Opinion

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CHANGING WORK CULTURE

Air India chairman Ashwani Lohani

"Ownership changes at Air India would also lead to a change in ... the work culture. The complexities of working in a PSU environment would get replaced by a corporate culture, in which merit gets a better deal"

RationalExpectations

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Why are we helping China so much?

Refusing to fix labour laws, in even Modi's case, means China's advantage over India is increasing all the time

FRIENDS, READS AN impassioned WhatsApp message in response to the Chinese outrage in Doka La, can we pledge not to buy Chinese crackers next Diwali? While the widely-circulated nature of the message, and its outrage, would suggest many would like to follow its advice, chances are, come Diwali, most would have forgotten.

And with good reason, Chinese products are way too low-cost for Indians to resist, actually to even be able to compete against. That is why, from the *pooja* Ganesh*ji* to the latest mobile phones, China's market share is increasing with each passing day. So, we can fulminate all we want, and have workshops on what we need to do to curtail China's spread in Asia, but we can't even stop it in our own country. If the price and quality of Chinese goods isn't compelling enough, in the case of power plant equipment, for instance, generous Chinese credit made many Indian companies opt for Chinese machinery over the past decade.

If it isn't enough that Chinese mobile phones today account for 51% of India's smartphone market, PayTM which has a significant Chinese funding is the country's largest- and fastest-growing payments wallet—once you take into account the fact that China is the world's third-largest source of FDI and the credit lines its banks are willing to offer, it is next to impossible to curb China's spread in India.

India, even under the muscular Narendra Modi, can't fashion a military response to China, but the question is why is it helping it in such a big way? The main reason why China is so ahead of India, it is an old cliché, is because successive Indian governments have willed this. They have consciously kept India back and, for all its vigour, even a Modi government is not addressing the root cause—India's crippling labour laws. If a government with the mandate Modi has cannot address this, it is difficult to see which government in the future will be able to.

With wage costs half to a third of China's, many of the inefficiencies Indian firms face due to, say, poor infrastructure can be dealt with, but where India loses out badly is in the quality of its products and that is related to labour laws which compel industry to stay small—to cite the latest Economic Survey, 78% of Indian firms employ less than 50 workers and just 10% employ more than 500; the comparable numbers for China are 15% and 28%. Naturally, then, when a Walmart wants a large order of jeans that need to be uniform and consistent, it will prefer a China—India's manual processing will ensure the fabric will not be consistent across batches. According to a recent study by Metro Valley, a firm that is working on environmentally sustainable urban development, while India's labour costs are around half that of China's, poor labour productivity means China's cost of production is half India's.

Share in global apparel exports

(%) China, Bangladesh, India, Vietnam; 2004–2015

Share in global footwear exports

(%) China, Vietnam, India, Indonesia; 2004–2015

Share in global leather exports

(%) China, India, Vietnam; 2004–2015

Source: Eco Survey, World Bank Database

Now, add to this poor quality (the most important part of any purchase), the costs of poor infrastructure—road transport in India costs $7 per km vs $2.5 in China and it takes 21 days to deliver from JNPT to the US east coast vs 14 days for China—and other DoingBusiness indicators, and it is easy to understand that even as China vacates its low-end manufacturing, it is others that are grabbing the space—Bangladesh and Vietnam in the case of apparel and Vietnam and Indonesia in the case of leather and footwear (see graphics). There isn't much data about the share of Chinese products in Indian markets except in areas like mobile phones, but in an open-economy framework, if you aren't export-competitive, you can't be import-competitive either.

It gets worse. When the government realised it wasn't creating enough jobs, it came up with special packages like one for the apparel sector which relaxed some labour laws. Among other incentives, firms were to be allowed to hire fixed-term employees and, in another reform, the amount taken away by mandatory EPFO-ESI contributions was to be cut—these lower disposable salary by 45% and make workers prefer the unorganised sector. It is been well over a year, but the new apparel package is still not working and the EPFO/ESI changes remain still-born.

To compound this, when successfully implemented, the new GST rules will force the bulk of India's small firms to get into the tax net, and rob them of the tax theft that most used to lower prices to be able to counter their inefficiency vis-à-vis the larger firms. If laws are not fixed quickly, SMEs will be badly hit by GST.

PS: If India grew at 10% per year instead of 7% for a decade, even with the same proportion of defence expenditure, India could spend a third more than it does. If nothing else, that should get the government to quickly fix India's paralysing labour laws.

