂ price of \$75 a tonne may represent an average extra cost of only around 2%. That seems manageable. When the risk of shocks is rising, whether from natural disasters, pandemics or the willingness of foreigners to weaponise their economic clout, it makes sense to work up strategies for coping. That could mean diversification through trade deals, constructive co-ordination over standards, or sensible stockpiling.

But as well-intentioned governments try to co-ordinate new ways to add non-trade goals to commerce, the risk of mismanagement or the proliferation of special interests is high. Economic nationalism crafted behind trade barriers could coddle companies, impede technology transfer or limit the profits available for research and development. Subsidies could distort trade flows and generate tensions between allies as they fight over who should bear the cost of supply that is greater than demand. Over the long run, the extra anxiety around international supply chains could mean that national borders come to matter more in practice than they should do in theory.

Push all this to its limits, and there is a risk that the forces of globalisation could even go into reverse. That supply chains now

so often criss-cross international borders actually raises the cost of trade barriers. If the EU had cut off vaccine exports to Britain in early 2021 amid a heated row over scarce supplies, it might have jeopardised crucial inputs for its own production. But that could be changing. Reshoring supply chains may, ironically, increase the likelihood of new trade barriers in future as it makes them less costly. And that could raise the incentive to start unravelling today's close economic relationships.

Questions that need answering

If global leaders are to prove the trade pessimists wrong, they need to offer clearer answers to three big questions. First, where are the limits to what trade tools can achieve? Sometimes there is a tendency "to overload the boat a bit", comments Mr Dombrovskis, the EU's trade commissioner, warning of the need for a balance between the idea of setting new tests for trade deals and the feasibility of passing them. Some humility when it comes to unilateralism may be in order. If countries trying to export their standards or to exert their power are only a slice of suppliers' markets, they may do little to produce change in rich countries while disrupting business in poor ones.

Second, what happens when the increasingly complex stew of non-trade objectives has internal contradictions? Those eager for greater resilience or most worried about human-rights abuses may argue for trade barriers against solar-panel imports, to shift sourcing from China. But that could conflict with short-run efforts to fight climate change with cheap renewable energy. Bernard Hoekman, an academic at the European University Institute, who is leading a project on the effects of EU trade policy on non-trade policy goals, warns of misdirected resources, away from aid that goes directly towards improved economic governance or telecoms and logistics links.

Third, how should the consequences of new trade barriers be managed and contained? That job was for some years done by the WTO, which allowed limited retaliation if governments were in breach of their obligations. In its absence, governments should know that protection has consequences, if only in the form of possible retaliation. Since 2016, there is evidence of a rise in the share of global trade that is subject to trade restrictions, even excluding those related to the US-China trade war.

If and when answers to these three questions emerge, the trading system that they suggest may be quite like the one that is now slowly being dismantled. It ought to include mutually agreed rules overseen by independent arbiters, to deliver legitimacy and stability. It must allow clearly defined exceptions, to prevent abuse and allow adaptation. It needs to respect the use of trade tools to help deliver geopolitical, security, environmental and human-rights goals. But it should also recognise the risks of asking trade to do too much. And it would, logically, point to revitalising and reinforcing the WTO, rather than undermining it further, as several members are continuing to do. ■

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Into the diplomatic wilderness

Abiy against the world

ADDIS ABABA

Ethiopia is losing friends and alienating allies

IT WAS ONE of the grandest ceremonies that Meskel Square had ever witnessed. Part military parade, part cultural jamboree, the spectacle in the heart of the Ethiopian capital, Addis Ababa, was so lavish that one might have mistaken it for the inauguration of a president or the crowning of a monarch.

In fact, the focus of the pomp was Abiy Ahmed, Ethiopia's prime minister. He came to power when his predecessor resigned amid massive protests in 2018. Although the early months of his tenure involved mending relations with the opposition and signing a peace deal with Eritrea (for which he won a Nobel prize in 2019), his rule has since been marred by ethnic unrest, a slowing economy and a devastating civil war in the northern state of Tigray. The event on October 4th marked the start of his first full five-year term as prime minister, following elections in July.

The ceremony was in part a riposte to those questioning Abiy's legitimacy, above all the Tigrayan People's Liberation Front (TPLF), which once called the shots in the country and is now at war with the central

government. "We have reached a new era," Abiy told cheering crowds (pictured), one in which power "emanates only from the genuine voice of the people via the ballot box". But the voice was somewhat muffled by an opposition boycott and the decision to call the election off in a fifth of districts because of violence. Small wonder that Abiy's Prosperity Party won more than 90% of the seats contested.

The show was also aimed at an international audience. Relations between Ethiopia and many Western countries have sunk to their lowest point in decades. Last month America said it would slap sanctions on officials involved in the war in Tigray if the parties (which also include Eritrean troops fighting alongside Ethiopian

forces) did not start talks or allow food to reach those cut off by the government's blockade of the state. Martin Griffiths, the UN's humanitarian chief, warned on September 29th that hundreds of thousands could starve. Abiy's response was to expel seven senior UN officials, accusing them of "meddling" in Ethiopia's affairs.

In his speech Abiy declared that Ethiopia would never submit to foreign pressure. In the past such prickly talk typically masked a great degree of pragmatism, as Ethiopia attempted to win friends and gain international influence. For instance, it championed IGAD, a regional bloc, and contributed more peacekeeping troops to the UN than almost any other country. It also cultivated close ties with China and America, becoming the latter's eager ally in its "war on terror". Ethiopia enjoyed such clout in Washington that when it invaded Somalia in 2006 to topple an Islamist government, America joined in.

The picture now is very different. Abiy's decision to cosy up to Eritrea's dictator, Isaias Afwerki, has divided IGAD. Ethiopia's relations with Sudan have soured, leading to border clashes. Even more spectacular is the falling out with the West. Barely a week goes by without a rally against alleged foreign interference, or a statement by a senior official denouncing "foreign enemies". A stream of conspiracy theories floods state media: that America is supplying TPLF fighters with drug-laced biscuits, for example, or that UN agencies are smuggling weapons. In August the government

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▶ halted the work of Médecins Sans Frontières and the Norwegian Refugee Council, two aid organisations.

Three factors are contributing to Ethiopia's growing isolation. The first is Abiy's capricious approach to foreign policy, which is characterised by personal relationships rather than engagement with institutions. He has sidelined the foreign ministry and closed or downsized dozens of embassies. He has alienated foreign leaders with a string of unkept promises, such as those to allow aid to reach Tigray or to eject Eritrean troops. And he has infuriated America by buying drones from Iran and snubbing American envoys.

The second factor is the West's perceived double standard. From 1991 to 2018, when the TPLF dominated the Ethiopian government, America routinely turned a blind eye to its ally's human-rights violations. Because the Ethiopian army was helping fight jihadists in Somalia, a brutal campaign against separatists in Ethiopia's own Somali region drew scant condemnation. "The West emboldened the TPLF and whitewashed its past sins," argues Zelalem Moges, an Ethiopian lawyer. More recently, the administration of Donald Trump sided with Egypt and Sudan in their dispute with Ethiopia over a huge dam it is building on the Blue Nile. "Abiy genuinely believes the United States is trying to overthrow him," notes an American diplomat. "He believes that he is this pro-American, liberalising market reformer that we have shunned."

Most important is a disagreement about the wisdom of continuing the war. "Our demands are quite simple: end the war and our relations are by definition better," says a European diplomat. African officials, though quieter, tend to agree. Even Russia and China, which Abiy hopes will plug any financial holes left by cuts in Western aid and military assistance, have been reticent. Both have opposed punitive measures in the UN Security Council. China has also criticised American sanctions. But neither has offered Abiy much by way of practical support.

Abiy has hinted privately that he might be open to negotiations with the TPLF. The special envoy of the African Union (AU) to the Horn of Africa, former Nigerian President Olusegun Obasanjo, has reportedly been given permission to sound out the Tigrayan leadership. But the TPLF, which considers the AU biased against it, may not accept its mediation. The prime minister, for his part, made no mention of talks in his inaugural address and seems determined instead to launch a new offensive. That may force the hand of America, which is deciding whether to suspend duty-free access for Ethiopian goods under the African Growth and Opportunity Act. Already bad, relations between Ethiopia and its allies are set to sink further. ■

Ethiopia's brutal war

Bodies in the fields

CHENNA

Neither side has clean hands in the bloody conflict

YELLOW DAISIES blossom, like poppies in Flanders, among the bodies rotting in the fields. Of their former lives only glimpses remain: a scarf soaked in mud; a torn fragment of uniform; the toe of a plastic sandal poking through the dirt. Some have been buried under stones and leaves. Others have been left to lie in the open, limbs ravaged by dogs, torsos blackened and bloated from the rain.

Not much is known for certain about what happened in Chenna, a village in the Amhara region of northern Ethiopia, in the early days of September. There was certainly a battle, a fearsome one, for the evidence of that is everywhere—in the ransacked homes, the slaughtered cows, the bullet casings and the artillery shells. During a recent visit, your correspondent could hear the blasts of distant artillery.

Locals buried at least 56 bodies: civilians, they say, murdered by rebels from Tigray. Officials put the number higher still, at nearly 200. Baze Kisade, a farmer, says he came home to find two of his brothers dead, shot in the head, their hands tied behind their backs. Agera Tareke, a priest, says Tigrayan fighters broke into his home and killed his father in front of him. The leader of Chenna village counts an entire family of six among the dead.

Whether there was a cold-blooded massacre remains unclear. No doubt civilians died in the week-long battle between the Tigrayan People's Liberation Front (TPLF) and government forces supported by Amhara paramilitaries. Tigrayan fighters fought from people's



Caught in the middle

homes and were bombed by the army from a nearby mountainside. It seems likely that the rebels shot innocent civilians as they were pushed back. But a large number of villagers themselves joined the battle, as well as residents and students from nearby towns. Some took up arms while others tended to the wounded or fetched water for the troops. The blurry line between civilian and combatant makes it difficult to know the true extent of any war crimes.

What is beyond doubt is that the advance of Tigrayan rebels into adjacent regions since July has brought great suffering to civilians. In Kobo, a town in eastern Amhara, dozens if not hundreds were killed in early September. As in Chenna, many—but by no means all—were probably militiamen or farmers carrying guns. Elsewhere Tigrayan troops have reportedly shelled villages and looted clinics.

TPLF leaders justify their offensive by arguing they have to force Abiy Ahmed, the prime minister, to the negotiating table. But some speak of revenge. The war has wrought devastation in Tigray; towns have been pillaged, civilians slaughtered and women gang-raped. Now the region is under siege and starving (see map). Yet in Amhara, too, locals describe a war of survival. "The TPLF is going to destroy Amhara and Ethiopia," says Solomon Alebachew, a militia leader. "I'll be fighting until my last drop of blood."



France and Africa

Liaisons
douloureuses

PARIS

Let's clear the air, mes amis

A YEAR AGO Achille Mbembe, a Cameroonian post-colonial writer, lambasted Emmanuel Macron's Africa policy. Has France, he wrote, still not "understood that, far from being transitory, the discredit into which France has fallen is a structural and multi-generational phenomenon and not the result of the victimisation of a few ex-colonised people?"

On October 8th, at a France-Africa summit in the French city of Montpellier, none other than Mr Mbembe will host a discussion between the president and a dozen young people. The 3,000 or so guests, from Africa and its diaspora in France, will include entrepreneurs, activists, intellectuals, film directors, scientists and students. No African government leader is invited.

The official point, says the Elysée, is to "speed up the changing relationship between France and Africa" which Mr Macron hailed in a speech in Ouagadougou in 2017. Then, the freshly elected president told students in Burkina Faso's capital: "I am of a generation for whom the crimes of European colonisation cannot be disputed" and "of a generation that doesn't come to tell Africans what to do". It felt like a symbolic moment that might herald a less testy and distrustful tie between France and Africa. The president has since returned art to Senegal and Benin, promised an end to the CFA franc in West Africa and asked for forgiveness for France's share of responsibility for the genocide in Rwanda.

Yet distrust of French policy has if anything hardened, as has French frustration over those suspicions. Mr Macron keeps 5,100 soldiers in the Sahel as part of an American-backed anti-jihadist mission, Operation Barkhane. He will wind this down in northern Mali, closing three military bases there, and reshape it from a base in Niger around a European special-forces unit, Takuba. In August the French scored a tactical success when a drone strike killed Adnan Abu Walid al-Sahrawi, the leader of Islamic State in the Greater Sahara.

Jihadists and terrorists continue to flourish in the region, however, in areas beyond the control of states, as does abuse by government soldiers. Democracy and the rule of law are being trampled with abandon from Mali to Guinea. France usually turns a blind eye to coups. But it is losing patience. On September 25th Mali's prime minister, Choguel Maïga, who was installed after the second coup in a year,

accused Mr Macron of an "abandon in mid-flight", and said he had no choice but to turn to others for security. He was referring, without naming it, to Wagner, a Russian mercenary outfit. Florence Parly, France's defence minister, described the notion that French soldiers were quitting the region as "scandalous". But she also warned Mali that a Wagner contract would compromise its military presence.

Amid such tension the unstated purpose of the summit is a "need to clarify the way France is questioned", says a presidential aide. The idea is to let each side voice grievances, in the hope of clearing the air at a non-governmental level. The French feel that they are "reproached for silence", says the Elysée, and when they do speak, "for interference".

Mr Macron will have his work cut out, some of it of his own making. Days before the summit he drew Algerian ire by talking of a "politico-military system" which has "completely rewritten official history" based on "a hatred of France". Algeria closed its air space to French military aircraft. France says it will cut the number of visas issued in Algeria, Morocco and Tunisia unless the trio co-operate in taking back expelled illegal immigrants.

This week Mali's military rulers protested when Mr Macron criticised the absence of government in parts of their country. "You could say it's a difficult moment to be airing differences," says Hervé Berville, a Rwanda-born deputy for Mr Macron's party, "or you could say it's never been more pertinent or more important to do so." ■

Employment in the Gulf

Spending to stand still

DUBAI

Subsidies to pull workers into the private sector are costly and ineffective

BY NOW GULF rulers have tried almost everything. For much of the region's modern history well-paid government jobs have been a birthright for citizens. This perk forms the core of the region's social contracts: cushy, lucrative employment in exchange for the deprivation of political rights. Worried about growing populations and uncertain oil revenues, though, Gulf states have spent the past two decades trying to persuade and prod their pampered subjects to work for privately owned firms. It has been a real-world experiment in economics—and a largely unsuccessful one at that.

In September the United Arab Emirates (UAE) announced its latest attempt, a programme that will cost 5bn dirhams (\$1.3bn) a year (0.3% of GDP). At its core are wage subsidies of up to 8,000 dirhams a month

for the first year and up to 5,000 dirhams a month for the next five years, for citizens who take private jobs.

Like its neighbours, the Emirati government is keen to trim its own workforce. In 2019, 78% of Emiratis in employment worked in the public sector, even though these made up just 10% of the country's total jobs. Only 8% of citizens worked solely at private firms. These numbers have changed little over time: in 2008, 80% of Emiratis worked for the state.

This makes sense: governments tend to pay better. While few publish detailed statistics, the IMF puts the public-to-private wage gap in the Gulf at 30-50% for nationals. Public employees have easier schedules—seven hours a day in the UAE, compared with eight at private firms—and better benefits. The government of Dubai recently gave employees an extra six days of paid leave to celebrate the world expo that began on October 1st. Private-sector workers had no such luck. Moreover, public jobs offer not only lifetime employment but also annual raises (and other benefits) that often outpace both inflation and pay increases at private firms.

But wage subsidies are often ineffective at tempting nine-to-fourers to give up their cushy life. For proof the UAE need only look to nearby Kuwait, which has offered them since 2001. Depending on education and family size, some Kuwaitis can take home almost \$5,000 a month in salary top-ups. The IMF estimated in 2015 that subsidies cost the government \$2bn a year ▶▶



▶ (some of that is siphoned off by “ghost workers”, who collude with employers to share the payout).

What subsidies have not done is reshape Kuwait’s workforce. Since 2005 the share of public-sector employment amongst citizens has fallen by just nine percentage points, to 82%. For the past five years, numbers have moved in the wrong direction: the number of private-sector jobs decreased by 3% from 2015 to 2020, whereas the civil service swelled by 22%, to 338,000 employees.

One reason subsidies fail is that they generally target the wrong people. A Kuwaiti with a specialised degree receives a subsidy two or three times larger than a high-school graduate, and almost seven times more than someone who did not finish high school. But wage gaps in the Gulf tend to be lowest for highly skilled jobs. An engineer with a university degree needs less incentive to join a private firm than a high-school graduate competing with poorly paid migrants. Employers also complain that many job-seekers have the wrong skills. Universities in the Gulf churn out lots of graduates with degrees in business or the humanities, neither of which are in high demand.

Subsidies also put governments in a bind. Though they may lower the initial wage gap, they are meant to be temporary inducements. In time governments must choose whether to remove them, which could lead some workers to quit, or keep paying them, which is expensive. Some economists suggest instead setting a minimum wage for citizens, which would, in effect, pass the costs of subsidies to employers, with quotas or prohibitive fees to stop them from hiring foreigners. Others wonder about a universal basic income, which would still be expensive but would avoid distorting the labour market.

For all the money they lavish on public employees, though, Gulf governments do not get much value, in part because of a system that rewards workers based on seniority rather than merit. Saudi Arabia spends 6% of its GDP on education, well above most countries, but it ranks poorly in international educational rankings.

The UAE seems to have taken some of these issues to heart. It plans to spend 1.3bn dirhams on vocational training in such fields as property management and accountancy and to offer scholarships for nursing degrees. Some of its subsidies will also be targeted at finance, health care and property, which have the potential to employ lots of people. But those jobs still need to be made more attractive than their cushy public-sector counterparts. Perhaps the most useful thing governments can do is to make their own pen-pushers work more for less. That would certainly be a cheaper way to shrink the wage gap. ■

Iraq’s election

Boycott the boycott

A low turnout could tighten the grip of Iraq’s pro-Iranian militias

A FATWA ISSUED by Ali al-Sistani, an influential Grand Ayatollah, was all it took to push Iraq’s Shia Muslims into risking death in battle with the jihadists of Islamic State in 2014. But his edicts seem to be having less success at persuading Iraqis to stroll sedately to the ballot booth to vote on October 10th. Although parliament bowed to the demands of young protesters for an early election, it now seems that most Iraqis will boycott the event. If that happens, sectarian and ethnic militias, especially those closest to Iran, will probably tighten their grip all the more.

Iraqis’ previous exercise in democracy was less than edifying. In 2018 only 44% of those eligible bothered to cast their ballots. Some compensated for the low turnout by voting again and again. Days after parliament ordered a recount, a warehouse storing a million ballots went up in flames. Since then Iraq has worked to make the coming vote more credible. It has increased the number of constituencies, which ought to benefit independent candidates. Some 70% of voters will have biometric cards, which should reduce fraud. And there will be five times as many foreign monitors as there were in 2018, including, for the first time, a contingent from the European Union.

Yet apathy and cynicism still prevail. Many of those in the vanguard of mass protests two years ago are calling for a boy-

cott. “The politicians don’t respect us, so I don’t respect them,” says one of them, convinced that Iraq’s armed factions will never cede power at the ballot box.

The commonest worry is that, even if the election itself is fairer than usual, the horse-trading afterwards will result in yet another corrupt carve-up between the main factions. Ministries are still likely to be divided between the biggest parties, with oil revenues treated as a cash-cow to be shared out, including to party militias. “They sit in a closed room and choose a malleable fig-leaf to represent them,” says a businessman in Baghdad, referring to the present prime minister.

Shias, who make up the majority of Iraqis and live mainly in the centre and south, have lost the most faith in politics. Two years ago hundreds of thousands of them joined the protests, demanding free and early elections to break the militias’ hold. But the country’s armed groups have since grown in power, shooting hundreds dead with impunity, chasing the protesters off the streets and quashing their efforts to form a political movement by killing, kidnapping and intimidating them.

Moreover, lots of independent candidates who claim to represent the protesters are splitting the vote, with the result that few, if any, will win seats. “Each candidate feels he alone is king of the protest square,” says Yasser Mekki, a dentist who joined the protests in the city of Najaf. Some have looked to the West to help create a secular bloc, but America seems to have tired of its democratising mission.

Further dividing the country is the fractiousness of Iraq’s three main groups: Shia, Sunni and Kurd. The Shias sport an array of parties, many of which are armed. Sairoun, which is led by a podgy cleric-cum-militia-leader, Muqtada al-Sadr, won the biggest share of the vote in 2018. But his campaign in his old base—the shantytowns of Baghdad and the cities of the south—has flagged. This is perhaps because of his party’s failure to use its clout in parliament to improve the lot of its supporters. Other armed factions closer to Iran are bidding for his former voters. Qais al-Khazali, the leader of Asaib Ahl al-Haq, a powerful chain of militias that broke away from Mr Sadr, now sings to the tune of Ali Khomeini, Iran’s supreme leader. Kataib Hizbullah, another armed Shia group known for firing rockets at America’s embassy, is standing for the first time. Several Shia militias have sought Iran’s guidance to save them from splitting their vote.

One consolation is that the election has been surprisingly free of violence. But its outcome will depend on whether people heed the experience of Sunnis, who lost out in earlier polls. “We’ve learnt our lesson,” says Nada Jabouri, a Sunni candidate in Baghdad. “Boycotts don’t work.” ■



Billboards aplenty, enthusiasm scanty



Turkey

Bosphorus blues

ISTANBUL

Recep Tayyip Erdogan's dream risks becoming Istanbul's nightmare

THERE IS NO such thing as a bad view of the Bosphorus, the waterway that divides Istanbul between Europe and Asia. But the one from the bridge of the *Gas Cobia*, a 180-metre tanker, as it makes its way from the Sea of Marmara to the Black Sea, is hard to beat. Ottoman palaces slide past. Hagia Sophia soaks up the morning sun. The towers of the Rumeli Hisari, the fortress Sultan Mehmet II used to choke off supplies to the city he later conquered, march down to the shore. Passenger ferries and fishing boats bounce on the waves.

For Turkey's president, Recep Tayyip Erdogan, one Bosphorus is not enough. So he is building another. In June, at a groundbreaking ceremony for a bridge over the Sazlidere, a river on Istanbul's western fringes, Turkey's leader announced he was starting work on a giant canal, known as Kanal Istanbul, bypassing the Bosphorus altogether. A tender linked to the project, for housing units close to the Sazlidere, took place on October 7th. The new waterway would stretch for 45km (28 miles), turn the city's European side into an island, and cost at least \$15bn. Mr Erdogan himself describes the canal as a "crazy project", pre-

sumably in a good way. Critics describe it as the biggest rent-seeking exercise in Turkey's history and a recipe for an environmental disaster.

Mr Erdogan's pitch comes down to safety and money. The canal, he says, would be easier to navigate than the Bosphorus, reduce congestion in one of the world's busiest channels and bring in new revenue. Under the Montreux Convention, signed in 1936, civilian vessels can pass through the Bosphorus and the Dardanelles, the straits linking the Sea of Marmara and the Mediterranean, free of charge. (Only the littoral states of the Black Sea are allowed to send warships through.) But traffic can lead to long waiting times. Mr Erdogan's hope is that ships will pay transit fees to jump the queue and use his canal.

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Aboard the *Gas Cobia*, Captain Ismail Akpınar shouts instructions at the ship's crew ("Steady, zero two zero"). The Bosphorus passage involves a dozen sharp turns of up to 80 degrees, currents of up to four knots (7kph) and shallow waters. For a small fee, shipping agents turn to experienced pilots like Captain Akpınar for help.

They have every reason to do so. Ships regularly suffer engine or rudder problems during the passage. Three years ago, a tanker ploughed into a waterside mansion, causing over \$30m in damages. The much greater danger, for a city that is home to more than 15m people, is a spill or an explosion. "If a medium-sized LPG tanker blows up here, nothing within a 3km radius survives," says the captain.

