

Opinion

SATURDAY, OCTOBER 12, 2019



THE REAL SUPERPOWER

Union defence minister, Rajnath Singh

People can say whatever they want. I did what I thought was right and I will continue to do so. This is our faith, that there is a superpower and I have believed it since childhood

Corporates get responsible about plastic

Govt must announce bans only after a roadmap for transitioning to alternatives is laid down

IT IS NOT clear how sustainable the movement will prove, but if a *Business Standard* story on MNCs cutting plastic-use is anything to go by, there is a lot of room for optimism. While FMCG major HUL and its parent company, Unilever, are relying on changing the design and packaging of their products—this, Unilever estimates, could help it bring its plastic usage from 700,000 tonnes annually to 100,000 tonnes—Flipkart aims to use only recycled plastic from 2021 and Amazon is targeting eliminating single-use plastic from its operations in India by 2020. Unilever/HUL plans to start refill stations at shops and universities for shampoo and detergent, and has introduced products such as shampoo bars and bamboo toothbrushes. Parle Agro is adopting a PET plastic waste management (PWM) programme, under which the company will work on easing the annual collection of 310 crore PET bottles, totalling 50,000 tonnes of PET waste. Globally, too, there is a lot of foot, with Coca Cola having committed to have 100% recyclable packaging by 2025 while Dow is financing waste management initiatives that will help reduce the annual global plastic leakage by 45%.

While corporate action is largely a reaction to government policy, or taken in anticipation of stricter standards getting adopted, the government also needs to calibrate its action based on ground reality. In the case of recycling of old vehicles, the government has had to hold back the announcement of a scrapping policy given how the infrastructure for scrapping is quite inadequate—the country's first-ever organised, automated facility became operational only in April last year. The laws enacted by the Centre and the states to ban single-use plastics—a TERI fact-sheet says that 43% of the plastic manufactures in India is for packaging, meaning nearly all of it is single-use—never took into account the fact that better quality plastics can be recycled into buckets, bangles, chairs, etc. And, if 40% of the 9.5 million tonnes of plastic waste generated in the country, as an analysis of Central Pollution Control Board data shows, remains uncollected, it isn't hard to imagine the unrealised recycling/reuse potential. Similarly, moving from use of multi-layered plastics—that pose a serious recycling challenge because of the varying physical and chemical properties of the polymers and other material used—to single-polymer plastics is something that needs to be seriously considered.

The urgency of tackling the plastics problem can't be overstated—a big part of plastic pollution is also the contribution of the plastic lifecycle to greenhouse gas emissions, estimated by the Center for International Environmental Law at 0.86 gigatonnes of carbon-dioxide equivalent (GtCO₂e) and projected to grow to 2.80 GtCO₂e by 2050. The government needs to consult industrialists, environmentalists, stakeholders in the waste disposal value chain and others, and come up with a workable gameplan that helps the country transit to a low-plastic future. This will entail priming consumers, also, on environmentally-friendly plastic usage and disposal. Rushing into announcing a ban, to coincide with Mahatma Gandhi's 150th anniversary or some such other landmark, is a bad idea.

Li-ionising battery research

Chem Nobel honours work that led to the Li-ion battery

GIVEN HOW IMPORTANT battery-storage is for renewable power, leaps in digital, and the future of the automotives, etc, it isn't a surprise that the Nobel in Chemistry this year, should honour three scientists for their role in the discovery of the lithium-ion (Li-ion) batteries that power significant facets of our high-tech lives. The award this year goes to John B Goodenough of the University of Texas at Austin, M Stanley Whittingham of Binghamton University and Akira Yoshino of Meijo University, with equal shares of the prize money for the three.

While the nickel-cadmium battery, discovered much earlier in 1899, powered most devices, research on Li-ion power storage only took off when Exxon, amidst the global oil crisis, commissioned a study on lithium compounds as an alternative for fossil fuel. Whittingham, one of the researchers with Exxon, created a battery with lithium-ion as the anode and titanium disulphide as the cathode that could be recharged at room temperature. Although Exxon gave up the research as oil prices normalised, Goodenough—the oldest Nobel recipient, at 97—improved the idea by replacing titanium with cobalt oxide, which doubled the output voltage of the battery. Yoshino, then working for Asahi Kasei, which wanted lightweight batteries, further improved upon the idea discarding lithium for carbon-based materials that could hold lithium ions. The battery could not only have a higher output but was also safe as lithium tends to catch fire. What we see today are variations of Yoshino's designs powering most consumer electronics, mobile phones and tablets.

Although pricing has a lot to do with lithium-ion batteries' popularity—prices have crashed 85% since 2010, from \$1,160/KWh to \$176, *BloombergNEF* reports another 40% reduction to \$100 by 2024—a lot has to do with the absence of any competition. Though NiMH batteries are still used in low-powered consumer electronics, lower power and voltage capabilities have ensured that they have a limited scope. More important, with prices falling, lithium has found resonance with large-scale utilities and electric vehicles. Although, in their present form, these cannot provide the kind of solutions the automotive industry needs—cars powered by lithium-ion still can't breach the 500-mile barrier, and utility storage batteries offer power for just four hours—and companies like Toyota are investing on solid-state batteries for practical solutions, lithium-ion may over-power alternatives because of cost benefits. Take the case of Sila Nanotechnologies. The company raised \$170 million from Daimler to create a battery, which holds lithium compounds using silicon rather than graphite. This, it believes, will increase efficiency by 20%—meaning more space to accommodate more batteries in electric cars and thus, longer battery service. Li-ion was successful in powering devices for 4G technologies, but with always-on and connected devices, the technology needs a further upgrade.