AbortINFLEXIBILITY

Courts must let a 10-year-old rape survivor explore routes out of a full-term pregnancy

A CHANDIGARH DISTRICT court has turned down the abortion request of a 10-year-old rape survivor, who is 26 weeks pregnant. The law allows abortion until 20 weeks of gestation, with exceptions made for foetuses with genetic abnormalities. Last year, however, the Supreme Court allowed a rape survivor to terminate her 24-week pregnancy, but only because the pregnancy posed a risk to her health. In the present instance, the district court seems to be caught between the devil and deep sea. A normal termination involving inducing labour would carry grave risks, including haemorrhaging. But a full-term pregnancy is equally fraught, given the girl isn't physiologically developed. Doctors, as per *The Times of India*, have opined that even a Caesarian section can't be conclusively termed safe. That said, termination through hysterotomy (surgical opening of the womb through an abdominal incision that is smaller than is typical in C-section) has been opted for in second trimester abortions. Three gynaecologists from PGIMER, Chandigarh, reported in a 2012 paper that there was a 17% rate of morbidity and a 10% rate of serious morbidity associated with it. Whether it is safe to play these odds in the present case or not is for medical experts to say. But, surely, the girl needs a way out of the trauma a full-term pregnancy entails for her unready body and mind.

Legal sanction for abortion, in the normal course, must weigh several ethical and medical considerations. But, in cases such as the present one, let medical reasons be the sole determinant. So, if there are safer methods to walk free of the pregnancy, the girl must be allowed to explore these—with perhaps even aid from the state. An inflexible reading of the abortion law will do untold damage.

INFORMAL WARNING

IT SHOULD, UNDER NO CIRCUMSTANCES, BECOME AN INSTRUMENT FOR PUSHING THE SMALL AND INFORMAL OUT OF THE ECONOMIC MAINSTREAM

Heed GST's must don'ts

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THREE WEEKS INTO the GST, the effects of a new indirect system is being felt by India. As it continues to adapt to GST, there are some distinct takeaways for the longer-term future.

The GST has not been resisted so far. Like all major tax overhauls, the transition to GST has had its downsides. Some of these downsides, in terms of the impact they cause on businesses and producers, would become clear in a few months. The credibility of the GST depends significantly on how fast input tax credits are refunded. This would be a challenge for the entire GST administration. It would also be a challenge for banks that would be handling the refunds.

What might be the problems if input tax credits are not refunded on time? The first, and most obvious, is a cutback in production. As producers realise that refunds are taking longer and working capital requirements are increasing alongside, they would hold back from accepting fresh orders till the system improves. Some supplies are likely to be affected as a result including essential products like medicines. Medicines are already experiencing a supply crunch as retailers work out new prices post-GST and MRPs printed on labels change accordingly. The domestic pharmaceutical value chain is heavily dependent on input tax refunds from bulk drugs upward. Slow refunds would clearly affect medicine supplies to pharmacies. Similar aberrations could be noticed for processed foods, garments and several other industries that are organised upward in various layers.

The second implication of the GST is to introduce an odd distortion in prices of some services. There are reports of hospitality outlets charging GST on service charge. The point over here is not if post-GST, the prices paid by customers in these outlets are same as before. The point is whether GST on service charge should be levied at all. The logic from the perspective of tax authorities is service charge, which is revenue for the service provider, should not be allowed to go tax-free. But the bigger point is this pushes up prices without the consumer actually understanding why the final bill is so much higher than the quoted tariff. The long-term impact might be to stop mentioning service charge in bills with service providers 'urging' clients to shift to cash tips that go untaxed.

The GST could be a simple tax in principle. But its simplicity can be appreciated only after the principle is understood. And this is where it gets complex, particularly in the process of breaking down amounts spent on inputs and outputs and segregating these into distinct boxes for refunds and payments. The entire exercise requires wisdom that is not automatically available across-the-board. As it is, the direction to link Aadhar numbers to PAN cards has created new earning opportunities for tax and financial consultants. The GST might produce similar opportunities for consultants and higher costs for businesses and individuals as they are forced to avail 'specialised' knowledge at least in the beginning.

The most significant likely long-term impact of the GST is the 'left behinds' it might produce. GST users can realise the efficiency and benefits of the new tax system only if all users in the system are organically GST-compliant. There will not be any incentives on part of GST-using businesses to work with non-GST users, as transactions with the latter would not entitle the former to obtain input tax credits. Non-GST businesses, mostly in the informal sector, and on many occasions small enterprises, would be forced to migrate to GST as otherwise they would be 'left behind'. There are also penalties for non-migration. The migration though is not going to be easy. Apart from having to invest on the migratory process including engaging consultants, the small businesses would suffer more from systemic drawbacks like delays in refunding credits than their larger counterparts who have deeper pockets to withstand delays.