But in fact the Bosphorus, contrary to the government's claims, is becoming easier to navigate. The number of transits has fallen steadily, from 56,606 in 2007 to 38,404 last year. Thanks to skilful pilots, new traffic regulations and GPS technology, safety has been improving. No big, deadly accident has taken place in more than 40 years. Waiting times average less than 14 hours.

Many analysts say building a new waterway next to an existing one makes no sense. With the Montreux Convention in place, ships that prefer to use the Bosphorus and pay nothing would still be able to do so, notes Serhat Guvenc, a professor at Kadir Has University. The canal would only marginally reduce waiting times, he says. It would also be much more exposed to the storms that occasionally roil the Black Sea, says Yoruk Isik, a shipping analyst. "It ▶▶

► would still be easier to transit the Bosphorus, even on a bad weather day," he says.

Some doubt the project will ever get off the ground. Insiders say the ceremony in June was a stunt, and that the construction of a bridge over the Sazlidere was part of an unrelated road project. The logistical obstacles are immense. To make room for the canal, the government would have to reconfigure Istanbul's roads, its sewage system and its power and gas lines, says Mr Isik. The price tag could easily reach \$35bn, around 5% of the country's GDP, says a Turkish banker. Contractors, including some Chinese and Western companies, are sniffing around, but most banks want nothing to do with it.

Environmentalists warn of catastrophe. The canal could destroy Istanbul's main reservoirs, raze much of its remaining forest and cover yet more land in concrete. It could also poison the Sea of Marmara. The canal would allow much more water from the Black Sea, which is less salty and packed with organic compounds, to gush into the Marmara, depleting its oxygen and killing much of its marine life.

The real point of the canal, critics suspect, is to offer construction companies close to the government new land to develop. "This is a real-estate project," says Ekrem Imamoglu, the mayor of Istanbul, who is leading a campaign against it. Mr Imamoglu's party is in opposition at the national level and warns that, should it come to power, it will suspend all work on the canal. But the mayor does not have the authority to stop work from going ahead.

Some Turks have bought into the hype. At his office a short walk from where the canal would meet the Black Sea, Hakan Bolukbasi, an estate agent, is doing a roaring trade. A square metre of land near the planned route of the canal now sells for 1,000 lira (\$113), he says, up from 50 lira five years ago. Nearby, the fields brim with sunflowers, villagers sell watermelons from tractors and water buffaloes graze. All this may soon be gone. The area, and much of the land near the canal, has been earmarked for new housing. Buyers include Berat Albayrak, a former finance minister married to Mr Erdogan's daughter, and members of Qatar's royal family.

The danger is that Mr Erdogan may use the canal as an excuse to renegotiate, or even withdraw from, the Montreux Convention. Earlier this year, after Mr Erdogan revoked Turkey's participation in a convention protecting women from violence, the speaker of parliament remarked that the president could do the same with Montreux. Mr Erdogan said he would abide by it until a better one comes along. The comments provoked an angry response from Russia, which sees Montreux as a way to keep Western navies out of the Black Sea.

Without the convention, the Black Sea



would turn into a "powder keg", says Cem Gurdeniz, a retired admiral. Earlier this year he and several other former officers were briefly arrested on coup charges after penning an open letter defending Montreux and criticising the canal project. The investigation is ongoing. The canal may one day trigger a crisis in the Black Sea. But it will provoke a political row in Turkey long before that. ■

Italy

Rattling the right

ROME

The Northern League and the Brothers of Italy both wobble

FOR MORE than two years, the common wisdom has been that Italy's next government will be right-wing—and radically so. Polls have consistently indicated that the Brothers of Italy party, with its origins in neo-fascism, and the populist Northern League should together secure enough seats at the next election to form a parliamentary majority, perhaps even without needing help from Silvio Berlusconi's more moderate Forza Italia movement.

But local elections on October 3rd and 4th showed how fragile the support underpinning the hard right is. Centre-left mayoral candidates won with more than half the votes in Milan, Naples and Bologna. Others in Rome and Turin look set to win in run-offs on October 17th and 18th.

The elections followed a nightmarish campaign for the League's leader, Matteo Salvini, and for the leader of the Brothers—who is in fact a sister, Giorgia Meloni. On September 26th it emerged that Mr Salvini's social-media guru, Luca Morisi, was under formal investigation on suspicion of supplying narcotics. Mr Morisi denies any wrongdoing. Four days later, Ms Meloni's drive to give her party a moderate, voter-

friendly image suffered a grievous blow when a video was released showing some of her followers joking about Hitler, giving fascist salutes and apparently arranging for the Brothers to receive money illicitly. An investigation has since been opened into a suspected breach of Italy's law on funding political parties.

All this comes against a background of increasing division in the League. Mr Salvini's position has become sufficiently tenuous for him to have spoken openly of being replaced. "If there is someone better than me," he told an interviewer recently. "I'll gladly enjoy [spending] a few hours more with my children."

The origin of his troubles is his decision earlier this year that the League should join Italy's current government—a broad coalition headed by the former president of the European Central Bank, Mario Draghi. The League's support for Mr Draghi earned it three places in the cabinet and a say in the spending of around €200bn (\$230bn) from the EU's post-pandemic recovery funds.

But backing a government headed by a central banker who once defined himself as a liberal socialist was diametrically at odds with Mr Salvini's populist instincts. It has also offered the Brothers a chance to steal the League's populist thunder by remaining in opposition. Mr Salvini did opt to stay out of the cabinet, but has cut an increasingly awkward figure. In his efforts to hang on to the populist vote, he has repeatedly sniped at policies that ministers from his own party have endorsed.

Nowhere has his predicament been more obvious than in the contrast between his courting of the anti-vaccine lobby and the government's vaccine mandates. He originally described the EU's plans for a pass for the vaccinated, those who had recovered from covid-19 or been tested in the previous 48 hours, as "insane crap". Ignoring his objections, Mr Draghi's government has since made the pass obligatory for access to a host of venues and services.

Later this month Italy will become the first European country to require the pass for entry to both private and public workplaces. Even more embarrassingly for Mr Salvini, the government's policies have been openly backed by the business minister, the League's Giancarlo Giorgetti, and its regional governors in the industrial north—united in a desire to avoid further economically crippling lockdowns.

The League has been steadily losing electoral support since mid-2019 and now polls around 20%, down from 30% or so two years ago. In recent months, and for the first time, it has been overtaken by the Brothers. It is not clear whether Ms Meloni's party will be able to shrug off the latest allegations and hang on to that lead. But Italy's right looks badly weakened. ■

France and its church

The weight of silence

PARIS

A staggering pattern of sexual abuse

THE SHEER number was overwhelming. Between 1950 and 2020 at least 216,000 children were sexually abused in France by Catholic clergy. Thus, on October 5th, concluded a two-year independent inquiry commissioned by the church. Jean-Marc Sauvé, who led it, said it uncovered “the lead weight of silence smothering the crimes” committed by 2,900-3,200 clergy. If lay molesters involved in church activities were also included, the number of abused could reach 330,000.

Mr Sauvé’s introduction to the report is chilling and unflinching: “The Catholic church’s immediate reaction was to protect itself as an institution” and it “has shown complete, even cruel, indifference to those who suffered”. About 90% of the victims were boys, many between ten and 13 years old. He called for “a humble acknowledgement of responsibility from the church authorities for the mistakes and crimes committed under its auspices”.

As was revealed by reports into sexual abuse by Catholic clergy elsewhere, the crimes in France involved a sinister web of misplaced trust, manipulated authority, concealment, silence and shame. The abuse was countrywide: in local parishes, scout groups, catechism classes and within families. Pope Francis expressed “great sorrow” for the victims. François Devaux, who suffered sexual abuse at the age of ten and later founded a victims group, called what they had gone through simply “hell”.

It was the efforts of survivors such as Mr



Great sorrow

Devaux that forced the church to confront its denials and cover-ups. He and others came forward in 2015 to accuse Bernard Preynat, a priest and scout leader, of sexual abuse. Mr Preynat was convicted last year. In 2019 the accusations prompted the resignation of Cardinal Philippe Barbarin, convicted of covering up the Preynat affair (the conviction was overturned on appeal).

France has an unusual link with Catholicism, due to strict secular rules, known as *laïcité*, designed to keep the state neutral in religious affairs. It lacks the wide network of church-linked boarding schools and state institutions that helped to conceal paedophilia in some other countries. Yet this proved no protection for the victims.

Today the Catholic church in France is a hollowed-out version of its former self.

Numbering 12,000, the priesthood is half what it was 20 years ago—and half of those serving are over 75. Only 49% of the French say they believe in God. Two years ago 56% said in one survey that they had a bad image of the Catholic church. This week’s report will entrench these trends.

The church is not the only French arena in which denial of sexual abuse has been exposed. Another is politics, where, until #MeToo, sexual violence towards women tended to be hushed up. Two recent books also reveal how members of Left-Bank Parisian circles deployed the principle of sexual liberty to mask abuse and incest. By exposing the manipulation and cruelty of the predators, those brave enough to speak out may in future help prevent such abuse from going undetected for so long. ■

The Pandora Papers

Embarrassing riches

AMSTERDAM

Shell companies, tax havens and European politicians

POLITICIANS’ PRIVATE finances are a big political issue in central Europe, as Andrej Babis well knows. Mr Babis, a billionaire who is prime minister of the Czech Republic, faces a general election on October 8th and 9th. A week before it, the International Consortium of Investigative Journalists, a reporters’ alliance, released an extravaganza of leaks from 14 financial firms, which it called the “Pandora Papers”. It charges that Mr Babis transferred \$22m through shell companies in the British Virgin Islands (BVI), a tax haven, in order to buy a villa near Cannes anonymously. Mr Babis was already facing years-long investigations over alleged conflicts of interest and improper receipt of EU subsidies by Agrofert, an agricultural business he founded. He denies any wrongdoing.

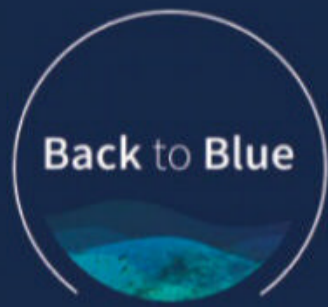
Mr Babis was not the only politician tagged. Wopke Hoekstra, the Netherlands’ finance minister, was shown to have invested €26,500 (\$30,500) in a friend’s safari company, also through a shell company in the BVI. Mr Hoekstra kept his shares while serving as a senator but sold them before becoming a minister, and broke no laws. But his Christian Democratic party has officially promised to take “firm action” against the use of tax havens.

Like the consortium’s earlier investigations (which include the Panama Papers in 2016 and the Paradise Papers in 2017), the Pandora Papers show that secretive financial networks that can aid tax avoidance and money-laundering involve not just countries typically seen as corrupt, but many of those viewed as



cleanly governed. Russians, Saudis and Americans are all heavily represented in the leaks. Besides the British Virgin Islands, the jurisdictions they used include Luxembourg and South Dakota.

For the politicians concerned, the leaks are embarrassing but not devastating. The Netherlands has been mired in coalition talks for more than six months, but Mr Hoekstra seems likely to keep his job. As for Mr Babis, he is a skilled populist whose supporters tolerate the accusations against him. His party is in first place in the polls. According to a survey, two-thirds of Czechs think the government is run mainly by private interests. But whereas Czechs complain that their politicians are dirty, they do not seem to bother to elect cleaner ones.



Back to Blue

An initiative of
Economist Impact and The Nippon Foundation

PLASTICS MANAGEMENT INDEX 2021



Back to Blue, an initiative of Economist Impact and The Nippon Foundation, has launched the Plastics Management Index: Evaluating effective management and sustainable use of plastics. The index ranks 25 countries across five continents, assessing the capacity of a country to minimise plastics mismanagement while promoting the optimal production and use of plastic as a resource. The index comprises 12 indicators and 44 sub-indicators. It is also supported by an executive and consumer survey measuring attitudes to plastic use and management.

The PMI is designed to bring attention to growing global concerns around the use of plastic and to highlight how its management can be made sustainable.

KEY FINDINGS

- Germany is the top performer overall in plastics management.
- Europe leads in efforts to manage plastics, while Asia lags — despite producing half the world’s plastics.
- China, the world’s largest plastics producer, is developing the capacity to manage plastics but lags on stakeholder engagement.
- Most lower-middle-income countries struggle across the board — though Vietnam and Ghana outperformed.

“We have created the PMI as a new benchmark for measuring how countries are coping with plastics from cradle to grave — just as the need, and interest, globally builds for managing plastics across their entire lifecycle. Quite a few countries continue to score poorly, though the index identifies real currents of hope. But equally, just because some countries appear to be performing well does not mean they are doing enough to address the issues.”

Naka Kondo

Policy and Insights, Economist Impact

Overall Score

1	Germany	87
2	Japan	85
3	France	79
4	United Kingdom	78
5	United States	77
6	Sweden	76
7	Australia	72
8	Finland	71
9	Chile	69
10	China	63
11	Vietnam	60
12	Thailand	60
13	Malaysia	59
	AVERAGE	57
14	Brazil	56
15	Ghana	52
16	Indonesia	47
=17	Russian Federation	46
=17	South Africa	46
19	Argentina	42
20	India	42
21	Mexico	39
22	Egypt	34
23	Kenya	29
24	Jordan	28
25	Nigeria	21

● Very high ● High ● Medium ● Low

Source: PMI

ADVERTISEMENT

FOUNDATIONS OF EFFECTIVE PLASTICS MANAGEMENT

- Governance is strongly correlated with better plastics waste management.
- When it comes to systemic capacity, robust oversight of waste-management processes alone is insufficient. Countries that perform well here exhibit strong oversight and pair it with more efficient collection and sorting channels, infrastructure to help recycling and investments in capacity-building.
- Stakeholder engagement requires an across-the-board approach that includes government, business, media and consumers.

TOWARDS A CIRCULAR PLASTICS ECONOMY

- If the circular economy is to succeed, the perception of plastic waste must shift from valueless to valuable.
- Recycling is not a panacea. While reusing and recycling are preferable to incineration or putting waste in landfills,

- reducing our use of plastics and replacing them with alternatives (paper, for example) where possible is essential.
- Mechanical recycling is often more expensive than landfilling; many countries lack the infrastructure and/or secondary markets for recycled plastics; low-value items often aren't collected; sorting different plastic types is costly; and recycled plastic is often inferior to, and more expensive than, virgin materials.
- Greater use of chemical recycling could boost the circular economy and lower the amount of waste that is incinerated or sent to landfills. Designing plastics with chemical recycling in mind could result in plastics being recycled many times without a loss of quality.

BUSINESS AND CONSUMER ACTION REQUIRED

- More than one-quarter of consumers do not know the benefits of recycling. Much could be achieved from raising awareness.

Businesses increasingly see the need for better plastics and waste management...



Source: PMI, accompanying survey of businesses

...but many have yet to turn intentions into action



Source: PMI, accompanying survey of businesses

“The path the world is on with plastics is plainly unsustainable. Already plastics leakage is doing untold damage to our ocean. The scale of the challenge is startling, and in urgent need of cohesive and effective solutions that can address every element of the complex lifecycle of plastics. The Plastics Management Index, I hope, will shed light on where we are globally, and where we need to be headed to manage plastics more effectively and responsibly.”

Yohei Sasakawa
Chairman, The Nippon Foundation

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**ECONOMIST
IMPACT**



Charlemagne | Bigger is still better

The European Union should not give up on enlargement



FLANKED BY THE leaders of Croatia and Bosnia-Herzegovina, Ursula von der Leyen, the European Commission president, hailed the opening of the Svilaj bridge, linking the two countries. It was part of her tour of the western Balkan region, a term used by the EU to define the Balkan countries that have not yet joined the club and which have sat waiting on the doorstep since being promised eventual membership back in 2003. The happy integration between the EU and its Balkan neighbours was cast as nothing less than inevitable. “All the western Balkans belong in the European Union,” said Mrs von der Leyen. “It’s in our common interest, but I also believe it’s our destiny.”

Kind words collided with reality a week later. At a summit in Slovenia on October 6th of all 27 EU leaders and their six counterparts from Albania, Bosnia-Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, the prospect of new countries joining the EU any time soon was absent. Instead, the western Balkan countries emerged with a pledge to cut roaming fees when their citizens visit the EU. An attempt by Slovenia to guarantee their membership by the end of the decade was dismissed as an outrageous publicity stunt. Literal bridge building was not accompanied by the metaphorical kind.

Enlargement of the EU is, bluntly, dead. Across the western Balkans, governments are hurt. North Macedonia may have dutifully jumped through every hoop required to begin accession talks, including changing its name to settle a dispute with Greece. Yet an arcane row about the origins of the Macedonian language led to Bulgaria vetoing the start of negotiations. Albania, whose application is linked to North Macedonia’s in a futile attempt to stop such political gamesmanship, is also stuck. Its prime minister compared its relationship with the EU to a failing marriage. Normally, there is at least a wedding first. The EU wants to be a global force, but it is in danger of losing control of its own backyard.

A realistic prospect of joining the EU is the bloc’s main tool for dealing with its neighbours. Yet at the moment, all sides know it is a fantasy. Countries such as France are deeply sceptical, preferring a deeper EU to a wider one. Diplomats from other cautious countries such as Denmark and the Netherlands insist their governments are fine with the idea of enlargement, as long as stringent

criteria are met. Domestic politicians are, however, not always so nuanced. There is no chance of new countries joining the EU, even while the club’s leadership says otherwise.

This is a problem. If incentives for good behaviour disappear, so do disincentives for bad behaviour. Tantrums in the western Balkans are now common, in the knowledge there is little to be lost. Why bother taking on vested interests or reforming the judicial system for naught? Those with little to lose have least to fear. Hence a row over number plates between Serbia and Kosovo led to special forces being deployed at the border. In the western Balkans, damned foolish things happen increasingly often.

Sceptics insist that the club cannot digest new members. Former poster-children of EU enlargement, such as Poland, have become problem children. An EU without Poland or Hungary would spend less time worrying about nobbled judges or dodgy use of funds within the club. It is easy to find diplomats who think enlargement was a mistake. But this counterfactual is one that leaves the EU with an even more troublesome frontier. If the EU’s eastern members had remained outside the club, they might have followed the trajectories of other countries beyond the EU bubble, such as Ukraine. Exclusion is no happy solution.

A sense of perspective comes from across the Atlantic. American diplomats remind their more sceptical European counterparts that life would be much easier with the western Balkans firmly inside the European tent, rather than outside getting wet, with other countries offering shelter. Montenegro has already got itself into trouble with a \$1bn loan from China. Serbia has become a canny diplomat, accepting vaccines from everywhere and then distributing them to neighbours. Emmanuel Macron, the French president, sees Bosnia as a font of Islamist instability. In short, it is not a region that the EU can afford to lose.

Instead, a dangerous complacency lurks among EU governments. The EU has dished out vaccines. It accounts for almost 70% of trade in the region. It invests about €3bn (\$3.5bn) a year, which is a fair sum for a poor region of 20m people. Whatever Russia and China can offer, the EU can more than match, runs the logic. Threats of a geopolitical switch are brushed off by EU officials as diplomatic bravado by their Balkan peers.

Size does matter

Attention thus drifts elsewhere. Leaders would rather focus on the other side of the world, instead of the EU’s chaotic courtyard. On the eve of the Slovenian summit, leaders discussed the club’s strategy in the Pacific, which is a far sexier topic for those who dream of European might. The idea of spending hours discussing Kosovan number plates or the etymology of Macedonian words makes the eyes of European leaders roll into the back of their heads. In the Pacific leaders see history being made. In the Balkans they see history being repeated—to the point of tedium.

Yet it is the western Balkans that is the more pressing test of the EU’s foreign-policy capability, rather than seemingly larger and more global topics. A coherent common policy on North Macedonia, Albania and their neighbours should be simple, compared with more difficult choices that lie ahead for the EU. At the moment, the EU’s China policy designates the country as partner, competitor and rival. Eventually it will have to pick, deciding what is in its collective interest. So the club may be better advised to begin with what should be the easier choices. If the EU wants to be a global power, it needs to become a local one first. A revived enlargement policy is the place to start. ■



The economy

Flattened

Wages are rising, but so are prices and taxes. Meanwhile, benefits are being cut

BRITAIN, PROCLAIMED Boris Johnson, the prime minister, is a country in transition, away from “the same old broken model” to a “high-wage, high-skill, high-productivity” economy. On October 6th, addressing the party faithful gathered in Manchester for the Conservatives’ annual conference, he promised that workers would soon begin to feel better off. Wages are indeed rising. But so too are prices. Moreover, payroll taxes are due to rise in the spring. And on the same day as Mr Johnson’s speech the main working-age benefit, universal credit, was cut by £20 (\$27.10) a week. Britons look set to experience a tight squeeze on disposable incomes in the months ahead.

An analysis by *The Economist* based on government forecasts that predate some of these changes suggests that total household income, after tax and corrected for inflation, will fall in both 2022 and 2023 (see chart on next page). After two years in which household incomes fell because of the pandemic and Brexit, the result will be the longest decline since the mid-1970s.

First to feel the squeeze will be the 5.5m

low-income households in receipt of universal credit, which is both an out-of-work benefit and a supplement to the earnings of the low-paid. The loss of £1,040 a year is the biggest single cut to social security since the foundation of the modern welfare state. The Joseph Rowntree Foundation, a charity, estimates that more than 500,000 people, of whom 200,000 are children, will fall into poverty. More than a third of those affected are in work.

The cut to universal credit, which unwinds a temporary increase at the beginning of the pandemic, at least featured in projections by the Office for Budget Responsibility (OBR), an official forecaster, when it last ran the numbers for household income in March. Since then the government has announced a 1.25% rise in both employer and employee payroll taxes, to take effect next April, in order to pay for social care and help clear a post-pandemic health-care backlog. And the OBR, like the Bank of England, underestimated how quickly inflation would increase as the economy recovered.

Mr Johnson points to rising wages as

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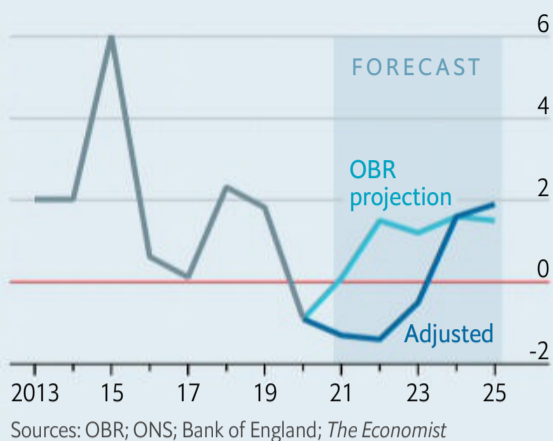
evidence that voters will soon feel better off despite rising prices. And he has sought to draw a political dividing line with the Labour Party over the issue of immigration. In his speech he brushed aside concerns about stretched supply chains that have seen petrol pumps run dry and supermarkets struggle to fill shelves in recent weeks. This is part of a remarkable pivot: having previously said that staff shortages were nothing to do with Brexit, he now argues that these shortages are in fact among Brexit’s main benefits. The logic is that without an endless supply of European immigrants, firms will be forced to raise wages and improve working conditions in order to attract British workers.

Such claims helped the prime minister win good headlines from his party’s conference. But in the longer term he may come to regret making higher living standards so central a measure of his success. As he emphasised in conference-season interviews, recent data on real wages has indeed been strong. According to the Office for National Statistics (ONS), real wages grew by 5.1% in the year to July. Over the late spring and early summer, the annual rate of growth in real weekly earnings was the highest in two decades.

But the numbers require careful handling and the ONS has plastered its recent releases with more than the usual number of caveats. At the moment, annual figures are artificially boosted by “base effects” because current readings are being compared with those from mid-2020, when the eco-▶

Big dipper

Britain, change in real household income
Percentage points



► nomic hit from the pandemic was at its worst. This is compounded by a “compositional effect”: low-paid workers were the most likely to lose their jobs during the recession, meaning that average wages for those still in work increased automatically, even without anyone being paid more. Underlying growth, therefore, is surely weaker than the headline measures. Data from Indeed, an online-recruitment company, show that wages on advertisements posted on its website rose by an average of just 0.8% between February and July, not accounting for inflation.