Seeing RIGHT

WHO report shows how big the problem of blindness that could have been prevented is

THE WHO'S FIRST-ever *World Vision Report* highlights that 2.2 billion people across the globe suffer from vision impairment—of these, nearly a billion cases could have been prevented, if they were addressed with basic necessities for eye care. Impairments like myopia—this affects 2.6 billion people, of which, 312 million are below 19 years of age—can be resolved with basic accessibility to eye-care. The loss to the economy and to society, due to the lack of eye-care coverage, is significant and the report urges policymakers to pay heed.

The annual cost of moderate-to-severe vision impairment ranged from \$0.1 billion in Honduras to \$16.5 billion in the US. However, the annual global costs of productivity losses due to presbyopia and uncorrected myopia were estimated to be around \$25.4 billion and \$244 billion, respectively. This economic burden in East Asia, South-East Asia, and South Asia is more than twice that of regions, and equals to more than 1% of GDP. The report, thus, pushes for universal health coverage across the globe to consider to eye-care. The report hailed India's National Programme for Control of Blindness (NPCB). NPCB has provided cataract surgery to 6.5 million people—a cataract surgical rate of over 6,000 per million population—in 2016-17. It has also provided school screening to 32 million children; around 7,50,000 spectacles were distributed. The outcome resulted in an overall reduction in prevalence of blindness—from 1.1% in 2001-02 to 0.45% from 2015-18. If such concerted efforts are taken globally and eye-care is brought under universal health coverage, it would, the report notes, lead to better labour productivity and quality of life.

BEHAVIOURAL GAINS

SETTING UP A 'BEHAVIOUR INSIGHT TEAM' IN THE GOVT, TO HELP DIFFERENT MINISTRIES INCORPORATE PSYCHOLOGICAL AND COGNITIVE DIMENSIONS IN PUBLIC POLICY, MAY BE USEFUL

Swachh Bharat shows how to nudge the right way

MOST PUBLIC POLICIES world over have relied on basic economic principles. This assumes that people act on their own self-interest. However, the last decade has seen burgeoning interest in application of behavioural science in formulation and implementation of public policy. The aim has been to translate the science of behavioural changes into smarter policy interventions and impactful outcomes.

Recently, Cass Sunstein, who pioneered 'Nudge Theory' along with Nobel Prize winning economist, Richard Thaler, was effusive in his praise for India's efforts into incorporating behavioural insights in public policy. A new paradigm has been in the making in India, to create impactful yet sustainable policy outcomes by applying behavioural tools in missions like 'Swachh Bharat'.

Swachh Bharat Mission (SBM) has used 'Prospect Theory' in Behavioural Economics extensively for driving behavioural change. Prospect Theory predicts that the way choices are framed has a material impact on people's preferences. It shows that people are loss averse, i.e. people will go greater lengths to avoid a perceived loss than obtaining a perceived benefit, even if the loss and benefit are of equal value. By highlighting the ill effects of poor sanitation and number of deaths it causes through a well-coordinated communication strategy, Swachh Bharat Mission was able to impact behaviours of millions, especially in rural areas.

Similarly, the insights on 'Present-Biases' were also effectively used in SBM. People generally are averse to let go of what they have, for a perceived future gain. However, by organising 'Swachhata Divas' and 'Swachhata Pakhwadas', SBM leveraged the 'Fresh

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Start Effect' to persuade people to overcome present biases in favour of decisions which are good for them in long run. Research in behavioural science affirms that the 'Fresh Start Effect' helps in protecting people against present biases.

Another concept that has gained traction is 'Social Proofing'. Studies conducted across the US and India show that making the actions of people more observable adds social pressure on people towards a preferred behaviour. By making open defecation more 'observable' as unaccepted social behaviour, SBM could motivate more and more people to build toilets by applying social pressure. By conducting an annual survey, 'Swachh Sarvekshan', SBM could successfully leverage 'Social Proofing' concepts to bring in a competitive spirit between local bodies. This has also fostered social accountability within these bodies. The department of drinking water and sanitation conducted Swachh Sarvekshan Grameen to provide a national ranking of all districts and states on the basis of sanitation parameters. Swachh Sarvekshan - Grameen alone has covered about 17,450 villages across 698 districts in addition to 4,240 cities covered under Swachh Sarvekshan - Urban.

SBM was also unique in the way seven lakh 'Swachhagrahis' reached out to villagers to motivate them to build toilets and stop the practice of

open defecation. 'Swachhagrahis' have used behavioural tools like 'Plan Making' and 'Follow Up' to achieve the milestones by linking behaviour to a concrete future moment. 'Swachhagrahis' have also organised events and disseminated information across communities at regular intervals, making the message of SBM easily recallable. The 'Ease of Recall' was achieved by ensuring vividness, recency and repetition.