There will not be any incentives on part of GST-using businesses to work with non-GST users, as transactions with the latter would not entitle the former to obtain input tax credits

The problems might continue for several businesses even after they migrate to GST if they are part of value-chains that rely extensively on products not subject to GST. These, most ostensibly, are petroleum products that are kept out of GST and continue to be subjected to state VATs. Value-chains using these products more and more downstream are bound to experience complications in figuring out what can be refunded and what cannot. Given that states have the liberty of fixing VAT rates on these items, the production costs in a system that does not entail entire input tax refund, might become onerous for many producers, including in agriculture that has large usage of petroleum products in several activities.

To be fair to the architects of the new tax system, there are impacts that cannot be ascertained until it rolls out. But once sensed they need to be addressed fast. The GST should not develop a reputation for being complex that would destroy its 'simple' character. It should not, over time, leave many users with no choice other than running to consultants, which Indian taxes—both direct and indirect—have always done due to their complexities. It should also, under no circumstance, become an instrument for pushing the small and informal out of the economic mainstream. These are the 'must don'ts that the GST should ensure.

The robots will make the best fake news

Perfect, but phony, videos of important people saying crazy stuff are just around the corner. This is a huge risk

NOAH SMITH

Bloomberg

IMAGINE THAT TOMORROW, some smart kid invented a technology that let people or physical goods pass through walls, and posted instructions for how to build it cheaply from common household materials. How would the world change?

Lots of industries would probably become more productive. Being able to walk through walls instead of being forced to use doors would make it easier to navigate offices, move goods in and out of warehouses and accomplish any number of mundane tasks. That would give the economy a boost. But the negative might well outweigh the positive. Keeping valuables under lock and key would no longer work. Anyone could break into any warehouse, bank vault or house with relative ease. Most of the methods we use to keep private property secure rely on walls in some ways, and these would be instantly made ineffective. Thieves and home invaders would run rampant until society could implement alternative ways of keeping out intruders. The result might be an economic crash and social chaos.

This demonstrates a general principle—technological innovations are not always good for humanity, at least in the short term. Technology can create negative externalities—a economics term for harm caused to third parties. When those externalities outweigh the usefulness of the technology itself, invention actually makes the world worse instead of better—at least for a while.

Machine learning, especially a variety known as deep learning, is arguably the hottest new technology on the planet. It gives computers the ability to do many tasks that only humans were able to perform—recognise images, drive cars, pick stocks and lots more. That has made some people worried that machine learning will make humans obsolete in the workplace. That's possible, but there's a potentially bigger danger from machine learning that so far isn't getting the attention it deserves. When machines can learn, they can be taught to lie.

Human beings can doctor images such as photographs, but it's laborious and difficult. And faking voices and video is beyond our capability. But soon, thanks to machine learning, it will probably be possible to easily and quickly create realistic forgeries of someone's face and make it seem as if they are speaking in their own voice. Already, lip-synching technology can literally put words in a person's mouth. This is just the tip of the iceberg—soon, 12-year-olds in their bedrooms will be able to create photorealistic, perfect-sounding fakes of politicians, business leaders, relatives and friends saying anything imaginable.

This lends itself to some pretty obvious abuses. Political hoaxes—so-called "fake news"—will spread like wildfire. The hoaxes will be discovered in short order—no digital technology is so good that other digital technology can't detect the phony—but not before it puts poisonous ideas into the minds of people primed to believe them. Imagine perfect-looking fake video of presidential candidates spouting racial slurs, or admitting to criminal acts.

But that's just the beginning. Imagine the potential for stock manipulation. Suppose someone releases a sham video of Tesla Inc. chief executive officer Elon Musk admitting in private that Tesla's cars are unsafe. The video would be passed around the internet, and Tesla stock would crash. The stock would recover a short while later, once the forgery was revealed—but not before the manipulators had made their profits by short-selling Tesla shares.