In fact, the best period for real wages may already be past. Inflation rose at an annual rate of 3% in August, up from 2.1% in July. Analysts now expect an annual pace of over 4% by the end of autumn, driven by surging energy prices and disrupted supply chains. Higher prices will eat into real wage growth. Meanwhile, underlying wage growth may also be set to slow. The government furlough scheme, which covered part or all of the wages of workers temporarily sent home, closed last month. More than a million people were still on the scheme at the start of September, and many will now be seeking work. Increased slack in the jobs market should restrain pay growth in the months ahead.

Despite rising energy bills, empty petrol stations and supermarket shortages, the Conservatives have enjoyed an upbeat party conference. They have sought to turn a crisis into an opportunity by recasting a shortage of drivers for heavy-goods vehicles as an omen of good things to come for all workers. For the moment, this seems to be working, with the government maintaining a decent lead in the polls. But the opposition Labour Party is beginning to spy an opportunity. One shadow cabinet member riffed off Mr Johnson’s former career as a journalist, dubbing his approach as “government by newspaper column”. The prime minister may have marshalled the facts to present a plausible story. But as households feel the squeeze, they may start to doubt its conclusion. ■

High-skilled visas**Only the best****The government wants to boost British startups through immigration**

PULLING THE lever marked “uncontrolled immigration”, said the prime minister in an interview broadcast as the Conservative Party’s annual conference kicked off on October 3rd, was the wrong way to solve labour shortages. Britain is experiencing many of these at the moment, but employers should not expect to be able to import their way out of them. Instead, he said, haulage firms, poultry farms and abattoirs that lack workers ought to entice Britons into such jobs by training them up and paying them more.

But when it comes to companies that lack computer programmers, the government is far more sympathetic. That is less inconsistent than it may seem. An HGV driver takes between six and ten weeks to train; a competent coder several years. And demand for the latter has soared among British startups. As a result, limited access to foreign talent is a common gripe of tech founders and venture capitalists.

For much of this year, the prospect of looser immigration rules has been dangled in front of them. The government’s budget in March promised a new fast-track visa scheme for skilled migrants who have a job offer from a high-growth British firm. “High-growth”, it later turned out, meant firms that have increased their revenue or staff numbers by 20% a year for three successive years, having started with at least ten employees (so a firm that went from

ten to 18 employees in three years would qualify). Such companies would no longer have to sponsor visa applications, meaning they would be spared bureaucracy and fees, and their recently arrived employees would be able to switch jobs more easily.

This is not the only scheme intended to attract talented foreigners to Britain. The government’s innovation strategy, published in July, included plans to make all graduates of top global universities eligible for visas, whether or not they hold a job offer. It also intends to make it easier for entrepreneurs elsewhere to move to Britain in order to found their businesses, rather than doing so at home. Political and industry insiders expect the full details of the new schemes to be laid out in the next budget, on October 27th, and for them to be strikingly generous.

“Top global university” may end up meaning any institution that appears in the top 50, or even 100, of one of the main rankings for the subject in question. Eligible entrepreneurs are likely to include any with backing from a reasonably credible venture-capital fund. Such measures will, at least initially, increase the competition faced by well-educated Britons for the most coveted jobs. In the longer term, the government hopes that an influx of skilled risk-takers will fuel innovation, investment and, ultimately, job creation.

All of this represents a significant liberalisation, says John Kiely of Fragomen, a law firm specialising in immigration. Although the existing Global Talent Visa allows companies to hire exceptional migrants without sponsoring their visa applications, “it is a programme designed only for the best—not for the good or the very good”. Outside this programme, Fragomen calculates that a single skilled worker entering Britain to work for a large company for three years would incur a total visa cost of £5,681 (\$7,706). That compares poorly with Britain’s neighbours: the equivalent fees in France and Germany are €324 (\$374) and €175 respectively.

Entrepreneurs seeking to hire will still have some reasons to grumble. The government has remained tight-lipped about how much cheaper the new schemes will be. For cash-strapped startups, that is a substantial caveat. Moreover, many European candidates are hesitant to move to a country that, after Brexit, they perceive as a hostile environment.

“When government ministers bash immigrants in the papers to throw red meat to their base, they should remember the people they’re trying to attract can read English,” advises one industry insider. Such rhetoric is also increasingly unnecessary. Since the Brexit vote, immigration has become a lot less politically toxic. “Now we’ve taken back control,” says the insider, “we can let the coders in.” ■



Bagehot | Toiling towards the sunlit uplands

The Tories are deadly serious about levelling up



JOSEPH SCHUMPETER, one of the 20th century's greatest economists, argued that capitalism is shaped by two countervailing forces: creative destruction and popular resentment. Creative destruction drives economic progress but also whips up resistance by destroying old ways of doing things and creating giant fortunes. The historical role of the right is to promote the destruction; that of the left is to mobilise resentment. Schumpeter thought that the left would win in the end. "Can capitalism survive?" he asked himself glumly. "I don't think it can."

Schumpeter reckoned without the Conservative Party's shape-shifting powers. In the 1980s Margaret Thatcher turned it into the party of creative destruction. Boris Johnson rode into power on resentment against globalisation and technological change, winning first an intra-party power struggle over Brexit and then a general election. Conservative MPs now represent parts of northern England that were once flattened on the Thatcherite anvil.

The Tories' next task is to tackle the root causes of the resentment they so successfully articulated. Critics like to dismiss their stated priority, "levelling up", as a mere slogan. But as their conference in Manchester, which ended on October 6th, showed, they are as serious about it as their predecessors were about deregulation and privatisation. Levelling up was not only the theme of Mr Johnson's rollicking address, but also of many of the hundred-odd meetings on the fringe. These featured champions of levelling up, such as Paul Ormerod, an economist who runs the Rochdale development agency and owns the local rugby team. And they were remarkably policy-heavy, with references to Michael Porter's work on clusters and post-neoclassical endogenous growth theory.

Levelling up means different things in, say, a village with a strong sense of identity but no transport links, and an anonymous housing sprawl near a motorway. Unlike opportunity, ability is evenly distributed, Mr Johnson likes to point out: levelling up means closing this gap. Michael Gove, the secretary of state for the new department of Levelling Up, Housing and Communities (the "Housing and Communities" bit is silent) adds community to opportunity: "You shouldn't have to leave the places you love to enjoy the future you crave." Neil O'Brien, the new minister for levelling up, promises a white paper that will not just give a clear defi-

inition of levelling up, but also suggest ways to measure it.

The conference saw some bold examples of what it might mean in policy terms. The most striking was the prime minister's insistence that he would not buckle to employers' demands for more immigration: he wants to move from an economic model where immigration is high and wages, skills and productivity are low to the reverse. Three more emerged on the fringe. The first was a shift in focus from the golden triangle of Oxford, Cambridge and London to many mini-clusters, such as wind power in the north-east, plant science in Aberystwyth and nuclear-submarine technology in Barrow-in-Furness. George Freeman, the minister for innovation, pointed out that Britain is good at disruptive innovation, such as fintech, but that such clusters may call for the sort of incremental innovation that require close co-ordination between entrepreneurs and local authorities.

The second is that levelling up cannot work without handing power to local government or community associations. Until very recently, it looked as if the government was pulling back from radical devolution in favour of a more top-down approach. But the overwhelming consensus of the conference was that the grip of the gentleman in Whitehall must be loosened. Mr O'Brien waxed lyrical, not only about giving more power to existing mayors (who represent 40% of the population and a slightly higher share of the economy), but about extending devolution to the counties.

The third is that levelling up is as much about quality of life as about infrastructure and economic development. Rachel Wolf, one of the authors of the party's 2019 manifesto, argued for paying close attention to small signs that a community is cared for or neglected—such contrasting indications as the prevalence of hanging baskets and graffiti on war memorials. This way of thinking not only strengthens the case for giving people power to make decisions about their own communities, but shifts the policy focus away from conventional tools of regeneration, such as building a new retail park, to smaller, bespoke ways to improve lives.

Is Britain capable of levelling up? It has a long record of promising, and failing, to decentralise its economy and to upgrade technical education. The prime minister's determination to cut off cheap foreign labour could also prove counter-productive in the short term by starving care homes of carers and road-builders of navvies, and, in the longer term, by slowing growth. Mr Johnson's allies claim that depriving the labour market of workers will force companies to increase productivity. But economy-wide improvements will not be easy. The population is much older than in the 1980s, when the Tories last set about restructuring Britain. Increasing productivity is also much harder in a service-oriented economy such as Britain's: such obvious measures as shifting to remote consultations in the health service and remote lectures in universities have provoked widespread opposition.

One more heave

As a classicist, Mr Johnson will be familiar with the tale of Sisyphus, who was punished for cheating death by being forced to roll a boulder up a hill, only to have it roll back down every time it neared the top. There is a good chance that, thanks to Britain's longstanding bias towards London and problems with productivity, levelling up will amount to another such endless, thankless grind. There is no reason to think the economy is less London-centric now than it was when Mr Johnson took over. But there is also no doubt that the Conservatives are determined to put their shoulders to the task. ■

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Private tutoring

Smart buys

DELHI, NAIROBI AND NORWICH

Even before covid-19 growing numbers of parents were hiring private tutors for their children. The pandemic has accelerated that trend

SIINA KARBIN, a Finn living in Vienna, had never imagined paying someone to tutor her children. But then in early 2020 Austria's schools closed because of covid-19. She and her husband struggled to help their seven-year-old son learn remotely while also doing their own jobs. Ms Karbin signed the boy up for one-to-one online tutoring provided by GoStudent, an Austrian startup, assuming he would do it for a few months. A year and a half later her son is back in school, and also still enjoying a weekly session with his tutor. He tells his mum he is keen to carry on with it.

As a new school year gets under way in many countries, the harm caused by the months of closures is becoming ever clearer. In America primary-age pupils are on average five months behind where they would usually be in maths, and four months in reading, according to McKinsey, a consultancy. The damage is almost certainly worse in places such as India and Mexico, where the disruption to schooling has been greater. Even before the pandemic parents around the world were growing more willing to pay for extra lessons in the

hope of boosting their children's education. The crisis will accelerate that trend.

The after-hours industry, sometimes dubbed "shadow education", encompasses packed cram schools, one-to-one tutoring and paid online courses. Its providers range from moonlighting teachers to multinational firms. Business is biggest in East Asia: some 80% of South Korea's primary-school children get extra lessons and 90% of Japanese children get private help at some point. Yet there are other hotspots. In Greece most school-leavers say they have taken private classes. In Egypt about one-third of children in the first years of school get extra lessons, rising to over four-fifths by the time they leave secondary school.

Before the pandemic the industry had been expanding in rich and poor countries. In England and Wales the share of 11- to 16-year-olds who say they have ever received private tuition increased from 18% in 2005 to 27% in 2019 (in London it was 41%). The share of German school-leavers who say something similar rose from 27% in the early 2000s to over 40% by 2013. In South Africa 29% of 11- and 12-year-olds were re-

ceiving coaching in 2013, up from just 4% six years earlier. Tutoring was once "virtually unknown" in Scandinavia, says Soren Christensen of Aarhus University, but even there a small industry has now sprung up.

There are several explanations. Globally more children are enrolled in school than ever before, notes Mark Bray, an authority on shadow education at the University of Hong Kong. Between 2000 and 2018 the number receiving no education at all fell by about a third. That means competition to be top of the class is fiercer. In poor countries, in particular, parents worry that the quality of schooling has deteriorated as rolls have grown. Paying for top-up teaching is one way to compensate.

More youngsters are completing 12 years of schooling. Competition for spots in leading universities has grown more intense. The demise of old-fashioned jobs-for-life has made parents keener to ensure their children get the best start possible.

Underlying this shift are demographic changes. The global fertility rate has fallen by half since the 1950s. Having smaller families allows parents to spend more on each child's education. More families have two parents in paid work. In America that is true of around half of all two-parent households, up from less than one-third in 1970. Such couples have less time to help with homework, and more need for child care. After-hours services that promise to educate children hold much appeal.

At first the pandemic brought the industry's rise to a sharp halt. Governments ▶▶

forced cram schools to close along with formal ones. The owner of a big tutoring firm in Nairobi, Kenya's capital, says business is not yet back to pre-pandemic levels, in part because the crisis has caused many of his customers to economise. Felix Ohswald of GoStudent says that at the start of the pandemic families were so "overwhelmed" that fewer than usual sought out extra classes. Some places cancelled big exams. American universities allowed applicants to skip standardised tests. The axing of exams, naturally, was bad for firms that teach kids how to excel in them.

Yet as schools return to something resembling normality parents' appetite for tutoring seems to be sharpening. Those already anxious about their offspring's prospects now worry even more. Sangita Halder, a domestic worker in Delhi, says she is spending three times as much on tutoring for her 14-year-old son as she did before the pandemic, though her family's income has halved. Without this, she says he would have learned nothing since his school shut last year. Erica Upshur of Mathnasium, an American firm whose franchisees run around 1,000 after-school learning centres in a dozen countries, says new enrolments fell during the worst of the crisis but were above average this summer. She thinks this autumn they could be higher than ever.

At a tutoring centre in Norwich in eastern England that offers courses designed by Kumon, a big Japanese education firm, children perch on dinky plastic chairs and scribble in little workbooks. Clement Tala, a charity worker, says disruptions to pre-school were one reason he began taking his son, now four, to see Kumon's tutors once a week (the boy gets homework to do on the other six days). Jummy Udonjo, a mental-health nurse, is happy to pay £200-odd (\$270) a month for her five- and seven-year-old daughters to take courses in maths and English. When covid-19 closed England's schools, some days Kumon's worksheets were all her children had.

Meanwhile, job losses and lifestyle changes provoked by the pandemic have swollen the ranks of those tempted to work as tutors. GoStudent's Mr Ohswald says that during lockdowns the number of people signing up to provide tutoring through his platform rocketed. Teachers in many poorer countries began offering private tutoring sessions while schools were closed (remote learning was often non-existent and social-distancing rules only weakly enforced). They may keep up their lucrative side gigs even as their day jobs restart.

Many children in poor countries attend cheap private schools, some of which have gone bust during lockdowns. In India about half of all children attend private institutions; a recent survey suggests that over a quarter of them may have moved to government ones since the start of the

pandemic. Zahid Ali Mughal, the head of a private school in Karachi in Pakistan, says the number of children enrolled in his school has fallen by two-thirds. Teachers who lose their jobs as a result of such shifts may have to rely on tutoring to make cash.

And governments in countries such as Britain and Australia are paying providers of private tutoring to participate in educational "catch-up" schemes. This public money, though temporary, will help private providers expand. The pandemic has also encouraged the industry to invest more in online products, and made parents and children more comfortable using them. The growth of a variety of online educational services ought to make tutoring cheaper and more widely available.

Clever business

A boom in private tuition could undo some of the damage inflicted by the pandemic. A recent study in England found that before the pandemic children who used Kumon's after-school maths programme were about seven months ahead of peers from similar backgrounds by the age of 11. Other research shows that poor children who attend high-quality test-preparation classes benefit more than richer pupils, says Steve Entrich of the University of Potsdam. That suggests that after-hours classes can be "a tool to bridge the learning gap" between richer and poorer kids, he says. That gap has been exacerbated by covid-19.

In practice, private tutoring can have pernicious effects. In many countries, especially poorer ones, much is provided by government teachers. Some put more energy into side work than their day jobs. Corrupt ones compel pupils to pay for extra lessons by leaving important material out of regular class-time, or simply by hinting that they will give lower marks to children whose families do not cough up. Opportunities to profit from private tutoring make

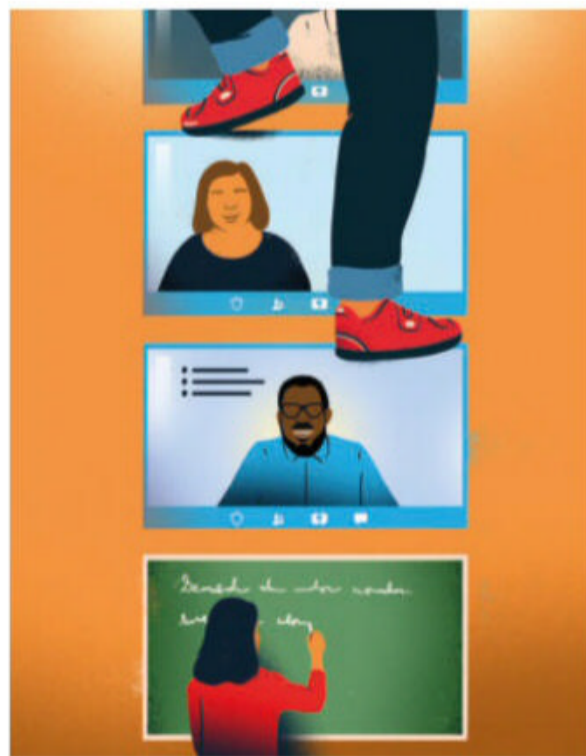
it harder to persuade teachers to work in remote villages, where families can least afford extra classes, notes Mr Bray.

Top-up schooling will often widen inequality. In England and Wales the Sutton Trust, a charity, found that 34% of the richest parents (calculated on the basis of questions about things like car and computer ownership, holidays and the number of bathrooms in their homes) had ever paid for extra classes, compared with 20% of the poorest ones. Around the world, less affluent families tend to use shoddier providers. Bad tuition can be harmful if it leaves kids tired, stressed or complacent. One study in India found that children who received private tutoring were more likely to miss school and that their marks were the same or worse than those of their peers.

The greatest difficulties arise when supplementary schooling is so widespread that it starts to be considered the norm. Rather than support struggling students, some teachers in China are now more likely to suggest that they seek help from private tutors, says Wei Zhang of East China Normal University in Shanghai. She says some top schools require pupils to learn part of the curriculum before term starts, which for many parents means hiring private tutors. That can make schools look more effective than they really are. Schools face pressure to move faster than usual from parents whose children do a lot of extra classes. That puts classmates who cannot afford them at a disadvantage.

After-school educators are often quicker to try out novel curriculums, teaching styles or technology than hidebound government schools. Their experiments help useful innovations find their way into formal school systems. But they can also mount resistance to reform—such as improvements to exams—that firms worry could reduce demand for their services. Large such sectors may frustrate policies far beyond education. China's Communist Party is convinced that the high costs of after-hours schooling are part of the reason Chinese families are having fewer children than authorities would like them to.

In July China's government banned tutoring during weekends and holidays and forbade providers from making a profit. But with demand growing, policymakers elsewhere have been seeking to make access to extra tuition fairer, rather than try to stamp it out. Efforts in Japan and South Korea have included creating public alternatives to private cram schools, and experimenting with voucher schemes that aim to stop the poorest children from being locked out. "It is very difficult for governments to roll back shadow education once it has become entrenched," argues Mr Christensen of Aarhus University. "We have to work out how to maximise the best aspects of it, and marginalise the worst." ■



Next, learning from Alibaba, Shein tests the new designs simultaneously on its app. With all sales happening digitally, managers have a real-time view of the performance of each item. If a new design is popular the company quickly orders more. If consumers shrug at the new style, no more orders are placed. By centralising inventory in a small number of large warehouses and then shipping directly to customers, Shein has pushed inventory turnover down to just 30 days, compared with an industry average of 150 days, according to a consultant who works with the company.

To streamline the entire process Shein has moved from the eastern Chinese city of Nanjing to Guangzhou, a huge southern manufacturing hub. It has also been offering factory bosses better terms than most fast-fashion rivals. The firm guarantees it will purchase the entire batch and pay within 14 days rather than the 90 days common in the industry, in exchange for guaranteed supply. Around 400 of Shein's 3,000 or so suppliers in China have signed up to this deal, says Chen Tengxi of Zhesang Securities. A bespoke software interface lets them know when production needs to be stepped up.

Insta-catwalk

Shein has deployed digital savvy not just in its procurement but also in sales and marketing—the second thread of its success. Besides handing out products free of charge to thousands of influencers, a common practice nowadays, it has recruited hundreds of local designers in America and several other countries. As well as dreaming up new clothes, they market its products and backstories on social media. The company plans to hire another 3,000 such third-party designers in 2022.

The strategy has helped Shein amass 250m followers across Instagram, TikTok and other social-media platforms. About 70% of them shop on Shein's mobile phone app, which boasts 24m daily active users. On any day, one in two of the world's shoppers who buy apparel online do so using its app. This approach has been so effective that others are trying to copy it. Gabby Lewis, a designer in Los Angeles who works with Shein, reports that as soon as the Chinese firm began featuring videos of her promoting her products on social media, rival fashion groups got in touch to see if she would do the same for them.

The third ingredient in Mr Xu's winning formula is deft avoidance of geopolitical controversy. Shein wears its Chineseness lightly. Unlike other Chinese brands that have tried to conquer the world, such as Huawei, a telecoms-equipment giant, or Xiaomi, which makes smartphones, it sells next to nothing domestically. That weakens its already loose association with China in Western eyes. Western consumers

assume, correctly, that like most of their clothing, including Western brands, Shein garb is made in Asia. Few realise (or care) the label is Chinese. Helpfully, most shipments to individual customers in America are small enough to dodge tariffs on Chinese exports imposed as part of a trade war between the two countries.

Shein has also evaded scrutiny from the Chinese Communist Party. In part that is because selling frocks is less contentious than making semiconductors or writing artificial-intelligence software. Its tiny presence at home has also spared it the sort of headache that has afflicted Alibaba and other internet groups with a large domestic business as President Xi Jinping intensifies his campaign to right the perceived wrongs of Chinese capitalism.

For all its stupendous success, Mr Xu's formula is not without risks. Some of these relate to its industry. Like others in the fast-fashion business, Shein has come under fire for waste and a heavy impact on the environment. Many fast-fashion brands are facing questions over whether they source cotton from the Xinjiang region in far-west China, where the government is accused of using forced labour. And its products' low price sometimes goes hand in glove with shabby quality. Pictures comparing Shein garments received by customers with the catalogue images have turned into online memes, hurting its reputation in Europe, notes one consultant.

Other dangers may be more specific to Shein's heavily digital business model. Although venture-capital funding rounds have valued the company at \$15bn and it has reportedly approached investment banks about an initial public offering, no one outside the firm seems to know whether it makes any money. In recent years Shein executives have given few media interviews, and none to Western journalists. Chinese media have consistently dubbed it China's "most mysterious unicorn". Analysts are left scratching their heads over its profitability and margins.

That may not be a problem, at least in



the short term. Investors' appetite for tech-adjacent startups, even loss-making ones, is undiminished. Another Shein-specific risk may prove harder to manage in the long run. The company relies on collecting lots of data from American shoppers. As a result, it may face the same problems that befell TikTok, another hit Chinese export to America. Last year the short-video app's Chinese owner, ByteDance, barely averted a forced sale of its prize asset to American investors over fears that Americans' data could fall into the hands of China's Communist rulers (an accusation that TikTok has always vociferously denied).

As with TikTok's social-media rivals in America, Shein's Western competitors may invoke national security as a reason to curb its relentless rise. That would be a compliment—after a fashion. ■

Carmaking

Electric blue and yellow

Volvo's IPO will help keep it ahead in the race towards battery power

VOLVOS SPORT subtle reminders of their Swedish heritage, from tiny blue-and-yellow flags adorning some models to the "hammer of Thor" headlights that provide illumination for all its vehicles. A brand coupling Scandi-cool design with concern for safety and the environment has in recent years helped Volvo expand its footprint beyond its European heartland to China and America. It hopes to keep going. An initial public offering (IPO), announced on October 4th will make it both "more Swedish and more global", says Hakan Samuelsson, Volvo's boss.

At the Swedish end, listing in Stockholm will reinforce Volvo's Norse identity. Globally, the IPO is a chance to draw on a more diverse pool of investors as it broadens its worldwide reach, while remaining small and nimble enough to navigate the fast-changing automotive business. And Mr Samuelsson stresses that not much would change in its relationship with Geely, the Chinese firm that has owned Volvo since acquiring it from Ford in 2010 for \$1.8bn. Geely intends to remain the largest shareholder and the two firms will continue to share costs and technology.