Behavioural tools like wearing 'Swachhata Badges' or participating in 'Swachhata Pledge' have also helped in escalating people's commitment towards a 'Clean India'. In behavioural science it is called foot-in-the-door technique that aims at getting a person to agree to a large request by having them agree to a moderate request first.

These insights learned from SBM could be valuable while formulating other important government schemes. For example, 'Framing Tools' based on Prospect Theory can be used to promote cashless transactions. Prospect Theory suggests that citizens are more likely to pay with a credit card if price differentials are framed as cash discounts rather than surcharges on the credit card.

Making open defecation more 'observable' as unaccepted social behaviour, SBM could motivate more and more people to build toilets

Similarly, understanding 'Present Biases' helps nudge people towards 'giving up' subsidies. When there is a trade-off between a 'want' and 'should' option, people prefer the want option in the present. Hence, instead of nudging people to give up subsidies immediately, extracting a commitment to give up at a future date yields a better result. Moreover, simple steps like letting households know how they performed compared to neighbours in waste segregation, water consumption or electricity usage, based on 'Social Proofing' will nudge them towards more segregation and conservation respectively.

There are many behavioural tools available for policy makers. However, the tendency of misconstruing correlations as causations has to be overcome before applying these tools. Correlation between two variables can also occur due to mere coincidence, reverse causation or common cause due to an omitted variable. The obvious point is, all correlations are not causations.

In India, most public policy interventions are directly aimed at improving the quality of life of people. Applying some of the behavioural approaches to public policies, therefore, can enhance the public buy-in and achieve the intended outcomes. However, there is a need to use behaviour insights and science of behavioural changes in a more systematic way. Setting up of a 'Behaviour Insight Team' in government of India, to help different ministries incorporate psychological and cognitive dimensions in public policy, may be useful.

Going vegan won't save the planet

Our problems are so deep and diverse, and multiplied by local variations in culture, weather and human density, that no one solution will suffice. We are going to need many.

MARK BUCHANAN

Bloomberg



MEAT CONSUMPTION PLAYS a huge role in global warming, producing nearly 15% of all carbon dioxide emissions, even more than air travel. This accounts in part for the rapid shift toward vegetarianism, veganism and diets relying less on meat products. In the future, for the health of people and the planet, we should mostly eat vegetables and fruits, whole grains and legumes, with seafood, poultry and red meat playing minor roles in our diets.

But for now, focusing too strongly on meat may risk overselling one idea as a solution to all our problems. Chemically intensive agricultural practices have depleted soils and polluted seas and rivers globally, and farms growing crops have been just as destructive as those raising animals. These problems could get worse, even in a world where no one eats meat at all.

Undoing this damage, while also managing to feed the nearly 10 billion people expected to populate the earth by 2050, is going to require lots of ideas integrated together. That includes less meat, less intensive and more intelligent farming, and the application of new technologies, including ways to produce high volumes of food for cities.

At a recent food festival in Wales, I witnessed an enlightening discussion between two experts on the future of farming. Chungui Lu, a Chinese native who is now a professor in the UK, spoke on the promise of vertical farming—high-tech indoor vegetable farming capable of producing more food per acre than traditional farming. In contrast, Patrick Holden, a traditional yet visionary Welsh farmer, argued for the human and ecological benefits of small-scale farming for the local sale of meat, cheese and vegetables produced using fully organic methods.

His ideas seem to reflect a clash between technology and tradition. But I came away thinking that neither offered a solution by itself. Our prob-

lems are so deep and diverse, and multiplied by local variations in culture, weather and human density, that no one solution will suffice. We are going to need many.

Lu sees vertical farming as a way to produce huge volumes of fresh, healthy vegetables to feed people in tomorrow's megacities, which by 2050 will hold fully two-thirds of the entire human population. Besides its appeal of higher productivity, vertical farming can be done all year as it is not affected by weather and requires no pesticides or fungicides, such as those implicated in the destruction of insect populations, including that of bees. It also offers reductions in transport costs, as food is grown close to where it is eaten.

But the end goal of vertical farming, Lu argued, isn't to move farming off the land permanently. Rather, scaling it up could give China time to feed its people while taking steps to restore the natural fertility of its currently depleted agricultural land. In one project, Lu grew crops in LED light inside temperature-controlled shipping containers, with each container producing three to five metric tonnes a year. The practice has become widespread in large Chinese cities, with supermarkets and hotels growing their own crops indoors.

Vertical farming has also caught the attention of investors. But there is also great appeal in Holden's traditional farming approach, which produces food on a small scale attuned to local Welsh tastes and does so while restoring soils to healthy conditions. This involves careful crop rotation and practices based on deep knowledge of the microbiology of healthy soil. His cows, for example, graze on rich fields of oats, peas and clover under controlled conditions that avoid overgrazing and damaging roots.

From the ecological perspective, Holden said, the meat-versus-vegetable distinction isn't the right one.