This is far from the most extreme scenario. Imagine a prankster creating a realistic fake video of president Donald Trump declaring that an attack on North Korean nuclear facilities was imminent, then putting the video where the North Koreans can see it. What are the chances that North Korea's leadership would realise that it was a fraud before they were forced to decide whether to start a war

Those who view these extreme scenarios as alarmist will rightfully point out that no fake will ever be undetectable. The same machine learning technology that creates forgeries will be used to detect them. But that doesn't mean we're safe from the brave new world of ubiquitous fakes. Once forgeries get so good that humans can't detect them, our trust in the veracity of our eyes and ears will forever vanish. Instead of trusting our own perceptions, we will be forced to place our trust in the algorithms used for fraud detection and verification. We evolved to trust our senses; switching to trust in machine intelligence instead will be a big jump for most people.

Webs of trade and commerce rely on trust and communication. If machine learning releases an infinite blizzard of illusions into the public sphere, aggregate social trust could decrease, hurting global prosperity

That could be bad news for the economy. Webs of trade and commerce rely on trust and communication. If machine learning releases an infinite blizzard of illusions into the public sphere—if the walls that evolution built to separate reality from fantasy break down—aggregate social trust could decrease, hurting global prosperity in the process.

For this reason, the government should probably take steps to penalise digital forgery pretty harshly. Unfortunately, the current administration seems unlikely to take that step, thanks to its love of partisan news. And governments like Russia's seem even less likely to curb the practice. Ultimately, the combination of bad government with powerful new technology represents a much bigger danger to human society than technology alone.

LETTERS TO THE EDITOR

Karnataka's answer to Hindi chauvinism

The Karnataka government's decision to set up a panel 'to design a separate state flag' has kicked up a row. Seeing it as a direct challenge to "India's unity and integrity", right-wing hyper-nationalists are fighting tooth and nail to stop it from materialising. This is while neither the Constitution nor any law expressly or obliquely prohibits a separate flag for a state. In fact, the Bommai judgment allows a state to have its own flag if it wills it. It is wrong that a separate flag should be linked to separatism or secessionism. Theoretically, India is a federation of 28 states; it has to be so practically as well. A high degree of autonomy or decentralisation of power is essential for the practice of "cooperative federalism" and it is not prejudicial or detrimental to Indian nationhood. The rise of "cultural nationalism", a euphemism for chauvinist Hindutva and the blatant imposition of Hindi undermining the importance of Kannada seem to have precipitated the Kannadigas into favouring a flag of their own. It appears that the resentment against Hindi imposition has strengthened their resolve to assert their distinct cultural identity. The narrow-minded nationalists who wield the reins of power must understand that India is a vast and diverse country with a heterogeneous population. The Idea of India as a nation often described as a "patchwork quilt" is predicated upon its tradition of pluralism and diversity. The attempt at "homogenising" masses of people distinct by geography, culture, language, and religion is sure to give rise to a sense of alienation and denial of their identity.

— G David Milton, Maruthancode

Banks, NPAs & graft

Apropos of the report "Bank's PCA inclusion for performance gain" (FE, July 15), the statement of S S Mundra, Deputy Governor of RBI, will pave the way for eliminating the confusion and doubts of customers and investors in banks that are under Prevention of Corruption Act (PCA). Case-specific approach and speedy execution of measures on corporates under severe stress is of paramount importance.