When Geely abandoned an IPO of Volvo in 2018, the ostensible reason was a looming trade war between China and the West. In reality, the decision probably had more to do with no one else thinking the firm was worth \$30bn. That valuation now looks more reasonable. Volvo has gone from suffering losses under Ford, and ▶▶

▶ turning out 374,000 cars in the last year of American ownership, to making 773,000 in the 12 months to June at a healthy profit. Its aim of making 1.2m cars a year by 2025 looks attainable. It is also leading the way in selling its cars on subscription or directly to consumers at a fixed price, rather than through dealerships.

More important, Volvo is ahead of most rivals in sating the growing appetite for electric vehicles (EVs) among motorists and investors alike. It has pledged to go all electric by 2030, long before most rivals; spun off its internal-combustion-engine

business into a stand-alone operation in order to focus on EVs; and joined forces with Northvolt, a Swedish battery firm, to build a gigafactory and ensure supply. It also half-owns Polestar, a pure-EV marque that last month announced plans to go public next year in a reverse merger with a special-purpose acquisition company (and hopes to fetch a valuation of \$20bn). Leaning on Volvo for manufacturing capacity and retail and service networks puts Polestar in a better position than most rival EV startups, which lack either.

Geely will pocket a handy profit after a

decade or so of owning Volvo outright. The Chinese firm will retain a dominant stake but the flotation will also let it concentrate on its reorganisation from a holding company owning various carmakers into a transport-technology group which also makes the smartphones and satellites that enable the provision of transport services and, eventually, autonomous vehicles. Volvo, for its part, expects to raise nearly \$3bn in the IPO, cash Mr Samuelsson says the carmaker needs if it is to keep up its electric momentum. If it does, rivals will have even more catching up to do. ■

Bartleby Out-of-office experience

The art of the automated reply in an increasingly wired world

“I WILL BE back in the office [in two weeks] and have limited Wi-Fi connection in the meantime.” It is safe to assume that readers of this column are familiar with something like this message (which, like all the others cited below, comes from real life). As with all aspects of office culture, the autoreply has evolved over time—and more quickly in the past 18 plague months. Good etiquette has not always kept up.

The precursor of the electronic “out of office” is sometimes found in Mediterranean countries, where a handwritten note taped to a shop front announces to the world: “Closed for August, back in September”. The digital autoreply was initially a quirk of Microsoft, a software giant, dating back to the company’s Xenix email system of the late 1980s, before bleeding into the mainstream in the following two decades.

In those early days responses tended to be terse and to the point. That style persists to this day, especially in the higher echelons of corporate hierarchies. C-suite executives’ autoreplies seldom feature jokes or emojis—if, that is, they are set up in the first place. A chief executive does not have to explain her or his absence or lack of prompt response, except possibly to the board (which will invariably have been informed of the boss’s movements).

Lower down the pecking order, however, people increasingly try to put their personal mark on their autoreplies. And if this stand-in Bartleby’s inbox is a guide, creativity has burgeoned in the age of lockdowns and remote work. Some try to be witty (“I will have limited enthusiasm for access to email”). Others share (“I am out of the office getting married!”). Others still plump for exoticism (“Please note that I am out travel-



ling in a remote area in Greenland and will have no internet or phone connection for the majority of the period”).

Often, the autoreply involves people beyond the sender and recipient. Your columnist has on numerous occasions been named as the person to whom addressees of her colleagues’ autoreplies ought to direct queries. That can have long-running consequences. Public-relations types still refuse to remove her email address from their mailing lists even though she has patiently, and repeatedly, explained that climate change is not her beat so there is no point in sending her daily press releases about agroforestry in Kenya. Occasionally autoreplies turn into a cyberspace version of a treasure hunt. During the summer Bartleby’s email address was given out while she herself was on holiday so the recipient ended up being redirected again.

Such foibles notwithstanding, most office workers have no problem with the “out of office”. A survey of 1,000 people conducted in 2015 by Microsoft found that most respondents liked the practice. That

is partly because setting it can mark the beginning of a holiday (which it did for 77% of the surveyed). But 60% also confessed to enjoying a jolly reply received from others.

Still, clear dos and don’ts exist. As an “out of office” connoisseur (and victim), Bartleby recommends being straightforward and informative. State the dates when you are away. If the period of absence is longer than a typical holiday, a word of explanation may be in order (jury duty, parental leave, sabbatical).

The message itself does not have to be a labour of love. Oversharing is awkward. “I’m on PTO” (paid time off) has been common in the corona-era despite the inelegance of reminding strangers that you received compensation for being unavailable. Humble-brags or an air of self-importance strike a false note.

Trying to be funny often falls flat on its face. Including suggestions to follow you on Twitter or emojis of an umbrella on a beach are best avoided. Three in ten respondents to Microsoft’s survey reported succumbing to sentiments of envy and fear of missing out upon being notified that others enjoyed tropical vacations. Veering off-topic, whether by including personal confessions or quotes from Muhammad Ali, shows not erudition or finesse but a distracted mind given to rambling. It is like having water on the knee—the best things found in the wrong places.

Being aware people want your attention before you return to your post can be instrumental in the management of any other large organisation. But if you are surfing in Maui, attending a conference, running an ultra-marathon in the Mojave desert, writing a novel, or taking time off to paint your mother’s garage, no one really needs to know the details.



Technology

The Mexican wave

At long last, Mexico is enjoying a startup bonanza

KAVAK, A MEXICAN startup, provides an elegant solution to a glaring problem: how to buy a used vehicle in a market that is both one of the world's biggest and its most informal second-hand car markets. Few buyers trust a seller's assessment of the good's quality. Few sellers trust the buyer to cough up the money. Transactions often involve "meeting someone at a corner store and seeing how it goes", says Alejandro Guerra, Kavak's general manager in Mexico. On Kavak's app people can buy and sell cars with the company acting as a trusted middleman.

Kavak, which last month raised \$700m in a funding round that valued it at \$8.7bn, is part of a startup explosion in Mexico. Since the firm became the first Mexican startup to be valued at more than \$1bn last year it has been joined by three more such "unicorns". So far this year unlisted Mexican tech firms have raised nearly \$3bn, roughly as much as in the previous nine years combined (see chart).

Mexico's 126m people are on average young and almost in the upper-middle-income bracket. Some 54% own a smartphone, according to Newzoo, a research firm, a slightly higher share than among similarly novelty-loving Brazilians. Mexico is among the five biggest markets for tech stars like Uber in ride-hailing or Spotify in music-streaming. It is a huge one for Rappi, a Colombian food-delivery darling. Until recently, though, domestic founders

Fiesta
Mexico, venture-capital deals*

struggled to make a name for themselves.

That is in large part because of a dearth of money. Mexican entrepreneurs had to go cap in hand to local venture capitalists with comparatively shallow pockets. This began to change in 2019, when SoftBank launched a Latin America fund. In September the free-spending Japanese technology-investment group announced a second fund of \$3bn, bringing its total investments in the region to \$8bn, a lot of it in Mexico. Others have been piling in, including Sea, a Singaporean tech conglomerate, Founders Fund, a prominent Silicon Valley venture-capital (VC) firm, and Tiger Global, an aggressive New York hedge fund that has recently been shaking up the VC world.

This money has been pouring into home-grown businesses that, like Kavak, solve what Philipp Haugwitz of McKinsey, a consultancy, calls "pain points" in Mexico—of which there are plenty, from horrible traffic to a lumbering financial sector. With just one in three Mexicans owning a bank account, loans hard to get and too many businesses cash-only, fintech startups in particular are thriving, in part

thanks to a fintech law from 2018. According to *Fintech Radar*, an industry newsletter, Mexico now boasts more fintechs than Brazil, the historic hub of Latin American enterprise. Albo, a digital-only "neobank", makes it easy to set up an account. Clip offers credit-card readers for smartphones. GBM makes loans to smaller businesses without credit histories. Kavak helps to finance transactions on its platform.

Obstacles remain. Like many startups, Mexican ones face a hazy path to profitability. Dealing with bureaucracy is a nightmare; it can take Kavak days to process a transaction in Mexico, compared with under 40 minutes in Brazil. Yet investors are upbeat. Marcelo Claure, who heads SoftBank's Latin American fund, calls Mexico "the land of opportunity". It has helped his fund's returns exceed those in every other region, he says. And what works in Mexico may work in other emerging markets. Kavak, which expanded to Argentina last year and Brazil this year, is now eyeing those across the Pacific and the Atlantic. ■

Chipmaking

A golden-ish age

GlobalFoundries' listing is perfectly timed. It is also a risky bet

IT LOOKS LIKE the perfect time to be a chipmaker. The market for semiconductors continues to grow rapidly. By the end of the decade it will exceed \$1trn globally, up from \$500bn this year, forecasts VLSI Research, a firm of analysts. Demand keeps outstripping supply; the chip shortage is now expected to last well into 2023, paralysing factories of everything that needs processors—which in this day and age is basically everything. Western governments have earmarked billions to build chipmaking capacity within their borders in order to become less dependent on Asian suppliers. America alone is planning to spend \$52bn over the next five years.

In this context the initial public offering (IPO) of GlobalFoundries, a contract manufacturer which makes chips for other firms, seems a safe bet. The firm, which unveiled its prospectus on October 4th and is expected to list soon, is the world's fourth-biggest chip foundry by revenues. The typical characteristics of an IPO—a lowish offering price and a small proportion of shares available to public investors, both of which have yet to be decided—should ensure a healthy "pop" in the share price in the early days of trading. But GloFo, as semiconductor aficionados endearingly call the firm, is also an example of how ▶▶



Party like it's 1999

► tough the chip business has become, notwithstanding the favourable climate.

GloFo is a product of consolidation, caused by the industry's unforgiving economics that demand ever-tinier silicon furrows and hence ever-costlier fabrication plants (or "fabs"). The most advanced of these now cost more than \$20bn apiece. After a spin-off in 2009 from AMD, which designs processors for personal computers and servers in data centres, GloFo later acquired Chartered Semiconductor, another foundry, and the chip-manufacturing business of IBM, a purveyor of assorted information-technology wares.

With billions from Mubadala Investment Company, a sovereign-wealth fund from the United Arab Emirates, which currently owns all of GloFo, the firm tried to keep up with rivals in the race to forge cutting-edge electronic circuitry. In 2018 it gave up and started catering to the lower end of the market. These are semiconductors which go into products such as cars and machine tools, and therefore do not need the highest-performing processors, rather than data centres or smartphones. This niche is still a \$54bn market, according to Gartner, another market-researcher.

Today GloFo operates a handful of fabs across the world, employs around 15,000 people and has a market share of 7% in the chip-manufacturing business. Most of its customers, which include AMD, Broadcom, another American chip designer, and NXP, a Dutch one, are "single sourced". That means their chips cannot be made by other foundries, such as Samsung of South Korea and in particular Taiwan Semiconductor Manufacturing Company (TSMC), the world's mightiest chip manufacturer, which controls more than half the market.

The difference in size goes a long way to explaining why TSMC is hugely profitable whereas GloFo struggles to generate cash. In the first six months of this year the Taiwanese giant boasted sales of \$26bn and profits of \$9.8bn. Although GloFo's revenues rose to \$3bn in the same period, up by nearly 13% on a year ago, and its accounting losses have been narrowing, it still lost \$300m between January and June.

Investing in GloFo will therefore be a wager that the company can ride the current tailwinds in its industry and start making serious money. But it may also be a bet that another firm snaps up GloFo for itself. In July it emerged that Intel, the world's largest chipmaker by revenues, was in takeover talks with the firm. These did not go anywhere because the parties could not agree on a price. Once GloFo is listed it should be clearer how much it is worth. Negotiations could restart. Then again, with GloFo's numbers now public, Intel may have a hard time convincing its shareholders that it needs to pay the \$25bn that GloFo is expected to fetch. ■

German property developers

Berlin walls and windows

BERLIN

More trouble for Vonovia and Deutsche Wohnen

ROLF BUCH has no time to rest on his laurels. On October 4th the chief executive of Vonovia, Germany's biggest residential-property firm, managed after a long ordeal to seal the creation of Europe's biggest such company through a merger with Deutsche Wohnen (DW), its main rival. But DW comes with a new headache. In a non-binding referendum last month Berliners backed a proposal obliging all private firms that own more than 3,000 flats to sell them to the city, which could rent them out more cheaply. DW owns more than 110,000 flats in Berlin. Vonovia has another 43,000. A quarter of the combined firm's properties are in the German capital (see chart).

Mr Buch's deal with DW almost did not happen, which would have probably sent the 56-year-old Rhinelander into premature retirement. After trying and failing to buy DW in 2015 with a hostile bid, Mr Buch launched another takeover offer in May, this time with the agreement of Michael Zahn, the chief executive of DW. That €18bn (\$22bn) all-cash deal collapsed in July after failing to win the approval of at least half of DW's shareholders.

Mr Buch did not give up. He increased his offer slightly. More unusually, DW's board agreed to issue primary shares without pre-emption rights and sell them directly to Vonovia if Mr Buch needed more help to get his deal done. The prospect of a deliberate dilution of existing shareholders by DW, which does not need addi-

tional capital, did not go down well with Davidson Kempner, an American hedge fund that owns 3.2% of DW, as well as a chunk of Vonovia. It said in a statement that it "raises serious corporate governance concerns".

Union Investment, a German asset manager, and Deka, a German bank, which also own stakes in DW, agree with Davidson Kempner. They do not buy DW's justification that it is better to be taken over by a big rival than to have it as the biggest non-controlling shareholder. They speculate that DW's bosses could have been lured by lucrative golden handshakes or the prospect of higher salaries after the merger and so may not have acted in the best interest of shareholders. Mr Zahn will become deputy CEO of the merged giant and Philipp Grosse, DW's chief financial officer, will become its CFO. The episode has raised red flags among German investors. "We need to revise our rules on the duty of neutrality of the bosses of target companies," says Marc Tüngler of the German association for the protection of shareholders.

DW dismisses any suggestions of impropriety. It responded in a statement that it was "common practice" for executives of a target company to join the enlarged group. Moreover, the planned capital increase to get the deal over the finishing line was in line with German securities law. And in the event, it never came to pass.

Even the fiercest critics of the deal concede that it is almost certainly irreversible. But if the merger was a pain, the expropriation vote may prove to be a migraine. The newly elected mayor of Berlin, Franziska Giffey, cannot ignore the burghers' demands. These reflect a growing frustration with property speculation and rocketing rents. After reunification in 1990 housing costs in Berlin were lower than in other big German cities. Waves of immigrants and young Germans lured by cut-price flats, a hip art scene and a thriving job market have helped push rents up more than two-fold in the past ten years in real terms. Incomes have not kept up.

If, as looks likely, the mayor drafts the law and Berlin lawmakers pass it, affected property firms would sue to overturn it. The developers are likely to prevail in the federal Constitutional Court, which in April declared Berlin's earlier experiment with rent control unlawful. But the case could drag on for a year or more.

Expropriation is not a solution for Berlin's housing problems. Instead, Mr Buch says, construction may be part of one. If it were not for Berlin's labyrinthine bureaucracy, Vonovia alone could have built 7,000 new flats in Berlin in the past few years. Ms Giffey should focus on speeding up building permits and reforming arcane building codes. The city needs fewer pitchforks and more shovels. ■

Capital gains

Deutsche Wohnen and Vonovia, share of combined portfolio, by region
September 2021, % of total value



Schumpeter | The carbon-tax crackdown

What if firms were forced to pay for frying the planet?



MANY QUESTIONS are on the minds of business leaders in the run up to the UN's COP26 climate summit from October 31st to November 12th. For CEOs making the trip to Glasgow, they range from the mundane (travel by train? eat only plant-based food?) to the profound (why am I going in the first place?). The most important question, though, is barely asked: what would happen if governments agreed, sooner or later, to commitments serious enough to limit global warming to 1.5-2.0°C above pre-industrial levels, as stipulated in the Paris climate agreement of 2015? This question has an answer most multinationals shy away from. It would send shock waves through their entire business models.

Businesses, as a rule, do not like being forced to do anything. They prefer to make voluntary gestures—just enough to keep governments off their backs. Right now they are throwing around promises to cut carbon emissions to “net zero” like confetti, on the grounds that such vows attract investors, employees and customers. It is a step in the right direction. And yet some of those pledges are paper-thin. Of more than 4,200 firms in the G20 club of big economies that have disclosed their climate ambitions, only a fifth have committed to so-called science-based targets that would keep the world on track to meet the Paris agreement's goal. That requires firms to start slashing emissions within years, not decades. For big emitters this poses an instant threat to profitability. It strains credulity to think that altruism is enough to convince firms to act. Governments will have to apply the thumbscrews.

Even business folk realise that the best way to apply pressure is by imposing a global system of carbon taxes, with some form of redistribution to ease the pain on the poorest thumbs. The trouble is that only about one-fifth of global emissions is covered by a price on carbon. As a result the global average price is just \$3 per tonne of carbon dioxide. To meet the ambitions of the Paris agreement, the IMF says the global carbon price needs to rise to \$75. Others believe it should be almost double that. For some heavy emitters covered by the European Union's emissions-trading system, it is already above €60 (\$69). In China's new (limited) scheme, by contrast, it is a pittance. America has no federal scheme of any kind.

A higher global price would affect all businesses—albeit unevenly. For now, it is treated as too much of a long shot to take seri-

ously. But assume for the moment it actually happened.

The first important thing would be to separate out the heavy emitters from the rest. Early adopters of bold emissions targets come from industries such as retail, where abating is relatively easy. In countries like Britain, where the grid is decarbonising fast anyway, that may require no independent effort on the part of energy users. A small number of sectors responsible for the bulk of listed companies' emissions—power utilities, oil and gas firms, steel- and cement-makers—have a much harder challenge. As demand for carbon-intensive stuff collapses, they would have to find new ways to generate cashflows. Some are dabbling in renewables. Some see a future in low-carbon plastics and materials. But if they cannot turn these swiftly into huge sources of income, they would be better shutting down operations and returning cash to shareholders. Western firms may hope they can sell off their dirtiest assets to state-owned companies in the developing world. Yet these, too, would be subject to a truly global carbon tax. For some, the sooner they start lightening their carbon load, the better.

For a broader set of businesses, supply chains would be the main issue. Standard Chartered, a bank, says almost three-quarters of multinationals' emissions come from their suppliers. Tackling those is an immense task. Take coal-addled China, where many of them are based. Guido Giacconi of the EU Chamber of Commerce in China says that though the country is investing heavily in renewables, it is “difficult if not impossible” to guarantee that a firm's energy use is free from coal, because of the opacity of the electricity grid. That makes it hard for firms like Apple to certify that their supply chains in China (where iPhones are made) are carbon-neutral. If its Chinese suppliers were consequently subject to a carbon tax, it might have to raise prices of iGadgets.

Moving supply chains out of China would bring costs, too. In some Asian alternatives, such as Vietnam or Indonesia, fossil fuels are more prevalent than in China. In emerging markets with a lot of clean energy, such as Brazil, the costs of bad infrastructure and red tape are unappealing. Reshoring is unpalatable for many Western firms; the costs of rich-world labour are just too high.

This feeds into a third problem: consumption. A high carbon tax is bound to push up prices, which will change consumer behaviour, especially among lower earners. The tourism industry, for instance, would have to rely less on customers arriving by cheap flights. Supermarkets would need to provide more local foods. People might start tracking the carbon trail of some things they buy, creating headaches for retailers like Amazon.

The flip side would be more innovation. The International Energy Agency, which represents energy-consuming countries, said last year that investments in low-carbon research and development had barely budged since 2012, and was a fifth of what was spent on health and defence. This is pitiful. A carbon tax would change that. Think of hyperloops for long-distant transport; eating bugs, seaweed and lab-grown meat; an endless stream of virtual-reality entertainment as people stay at home rather than consume goods that become less affordable owing to the carbon bill.

Extinction rebellion

Inevitably, some firms which fail to see the writing on the wall will die. But others will swiftly realise that the future is “adapt or perish”. This is not a mantra CEOs will chant at COP26. It should be. When it comes to action on the climate, they are all-too-keen to show off their halos. The thumbscrew is a less appealing accoutrement—but a far more necessary one. ■

Shopping online should be boring

You find something you like, you put it in your cart, you click, you pay. Done. Easy. Except sometimes it's not. Sometimes you order 11 taco holders when you meant to order 1. Sometimes that pantsuit shows too much of your birthday suit. It happens, and fixing it shouldn't be an adventure. It should be simple, frictionless, and kind of...boring.

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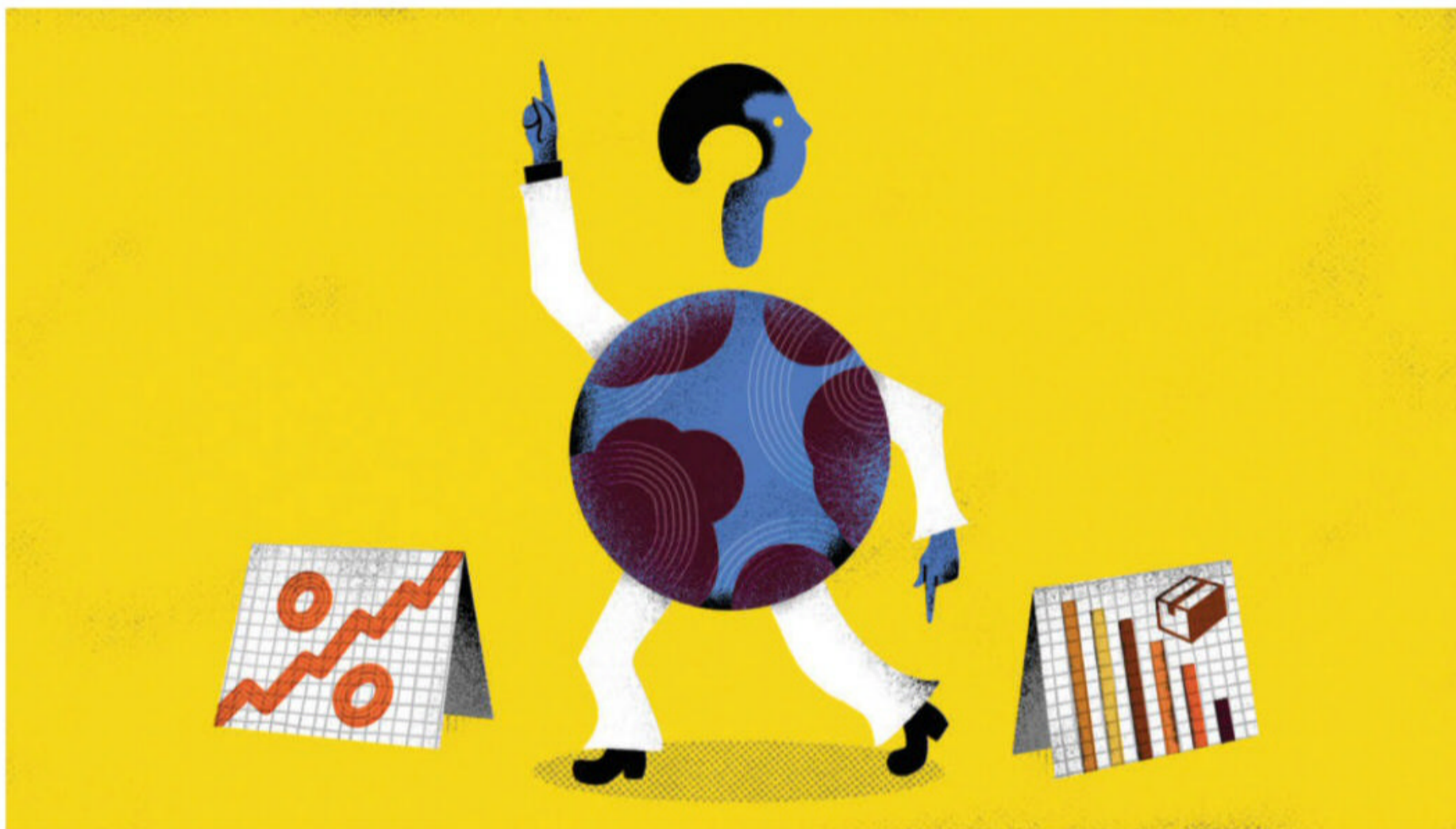


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Global property correspondent



Sacha Nauta
Deputy executive editor





The world economy

Stagflation sensation

WASHINGTON, DC

Soaring energy prices and a faltering recovery invite comparisons with the 1970s. But the past is not the best guide to the present

IT IS NEARLY half a century since the Organisation of the Petroleum Exporting Countries imposed an oil embargo on America, turning a modest inflation problem into a protracted bout of soaring prices and economic misery. But the stagflation of the 1970s is back on economists' minds today, as they confront strengthening inflation and disappointing economic activity. The voices warning of unsettling echoes with the past are influential ones, including Larry Summers and Kenneth Rogoff of Harvard University and Mohamed El-Erian of Cambridge University and previously of PIMCO, a bond-fund manager.