Both can be produced in environmentally helpful ways as well as harmful ones, with the latter becoming the norm over the past half-century of industrial farming. Vegan and vegetarian diets may be good for CO₂ emissions, but their blind pursuit can exacerbate other issues. He gives one example: It doesn't help the environment to eschew a local organically grown egg in favour of tofu produced with intense pesticide application on a soy plantation carved out of the Amazon rainforest.

Holden's farming reflects a more integrated systems approach that doesn't focus on one problem to the exclusion of others, but tries to offer improvements on many issues at once. It is an idea gaining momentum not only in farming, but also in other areas, such as energy generation. For example, solar energy may be a great idea, but not if installations also end up degrading local ecologies—interfering with plant growth and the insects that feed on them. Engineers have developed principles to guide installations more intelligently so they generate energy while also benefiting the local ecology. A solar farm in Wiltshire, UK, for example, grows native grasses and herbs in the spaces between panels so as to provide a rich habitat for pollinators.

The data on efforts to realise the UN Sustainable Development Goals indicate that reducing CO₂ emissions is the one goal most in conflict with all the others. Hence, there is no easy pathway to less CO₂ that also addresses the other issues we face, among them feeding a rapidly growing population. Lu and Holden's examples reflect the kinds of small-scale experiments we need to help us find a way through the messy thicket of conflicts to design a truly sustainable future.

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LETTERS TO THE EDITOR

Informal summit

Whether the arrival of Chinese President Xi Jinping for the second informal Summit with Indian PM Narendra Modi at the historic town of Mamallapuram, herald a new chapter in the bilateral ties between two Asian giants. It would hopefully pave the way for sustained engagement to iron out differences on issues ranging from lingering border dispute to trade deficit on the ground. Irrespective of the doubts being raised from different quarters over the efficacy of such informal summits in resolving the structural tensions that have enveloped the bilateral relationship between the two countries for long, it has raised the prospects for both the countries to arrive at a better understanding of each others concerns and help resolve them. Despite the widening gap in the comprehensive national power of both the countries, reflected in China's aggregate GDP which now stands at \$14 trillion, five times higher than India's \$2.8 trillion, two asian giants have the onus to keep their bilateral relationship on an amiable track to ensure peace, stability and prosperity in Asia. — M Jeyaram, Sholavandan

End the conflict

Turkey's military offense in Syria has triggered a humanitarian crisis of gargantuan proportions with about 60,000 Kurds displaced, and many more set to flee the country. The US president Donald Trump's action to turn his back on the Syrian Kurds, who have all along been loyal allies of Washington is hard to fathom. Trump's U-turn and the subsequent Turkish assault on Syria could have repercussions for the region. Besides, leaving thousands of Kurds homeless, the Turkish incursion could see the dreaded IS militant group regroup and spread their tentacles yet again. The international community must spare no efforts to impress upon Turkey to restraint and put an end to the conflict. — NJ Ravi Chander, Bengaluru

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Xi and Modi meet at Mamallapuram

President Xi Jinping and Prime minister Narendra Modi have much in common—pragmatism, nationalism and marked shifts in foreign policy, but Sino-Indian relations are underscored by economic asymmetry