— VSK Pillai, Kottayam

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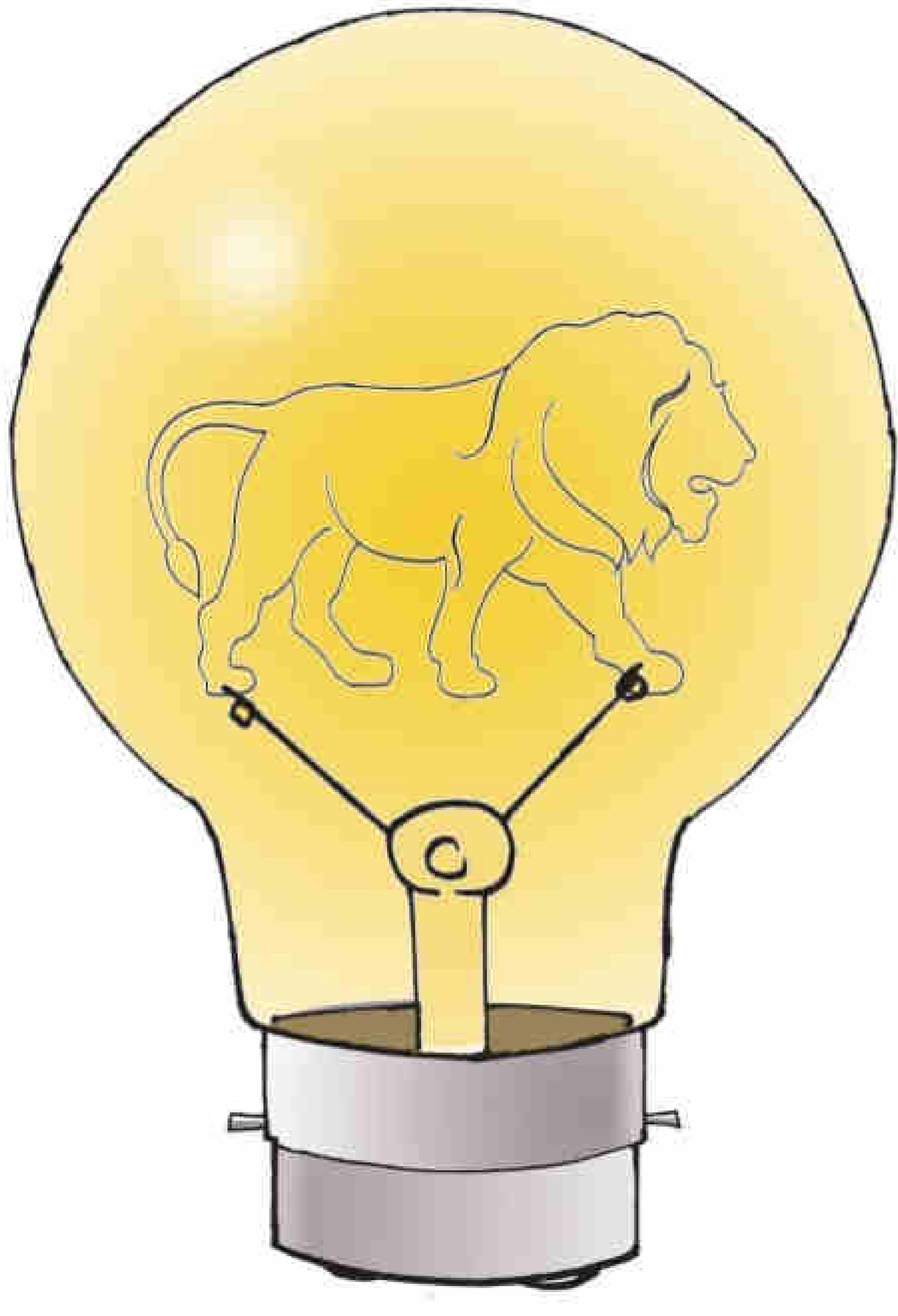

ILLUSTRATION: ROHNIT PHORE

AVIRUP BOSE
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Lost in implementation

India's IPR rhetoric needs to be echoed by Competition Commission of India

DURING HIS RECENT US visit, prime minster Narendra Modi spoke and wrote an op-ed for *The Wall Street Journal*, assuring US CEOs that India would remain a 'business-friendly' destination and will be committed to research and innovation. Modi urged them to continue to heavily invest in the Indian economy.

While a well-enforced GST regime would no-doubt be a business game-changer, however, there is another aspect of business-friendliness, which needs further government thought and action, especially in the context of US companies, ie, how India values the intellectual property rights (IPR) of its investors?

This question looms large, despite the government's year old National IPR Policy. Although, being hailed as a good first move, the country's overall IPR ranking has not improved much. This year's global index of intellectual property rights, released by the US Chamber of Commerce, India ranked 43 out of 45 countries. Even in the recently released Global Innovation Index 2017, India ranks at 60, much below its BRICS peers of China, Russia and South Africa. The good rhetoric in India's IPR Policy needs to be implemented through legislative reforms and most importantly by the country's economic regulators, especially the Competition Commission of India (CCI).

CCI – India's only economy-wide regulator—has a special role in fostering a pro-innovation economy. This is because CCI's mandate, includes ensuring a fair functioning market where firms investing in innovation compete against each other to develop new products and processes and gain new markets. However, until now CCI has shown a policy in-consistency when dealing with IPR related cases.