Stagflation is a particularly thorny problem because it combines two ills—high inflation and weak growth—that do not normally go together. So far this year economic growth across much of the world has been robust and unemployment rates, though generally still above pre-pandemic levels, have fallen. But the recovery seems to be losing momentum, fuelling fears of stagnation. Covid-19 has led to factory closures in parts of South-East Asia, hitting industrial production. Consumer senti-

ment in America is sputtering. Meanwhile, after a decade of sluggishness, price pressures are intensifying (see chart 1 on next page). Inflation has risen above central-bank targets across most of the world, and exceeds 3% in Britain and the euro area and 5% in America.

The economic picture is not as bad as the situation during the 1970s (see chart 2 on next page). But what worries stagflationists is less the precise figures than the fact that an array of forces threatens to keep inflation high even as growth slows—and that these look eerily similar to the factors behind the stagflation of the 1970s.

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One parallel is that the world economy is once again weathering energy- and food-price shocks. Global food prices have risen by roughly a third over the past year. Gas and coal prices are close to record levels in Asia and Europe (see next story). Stocks of both fuels are disconcertingly low in big economies such as China and India; power cuts, already a problem in China, may spread. Rising energy costs will exert more upward pressure on inflation and further darken the economic mood worldwide.

Other costs are rising too: shipping rates have soared, because of a shift in consumer spending towards goods and covid-related backlogs at ports. Workers are enjoying greater bargaining power this year, as firms facing surging demand struggle to attract sufficient labour. Unions in Germany, for instance, are demanding higher pay; some workers are going on strike.

Stagflationists see another similarity with the past in the current policy environment. They fret that macroeconomic thinking has regressed, creating an opening for sustained inflation. In the 1960s and 1970s governments and central banks tolerated rising inflation as they prioritised low unemployment over stable prices. But the bruising experience of stagflation helped shift thinking, producing a generation of central bankers determined to keep inflation in check. Then, after the global financial crisis and a period of deficient demand, this single-minded focus gave way to greater concern about unemployment. Low interest rates weakened fis- ▶▶

cal discipline, and enabled vast amounts of stimulus during 2020. Now as in the 1970s, the worriers warn, governments and central banks may be tempted to solve supply-side problems by running the economy even hotter, yielding high inflation and disappointing growth.

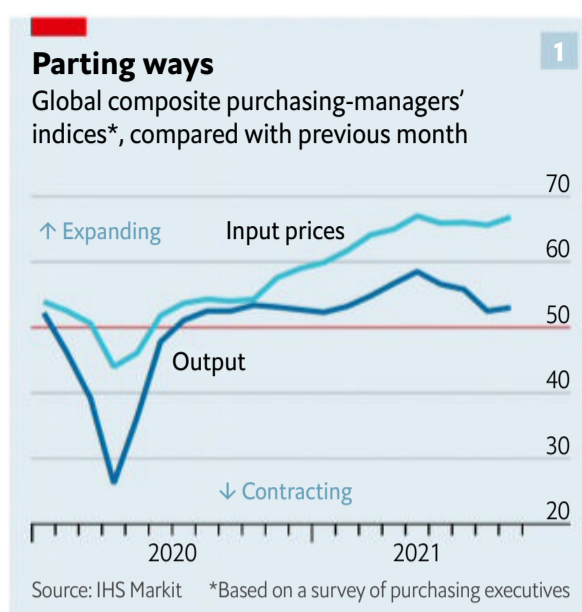
These parallels aside, however, the 1970s provide little guidance to those seeking to understand current troubles. To see this, consider the areas where the historical comparison does not hold. Energy and food-price shocks typically worry economists because they could become baked into wage bargains and inflation expectations, causing spiralling price rises (see *Free exchange*). Yet the institutions that could underpin a new, long-lived era of labour strength remain weak, for the most part. In 1970 about 38% of workers across the OECD, a club of mostly rich countries, were covered by union wage bargains. By 2019, that figure had declined to 16%, the lowest on record.

Cost-of-living adjustments (COLA), which automatically translate increases in inflation into higher pay, were a common feature of wage contracts in the 1970s. But the practice has declined dramatically since. In 1976 more than 60% of American union workers were covered by collective-bargaining contracts with COLA provisions; by 1995, the share was down to 22%. A paper published in 2020 by Anna Stansbury of Harvard and Mr Summers argued that a secular decline in bargaining power is the “major structural change” explaining key features of recent macroeconomic performance, including low inflation, notwithstanding the decline in unemployment rates over time. As dramatic as the pandemic has been, it seems unlikely that such a big shift has reversed so quickly.

Moreover, stagflation in the 1970s was exacerbated by a sharp decline in productivity growth across rich economies. In the decades after the second world war, governments’ commitment to maintaining demand was accommodated by rocketing growth in productive capacity (the French called the period “*les Trente Glorieuses*”). But by the early 1970s the long productivity boom had run out of steam. The habit of stoking demand failed to help expand productive potential, and pushed up prices instead. What followed was a long period of disappointing productivity growth.

Since the worst of the pandemic, however, productivity has strengthened: output per hour worked in America grew at about 2% in the year to June, roughly double the average rate of the 2010s. Booming capital spending could mean such gains are sustained.

Another important break with the 1970s is that central banks have neither forgotten how to rein in inflation nor lost their commitment to price stability. In the 1970s



even some central bankers doubted their power to curb wage and price increases. Arthur Burns, then the chairman of the Federal Reserve, reckoned that “monetary policy could do very little to arrest an inflation that rested so heavily on wage-cost pressures”. Research by Christina and David Romer of the University of California at Berkeley suggests that Mr Burns’s view was a common one at the time. But the end of the era of high inflation demonstrated that central banks could rein in such price rises, and this knowledge has not been lost. Last month Jerome Powell, the Fed’s current chairman, declared that, if “sustained higher inflation were to become a serious concern, we would certainly respond and use our tools to assure that inflation runs at levels that are consistent with our longer-run goal of 2%.”

The new fiscal orthodoxy likewise has its limits. Budget deficits around the world are forecast to shrink dramatically from this year to next. In America moderate Democrats’ worries about excessive spending may mean that President Joe Biden’s grand investment plans are pared down—or fail to pass at all.

What next for the world economy, then, if it does not face a 1970s re-run? Rocketing energy costs pose a serious risk to the re-

covery. Soaring prices—or shortages, if governments try to limit rises—will dent households’ and companies’ budgets and hit spending and production. That will come just as governments withdraw stimulus and central banks countenance tighter policy. A demand slowdown could relieve pressure on supply-constrained sectors: once they have paid their eye-watering electricity bills, Americans will be less able to afford scarce cars and computers. But it would add a painful coda to nearly two years of covid-19.

Another important respect in which the global economy has changed since the 1970s is in its far greater integration through financial markets and supply chains; trade as a share of global GDP, for instance, has more than doubled since 1970. The uneven recovery from the pandemic has placed intense stress on some of the ties binding economies together. Panicking governments could hoard resources, causing further disruption.

Past experience, therefore, is not the clearest lens through which to view the forces buffeting the global economy. The world has changed dramatically since the 1970s, and globalisation has created a vast network of interdependencies. The system now faces a new, unique test. ■

Fossil fuels

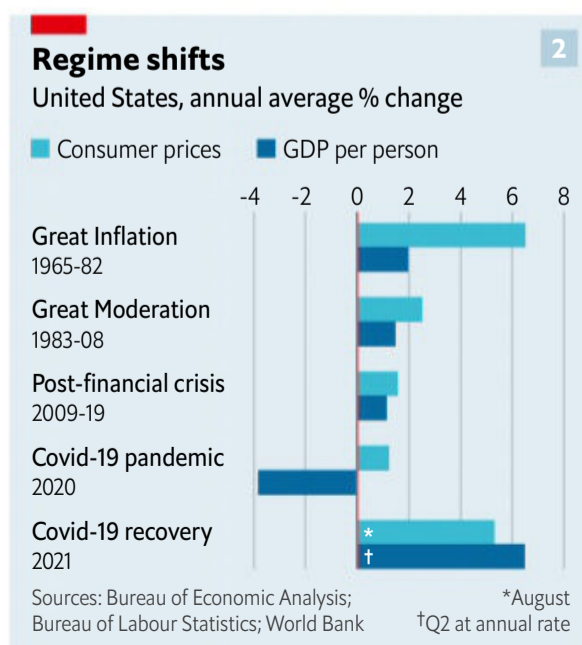
Can’t live without them. Yet

The age of energy abundance is dead

FOR MUCH of the past half-decade, the operative word in the energy sector was “abundance”. An industry that had long sought to ration the production of fossil fuels to keep prices high suddenly found itself swamped with oversupply, as America’s shale boom lowered the price of oil around the world and clean-energy sources, such as wind and solar, competed with other fuels used for power generation, such as coal and natural gas.

In recent weeks, however, it is a shortage of energy, rather than an abundance of it, that has caught the world’s attention. On the surface, its manifestations are mostly unconnected. Britain’s miffed motorists are suffering from a shortage of lorry drivers to deliver petrol. Power cuts in parts of China partly stem from the country’s attempts to curb emissions. Dwindling coal stocks at power stations in India are linked to a surge in the price of imports of the commodity.

Yet an underlying factor is expected to worsen the scarcity in the next few years: a ▶▶



Power surge

Dutch front-month natural-gas futures
€/MWh



Sources: ICIS; Refinitiv Datastream

Brent crude oil price
\$ per barrel



slump in investment in oil wells, natural-gas hubs and coal mines. This is partly a hangover from the period of abundance, with years of overinvestment giving rise to more capital discipline. It is also the result of growing pressures to decarbonise. This year the investment shortfall is one of the main reasons prices of all three energy commodities have soared. European gas prices, though volatile, were near record highs as *The Economist* went to press. Oil crossed \$81 a barrel after the Organisation of the Petroleum Exporting Countries (OPEC), and producers such as Russia who are part of the OPEC+ alliance, resisted calls to raise output at a meeting on October 4th.

The potentially inflationary upheaval will not be good for a world that still gets most of its energy from fossil fuels. But it may at least accelerate the shift to greener—and cheaper—sources of energy.

Start with oil, an industry that needs constant reinvestment just to stand still. A rule of thumb is that oil companies are supposed to allocate about four-fifths of their capital expenditure each year just to stopping their level of reserves from being depleted. Yet annual investment by the industry has fallen from \$750bn in 2014 (when oil prices were above \$100 a barrel) to an estimated \$350bn this year, reckons Saad Rahim of Trafigura, a commodity trader. Analysts at Goldman Sachs, a bank, say that over the same period, the number of years' worth of current production held in reserves in some of the world's biggest projects has fallen from 50 to about 25. A supply crunch was averted last year because the covid-19 pandemic clobbered oil demand. But once the world economy started to recover, it was only a matter of time before a squeeze started to emerge.

The industry would usually respond to robust demand and higher prices by investing to drill more oil. But that is harder in an era of decarbonisation. For a start, big private-sector oil companies, such as ExxonMobil and Royal Dutch Shell, are being pressed by investors to treat oil and gas investments like week-old fish. That is ei-

ther because their shareholders reckon that demand for oil will eventually peak, making long-term projects uneconomic, or because they prefer to hold stakes in companies that support the transition to clean energy. Even though prices are rising, investment in oil shows no sign of picking up. *The Economist* has looked at capital-spending forecasts for American and European commodity producers in 2021 and 2022 compared with 2019. Whereas mining firms predict big increases in capital expenditure, energy investment is expected to fall sharply (see box). Oil firms are instead giving excess cash back to shareholders.

Another factor inhibiting oil investment is the behaviour of OPEC+ countries. The half-decade of relatively low prices during the “age of abundance”, which reached its nadir with a price collapse at the start of the pandemic, gutted state coffers. That cut funding for investment. As prices recover, governments' priority is not

to expand oil-production capacity but to shore up national budgets. Moreover, state-run producers are cautious, worried that a new flare-up of covid-19 cases could hit demand again. And as Oswald Clint of Bernstein, an investment firm, puts it, many are wondering “Why not just ride this high price for a while?” In any case, even if the rally were eventually to inspire investment, it would take several years to meaningfully raise production.

Lower investment in oil has a spillover effect on the output of natural gas, which is often a by-product of drilling for crude. Added to that is a dearth of liquefied natural gas (LNG) terminals for shipping gas from places where it remains relatively easy to access (America) to those where it is scarcer (Asia and Europe). Given the long time it takes to build facilities, the lack of spare terminal capacity in America is expected to last at least until 2025.

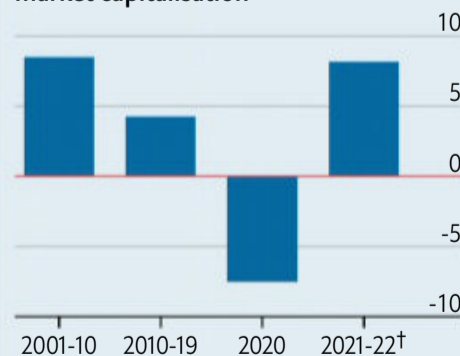
Investment in thermal coal is weakest of all. Even in China and India, which are planning new coal-fired power plants, the mood has swung against the dirtiest fossil fuel, because of both its carbon emissions and its effect on air quality. Yet with demand likely to be pushed up as China potentially heads into a cold winter, and with India struggling with supplies, coal may be in the throes of its last hurrah.

All this places fossil-fuel producers in something of a bind. A slump in investment could enable some oil, gas and coal investors to make out like bandits. But the longer prices stay high, the more likely it becomes that the transition to clean energy ultimately buries the fossil-fuel industry. Consumers, in the meantime, must brace for more shortages. The age of abundance is dead. ■

The urge to splurge

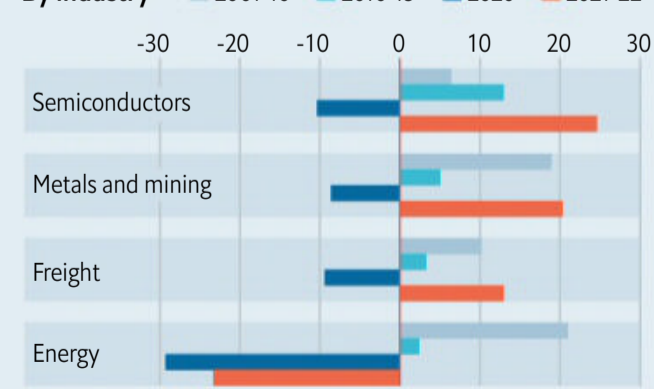
Europe and United States, capital expenditure, annual average % change

Total, largest 500 companies by market capitalisation*



Sources: Bloomberg; *The Economist*

By industry



*Excludes financial firms †Compared with 2019, where forecasts are available

Capital ideas

Companies' enthusiasm for investment faded after the global financial crisis, and took a huge hit when covid-19 struck. But even those that have been stingy in the past decade, such as miners and shipping firms, are expected to loosen the purse strings this year and next. One exception is oil-and-gas companies, many of which, given the global push to decarbonise, may see little point in expanding capacity.

America's debt ceiling

#Mintthecoin

Could a zany proposal help avert a debt crisis?

IT IS A mining rock of such resistance, that it is not easy to cut with the force of blows on a steel anvil." So wrote Antonio de Ulloa, a Spanish traveller to America, about platinum in 1748. Such an image may resonate with those frustrated by regular showdowns over America's debt ceiling. Janet Yellen, the treasury secretary, has said the country risks running out of money by October 18th if the federal-debt limit is not raised, something that the Republicans had been unwilling to countenance doing. On October 6th, as *The Economist* was going to press, Mitch McConnell, the Republicans' leader in the Senate, offered to stop obstructing a small rise in the debt ceiling, which would put off the issue until December (see United States section). But a deal is yet to be done.

Platinum is at the centre of a more unorthodox campaign to avert a debt crisis. In 1996 Congress directed the United States Mint to begin a commemorative coin programme. This included minting gold \$5 coins depicting George Washington, and silver \$1 coins to mark the 125th anniversary of the creation of Yellowstone National Park. But in 2010 Carlos Mucha, a lawyer, argued that he had found a loophole in the legislation. Whereas the Mint may not produce gold and silver coins in denominations of more than \$50, no such limit applies to platinum coins. In 2011 a campaign began to encourage the Treasury Department to mint a "\$1trn coin" as a way to sidestep a row over the debt ceiling. The campaigners argued that the coin would be "money" rather than "debt", and that the Treasury could hand it over to the Federal Reserve in return for the right to draw down funds, in order to keep paying the bills while politicians haggled over the debt limit.

Social media have made the idea something of a meme this time round. The proposal has been promoted enthusiastically by a small core of supporters on Twitter using the hashtag #Mintthecoin. Nobel prize-winner Paul Krugman has lent his support to the campaign, despite conceding its "gimmickry"; two Democrats in the House of Representatives, Jerry Nadler and Rashida Tlaib, are in favour. There is nothing to suggest that Ms Yellen or others in President Joe Biden's administration back the idea. Barack Obama, who ruled it out during the debt-ceiling crisis in 2013, has alluded to it as "wacky". But Senate Republi-



Mint conditions

cans were sufficiently worried to have tried to introduce legislation to close the loophole in February this year.

If the coin were minted, it would not have to contain \$1trn-worth of platinum bullion (currently around 30,000 tonnes). But the legal and constitutional obstacles to the scheme would be significant. Neil Buchanan of Levin College of Law argues that the coin would still be subject to the debt ceiling, and believes that any attempt to mint it would face court challenges. The coin could also undermine the established norm of Fed independence. George Selgin of the Cato Institute, a think-tank, points out that, by dumping a huge non-interest-bearing coin on the Fed, the net effect of the plan would be to reduce the central bank's net interest income and, potentially, to create a situation in which the Fed is more financially dependent on Congress.

Yet past political brinkmanship has led to higher interest payments and, in 2011, a sovereign downgrade. A default could have much graver consequences because of the key role Treasuries play in the global financial system. This is why some observers think that, for all its flaws, the coin proposal is worth keeping on the table.

Mr Buchanan argues that, even if the scheme is illegal, it might be worth risking court challenges and adopting it, if the government needs to buy time. That, he says, is the risk the Biden administration took when it recently extended a moratorium on rental evictions, first introduced last year. Whether the government would ever take such an unusual step as minting the coin, though, is far from clear. But one of the lessons of the past few years in Washington may be that ideas that once seemed unconstitutional or downright bizarre can go on to become reality. ■

Climate investing

Green party

The virtues of green government bonds may be more political than economic

A WAVE OF green sovereign debt is flooding markets. Britain issued its first such bond in September, alongside other new issuers, such as Colombia and Spain. They join at least 20 countries that already issue green debt, notably Germany, which is well on its way to building a "green curve" of bonds across several maturities. Governments have together raised more than \$100bn through the green route so far this year. And later this month the European Union is due to join the club. Its €250bn (\$290bn) green-borrowing programme stands to make it the world's largest sovereign issuer of the instruments.

The main difference between a green bond and the regular sort is that the capital raised by it must be spent on certain environment-friendly projects. So why not raise debt the old-fashioned way instead, and simply direct the proceeds towards greenery? One advantage could be the opportunity to borrow at a lower cost. Investors may be willing to accept a lower yield for green bonds (that is, to pay a higher price for them), because they can either count their holdings towards their environmental, social and governance targets, or because it makes them look good in the public eye, says Dion Bongaerts of Erasmus University in Rotterdam.

Indeed, investors do demand a higher yield on conventional debts than they do on green ones with near-identical characteristics. The yield difference (called the "greenium") may seem modest: for a ten-year bond in Germany it is about 0.05 percentage points. But that starts to look more significant when you consider that the yield on a conventional German ten-year bond is -0.18%. The yield gap has risen from 0.02 points a year ago, suggesting that the demand for green debts exceeds their supply. Britain's bond, issued last month, had a yield gap of 0.025 percentage points, more than had been expected for an opening green issuance. The sale was oversubscribed by ten times—larger than any issuance by the Debt Management Office.

Still, the cost savings are unlikely to be meaningful for governments, says Antoine Bouvet of ING, a Dutch bank. For €1bn of debt, an interest rate that is 0.05 percent-



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► age points lower would mean savings of about €500,000 a year, a drop in the bucket for a government.

That suggests that green bonds carry another benefit: they serve as a commitment device for politicians. The proceeds of Britain's issuance, for instance, will be spent on a range of green policies, including a plan to develop low-carbon hydrogen technologies by 2030. The risk with such commitments is that they end up being either watered down or reversed when a new government comes into power. But when a finance ministry creates a green-bond pro-

gramme and builds out a "green curve", backing out of specific policies may become harder, says Mr Bouvet. Doing so would hurt liquidity and anger investors.

Issuing newfangled bonds could carry other liquidity problems, though. One is that investors may be unwilling to plough cash into a still-nascent market. But as green bonds become more popular, the risk for governments is that they split the overall sovereign-bond market in two, says Mr Bongaerts. Normally, all bonds issued at the same time and of a given maturity are identical, which makes them easier to

trade. But a more verdant green segment could have the effect of lowering the liquidity premium that investors place on conventional bonds, and increasing the cost of raising funds.

Germany has tried to guard against this. Last year it began issuing green bonds that are matched to a conventional "twin" with the same maturity date and coupon. The Bundesbank maintains liquidity in the market through "switch trades", allowing investors to swap green bonds for conventional ones. As more governments go green, other workarounds may follow. ■

Buttonwood Brave new world

A different approach to investing in developing countries

FORTY YEARS ago Antoine van Agtmael of the International Finance Corporation pitched the idea of a "Third World Equity Fund" to sceptical fund managers, and the concept of emerging markets entered global investing. The aim had been to offer diversified exposure to fast-growing countries outside the rich world. Since then emerging and developing countries have, in aggregate, gained economic and corporate clout. But the vast disparities between them makes lumping them all into a single category increasingly odd. What might a new framework for investing outside of the rich world look like?

In the early 1980s emerging and developing countries made up about 25% of global GDP, according to the IMF. Today they account for about 40%, and more than 20% of total global market capitalisation. The market cap of the MSCI emerging-markets index, as a share of the global gauge, has risen by 13 times.

Yet countries' economic situations vary widely. Consider, for instance, the MSCI emerging-markets index. In 1988, when the gauge was launched, the income per person of countries that were included ranged from \$1,123 in Thailand to \$7,598 in Greece. In 2019 the range was over four times that, stretching from India's \$2,100 to South Korea's \$31,846. The fortunes of some economies, such as Brazil and Russia, are tied to the vagaries of commodities markets; those of East and South-East Asia, by contrast, are powered by manufacturing.

Existing definitions of emerging markets do not capture such complexity. Most people, including many investors, think of the category as linked to income levels. But index providers also consider whether trading in markets is as frictionless as in the rich world. This is why,

although South Korea and Taiwan are wealthy, their markets are not considered "developed". The result is a grouping that is highly concentrated: the two East Asian countries together make up 27% of the MSCI emerging-markets index.

How then to think about gaining exposure to more than three-quarters of the world's population, and two-fifths of the global economy? A framework that is organised by geography seems only slightly less arbitrary than the emerging-markets classification: the Turkish and Saudi Arabian markets, say, have little in common. Another approach would be to segment countries by income. But this too can have odd results. The low-income category, for instance, would combine places that have failed to develop for decades with those that could soon take off. The Republic of Congo and Vietnam have similar levels of income per person, but share few other economic qualities. Kuwait and Taiwan are broadly as rich as each other, but their stockmarkets are vastly different. Income levels alone do not say much about a country's prospects.