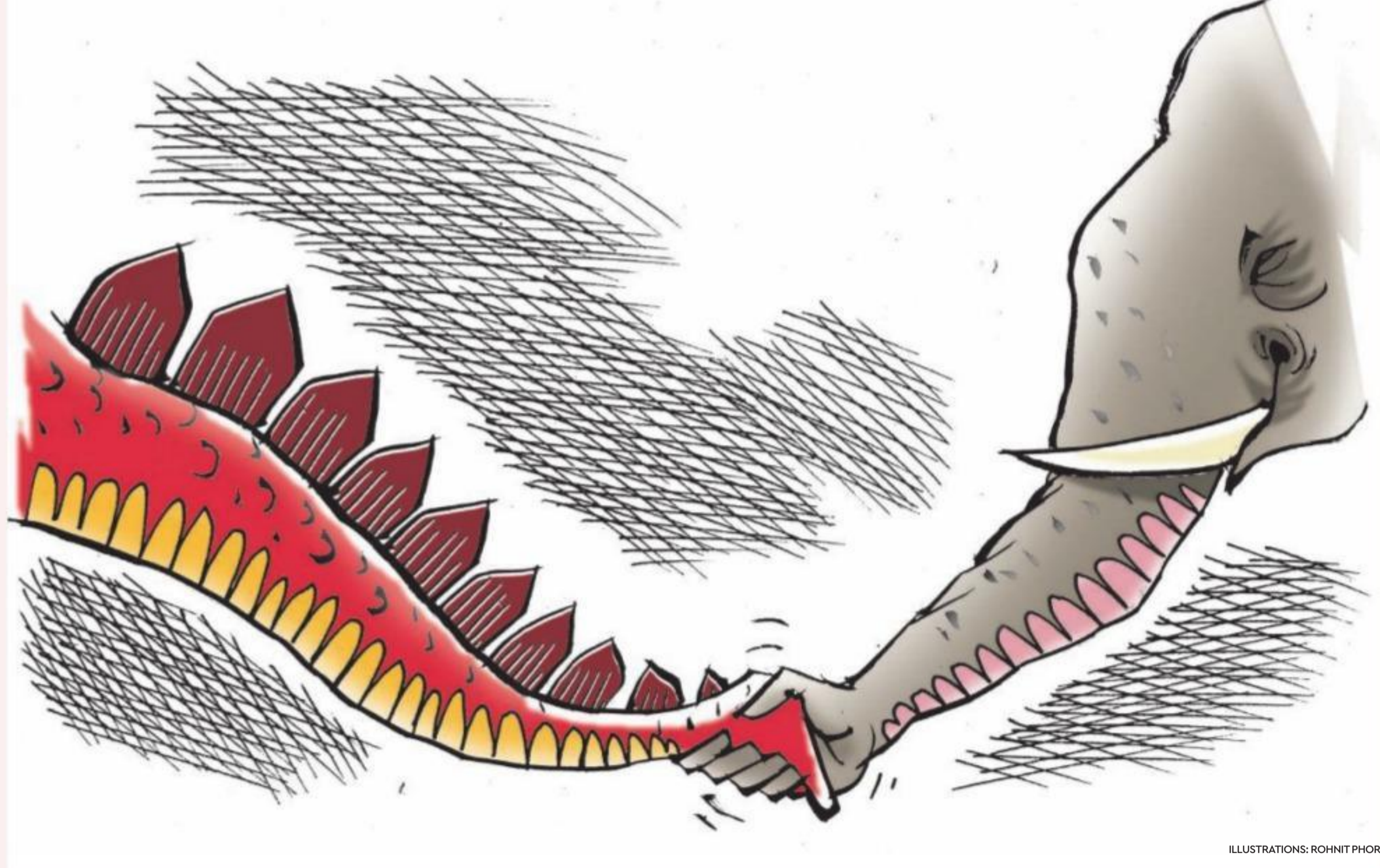
MAMALLAPURAM, THE HISTORIC port town of the Pallava dynasty (early 4th to 9th century CE) is hosting the second informal meet between the Indian prime minister Narendra Modi and the Chinese president Xi Jinping. The present meet is a testament to the “Wuhan spirit” deemed to help manage, if not resolve, the differences that underlie Sino-Indian relations. Yet, the “Mamallapuram spirit” will be obscured by China’s pre-occupations—the Hong Kong crisis with more anti-government protests planned this weekend, a restive Xinjiang and worse still, America’s blacklisting of eight Chinese Artificial Intelligence (AI) companies associated with the surveillance of Turkic Muslims in Xinjiang. In the Chinese scheme of priorities, these take a lead.

Of course, there is no doubt that Xi and Modi are pragmatic enough to look beyond the optics of Doklam, unresolved border issues, burgeoning trade deficit, Xinjiang and Hong Kong. Pragmatism and common ground between Modi and Xi do some good, but China’s economic lead, partly, because of China’s 13 year lead in economic reforms (1978) does little good.

Economics is driving Xi’s signature “go-out” foreign policy, a dramatic shift from the earlier “biding its time” policy when China maintained a low profile. The Xi years have witnessed an assertive foreign policy in tandem with China’s growing military, economic and diplomatic heft. While this is relative, China’s “going out” has metamorphosed into a mix of soft and hard power, interspersed with smart, sharp and stealthy power.

Growing prosperity underlies Xi’s signature “China Dream” (2013) of national rejuvenation — which may not be a Chinese export, yet. Across the borders in Nepal though, the Communist Party of Nepal is testing waters of the “Xi Jinping Thought” with Nepalese cadre being introduced to the scope of “Xi’s thought” in a training programme. And China-Pakistan friendship has received a recent Xi-upgrade — from “all-weather friends” to “hardcore friends” (*tiegan pengyou*).

China’s economic heft has enabled Xi to articulate the “Asia-Pacific China Dream” into the “Asia-Pacific Dream” (2014) of Asian cooperation and common prosperity. Not all are on board though, and Taiwan is obviously not. Asean (Association of Southeast Asian Nations, consisting of ten-member



ILLUSTRATIONS: ROHNIT PHORE

states) is divided over China’s rise; India is hesitant about China’s increasing geo-political influence in South Asia; and Japan (a curbed military power) is uncomfortable with China’s military and economic strides.

China can easily afford smart power initiatives such as Belt and Road Initiative (BRI, 2013) with a slew of initiatives that Japan only hopes to catch up with. Xi’s imprint is writ large on the BRI, Asian Investment Infrastructure Bank (AIIB, operational 2016), New Development Bank (BRICS Bank, 2016) all of which footprint continents with a basket of offerings—aid to railways, economic cor-

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ridors to military outposts, (engaging) political circles to media.

In fact, Christopher Walker (National Endowment of Democracy, America) suggests that China’s sharp power (seeking opportunities to “pierce, penetrate or perforate” political/ information environments) is being tested out in Australia

and New Zealand (in political circles and in growing Chinese population).

Today, China trumps the phrase “*ruo guo wu wai jiao*” meaning weak countries—an oblique reference to Taiwan—have little heft in foreign policy. In 2018, American Airlines, Delta Airlines, United Airlines, British Airways and

Lufthansa (among others) had to remove references to Taiwan as a country. Instead, websites of these airlines began to list Taipei as a destination (Taipei, China). The airlines had to comply lest they be fined or worse, restricted from operations. Clothing retailer GAP had to apologise for T-shirts that did not show Taiwan as a part of China.