For example, In a case dealing with abuse of dominance by 14 car manufacturers in the market of spare parts and repair services, CCI considerably watered down the IPR exemption available under the Indian Competition Act, 2003. The Act exempts firms to impose market-restricting clauses in their distribution/procurement agreements, which are necessary for such companies to protect their IPRs. However, CCI has interpreted this provision narrowly to mean that for the car manufacturers to avail of the IPR exemption, the IPRs need to be need to be registered and protected under certain specified Indian IPR statutes. Most of the international car manufacturers hold their proprietary information/rights as assets of the parent enterprise and typically license the use of such proprietary assets to their Indian subsidiaries via technology transfer agreements, which were inadequate to protect such car companies from a ₹25.4 billion antitrust fine. No IPR policy can rectify such a shell-shackling of industry sentiment. Chiefs of Honda and Skoda were quick to add that such decisions were making them re-think their future plans to invest in India. The 'Make in India' initiative will remain quixotic unless our regulators can demonstrate their commitment to protect the proprietary 'ideas' of foreign and domestic investors on Indian soil.

CCI in the past has initiated an in-depth investigation into the alleged exploitative pricing tactics and abuse of dominant position by Monsanto, T-Series and Ericsson overlooking the ability of an IPR-holding firm to determine the price of its product based upon the market. The ability to monetise an IPR based upon its market value is a key ingredient to the entire innovation process. Through its price signalling, the market is able to direct the efficient allocation of resources for the next round of the innovation process. If an investor's right to exclude others from making, using and selling the patented goods does not include the right to fix the price of such goods as high as the market will permit, the IPR-holder would simply withdraw from the market—causing loss of consumer welfare. Further, determining if a royalty amount is "unfair" or "abusive" under the Act has been rendered problematic by CCI's adoption of subjective benchmarks—based on standards of fairness and equity rather than those grounded in economics—while deciding antitrust issues of pricing by dominant firms.

> **Determining if a royalty amount is "unfair" or "abusive" under the Act has been rendered problematic by CCI's adoption of subjective benchmarks**

Recently, CCI passed an interim order against the Roche ordering a detailed antitrust probe for allegedly abusing its dominant position by restricting market access to generic cheaper copies of its blockbuster cancer drug—Trastuzumab. Generic drug firms Biocon and Mylan had complained before CCI that allegedly Roche misled doctors and regulators to thwart competition to its trastuzumab drug. Roche had written to authorities including the Director Controller General of India (DCGI), National Pharmaceutical Pricing Authority (NPPA) and hospitals/potential buyers discouraging them from buying biosimilar versions of its cancer drug, given that requisite tests and approval protocol has not been followed. The Delhi High Court has later rebuked CCI for equating the legal right of a dominant company to sue its competitors or petition regulatory bodies as an exclusionary conduct itself and has termed CCI's order as "anti-competition" and "anti-legal right".

CCI's policy inconsistency in IPR cases can have a major impact in the innovation process of the economy. The vision of India's IPR policy will get lost in implementation as India's IPR image has a regime that does not value or adequately protect IPRs would get further entrenched. For this CCI, like other antitrust agencies—including those of China, must adopt formal IPR guidelines on how it would enforce India's antitrust regime with a view of balancing the innovation needs of the firms and those of other industrial and societal stakeholders.

RESPONSIBLE LENDING

Promoting loan melas

DEVASHISH DAS GUPTA
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Any responsible lender must advise the client on savings and spending

From a lender's point of view, responsible lending is to act in a customer's best interests, ensuring affordability, transparency of terms and conditions and supporting a borrower if they experience repayment difficulties. Lenders have a responsibility to make sure borrowers understand the details of a loan and carry out thorough checks on any borrower, so they can be confident that what customers will receive will be suitable for their circumstances.

Bankers and lenders can make lending fun and interesting through hyper-local events (such as a loan mela at a small town and semi-urban areas during the upcoming festival season), which offer a distinct opportunity to sensitise banking solutions with creative campaigns and positioning.

For instance, whenever a non-banking finance company (NBFC) is launching a limited-period loan offer, special rate or simply trying to promote a solution, it should use applicable events and relevant local and regional media to increase awareness, generate interest and drive results.

By providing the ability to share valuable information with the community, local events offer the means to demonstrate that lenders understands consumer needs.

In these events lenders should share relevant content in the form of personal finance tips, investment advice and more. Such insight will also illustrate the supportive nature creditors, increasing consumer confidence and create a credible image lenders are dedicated to consumers' financial well-being

It should be a normal practice for a lender to tell an existing or a new customer: "Let us show you how to manage your incoming and outgoing finances," or "It is very important to know the difference between your needs and your wants." This will help you in setting your priorities so that you know where to spend your money.