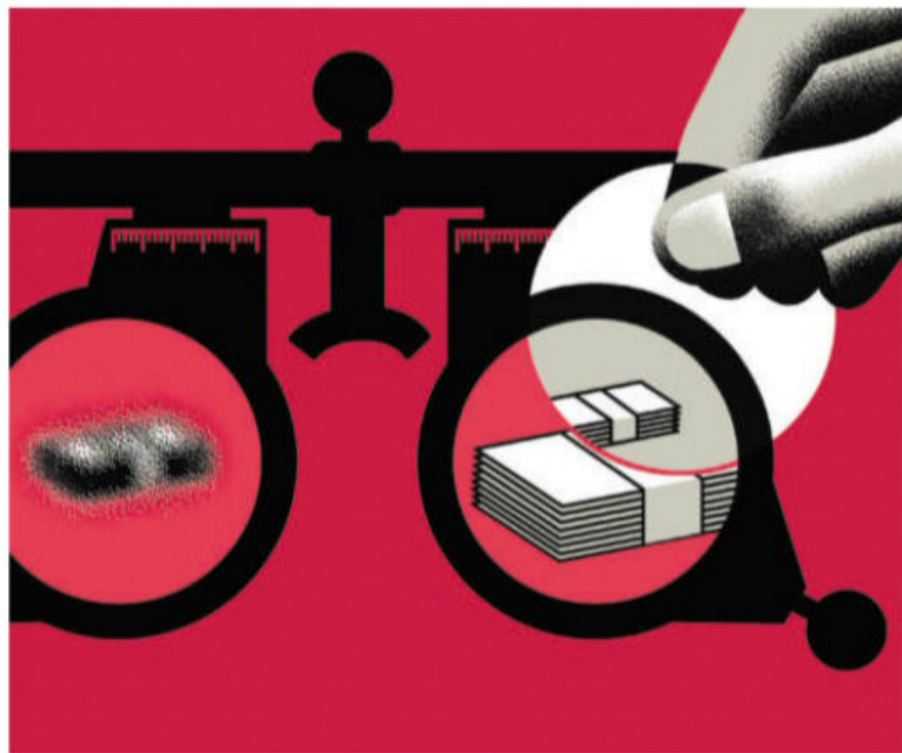
Perhaps a more promising approach is to think of countries in terms of their growth models instead. This framework would apply to the familiar big emerging economies, as well as to the edgier, "frontier" markets. Investors who want more exposure to export-oriented powerhouses could turn not just to China, South Korea and Taiwan, but also to later adopters of the model, such as Bangladesh and Vietnam. These are still minnows compared with the incumbents' market capitalisation of about \$16trn. But adding them makes sense, since they are already beneficiaries of rising Chinese wages, and could expand into technologically advanced manufacturing.

A second category could include countries that rely instead on services-led growth, with all the promise of healthy middle-class consumption. Here, India and Indonesia are possible candidates; Kenya might be a frontier market worth investigating. And a third group could include commodity exporters, such as Brazil, Russia and South Africa. These have provided dismal returns over the past decade and shrunk as a proportion of emerging-market indices. But climate change and the green transition could create new winners and losers, as some resources, such as battery metals, become sought-after, and others fall out of favour.

Such a taxonomy is far from perfect. Growth models can change over time, for a start. Just think of China, which is seeking to become more consumption-led. Many smaller countries have long had hopes of boosting exports, only to be tripped up by poor policymaking. Still, the strategy of lumping much of the world's population and output into one category is no longer useful. Time to experiment.

Free exchange | Grated expectations

A pugnacious paper takes aim at a basic belief about how inflation works



FOR ECONOMICS writing—a genre that stylistically is often closer to computer manuals than to literature—a discussion paper recently posted on the Federal Reserve’s website is a blessed relief. Jeremy Rudd, a Fed researcher, includes quotations from William Butler Yeats and Dashiell Hammett. He uses such phrases as “ill-tempered pettifogging” and “arrant nonsense”. And, as if channeling David Foster Wallace, he has fun in his footnotes, notably one in which he casually observes that mainstream economics may serve as “an apologetics for a criminally oppressive, unsustainable and unjust social order”. Little wonder his paper has become, by central-bank standards, a social-media sensation.

But it is the substance, not the style, of Mr Rudd’s paper that is most provocative. He directs his arguments at an axiomatic idea in economics: that expectations determine inflation. The conventional story is straightforward. When workers expect prices to rise, they demand higher wages. When firms expect costs to rise, they set higher prices. In both cases, inflation becomes a self-fulfilling prophecy. Central bankers’ task is to pin down expectations at a low, stable level. If they succeed, they can control inflation.

This idea also appears to have been remarkably successful. For the past three decades inflation in the rich world has been quiescent. Whenever it has shot above target, it has, soon enough, fallen back. Expectations are, in the parlance, well-anchored. Indeed, this is why many economists are sanguine about the current bout of inflation: supply disruptions will eventually pass, and price pressures will ease. It is a comforting thought.

Enter Mr Rudd, the author of more than a dozen papers on inflation over the past two decades. The idea of inflation expectations “rests on extremely shaky foundations”, he writes. First, he says, the theory is flawed. Models of inflation mostly include expectations as a short-term variable (that is, what prices will be in the next month or two). Insofar as expectations matter, though, central bankers and analysts think of them as a longer-term force, an underlying trend impervious to cyclical ups and downs. Empirically, however, this is hard to document. And whose expectations matter? There are ordinary people, businesses, forecasters and investors. None, he argues, is much good at predicting prices.

Nevertheless, it is true that the past three decades have seen

both subdued inflation and low expectations, however measured. But Mr Rudd’s contention is that the causality has been misdrawn. It is not that low expectations led to low inflation, but rather that low observed inflation led to low expectations. As he notes, it was only after a recession in the early 1990s, when inflation fell sharply and then stayed low, that expectations were ratcheted down. Mr Rudd concludes that obsessing over inflation expectations is useless and dangerous. Useless, because it is observed prices that count. Dangerous, because central bankers might grow unjustifiably confident in their powers of mind control.

The reaction to Mr Rudd’s provocation has been fierce. Tyler Cowen, a prolific economist at George Mason University, points to the extreme example of hyperinflation as proof that expectations matter. When people think their currency will be worth much less tomorrow, they switch out of it. Ricardo Reis of the London School of Economics, who has studied inflation as deeply as Mr Rudd, notes that no variable—neither expectations nor money supply, unemployment or interest rates—is perfect in predicting inflation. Yet each contributes to the picture. Moreover, he adds, there is plenty of evidence about expectations. Studies show, for example, that firms that think costs will rise tend to set higher prices.

For all the heat in the debate, there may be some common ground. Adam Posen of the Peterson Institute for International Economics, a think-tank, makes a sensible distinction. Over the long term, inflation expectations and, specifically, whether people believe the central bank will quell soaring prices, are important. Mr Rudd implicitly concedes this, writing that it is best for inflation to “be off of people’s radar screens”. Put differently, it is good to expect that inflation is and will be a non-issue.

Yet “that is different from saying that fine differences in inflation expectations are either well-measured or policy-relevant over shorter time horizons,” says Mr Posen. There is little evidence that communication alone by central banks can control inflation, without policy measures. And their credibility stems more from responses to crises than from attempts to manage expectations.

Janet Yellen drew a similar distinction when she was chair of the Fed. Stable long-term inflation expectations appear to be linked to stable long-term inflation, she said in a speech in 2015, in line with conventional wisdom. But she then pronounced herself “somewhat sceptical” that central banks can influence expectations simply by announcing an inflation target. Instead, she said, expectations may only take hold after a central bank keeps inflation near its target, a process that could take years.

Inspect the unexpected

Some commentators have concluded from Mr Rudd’s paper that economics is a mess and no one understands inflation. Yet sifting through the arguments, there are shared ideas of profound importance. First, central-bank credibility is precious. Second, expectations of inflation are formed by experiences of inflation. And third, in the long run, such expectations probably matter.

What does that mean for the rising inflationary pressures now facing much of the world? The hawkish view is that central banks must rein in prices before it is too late and expectations lose their anchor. Yet there is also a doveish take. Central banks in the rich world remain credible. By letting inflation run a little higher now, they may help reset expectations. After all, before covid-19, the big worry in rich countries was too-low inflation. Or, at least, that was what some economists and investors had expected of the future—whatever their expectations are worth. ■



The 2021 Nobel science prizes

And the winners are...

This year's Nobel prizes brought both delight and disbelief. Important work was honoured, but there was a surprising omission

SCIENTISTS SOMETIMES refer elliptically to winning a Nobel prize as “the trip to Stockholm”. Not this year, it isn't. The white-tie award ceremony in the Concert Hall, the splendid banquet in the City Hall and—for those who can last the pace, the equally splendid unofficial after-party in the students' union of one of Stockholm's universities (they rotate the honour) are all cancelled, just as they were last year. That will probably not, however, diminish the joy of this year's laureates. They will be on cloud nine already, having snagged the most famous awards in science.

The physics prize went to three researchers who have studied complex, chaotic and apparently random systems and developed ways to predict their long-term behaviour, with implications ranging from how to study the climate to the exploitation of exotic materials. Half of the award of SKr10m (about \$1.1m) was shared by Syukuro Manabe of Princeton University and Klaus Hasselmann of the Max Planck Institute for Meteorology, in Hamburg. The other half went to Giorgio Parisi of Sapienza,

the principal university in Rome.

Drs Manabe and Hasselmann laid the foundations of the modelling of Earth's climate that led to “quantifying variability and reliably predicting global warming”, according to the Nobel Committee for Physics of Sweden's Royal Academy of Science. Dr Parisi was awarded his share for discoveries around the “interplay of disorder and fluctuations in physical systems from atomic to planetary scales”.

Heat and light

In the 1960s Dr Manabe, an atmospheric scientist, wove together emerging strands of understanding of the dynamics and thermodynamics of Earth's atmosphere to make the first reliable prediction that dou-

bling the level of carbon dioxide present would also increase the planet's surface temperature. His work led to the development of physical models of Earth's climate and laid the foundation for the climate models used today.

Around the same time, scientists such as Edward Lorenz of the Massachusetts Institute of Technology were beginning to describe weather as a chaotic system—in other words, something that had so many interacting individual components, such as temperature, pressure, humidity and wind speed, that even small variations in initial conditions could result in enormous differences at a later stage. In this description, weather evolved rapidly and became essentially unpredictable even just a few days into the future.

In the 1970s Dr Hasselmann developed models to show how weather, despite being chaotic and unpredictable in the short-term, could yield reliable models to foreshadow Earth's climate over much longer periods. In describing his work he made an analogy to Brownian motion, the jostling movement of pollen grains in water that was first observed down a microscope by Robert Brown, a botanist, in 1827. Almost 80 years later, Albert Einstein posited that the slow zigzagging of such grains could be explained by their continual bombardment by much tinier, fast-moving water molecules. The large-scale climate can similarly be seen as a consequence of numerous smaller events.

→ Also in this section

77 Thermoelectric cooling

78 Sea slugs and chloroplasts

78 A malaria vaccine is approved



▶ Around 1980 Dr Parisi found some of the rules that govern apparently random phenomena. He studied a type of material called “spin glass”, in which, for example, iron atoms are mixed at random into a matrix of copper atoms. The iron atoms each behave as tiny magnets but, whereas in a normal lump of magnetised metal their north-south poles all point in the same direction, in a spin glass they do not. Dr Parisi devised a way to understand how they find their optimal orientations. His mathematical ideas not only help explain some of the complex systems of Earth’s climate, as described by his two fellow laureates, but also illuminate other apparently random phenomena in fields as diverse as animal behaviour, neuroscience and machine learning.

This year’s physics prize is the first scientific Nobel awarded for understanding of the climate. Asked if this was a not-so-subtle message to world leaders ahead of the upcoming COP26 climate summit in Glasgow, members of the award committee said the prize was meant to celebrate the discoveries themselves. But, they added, it also showed that the modelling of the climate and the notion of global warming rest on solid physical science. Human beings can no longer say they did not know how or why Earth is heating up.

Ringling the changes

The chemistry prize was shared by Benjamin List, of the Max Planck Institute for Coal Research, in Mülheim an der Ruhr, and David MacMillan, of Princeton University. Their prizewinning work, published in 2000, was conducted independently, and unknown to each other at the time, but with the same end in mind. This was to break the stranglehold of enzymes and transition metals on the field of catalysis.

Some chemical reactions proceed with alacrity. Most, though—including many that are industrially important—need a helping hand in the form of a catalyst. Evolution has provided a goodly range of these in the form of enzymes, which are large, complicated and sometimes temperamental protein molecules, but which have the advantage that they can create pure versions of what are known as optical isomers. These are molecules that have two forms which are mirror images of each other. This is important in the drug industry, for the different versions, known as enantiomers, can have different effects in the body. Also, if you choose the right enzymes, it is often possible to carry out multi-step reactions in only a few stages.

Transition metals are those in the middle of the periodic table—copper, nickel and iron, for example. The structures of the electron shells surrounding the nuclei of their atoms are complicated, meaning they are chemically versatile. This is what

makes them good catalysts. Some transition-metal catalysts are the metals themselves. More often, they are small molecules that include a transition-metal atom. Transition-metal catalysts can be easier to handle than enzymes, but usually fail to distinguish between enantiomers. Also, transition-metal compounds are frequently toxic, with all the environmental consequences that entails. And multi-step reactions involving them can be long-winded.

Dr List and Dr MacMillan found a way to have the best of both worlds: small-molecule catalysts that have no metal atoms in them, can turn out pure enantiomers, and often simplify multi-step reactions. That has significant industrial implications.

Dr List worked on an enzyme called aldolase A. This catalyses what is known as the aldol reaction, an important way of forging molecular bonds between carbon atoms. Aldolase A is made of 350 amino acids, the building blocks of proteins, but the bit that does the work consists of only three of these: lysine, glutamic acid and tyrosine. The rest of the enzyme is packaging. He therefore wondered if he could isolate the enzyme’s active centre and yet preserve its activity. In fact, he did better. He showed that the aldol reaction can be catalysed by a single amino acid, proline. And, crucially, this retains the enantiomeric purity of the enzyme-mediated reaction.

Dr MacMillan came from the other end of the problem. He wanted to remove the metal (in this case copper) from the catalyst involved in a different process, the Diels–Alder reaction. This is a way of joining two molecules into a six-carbon ring. One of the reagents contributes four carbon atoms to the ring and the other contributes two. Six-carbon rings are ubiquitous in organic chemistry, and by putting different side groups onto the reagents a vast variety of them can be turned out. Dr MacMillan found he could catalyse Diels–

Alder reactions using a type of metal-free molecule called an imidazolidinone to activate the two-carbon component, meaning that it combines enthusiastically with its four-carbon compadre.

The result of these two pieces of work is a field called asymmetric organocatalysis (the asymmetric part of the name referring to its ability to generate pure enantiomers), that is now rippling through industrial chemistry. And, since industrial chemistry, in one form or another, underpins most economic activity, it is also rippling, however invisibly, through life.

Sense and sensibility

The idea that there are five senses goes back at least as far as Aristotle. But it is not quite true. Four of the senses are obvious, if only because each is associated with a particular organ: sight with the eyes, hearing with the ears, taste with the tongue and smell with the nose. But the fifth classical sense, touch, is distributed over the whole surface of the body, albeit that it is concentrated in the fingertips.

Touch, moreover, is only one such distributed sense. Others perceived consciously include pain, heat and cold. And modern science has shown there are also unconsciously perceived senses, known collectively as proprioception. These keep track of the position and movement of the body and its parts. This year’s Nobel prize for physiology or medicine went to the discoverers of the molecular mechanisms of two of these distributed senses—temperature and mechanical stimulation.

The winners were David Julius of the University of California, San Francisco and Ardem Patapoutian of Scripps Research, a biomedical institute in San Diego. Dr Julius did the pioneering work on temperature. He and Dr Patapoutian, acting independently, then advanced this work. After that, Dr Patapoutian moved on to look at mechanical stimulation.

Dr Julius’s chosen tool for his investigation, which he began in the late 1990s, was capsaicin. This is the active ingredient of chilli peppers. By a chemical coincidence (as was then assumed and is now known) capsaicin reacts with, and thus stimulates, one of the body’s heat-receptor proteins. Dr Julius set out to discover what this protein was. To do so he made millions of fragments of genetic material for proteins known to be active in heat-receptor cells. He then introduced these fragments into other cells, to encourage them to manufacture the relevant protein fragments. That done, he tested the modified cells for sensitivity to capsaicin.

The fragments which induced capsaicin sensitivity turned out to be parts of a protein now called TRPV1. This belongs to a class of proteins called ion channels, which do many jobs in the body. As pre-▶



dicted, TRPV1 turned out to be heat sensitive. When the temperature rises above 43°C, the channel through it opens, permitting ions of calcium and sodium to pass. That chemical signal stimulates a nerve impulse which tells the brain about the temperature change.

TRPV1 turned out to be one of several temperature-sensitive ion channels, some of which register heat, and some cold. It was one of the cold-sensitive varieties, TRPM8, which was discovered simultaneously by Dr Julius and Dr Patapoutian.

Dr Patapoutian then went on to look at the sensation of touch. Molecular biology having advanced in the interim, he was able to work with whole proteins—or, rather, the genes for whole proteins. He identified 72 proteins, expressed in a mechanically sensitive cell line, that looked like potential touch-sensitive ion channels. He tested them one at a time, by silencing the

genes that encode them and poking the resulting cells. The first 71 silencings had no effect. But the 72nd proved to be of the protein he was looking for. He called that protein *PIEZO1*.

In nature, *PIEZO1* is found not in sensory neurons, but rather in organs like the bladder where pressure sensitivity is important. But Dr Patapoutian discovered a similar channel, *PIEZO2*, which is, indeed, found in nerve endings. It is this that is responsible for touch and proprioception.

Fascinating work, then. And important. It is through the senses, and the senses alone, that people are able to perceive the world. But to some the award came as a surprise. In a year of covid, they had been expecting the honours to go elsewhere—perhaps to the inventors of mRNA-vaccine technology. Like God, however, the various Nobel-prize committees work in mysterious ways their wonders to perform. ■

The thermoelectric effect

Cool thinking

A new approach to carrying heat around as an electric current

REFRIGERATORS AND air-conditioners are old and clunky technology, and represent a field ripe for disruption. They consume a lot of electricity. And they generally rely on chemicals called hydrofluorocarbons which, if they leak into the atmosphere, have a potent greenhouse-warming effect. Buildings' central-heating systems, meanwhile, are often powered by methane in the form of natural gas, which releases carbon dioxide, another greenhouse gas, when it is burned, and also has a tendency to leak from the pipes that deliver it—which is unfortunate, because methane, too, is a greenhouse gas, and one much more potent than CO₂.

One potential way of getting around all this might be to exploit what is known as the thermoelectric effect, a means of carrying heat from place to place as an electric current. Thermoelectric circuits can be used either to cool things down, or to heat them up. And a firm called Phononic, based in Durham, North Carolina, has developed a chip which does just that.

The thermoelectric effect was discovered in 1834 by Jean Charles Peltier, a French physicist. It happens in an electrical circuit that includes two materials of different conductivity. A flow of electrons from the more conductive to the less conductive causes cooling. A flow in the other direction causes heating.

The reason for this is that electrons are

able to vibrate more freely when pushed into a conductive material. They thereby transfer energy to their surroundings, warming them. When shunted into a less conductive one, electrons' vibrations are constrained, and they absorb energy from their surroundings, cooling those surroundings down. An array of thermoelectric circuits built with all the high-conductivity materials facing in one direction and all the low conductivity ones in the other can thus move heat in either direction, by switching the polarity of the current. For reasons buried in the mathematics of quantum physics, the heat thus flowing does so in discrete packages, called phonons. Hence the name of the firm.

The thermoelectric effect works best

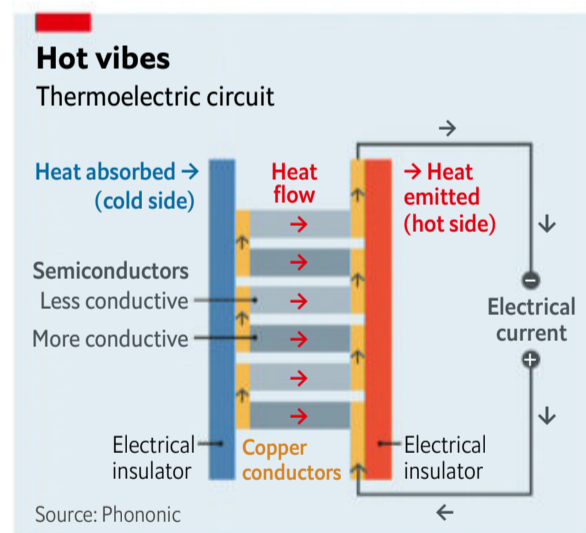
when the conductors involved are actually semiconductors, with bismuth and tin being common choices. Fancy cameras contain simple cooling chips which use these, as do some scientific instruments. But Phononic's boss, Tony Atti, thinks that is small beer. Using the good offices of Fabrinet, a chipmaker in Thailand, he has started making more sophisticated versions at high volume, using the set of tools and techniques normally employed to etch information-processing circuits onto wafers made of silicon. In this case, though, the wafers are made of bismuth.

The results are, admittedly, still a long way from something that could heat or cool a building. But they are already finding lucrative employment in applications where space is at a premium. At the moment, the fastest-growing market is cooling the infrared lasers used to fire information-encoding photons through fibre-optic cables, for the long-distance transmission of data. They are also being used, though, in the 5G mobile-phone base stations now starting to blanket street corners, to keep the batteries of electric vehicles at optimal operating temperatures, and as components of the optical-frequency radar-like systems known as LIDAR, that help guide autonomous vehicles.

The crucial question from Mr Atti's point of view is whether semiconductor-based thermoelectronics can break out of these niches and become more mainstream, in the way that semiconductor-based electronics and lighting have done. In particular, he would like to incorporate heat-pumping chips into buildings, to provide them with integral thermoregulation.

In their current form, thermoelectric chips are unlikely to replace conventional air conditioning and central heating because they cannot move heat over the distances required to pump it in and out of a building in bulk. But they could nonetheless be used as regulators. Instead of turning a big air-conditioning system on or off, to lower or raise the temperature by the small amounts required to maintain comfort, with all the cost that entails, thermoelectric chips might tweak matters by moving heat around locally.

Phononic has already run trials of such local-temperature-tweaking chips in Singapore, in partnership with Temasek, that country's state-run investment fund. In 2019 SP Group, Singapore's utility company, installed eight of the firm's heat pumps, which comprise an array of chips pointed down at people, pumping heat out of the air above them, on the boardwalk on Clarke Quay in the city. Phononic claims the devices lowered the temperature in their vicinity by up to 10°C and, as a bonus, consequently reduced humidity by 15%. If that can be scaled up, it would certainly be a cool result. ■



Symbiosis

Sea slugs and chloroplasts

One of nature's strangest symbioses gives up its secrets

UNLIKE THEIR terrestrial cousins, sea slugs are widely regarded as among the most beautiful animals on Earth. In some cases, part of that beauty comes from sub-cellular structures called chloroplasts, which they extract intact from the algae they eat and then sequester in gut diverticula for purposes of their own.

Chloroplasts are the distant descendants of photosynthetic bacteria that became symbiotic, a bit less than 2bn years ago, with an organism ancestral to today's algae and plants. From their hosts' point of view, their purpose is to use energy from sunlight to split water into hydrogen and oxygen, and then react the hydrogen with carbon dioxide to form molecular precursors of glucose. Further reactions turn these basic materials into other biochemicals, too. Rearranging the carbon, hydrogen and oxygen atoms and adding nitrogen, for example, results in amino acids, the building blocks of proteins.