Recently, Kiribati and Solomon Islands, poor but located in the strategic waters of the Pacific switched diplomatic allegiance from Taiwan to China. Taiwan is now left only with a handful of 15 allies including Tuvalu and Nauru—and this may not be for long.

Japan’s White Paper (Defense of Japan, 2019) suggests China’s “continuous and increased actions” in the East China Sea, establishment of an ADIZ (air defense identification zone, China’s first, which infringes and overlaps with those of Japan and South Korea) and Chinese naval ships frequently transiting waters near Japan to go to the Pacific. These and China’s actions in the South China Sea reclamation in the disputed waters, islands, islets and reefs and building of runways (Fiery Cross Reef) have to be understood in the economic context.

America is increasingly taking cognisance of China flexing its economic, and de-facto, military muscle. Air Force Brigadier General Robert Spalding’s “Stealth War: How China took over while America’s elite slept” (2019) is one such small example of the discourse in America.

Xi and Modi may be peas of the same political pod—pragmatic, nationalistic and with marked shifts in foreign policy. Modi has been no less diplomatically active, trying to shrug off India’s soft state past visiting Mongolia (in 2015; China’s neighbour) and the first in Indian prime minister and Fiji, the first in 33 years (2014) among others. India’s “Look East” has been recast as “Act East” (2014). India also conducted air strikes in Balakot, Pakistan (2019) and has jumped off the boat of non-alignment with strategic hedging entering into the Logistics Exchange Memorandum of Agreement (LEMOA) with United States (2016). India, under Modi, is engaging with the Quadrilateral Security Dialogue (Quad; US, Japan, Australia) and has not been hesitant to champion a “Free and Open Indo-Pacific”. Despite India breaking diplomatic ground with the United States, India’s arms purchases from Russia have hit the “breakthrough” \$14.5 billion.

While some of the directions of Modi’s foreign policy are astute and praiseworthy, the fact of asymmetry of economic power underscores Sino-Indian relations. The Chinese themselves say, “under Mao, the Chinese stood up” and “under Deng, the Chinese got rich”. Today, the Chinese say with pride that (because of Deng) “under Xi, the Chinese are stronger”. For India, to make the grand leap to the international stage, it cannot forfeit that critical stage and will need to “get rich first”. For India, economic prosperity will be the game-changer.