> **Giving advice to potential and existing customers should be a normal standard operating practice embedded into a responsible lender's mandatory to-do check list**

Giving advice to potential and existing customers about savings and how to manage borrowing should be a normal standard operating practice (SoP) embedded into a responsible lender's mandatory to-do check list.

It is absolutely critical for lenders to convey to a client that saving lets avoid the interest one has to pay to borrow money. Most people know the reasons to save—but many don't do it consistently. It is for the lender to tell the borrower how to save.

It is important for lenders to hold financial literacy and personal finance outreach programmes with institutions such as The National Centre for Financial Education (NCFE), comprising representatives from all financial sector regulators, ie, Reserve Bank of India (RBI), Securities Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), Pension Fund Regulatory and Development Authority (PFRDA) and National Institute of Securities Markets (NISM).

Any responsible lender must advise the client on savings and spending. Cut unnecessary expenses and put your savings into a separate account. Spend for things you need, but wisely. It's usually best to clear up any high-interest debts before starting your savings, because they usually cost more than you can earn with a savings plan. Pay these debts first and then regularly put the money into a savings account. Pay yourself first. Set aside money from your income before you spend on anything else. Make use of tax benefit schemes to maximise your savings. Schemes like, EPF, PPF, NSC, ELSS, SSY, NPS etc are a good way to reduce the taxes you pay on your savings.

In India, taking into consideration the specific business nature of non-banking finance companies (NBFCs), they are subject to specific guidelines of the Reserve Bank of India (RBI) on Fair Practice Code (FPC).

NBFCs are required to adhere to all elements of the FPC that RBI had issued in July 2015. It is also important greater resources are devoted to professional inputs assessing creditworthiness. According to the RBI's FPC, lenders are expected to be prudent and responsible in their lending activity besides educating their borrowers on the dangers of wasteful conspicuous consumption.

Responsible lending is about being sensitive to people's need and emotions. McKinsey & Company found that the main reason people switched banks was based on emotions. There can be no better example of responsible lending that giving out advice, pro bono, to clients on how to establish an effective savings strategy.

More ways to classify planets

A TAXONOMY OF PLANETS is emerging fast. On June 19th a group of researchers led by Andrew Howard of the California Institute of Technology divided bodies smaller than Neptune into two classes, based on both their current composition and a consequent presumption about how they formed. Now, another group of astronomers, led by Vardan Adibekyan of the Astrophysics and Space Science Institute in Porto, Portugal, have performed a similar trick on gas giants, the largest type of planet, which are represented in the solar system by Jupiter and Saturn.

The team's work, just published in Astronomy and Astrophysics, suggests gas giants come in two types, with intermediate forms being rare. The smaller type have a mass up to four times that of Jupiter. The larger have between ten and 20 times Jupiter's mass. Jupiter, chosen as a reference because it is the solar system's largest planet, has 320 times the mass of Earth.

Using the "Extrasolar Planets Encyclopaedia", a database of information on planets orbiting stars other than the sun, Dr Adibekyan and his colleagues found gas giants of the smaller class circling some 170 stars, and of the larger one going around 100. Crucially, a star seemed to host either one sort or the other. Stars with both were rare. This suggested to Adibekyan that something about a star, or about the circumstances of its formation, affects the types of planet that condense from the nebula surrounding it.

One way stars routinely differ from each other is in the amount of metal they contain. An astronomer's definition of a metal is different from a chemist's. An astronomical metal is any element other than hydrogen or helium. Adibekyan and his colleagues found that stars orbited by small gas giants were almost always metal-rich. Conversely, those orbited by large giants, as it were, were metal-poor. That difference in metallicity probably explains the distinction in planetary size.

At the moment, two models compete to describe how gas giants come into being. One suggests a rocky or icy core forms first, and that this core then attracts gas to form the thick atmosphere characteristic of a gas giant. The other postulates that instabilities in the youthful circumstellar nebula lead to the formation of gas clumps, which themselves act as nuclei for the accretion of yet more gas. These clumps then contract to form a giant planet.

One explanation of Adibekyan's observations is that both hypotheses are correct, but for different types of gas giant. The circumstellar nebula of a metal-rich star will be full of elements like silicon and oxygen, which react to form quartz; carbon, which forms sooty particles all by itself; and iron and magnesium, which even chemists would recognise as metals, that either form solid grains by themselves or react with quartz to form silicates. These various solids, plus frozen water (oxygen and hydrogen), frozen ammonia (nitrogen and hydrogen) and frozen methane (carbon and hydrogen), are obvious ingredients for rocky and icy cores around which gas giants might accrete. The nebula of a metal-poor star, by contrast, would have none of these. Any gas giants would thus have to form from gas and gas alone.