The best guess, therefore, was that slugs sequester chloroplasts in their diverticula in order that they might continue photosynthesising there. But the details were obscure. So, to shed more light, as it were, Sónia Cruz of the University of Aveiro, in Portugal, and her colleagues collected some sea slugs and ran a few experiments.

As they write in a paper in the *Proceedings of the Royal Society*, they supplied the slugs with simple chemicals (sodium bicarbonate and ammonia) containing unusual carbon and nitrogen atoms. Instead of normal carbon, which has six neutrons, the bicarbonate contained seven-neutron carbon. Similarly, the ammonia contained nitrogen with eight neutrons instead of the regular seven. Molecules with these rare isotopes can be detected using a technique called mass spectrometry, so the fates of the atoms involved are easy to follow.

Having thus treated their slugs, the team exposed half of them to light for 36 continuous hours and kept the other half in the dark. As they expected, they saw the unusual isotopes of carbon and nitrogen enter the chloroplasts of slugs exposed to light. By contrast, little of the heavy nitrogen and none of the heavy carbon entered the chloroplasts of slugs kept in the dark. What intrigued them, though, was the subsequent fate of those isotopes.

A naive assumption would be that the products of the captured chloroplasts would be scattered around a slug's body,

MALARIA IS ONE of medical science's most formidable foes. The search for a vaccine has been going on for decades. Dozens of candidates have been tested in recent years. But so far only one, a jab called RTS,S, made by GlaxoSmith-Kline, has proved effective in the final stages of clinical trials. On October 6th the World Health Organisation (WHO) recommended RTS,S for use in childhood vaccination in places with transmission of *Plasmodium falciparum*, the deadliest of the five parasites that cause malaria, and the most common in Africa.

The WHO reached its decision after reviewing results from Ghana, Kenya and Malawi, where more than 800,000 infants were vaccinated with a four-dose regimen. In these countries RTS,S was included among the routine childhood vaccines distributed by primary health-care centres. This implementation programme, in which RTS,S reduced by 30% the number of cases of severe malaria

which led to hospital admissions, therefore measured what kind of efficacy can be expected if the vaccine is rolled out widely across Africa.

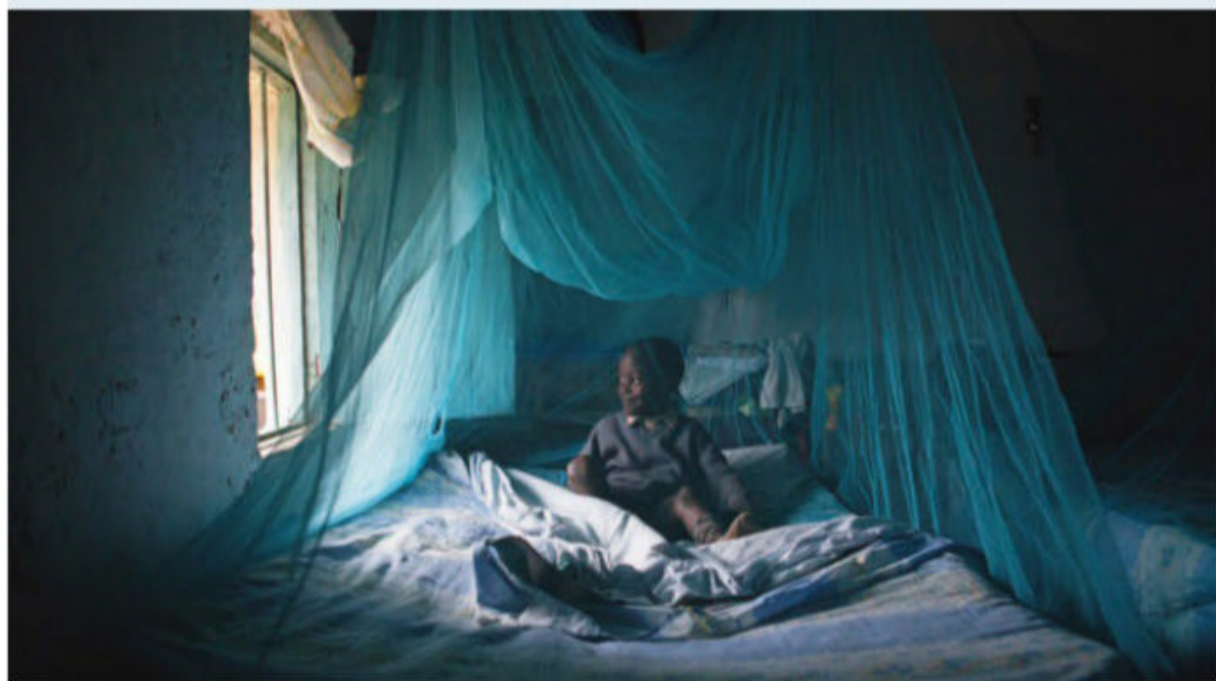
Some may think that 30% efficacy is not much. But in parts of sub-Saharan Africa children contract malaria six times a year on average. Each year more than 260,000 African children die of it before their fifth birthdays. Those who survive often suffer lifelong harm, including stunting, a form of impaired growth that affects the ability to learn. The impact of RTS,S will thus be huge.

Crucially, the WHO says that the vaccine was found to be safe after more than 2.3m doses had been administered—clearing the air on three “safety signals” that had popped up in an earlier trial. It also says the jab is highly cost-effective. The next step is therefore for GAVI, an international organisation that buys vaccines for poor countries, to decide whether it will add RTS,S to its portfolio.

Malaria vaccines

Ready to roll

The World Health Organisation approves the first vaccine for malaria



Hope

and thus made available to all of its organs. In fact, most of them ended up in a structure called the albumen gland, which produces nutrients that are then incorporated in the animal's eggs (the species concerned, *Elysia timida*, is a hermaphrodite, so all individuals bear eggs). The rest migrated directly into the slugs' gonads.

This result suggested that, rather than helping with an animal's general well-being, chloroplasts have been co-opted by *Elysia* for a specific role in reproduction. To check that idea, the team conducted a further experiment. They kept pairs of slugs

for 28 days either in normal light or in conditions of greatly reduced illumination and counted the number of eggs laid.

Pairs exposed to normal light averaged 238 eggs per week over the course of the experiment. Those kept almost in the dark averaged 129. This pretty-much clinched the idea that the ingested chloroplasts have, somehow, become extensions of *Elysia*'s reproductive system, and that chloroplasts, those superbly adapted symbionts of algae and plants, have been able to adjust, too, to life as part of a very different host indeed. ■



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After the pandemic

Tomorrow's world

Two books assess the geopolitical lessons of covid-19. Their conclusions are bleak

THERE ARE few monuments to the tens of millions of victims of the Spanish flu, overshadowed as it was by the death and destruction of the first world war. “It is difficult to assign great historical meaning to a pandemic, which is perhaps why they tend to be forgotten,” notes Bruno Maçães. Nevertheless, a catastrophe like covid-19 cries out for interpretation. It is too early to discern all the ways in which this pandemic has changed the course of history. But has it revealed anything about the structure of international politics today?

Two new books attempt an ambitiously early answer to this question. Colin Kahl, now an under-secretary of defence at the Pentagon, and Thomas Wright of the Brookings Institution, a think-tank, draw on a detailed chronicle of the pandemic in “Aftershocks”. Mr Maçães, a former Europe secretary in the Portuguese government, gives a more philosophical tour of the horizon in “Geopolitics for the End Time”. Both books seek insights into the future in the events of the past 18 months. “Conflict between great powers is back with a ven-

Aftershocks. By Colin Kahl and Thomas Wright. *St. Martin's Press*; 464 pages; \$29.99 and £23.99

Geopolitics for the End Time. By Bruno Maçães. *Hurst*; 240 pages; £18.99

geance,” argues Mr Maçães. Messrs Kahl and Wright agree. Their collective conclusions do not bode well for future crises.

The pandemic might have become a moment for global co-operation. It did not. Instead, borders were closed and states rushed to develop their own vaccines. Little was done to protect the poorest countries from the economic damage of lockdowns or to distribute vaccines equi-

tably. Conflicts in Syria, Yemen and elsewhere raged on; pleas for ceasefires from the UN went largely unheeded.

Mr Kahl and Mr Wright show how, even before the pandemic, strains between America and China had impeded co-operation on public health. When the virus arrived, they argue, a more even spread of geopolitical power than in past decades, along with rising nationalism, stymied both meaningful international partnership and effective American leadership. They cite COVAX, the vaccine-sharing scheme in which neither China nor America originally participated, and which struggled to compete with national procurement programmes. Partly, perhaps, because central bankers are relatively insulated from domestic politics, the financial system—quickly stabilised through collective efforts—was an exception to the general dog-eat-dog response.

Meanwhile the pandemic opened up new opportunities for competition. The supply chains that undergird the global circulation of goods became a point of contention, as Americans and Europeans quickly discovered how dependent they were on exports from China, including those of ventilators and other vital medical kit. Mr Maçães observes that China saw the pandemic as a national-security threat, rather than simply as a public-health emergency, and acted accordingly. It tried to extract political concessions in exchange for masks and vaccines, using the ▶▶

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► crisis to expand its influence. Mr Kahl and Mr Wright suggest that President Donald Trump, in turn, formulated American policy as a reaction to China.

Even supposedly neutral institutions became geopolitical battlegrounds. Among the most interesting of Mr Kahl's and Mr Wright's insights is the way the World Health Organisation (WHO) fell victim to political pressure. Its boss, Tedros Adhanom Ghebreyesus, at first took a conciliatory approach to China, resisting American urgings for him to be more confrontational. Dr Tedros lost patience only when the Chinese authorities made a mockery of a WHO investigation in Wuhan, denying scientists access to data and pushing them to discount the idea that the virus originated in a laboratory.

Devil take the hindmost

The two books differ in their interpretation of this renewed competition. Mr Maçães thinks geopolitical conflict is the new normal. Responses to the virus by the world's governments have become a yardstick of their performance; their handling of future crises will be judged and compared according to the same template. States now compete with one another indirectly, he says, using technology to master threats that, like diseases, emerge from the environment rather than from their rivals.

For their part, Mr Kahl and Mr Wright detect a vicious circle in which "great-power rivalry made the pandemic both more likely and harder to contain". Henceforth, they think, America must be prepared to confront transnational threats without expecting to collaborate with China and Russia. Both books note, as others have, that technology will increasingly be a key measure of power. Mr Kahl and Mr Wright dwell on the dark temptations of new technologies for authoritarian leaders.

Looming over these analyses is the climate calamity. Both books see the experience of the pandemic as a gloomy omen for co-operation against climate change. Mr Maçães speculates that in the future competition may focus on access to resources, such as cobalt, which are essential to green technologies. Countries that excel in decarbonisation will share their knowledge—but for a price.

Mr Kahl and Mr Wright have little faith that America and China will find a way to reform the global public-health system, much less unite to fight climate change. Instead, they hope America can lead the world's democracies to address such challenges and fend off a more assertive Chinese foreign policy. Whether the effects of a warming planet can—or will—be abated by either virtuous competition or an alliance of democracies is dubious. Neither of these perceptive books offers much reason for optimism. ■



Social mobility and populism

The Russia option

A miner's daughter from north-east England has a unique perspective on the dangers to American democracy

There is Nothing for You Here. By Fiona Hill. *Mariner Books*; 432 pages; \$30

WHO WAS the woman with the strange British accent testifying to Congress during the hearings for President Donald Trump's first impeachment, suddenly in the spotlight and trending on Twitter? For the many who wondered, Fiona Hill now explains: she is a miner's daughter from Bishop Auckland, a long-neglected town in the north-east of England, who, against the odds, went to university, won a scholarship to Harvard and became a leading expert on Vladimir Putin's Russia. For two years she was the top adviser on European and Russian affairs in Mr Trump's National Security Council—hence her starring role in the probe into his efforts to smear Joe Biden via Ukraine. A few in Mr Trump's White House cruelly dubbed her "the Russia bitch".

Readers in search of fresh insider revelations about the Trump presidency may be disappointed by her new memoir. To be sure, she is damning about her former boss. He is a misogynist, a shallow showman and supremely selfish. "I don't believe Trump was intentionally doing something for Putin or for anyone else," Ms Hill writes. "Trump was only ever concerned with himself." He is incurious about details, with the significant exception of

matters relating to nuclear-arms control. His vanity and fragile self-esteem make him "exquisitely vulnerable" and a liability to the country. He abused his position to attempt a "self-coup" after his defeat to Mr Biden in last year's election. But most of this is well-known, at least among the former president's critics.

The freshness of Ms Hill's story lies instead in the description of her background, and the unique insights she believes this gives her into global affairs—a very different perspective from most national-security experts in Washington. With the closure of mines and other local industries, Bishop Auckland became a forgotten place devoid of opportunity. People had jobs, not careers. Her family's poverty prevented her from taking up a place at a private girls' school, even though it offered to waive the fees; Ms Hill's father balked at the cost of the uniform, transport and school trips. An interview for the University of Oxford was a disaster, as she felt hopelessly out of place. A familiar trifecta of English questions (where are you from, what does your father do, what school do you go to?) kept swatting her down.

She went instead to the University of St Andrews in Scotland, where she studied Russian. Eventually, America offered an escape from British pigeonholing of accent and class. Other obstacles stood in her way, notably because she is a woman. When ►►

▶ working on reforms in post-communist Russia she was assumed to be a prostitute on entering a hotel for a meeting. As a speaker at a conference she was mistaken for a tea lady. In the White House Mr Trump supposed she was a secretary. For years she was paid less than men who were doing equivalent jobs.

Not only did Ms Hill overcome these difficulties, she turned them to her advantage, drawing on her experiences to spot patterns and connections. In particular, she sees striking similarities between the impoverished region of her roots and disadvantaged areas of both America and Russia. The cold war had concealed the fact that Britain, America and Russia had much in common: visiting grim parts of Russia she “encountered the north-east of England on a vast scale”.

The similarities extend to politics, she argues. The chasm between ordinary people in such neglected places and the political elites creates fertile ground for populists claiming to represent their interests. Once the hope was that Russia would in time become more like America. Instead, Ms Hill suggests, the reverse has happened: “Trump would come more to resemble Putin in political practice and predilection than he resembled any of his recent American presidential predecessors.” As she watched his coup attempt develop, the parallels with Russia became striking, and alarming.

Lest they forget

Her journey from disadvantaged origins to success has echoes of the bestselling tales of Tara Westover’s “Educated” and J.D. Vance’s “Hillbilly Elegy”. In all cases education is the key. Ms Hill weaves policy wonkery into her story, liberally referring to studies by colleagues at the Brookings Institution, the think-tank where she now works. An afterword includes a checklist of ideas for how individuals, from business executives to teachers and students, can do their bit to help remove barriers to opportunity and overcome the drawbacks of “forgotten places”.

Ms Hill calls this one of the greatest imperatives of the 21st century. She may exaggerate the parallels between America and Russia (the differences in political institutions and culture are enormous). Yet the alarm she sounds is urgent. America’s political polarisation is not just a domestic problem, but a national-security one too. “I have seen first-hand just how vulnerable America is to the political afflictions that have befallen Russia,” she warns; Russia’s slide into authoritarianism since 2000 could become America’s. Just as Boris Yeltsin amassed executive powers and paved the way for Mr Putin, so the Trump presidency could allow a more capable populist to “pull a Putin in America”. ■

The history of science

Martian’s landing

The Man from the Future. By Ananyo Bhattacharya. *Allen Lane*; 368 pages; £20. To be published in America in February by *W.W. Norton & Company*; \$30

IN 1945, WHILE in a state of exhaustion, the mathematician John von Neumann had a kind of stammering premonition. He was in Los Alamos, working on the atom bomb, and he told his wife Klari that the “energy source” he was helping to develop would make scientists “the most hated and also the most wanted citizens of any country”. Then he informed her that his other ongoing project, the computer, would one day be even more important—and potentially even more dangerous.

Good biographies of some of the greatest mathematical minds are rare: because they were polymaths, biographers who can interpret their manifold achievements for the ordinary mortal are themselves thin on the ground. This has been von Neumann’s fate, and the upshot is that he has not had the recognition he deserves. Ananyo Bhattacharya, a science journalist formerly at *The Economist*, sets out to correct that injustice, and so fill a yawning gap in the history of science.

Von Neumann belonged to a small group of brilliant Hungarians, of mainly Jewish backgrounds, who in the 1930s fled



Greetings, earthlings

Nazism for America, where they were dubbed “the Martians” because of their strange language and even stranger brains. All would transform science, but von Neumann would transform daily life, and he did so in varied and profound ways. He was undoubtedly a genius, and reading this book gives you an inkling of what that overused word really means. More than one highly intelligent acquaintance remarks that it was as if von Neumann was the only person who was really awake.

The problem facing the biographer of a mathematician is that conveying mathematical concepts in mere words risks either boring the cognoscenti or bemusing the uninitiated. Rather like the books of Stephen Hawking or Carlo Rovelli, though, this one is rewarding on different levels. Everyone can grasp the significance of the puzzles posed, and if readers want to follow the genius through the steps of his solutions then Mr Bhattacharya is a clear and authoritative guide.

Perhaps it was because he was fluent in the language of the universe that von Neumann flitted so easily between disciplines. While still a young man he made important contributions to quantum mechanics. Later he played a seminal role in the Manhattan Project that built the bomb, and devised the architecture for the first programmable computers. He laid the foundations of game theory (introducing the term “zero-sum” along the way), stimulating revolutions across the social sciences and biology. At times he was in such demand that a US Air Force plane was kept on standby to whisk him from one top-secret government lab to another.

He was equally comfortable in basic and applied research, sitting with pencil and paper in his dining room in Princeton or debating with top military brass out in the New Mexico desert; but his interests were clearly linked. He needed programmable computers to calculate the size and force of shock waves from explosions, and game theory to address the thorny question of nuclear deterrence. The years of the second world war were especially productive for him, as if he were propelled by the destruction of the “perfect intellectual setting” that was the Central Europe of his youth, not to mention the deaths of millions of its inhabitants.

And yet, Mr Bhattacharya argues, the reputation that von Neumann acquired as the coldest of cold warriors was undeserved. He knew the depths to which humankind could sink, but he was by nature more co-operative than competitive. The man from the future had seen for himself that science could be used for both good and bad, and considered the only legitimate response to be the exercise of intelligent judgment. “For progress,” he wrote, “there is no cure.” ■

Business ethics

Virtue's reward

Net Positive. By Paul Polman and Andrew Winston. *Harvard Business Review Press*; 352 pages; \$30 and £22

WHAT IS THE purpose of a company? For some, the answer is simple: to make as much money for shareholders as the law permits. But many modern companies take a much broader view. They argue that business should also serve workers, consumers and society at large, and that profit should not be pursued at the expense of the environment or social justice.

One figurehead of this movement, dubbed sustainable capitalism, is Paul Polman, ex-chief executive of Unilever, the consumer-goods giant. In that role he unveiled Unilever's sustainable-living plan, which made commitments to cut its environmental footprint by half and help a billion people improve their health. Together with Andrew Winston, a writer, he has produced a book on his approach, defining "net positive", the catchphrase of the title, as "a business that improves well-being for everyone it impacts and at all scales".

Such grand statements attract criticism from both the right and the left. Conservatives disdain the philosophy as "woke capitalism", which wastes shareholders' money on gestures that make executives feel good about themselves; left-wing critics view it as a smokescreen that allows businesses to keep raking in profits by misleading consumers. It doesn't help that advocates of sustainable capitalism are overly fond of acronyms and jargon. This book is no exception, containing phrases such as "leverage the company's DNA to serve stakeholders better".

But it distinguishes itself by detailing the many practical steps that Unilever took while Mr Polman was in charge, as well as the difficulties the company faced and the progress yet to be made. For example, it achieved the goal of paying all its direct employees a living wage by 2020, then set about requiring all its suppliers to do the same by 2030. The aim of ensuring that all agricultural inputs came from sustainable sources by 2020 proved too difficult, not least because it was hard to define what "sustainable" meant in this context.

Mr Polman says tough targets force managers to come up with innovative solutions. Lack of ambition is a fault, in his telling. "If a goal is not making you uncomfortable," he advises, "it's not aggressive enough." Aiming to get only 60% of energy

from renewable sources, for instance, implies that 40% will involve climate-changing gases. And there were successes. Unilever managed to reduce its carbon emissions by 65% in manufacturing, while sending zero waste to landfill. Mr Polman points out that these programmes have helped the company save €733m (\$851m) in energy costs since 2008. It also achieved gender parity in management.

All this meant that the company's financial performance was strong enough for it to fight off a takeover bid from Kraft Heinz in 2017. Its survival, in Mr Polman's view, was because of its commitment to sustainability, not despite it. Take Lifebuoy soap, one of its oldest brands. An initiative that focused on the health benefits of handwashing in developing countries boosted sales. But a study also showed that the scheme reduced cases of diarrhoea, acute respiratory infections and eye infections among participating Indian families.

Cynics might sneer that Unilever was motivated by profit. But no one who reads this book can doubt the sincerity of Mr Polman's belief that capitalism and good works can be combined. ■

Literary lives

Daylight on the magic

The Magician. By Colm Toibin. *Scribner*; 512 pages; \$28. *Viking*; £18.99

THOMAS MANN'S last, unfinished novel tells of a confidence trickster named Felix Krull. In "The Magician", Colm Toibin's fictionalised portrait of the great German writer, the ageing Mann thinks of himself as a similar "dodger" who "got away with things". He believes that the skill to "reverse their own story as the wind changed" is a hallmark of humankind.

In Mr Toibin's immersive novel about the author's life and times, Mann is a consummate actor. His "distant, bookish tone" and "personal stiffness" mask a restless and conflicted soul. Most obviously, this long-married father of six, an upright pillar of German-speaking culture, learns how to cloak his homosexual desires. After brief encounters during his bourgeois upbringing in Lübeck and Munich, Mann's taste for younger men settles into chaste flirtations, private diaries, or just "the secret energy in a gaze".

In politics, too, Mann knows how to dissemble and compromise. Even when his conservative patriotism has given way to outrage at the Nazis, his courage falters

and he prevaricates over taking a public stand. Slowly, when an honoured exile in America, he rises to become a champion of democracy. It takes almost until the end of his 80-year life for this great pretender to feel "he could freely speak the truth".

The saga has other threads. Mann's unruly brood of troubled children act out all the emotional drama that the Nobel-prize-winning author of "Death in Venice", "The Magic Mountain" and "Doctor Faustus" forbids himself. After the suicide in Cannes of Klaus Mann—reckless, outspoken, openly gay—Michael, another of Thomas's sons, tells him that "we, your children, do not feel any gratitude to you." The literary prophet, touted as a post-war president of liberated Germany, earns little reverence at home.

Many chroniclers, including four of Mann's six children, have told his story. So "The Magician", which invents dialogue but takes no flagrant liberties with facts, rests on a mountain of prior testimony. Yet admirers of Mr Toibin—best known for "Brooklyn" and "The Testament of Mary"—will see what drew him to this tormented dynasty. The Irish author has often explored same-sex love in hostile climates, unpicked the entangling bonds that parents and children share, and, especially in "The Master", his novel about Henry James, probed the mysterious links between self-denial and creativity.