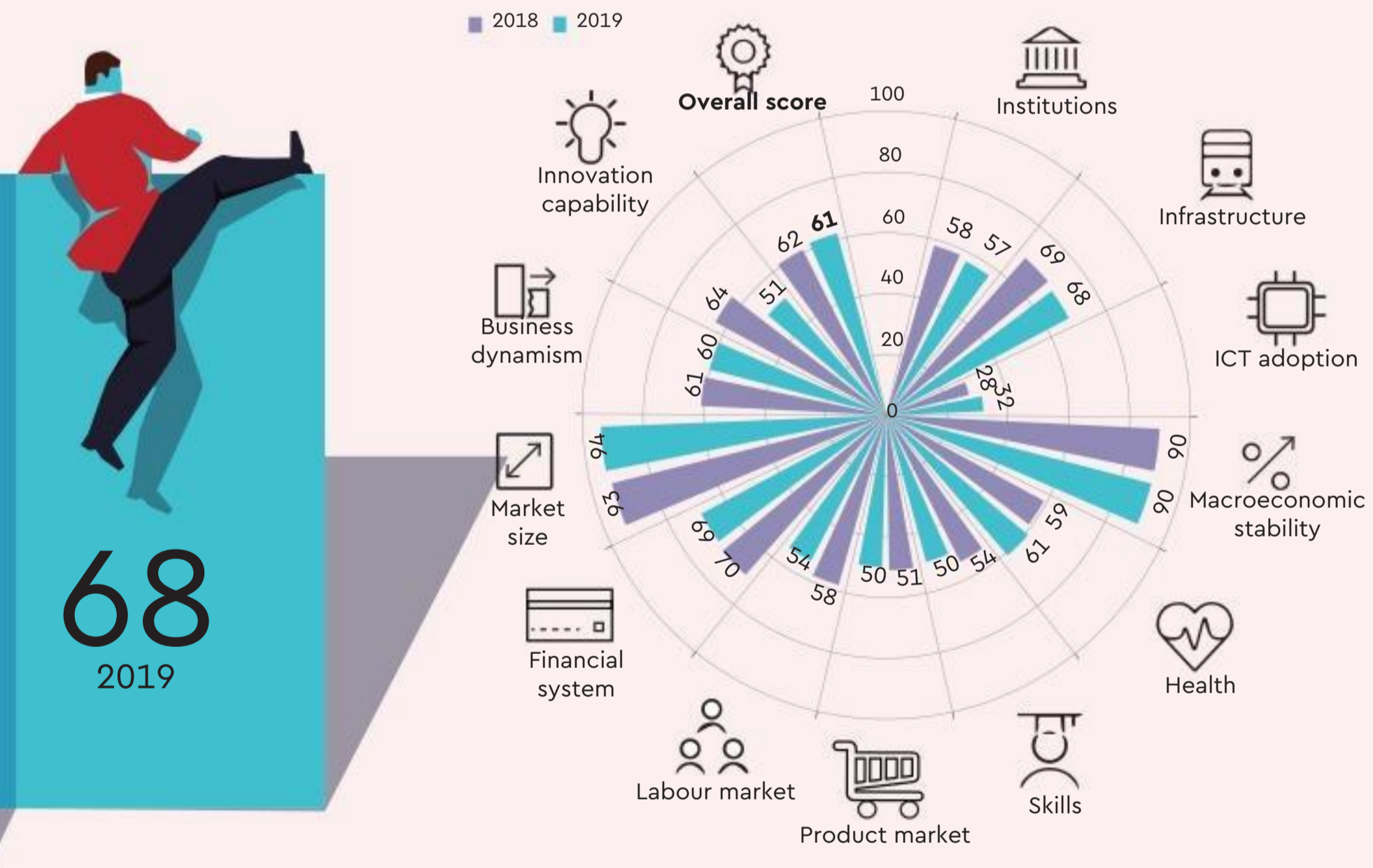
DATA DRIVE

Losing competitive edge

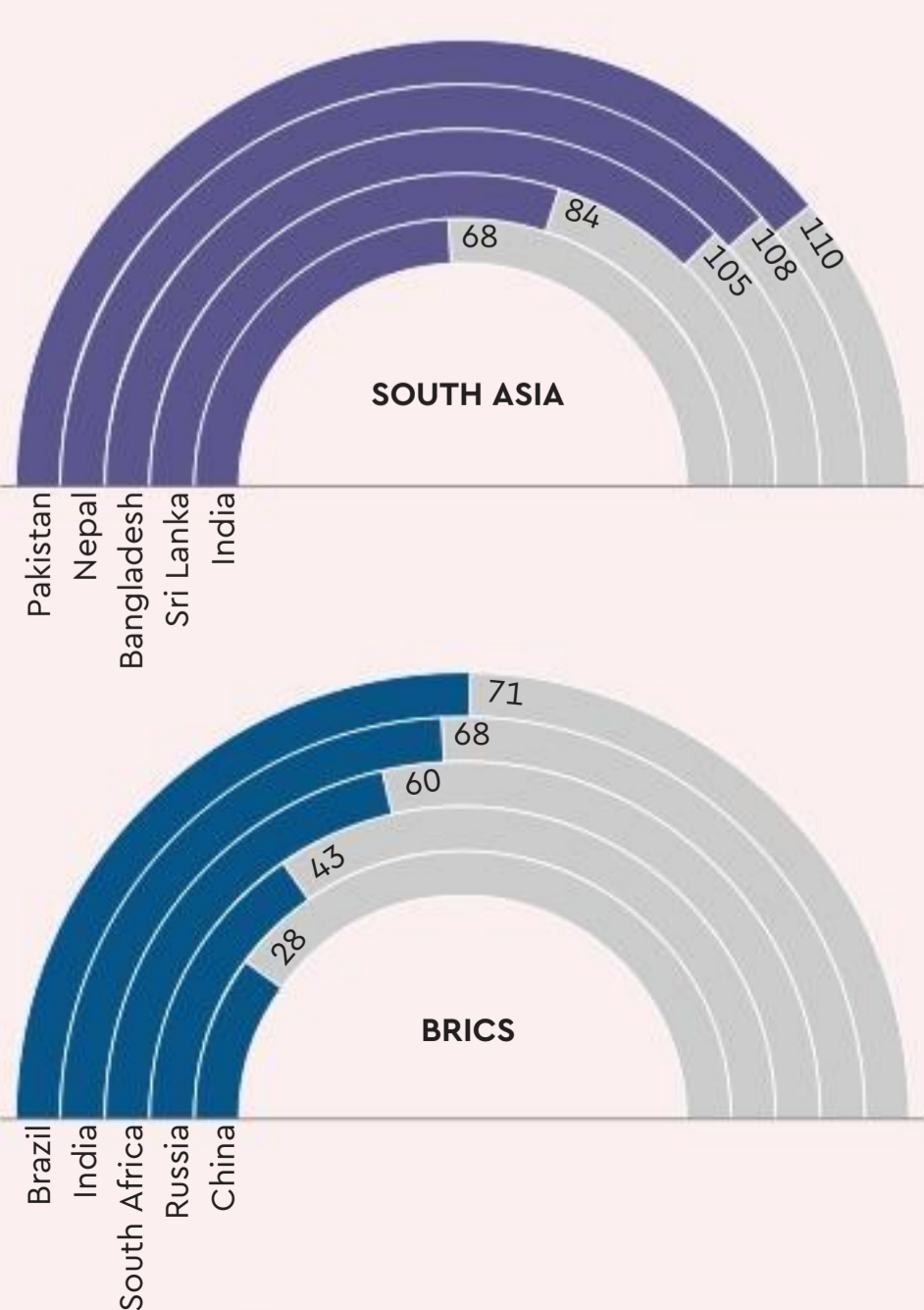
WHILE INDIA IS finding it difficult to compete with a Vietnam in wooing manufacturing firms moving out of China, the latest slip in rankings in the Global Competitiveness Index will cause further heartburn. The 2019 global competitiveness rankings released by the World Economic Forum show that the country has slipped 10 ranks, to 68, out of 141 countries from its previous level—India was ranked 58 out of 140 countries in the 2018 rankings. This is even lower than the 63rd position the country had achieved in the index that was revised a year ago. While India has not slipped much in score—it has a score of 61 against 62 last year—the fall comes on the back of other countries improving much more and faster than India. So, while India was ranked better than its South Asian counterparts—Sri Lanka (84), Bangladesh (105), Nepal (108) and Pakistan (110)—it was the second-lowest ranked economy amongst the BRICS grouping—Brazil ranked 71. More important, the rankings indicate that India needs to do better in terms of global integration and structural changes if it is to compete with the likes of Vietnam. Although India was ranked third in terms of market size, it was 131 in terms of trade openness and 103 in labour market.