This line of thinking does not directly explain the size discrepancy, but Dr Adibekyan suspects the reason for it is that the process of core accretion would take time, during which much of the gas in a circumstellar nebula would be blown away by light and other radiation from the newly formed, and extremely active, star. By the time the core was big enough to gather a significant atmosphere, the makings of such would be sparse. That would limit the size of the eventual planet. By contrast, he suspects that a nebula might break up into gas clumps rapidly, meaning enormous planets would be easy to form.

A missing piece of the puzzle is why small and large gas giants do not co-exist around metalliferous stars, for core formation does not obviously preclude a nebula breaking up into gas clumps as well. Such mysteries are the stuff of science. As the cliché has it, more research is needed.

THE ECONOMIST

For the good part of GST

Focus is slowly shifting from 'first GST invoice' to 'first GST return'

HARPREET SINGH
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AMIDST THE COMMOTION on account of implementation of new tax regime during the past few weeks, Goods and Services Tax (GST) slowly, but surely, appears to be sinking in. This is not to say that the confusion among the traders and consumers on different types of GST, ie, Central GST (CGST), State GST (SGST), Integrated GST (IGST), invoicing, rates, valuation to be adopted, etc. have settled down, but the initial jitters appear to have subsided and paved the way for new issues for discussion.

To begin with, there is confusion on documents to be used for movement of goods, whether the goods should move along with hard copies of tax invoice, bill of supply, the circumstances under which delivery challan needs to accompany, etc. Further, continuation of the waybills/road permits of the erstwhile regime, as an interim measure till Rules on e-way bills are finalised by the GST Council, has not helped the cause but increased the concerns of traders.

Since the GST law is at a nascent stage, varied interpretations by trading partners were expected. Thus, customer queries on invoicing, taxes to be charged, classification of products under different codes are some of the challenges with which industry is grappling with. Some of the common questions are 'My customer is saying that I need to mention eight-digit classification code, while I heard it was four digits', 'Customer is asking for mandatory GST discount', 'Customer is asking me to mention their GSTIN on the invoice, should I'. While, the government is doing a decent job by releasing FAQs on various topics in leading newspapers, in order to clear the air on basic and mundane issues, the approach to reach out to more and more people needs to be far extensive.

Another critical talk in the Board room today is on pricing of the products post GST. The fear of the anti-profiteering provision which mandates reduction in price of the product/service on account of benefit of GST, is the driving force behind the discussion. The debate on pricing is lengthy and ambiguous as, though the anti-profiteering rules have been released, same do not divulge critical aspects such as how profit needs to be computed, whether profit would be looked at product wise or at entity level. To facilitate price changes, government has come up with a notification dated July 4, 2017, which allows adding a new MRP by stamping, putting sticker, etc. However, the notification seems to be pose more questions than provide answers.

Cut over transactions and their implications is also keeping the industry on their toes. Treatment of goods in transit, ie, goods sent by supplier before June 30, but received by customer in July, open purchase orders, treatment of advance received in June for services provided in July, sales return of goods sold under Value Added Tax (VAT) regime, etc, are some of the hot topics. Thankfully, there are detailed Rules to take care of all such scenarios. Still, interpretation, understanding and implementation of the Rules is what is keeping the GST excitement alive.

Another area of key interest these days is availment of transitional credits. Full credit of tax on pre-GST purchase, which is evident from the invoice, is available as a set off against the GST liability. Further, the government has come up with a provision which allows a deemed credit of excise duty paid on purchase, even if the same is not visible on his purchase invoice. Every dealer wants to avail these benefits and thus are working to compute the credit and avail the same.

Exporters of services, who intend to export without paying any tax have been made liable to file a Letter of Undertaking or a bond, for the first time. Such new procedures and compliances are also the talk of the town and keeping the industry busy.

The focus is also slowly now shifting from 'first GST invoice' to 'first GST return'. Though the government has, thankfully, delayed filing of the detailed return to the month of September, the multinationals do not want to take any chance and want to get this first time right. Thus, analysis of the fields of the different GST returns GSTR-3B and GSTR-1 is underway.

To conclude, GST is turning out to be a fresh fruit, where peeling of the first layer (of queries, confusions) is leading to another new layer to be peeled. It appears that there are many more layers to be peeled before the true taste of the fruit can be savoured.