From Bismarck's Germany to the cold war, "The Magician" covers a lot of history alongside its personal tumult. With such a wagonload of baggage, the narrative sometimes feels like a trudge. But Mr Toibin shines in close-up scenes of thwarted longing, delivering a grave homage that is nevertheless flecked with irony and mischief—just the tone Mann himself perfected. The novel gently removes a con-man's wardrobe of disguises, while celebrating this "dull interloper become magician" for the enduring spell his art has cast. ■



"Death in Venice", immortalised on screen

Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units			
	% change on year ago latest	quarter*	2021†	% change on year ago latest	2021†	%		% of GDP, 2021†	% of GDP, 2021†	10-yr gov't bonds latest,%	change on year ago, bp	per \$ Oct 6th	% change on year ago				
United States	12.2	Q2	6.7	6.0	5.3	Aug	4.3	5.2	Aug	-3.4		-12.6	1.5	77.0	-		
China	7.9	Q2	5.3	8.0	0.8	Aug	1.2	5.1	Aug ^{‡§}	2.8		-4.9	2.7	\$\$	-31.0	6.46	5.4
Japan	7.6	Q2	1.9	2.3	-0.4	Aug	-0.2	2.8	Aug	3.4		-8.9	nil		-8.0	111	-5.0
Britain	23.6	Q2	23.9	6.6	3.2	Aug	2.6	4.6	Jun ^{††}	-4.5		-10.9	1.0		68.0	0.74	4.0
Canada	12.7	Q2	-1.1	5.4	4.1	Aug	3.0	7.1	Aug	-2.6		-9.4	1.5		94.0	1.26	5.6
Euro area	14.3	Q2	9.2	4.8	3.4	Sep	1.9	7.5	Aug	3.3		-7.2	-0.2		33.0	0.87	-2.3
Austria	12.8	Q2	24.6	3.1	3.1	Sep	2.4	6.1	Aug	2.7		-7.7	0.1		40.0	0.87	-2.3
Belgium	14.9	Q2	7.0	4.8	2.9	Sep	2.1	6.4	Aug	-0.2		-7.2	0.1		42.0	0.87	-2.3
France	18.7	Q2	4.5	5.5	2.1	Sep	1.6	8.0	Aug	-1.4		-8.7	0.1		40.0	0.87	-2.3
Germany	9.4	Q2	6.7	3.1	4.1	Sep	2.5	3.6	Aug	6.7		-5.7	-0.2		33.0	0.87	-2.3
Greece	16.4	Q2	14.5	5.4	1.9	Aug	0.1	13.2	Aug	-3.8		-5.7	0.9		-6.0	0.87	-2.3
Italy	17.2	Q2	11.2	6.0	2.6	Sep	1.3	9.3	Aug	3.8		-11.5	0.9		11.0	0.87	-2.3
Netherlands	10.4	Q2	15.9	3.9	2.4	Aug	2.2	3.2	Aug	9.8		-4.7	-0.2		24.0	0.87	-2.3
Spain	17.6	Q2	4.3	6.1	4.0	Sep	2.4	14.0	Aug	0.9		-8.9	0.4		22.0	0.87	-2.3
Czech Republic	8.8	Q2	3.9	3.5	4.1	Aug	2.7	3.0	Aug [‡]	3.2		-8.7	2.1		116	22.0	3.9
Denmark	10.0	Q2	11.7	3.2	1.8	Aug	1.7	3.6	Aug	7.5		-0.3	0.1		52.0	6.45	-2.2
Norway	6.1	Q2	4.4	3.0	3.4	Aug	3.0	4.2	Jul ^{††}	6.9		-3.0	1.4		76.0	8.61	7.5
Poland	11.2	Q2	8.7	5.3	5.8	Sep	4.1	5.6	Sep [§]	2.3		-6.6	2.4		106	3.95	-3.8
Russia	10.5	Q2	na	3.8	7.4	Sep	5.8	4.4	Aug [§]	4.5		-1.8	7.7		140	72.4	7.6
Sweden	9.5	Q2	3.6	4.0	2.1	Aug	1.9	8.5	Aug [§]	4.3		-1.9	0.4		38.0	8.81	1.3
Switzerland	7.7	Q2	7.4	3.5	0.9	Sep	0.3	2.9	Aug	6.8		-3.8	-0.1		38.0	0.93	-2.1
Turkey	21.7	Q2	na	6.3	19.6	Sep	17.1	12.1	Jul [§]	-2.4		-2.4	17.9		520	8.89	-12.3
Australia	9.6	Q2	2.7	4.2	3.8	Q2	2.4	4.5	Aug	1.8		-5.9	1.6		73.0	1.38	1.4
Hong Kong	7.6	Q2	-3.7	5.4	1.6	Aug	1.6	4.7	Aug ^{††}	2.5		-4.2	1.3		78.0	7.79	-0.5
India	20.1	Q2	-41.2	8.2	5.3	Aug	5.4	6.9	Sep	-0.9		-7.2	6.3		25.0	75.0	-2.0
Indonesia	7.1	Q2	na	3.0	1.6	Sep	1.7	6.3	Q1 [§]	-0.2		-6.0	6.3		-61.0	14,253	3.4
Malaysia	16.1	Q2	na	3.8	2.0	Aug	2.4	4.8	Jul [§]	4.0		-6.0	3.5		78.0	4.19	-0.9
Pakistan	4.7	2021**	na	3.8	9.0	Sep	9.2	6.9	2019	-3.3		-7.2	10.5	†††	83.0	171	-3.8
Philippines	11.8	Q2	-5.1	4.3	4.8	Sep	4.1	6.9	Q3 [§]	-0.9		-7.5	4.8		194	50.9	-4.9
Singapore	14.7	Q2	-7.2	5.4	2.4	Aug	1.8	2.7	Q2	19.4		-4.2	1.6		70.0	1.36	nil
South Korea	6.0	Q2	3.1	4.0	2.5	Sep	2.2	2.6	Aug [§]	4.7		-4.4	2.4		87.0	1,192	-2.6
Taiwan	7.4	Q2	-4.2	5.7	2.6	Sep	1.8	4.1	Aug	15.5		-0.8	0.5		5.0	28.0	2.9
Thailand	7.5	Q2	1.5	1.4	1.7	Sep	0.8	1.5	Dec [§]	-0.9		-7.5	1.7		57.0	33.9	-8.1
Argentina	17.9	Q2	-5.5	7.8	51.4	Aug	47.5	9.6	Q2 [§]	1.3		-5.5	na		na	98.9	-22.1
Brazil	12.4	Q2	-0.2	5.0	9.7	Aug	8.0	13.7	Jul ^{§††}	0.5		-5.4	11.0		374	5.50	-0.2
Chile	18.1	Q2	4.2	10.3	4.8	Aug	3.9	8.5	Aug ^{§††}	-1.5		-6.7	6.0		345	814	-2.2
Colombia	17.0	Q2	-9.2	7.8	4.5	Sep	3.1	12.3	Aug [§]	-3.4		-8.5	7.4		226	3,779	1.0
Mexico	19.6	Q2	6.0	6.4	5.6	Aug	5.3	4.1	Aug	1.8		-3.3	7.6		173	20.7	3.6
Peru	41.9	Q2	3.5	12.6	5.2	Sep	4.2	10.1	Aug [§]	-3.4		-4.4	6.3		283	4.13	-13.3
Egypt	7.7	Q2	na	3.3	5.7	Aug	5.4	7.3	Q2 [§]	-4.4		-8.0	na		na	15.7	0.1
Israel	17.5	Q2	16.6	5.0	2.2	Aug	1.7	5.0	Aug	3.8		-7.0	1.2		44.0	3.24	5.3
Saudi Arabia	-4.1	2020	na	2.2	0.3	Aug	3.1	6.6	Q2	4.5		-2.0	na		na	3.75	nil
South Africa	19.3	Q2	4.7	4.5	5.1	Aug	4.3	34.4	Q2 [§]	1.8		-9.0	9.5		-6.0	15.1	9.4

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. ‡Not seasonally adjusted. §New series. **Year ending June. ††Latest 3 months. †††3-month moving average. §§5-year yield. ††††Dollar-denominated bonds.

Markets

In local currency	Index Oct 6th	% change on:	
		one week	Dec 31st 2020
United States S&P 500	4,363.6	0.1	16.2
United States NAScomp	14,501.9	-0.1	12.5
China Shanghai Comp	3,568.2	0.9	2.7
China Shenzhen Comp	2,395.1	2.0	2.8
Japan Nikkei 225	27,528.9	-6.8	0.3
Japan Topix	1,941.9	-4.7	7.6
Britain FTSE 100	6,995.9	-1.6	8.3
Canada S&P TSX	20,191.7	0.2	15.8
Euro area EURO STOXX 50	4,012.6	-1.7	12.9
France CAC 40	6,493.1	-1.0	17.0
Germany DAX*	14,973.3	-2.6	9.1
Italy FTSE/MIB	25,605.7	-0.5	15.2
Netherlands AEX	761.2	-1.9	21.9
Spain IBEX 35	8,775.0	-1.2	8.7
Poland WIG	71,789.3	2.7	25.9
Russia RTS, \$ terms	1,814.6	3.3	30.8
Switzerland SMI	11,569.4	-0.5	8.1
Turkey BIST	1,371.7	-1.5	-7.1
Australia All Ord.	7,496.2	-0.1	9.4
Hong Kong Hang Seng	23,966.5	-2.8	-12.0
India BSE	59,189.7	-0.4	24.0
Indonesia IDX	6,417.3	4.1	7.3
Malaysia KLSE	1,559.4	0.8	-4.2

	index Oct 6th	% change on:	
		one week	Dec 31st 2020
Pakistan KSE	44,373.2	nil	1.4
Singapore STI	3,083.9	0.3	8.4
South Korea KOSPI	2,908.3	-5.0	1.2
Taiwan TWI	16,393.2	-2.7	11.3
Thailand SET	1,619.5	0.2	11.7
Argentina MERV	77,443.1	1.1	51.2
Brazil BVSP	110,559.6	-0.5	-7.1
Mexico IPC	50,974.5	-0.2	15.7
Egypt EGX 30	10,536.4	1.4	-2.8
Israel TA-125	1,838.0	-1.0	17.2
Saudi Arabia Tadawul	11,571.9	1.7	33.2
South Africa JSE AS	63,987.0	-0.6	7.7
World, dev'd MSCI	3,016.0	-0.4	12.1
Emerging markets MSCI	1,227.1	-1.9	-5.0

US corporate bonds, spread over Treasuries

Basis points	Dec 31st 2020	
	latest	
Investment grade	113	136
High-yield	332	429

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

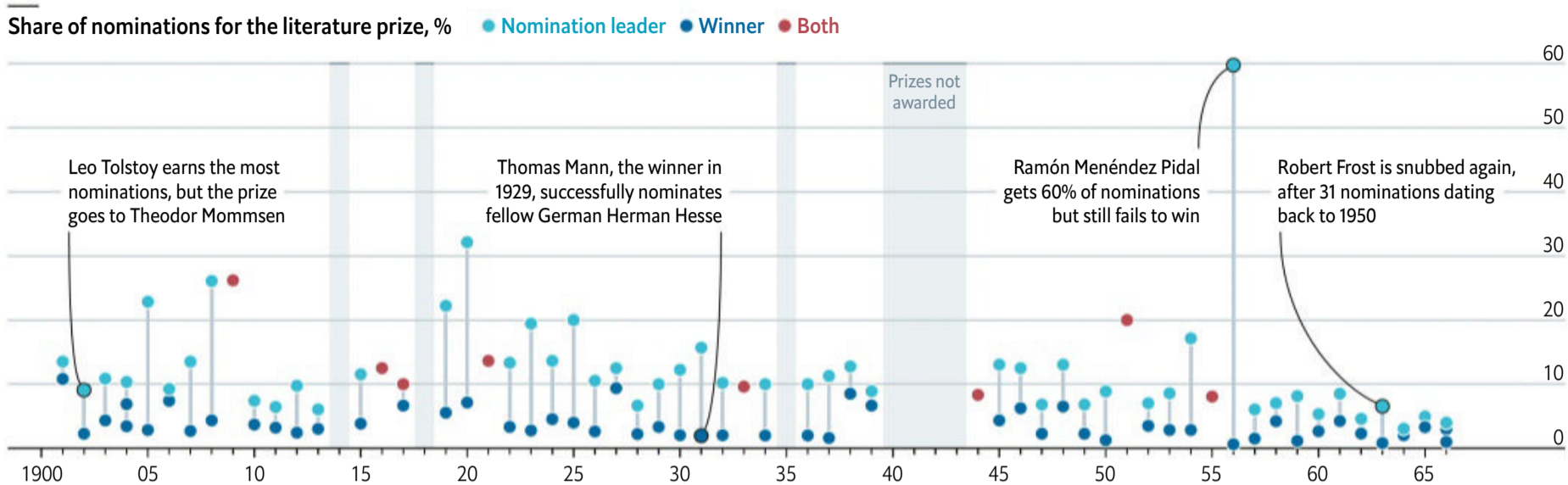
Commodities

The Economist commodity-price index 2015=100	% change on			
	Sep 28th	Oct 5th*	month	year
Dollar Index				
All Items	151.4	152.8	-2.9	20.1
Food	129.6	129.7	2.5	25.2
Industrials				
All	171.8	174.4	-6.3	16.8
Non-food agriculturals	142.3	145.8	6.0	42.5
Metals	180.5	182.9	-8.8	12.0
Sterling Index				
All items	170.8	171.2	-1.7	14.3
Euro Index				
All items	143.9	146.2	-0.8	22.1
Gold				
\$ per oz	1,737.0	1,754.6	-2.2	-8.3
Brent				
\$ per barrel	78.7	82.6	15.0	93.2

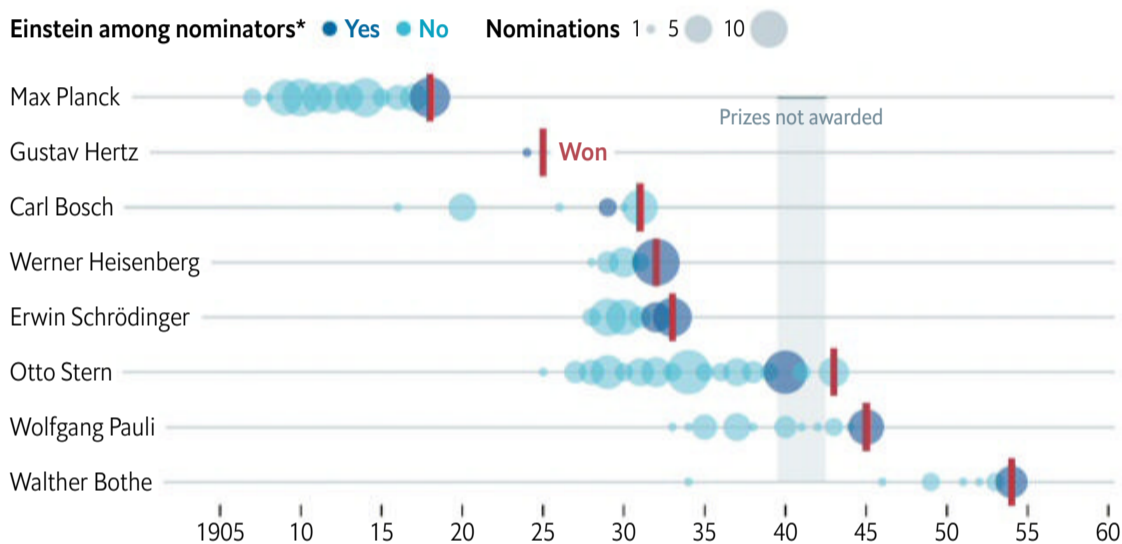
Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit [Economist.com/indicators](https://www.economist.com/indicators)

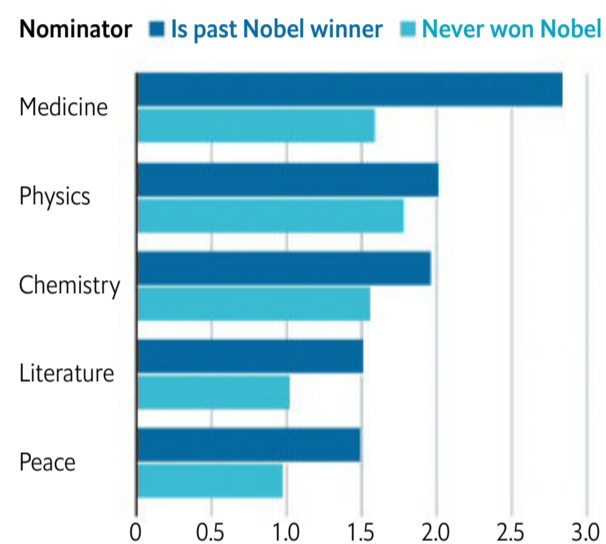
→ Getting lots of nominations is no guarantee of a Nobel prize—unless the nominations come from other laureates



Candidates nominated by Albert Einstein usually won within a few years



Post-nomination win ratio†, 1901-66



Source: Nobel Foundation *For prizes that were given a year late, nominations are back-dated to the official year of the award. Three candidates not shown †Ratio of prizes won anytime after a nomination to the number expected, if all nominators had equal influence, in year of nomination

Noblesse oblige

Nobel laureates have had extra sway over who gets to join their club

THE NOBEL prizes, whose winners are announced this month (see Science), may be the world's most coveted awards. As soon as a new crop of laureates is named, critics start comparing the victors' achievements with those of previous winners, reigniting debates over past snubs.

A full account of why, say, Stephen Hawking was passed over will have to wait until 2068: the Nobel Foundation's rules prevent disclosure about the selection process for 50 years. But once this statute of limitations ends, the foundation reveals who offered nominations, and whom they endorsed. Its data start in 1901 and end in 1953 for medicine; 1966 for physics, chemistry and literature; and 1967 for peace. (The economics prize was first awarded in 1969.)

Nomination lists do not explain omissions like Leo Tolstoy (who got 19 nomina-

tions) or Mahatma Gandhi (who got 12). But they do show that in 1901-66, Nobel voters handed out awards more in the style of a private members' club than of a survey of expert opinion. Whereas candidates with lots of nominations often fell short, those with the right backers—like Albert Einstein or other laureates—fared better.

The bar to a Nobel nomination is low. For the peace prize, public officials, jurists and the like submit names to a committee, chosen by Norway's parliament, that picks the winner. For the others, Swedish academies solicit names from thousands of people, mostly professors, and hold a vote for the laureate. On average, 55 nominations per year were filed for each prize in 1901-66.

Historically, voters paid little heed to consensus among nominators. In literature and medicine, the candidate with the most nominations won just 11% and 12% of the time; in peace and chemistry, the rates were 23% and 26%. Only in physics, at 42%, did nomination leaders have a big advantage. In 1956 Ramón Menéndez Pidal, a linguist and historian, got 60% of nominations for the literature prize, but still lost.

However, voters did make one group of nominators happy: current and future lau-

reares. Candidates put forward by past victors went on to win at some point in the future 40% more often than did those whose nominators never won a Nobel. People whose nominators became laureates later on also won unusually often. This implies that being accomplished enough to merit future Nobel consideration was sufficient to gain extra influence over voters.

In theory, this imbalance could simply reflect laureates nominating stronger candidates. However, at least one Nobel winner seems to have boosted his nominees' chances, rather than merely naming superstars who would have won anyway.

According to the Nobel Foundation's online archive, all 11 of Einstein's nominees won a prize. Some were already famous, like Max Planck; others, like Walther Bothe, were lesser-known. In two cases, his support seems to have been decisive.

In 1940 Einstein supported Otto Stern, a physicist who had already had 60 nominations. Stern won the next time the prize was given. Similarly, Wolfgang Pauli, whose "exclusion principle" is central to quantum mechanics, had received 20 nominations before Einstein backed him in 1945. He got his prize that same year. ■



Coeur de lion

Bernard Tapie, French entrepreneur, crooner and football magnate, died on October 3rd, aged 78

IN THE SPRING of 1985, Bernard Tapie appeared in a new French television programme, “Le jeu de la vérité” (Game of Truth). It usually starred entertainers such as Alain Delon and Elton John; Mr Tapie was the first businessman to take part. A painful austerity plan was squeezing the economy. On the show he took calls from factory owners who had lost their businesses, from workers cast out of their jobs. None of them could quite believe what had happened. Firm, yet trying to be fair, he listened carefully before replying. And then it was his turn to bare his soul, for intimate revelation was what “Le jeu de la vérité” was really all about.

Stepping onto the stage, he swayed gently to the beat. His three-piece was more a costume than a suit: the jacket a little boxy, the plum square peaking out of his pocket like a tongue in search of a kiss. His tie gleamed pearly-pink, and his buoyant chestnut hair shone brighter than Julio Iglesias’s. He closed his eyes and stretched out an arm. “J’aurais voulu être un artiste,” he crooned. “Pour pouvoir faire mon numéro...” Standing before a rose-lit, double white staircase that ascended who knew where, he seemed to be wearing lip gloss.

Born in 1943 under the German occupation, he grew up with his younger brother in a flat with mean little windows, the upper part of a small two-storey house in a suburb of Paris. Not as blue-collar as neighbouring La Courneuve, nor as weighed down by history as Drancy to the south, where France’s Jews were rounded up before being deported to extermination camps in Germany and Poland, Le Bourget was home to France’s first civilian airport. Like many of the newly prosperous travellers who passed through, without looking up, on their way into the city, from an early age he wanted out. In a school photograph, pals drape an arm about his shoulders as he puffs out his chest with attitude.

To some he was Robin Hood in a blazer, to others a short-trousered Antichrist. A born ringleader, he was often in trouble. Later

he would boast of having an engineering degree, but he barely finished high school. He wanted to be Jean Gabin, star of the *Moulin Rouge* and lover of Marlene Dietrich. This *gosse de banlieue*, the boy from the wrong side of the tracks, poured his energy into getting gigs singing at clubs while selling TVs on the side. His first single, “Je ne crois plus les filles” (I don’t believe girls anymore), did quite well, but the next two were a flop.

What he was good at, he found, was hustling and making money. In his 20s he had his first tax audit, his first bankruptcy (of a small business that sold hi-fi and home appliances), and his first run-in with the authorities (while driving an untaxed Lamborghini). Starting with two companies that made paper, he moved into buying distressed businesses, sometimes for as little as one franc, stripping out the assets and letting them founder or turn over and rise up again. He even starred in a TV ad for one of his firms, a battery-maker called Wonder. In the clip he moves like a tornado through an office. “What keeps Tapie going?” the tagline asks. “Me? I run on Wonder!” In the final seconds, an assistant takes out his batteries and he keels over. As he hits the floor, he winks.

Success brought him to the attention of bankers, politicians and opportunists. Sport, with television, was the new nexus of power, not only in France but wherever young men and women hungered for a different kind of hero. Backed by his bank, state-owned Crédit Lyonnais, he bought Adidas, a sports-shoe brand with a great history, but which had fallen on hard times. Within two years he had started to turn it around. He restored a long, elegant sailing yacht, and in 1988 it made the fastest monohull crossing of the Atlantic. The Tour de France cycling race was won twice by a team sponsored by his firm, La Vie Claire, a chain of shops selling health products. At the same time, Olympique de Marseille (OM), his football club, began its bid to win the French championship four years in a row. In 1993, on the second attempt, OM beat the favourites, AC Milan, 1-0 in a surprising final, the first time a French team had ever won the European Champions League. As he stumbled onto the pitch, he wiped away tears.

Marseille is a city of immigrants. As his reputation grew among the Marseillais, it was inevitable that he began to interest the country’s most powerful politicians. Gaston Defferre, the mayor of Marseille, was a close friend of the socialist president François Mitterrand. When the two men, the intellectual president and the performer-capitalist, met for the first time for lunch, they talked for nearly four hours. He persuaded him to run for office. His bravura attack in a television debate (where else) on the National Front leader, Jean-Marie Le Pen, proved his political nous.

Naming him urban-affairs minister to address the malaise in poor areas of high unemployment was inspired. Ever the performer, he would head into the *banlieues*, and shout at those who watched him from behind closed windows. “Come on down. And I’ll tell you what the plan is.”

Mitterrand was impressed by his energy. But when weakening, physically and politically, the aged president was no longer able to protect him. Having witnessed how a working-class outsider could confound the established French system of politics and patronage, many both on the left and the right were glad to see him brought low, first by charges of corruption and match-fixing in football, then by more than 20 years of litigation with Crédit Lyonnais over the sale of his shares in Adidas, and by the collapse of much of his business empire. He even went to prison.

From the ashes

Marina Zenovich, who spent three years following him for her documentary, “Who Is Bernard Tapie?”, says he had the “charming good looks of Warren Beatty, the bravado of Donald Trump, the charisma of Bill Clinton. And he fell from grace like O.J. Simpson.” The day he died, his eldest son, Stéphane, who knew him better than most, posted a photo on Instagram of the two of them, mic in hand, jamming together onstage: “Au revoir mon Phénix.” ■

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IMPACT

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