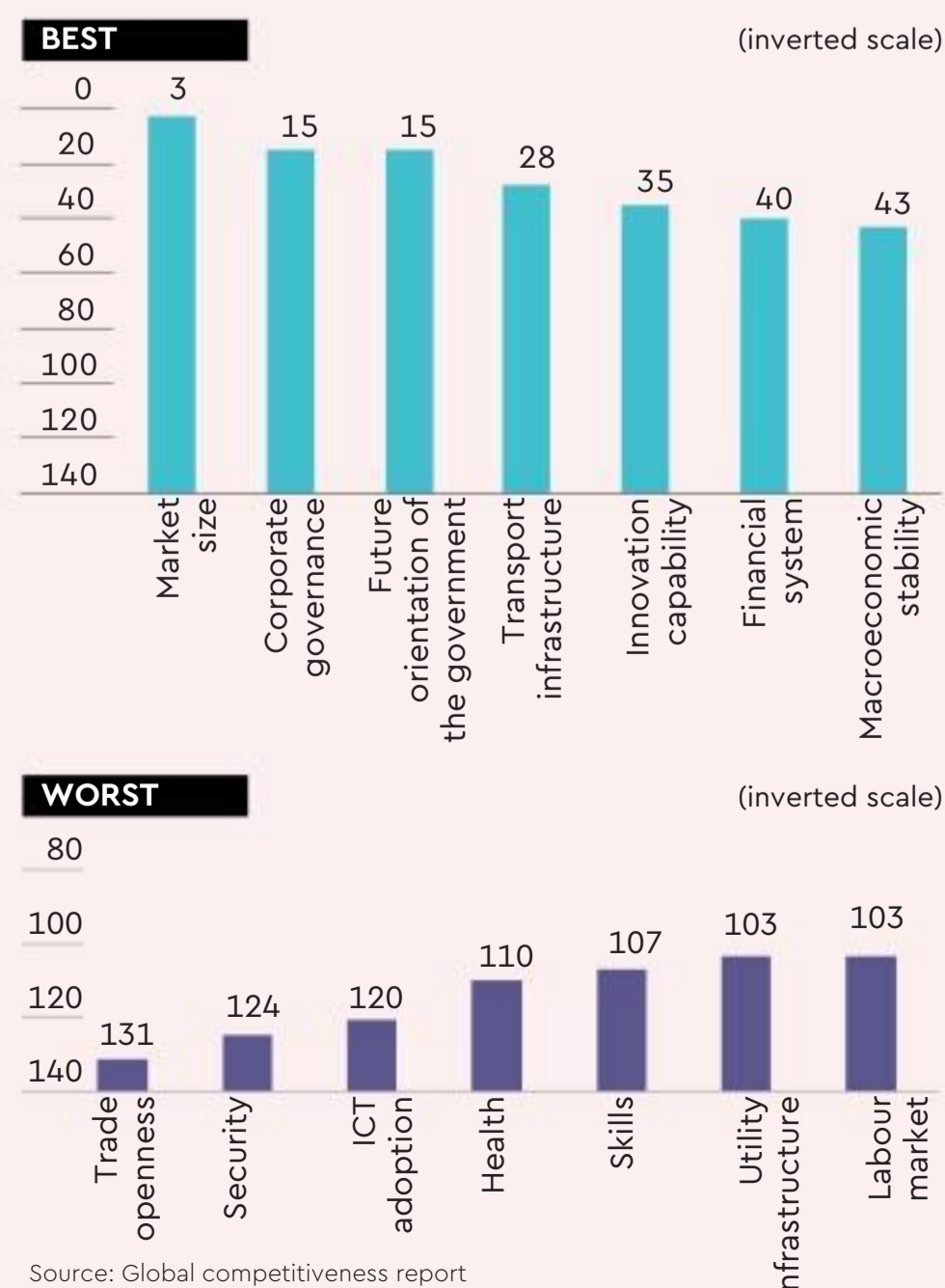
Overall score did not change much, but there was a minor change in certain indicators



India is the leader in South Asia, but performs badly with respect to BRICS



Country ranked well in terms of market size, it needs to address certain painpoints



Rankings have dipped as other countries have performed better

