

# Opinion

WEDNESDAY, MARCH 20, 2019

**NEED TO REDUCE WASTE NOW**  
Amitabh Kant, CEO of NITI Aayog

In India, the urbanisation process has just begun unlike Europe, US and China. If we are generating 71 million tonnes of waste every day, it will only increase unless we reduce waste and ensure segregation at source at household-level



## Information is good, need to act on MPs/MLAs now

If a third of MPs and MLAs have criminal cases, it is no longer enough to disclose this, they have to be debarred

**O**N THE FACE of things, the Election Commission of India (ECI) has done well to insist that both candidates with criminal charges, as well as the political parties that field them, will have to give wide publicity to the charges; the charges, the ECI has said, will have to be disclosed thrice in both newspapers as well as television channels. This, of course, needs to be monitored carefully, and more detailed instructions need to be issued on such publicity, to ensure the newspapers chosen aren't those with a tiny circulation and, within them, the placement of the news has to be prominent. Similarly, in the case of television channels, care has to be taken to ensure the news is broadcast during prime time viewing hours and not when few are watching television. The problem with this, however, is that it may not yield much if rival candidates, equally, have criminal records; what is there to choose from when one candidate is accused of three murders and the other four? It has been more than two decades since criminal antecedents had to be mandatorily disclosed; merely adding a new instruction on how it has to be disclosed will achieve little. These candidates have to be debarred.

Many will argue, as in the past, that this violates the fundamental rights of the candidates since the charges can be fake and, under the law, they are innocent till proven guilty. That is right, but existing solutions aren't working. There are no fast-track courts to try these charges—the Supreme Court asking the government, last year, to set up such courts doesn't mean this will be done—and even if this is done, how do you ensure the SC disposes off the cases early when the sentences are appealed? It is surely not unreasonable to hold the representatives of the people to a higher standard of justice? And, to begin with, maybe the automatic debarment, at least, apply to crimes like rape and murder? If this doesn't happen, more of them will come to power—Association of Democratic Reforms's co-founder Ajit Ranade points out that the proportion of MPs with criminal charges rose from 1.2% to 1.5% to 2.1% in the last three Lok Sabhas and Carnegie scholar Milan Vaishnav showed that having a criminal case boosted the probability of winning an election considerably.

Similarly, ECI has done well to insist candidates submit their last five income-tax (I-T) returns along with the declaration of their wealth, but this, too, is not enough. In a large number of cases, candidates will say their incomes come from agriculture that, by law, is not taxed. While the number of *crorepati* MPs rose from 156 in 2004 to 449 in 2014, there have been several high-profile MPs and ministers whose wealth has increased by leaps and bounds. In such a case, their I-T returns stating that the wealth has been generated through agriculture or donations by lakhs of ordinary well-wishers is of limited use. What is needed is for the ECI, along with the taxman, to do a detailed audit of such MPs/MLAs and follow it up with strict action when the wealth is beyond what can be easily explained. If there has to be a reasonable hope of India reducing the levels of corruption—or intimidation by the powerful—this cannot be done if its lawmakers are those perpetuating such a system. Elected representatives, like Caesar's wife, have to be above suspicion.

## And now, card-less ATMs

SBI takes a lead, allows cash withdrawal without cards

**F**OR A COUNTRY not exactly known for its digital prowess, India is making pretty rapid strides in fintech with some interesting innovations. Topping the list, of course, is Aadhaar which was not just a unique database of biometrics—the largest in the world—but, because it allowed the database to be queried across space, this allowed for a variety of services from ration shop deliveries to e-signatures. Over time, as the suspicion over the use of Aadhaar grew and people feared their data could be stolen or misused, Aadhaar came up with other solutions such as Virtual ID that masked the number by allowing users to generate a random number online. Another success story is that of UPI, a mobile-based payments system created by the National Payments Corporation of India (NPCI) and which is linked directly to your bank account. UPI payments have increased rapidly, from a mere ₹3 crore in August 2016 to a whopping ₹106,737 crore in February 2019 and, in a sense, offer a possible alternative to debit and credit cards; UPI transactions today are roughly equal to all debit and credit card transactions at merchant outlets (Point of Sale, or PoS, in jargon) and around 28% of all card transactions including ATM withdrawals.

Apart from the fact that UPI prevents dangers like cloning since you don't have a card that is given to the merchant, this is an Indian system of payments and, to that extent, offers an alternative to a Master/Visa-based payments system. Over time, UPI has also developed more safeguards and, as in the case of Aadhaar, members can create virtual IDs to mask the bank their UPI ID is associated with, and even their phone number. Indeed, with the spread of UPI QR codes that are simply a printout, perhaps laminated, there is the possibility of spreading digital payments across the country without expensive PoS machines.

Equally impressive, in this context, is India's largest bank, State Bank of India, coming up with card-less ATMs that allow customers to withdraw money from SBI ATMs without using debit or credit cards; while the facility will initially be available across 16,500 ATMs, over the next six months, it will be available in all 60,000 SBI ATMs. Presumably, other banks will also start adopting this soon, in which case, it can potentially be available in all bank ATMs over time. In this case, the customer will use her SBI app to generate a random number which is then inputted on the ATM keypad to withdraw the money. As in the case of Virtual Aadhaar, UPI, and virtual cards such as those offered by several banks on their mobile phones, the SBI facility offers another layer of safety since there is a possibility of hackers stealing information when the card is inserted into the machine. With such innovations, one big fear of cloning has been taken away, though the fear of hacking into the bank account becomes more real. While there are various solutions—an SMS alert is the most basic—this has to be the area where the next lot of innovation will be focused upon.

## CityRights

Recognising the right to city as a common good is fine, govt must ensure that only a few cities don't have to bear the burden

**T**HE DELHI HIGH Court (HC) has said that "forced" and "unannounced" eviction of slum dwellers without following proper guidelines is contrary to the law. The HC ruled that any land-owning agency in Delhi, including Central government ones such as the Indian Railways, must first conduct a detailed survey. Then only can they draw up a rehabilitation plan—even so, only in consultation with those to be evicted before a demolition drive in accordance with the 2015 Delhi Slum and JJ Rehabilitation and Relocation Policy (2015 Delhi Slum Rehabilitation Policy). The judgment was passed in relation to pleas seeking relief on the issue of forced eviction of around 5,000 dwellers of the *Jhuggi Jhopri* (JJ) basti near the Madipur Metro Station in Delhi in December 2015. The land on which the slum was located belonged to the Railways, and the organisation conceded that no survey was ever conducted of the *Jhuggi* dwellers before the demolition.

While considering the 2015 Delhi Slum Rehabilitation Policy for rehabilitation of slum dwellers, the Court also examined the 'right to the city' as explained by scholar Upen- dra Baxi. The concept views "city as a common good" and the judges mentioned that those living in the JJ clusters continue to contribute to the social and economic life of a city—a manner of justification of the slum dwellers' rights to the city. This is also guaranteed in part by the fundamental rights that allow a person to move and reside anywhere freely within the nation. There should, however, be adequate caveats to this right keeping in mind the pressure urbanisation of the kind India has seen create. Given only a few cities have developed as employment centres across skill sets, migration to these starts telling on their resources and can therefore impact the lives of the people of the city as a whole. Also, the government can't be excused of its duty to ensure equitable and inclusive growth across the entirety of the country (the 'right to the city' might lead to the political establishment only focusing on tier-1 cities for development). Recognising the right, nonetheless, is a good move and one that secures the rights to adequate housing and, consequently, the rights to a basic livelihood for slum dwellers.

## VOTE CLINCHER

CURBING BLACK MONEY, GDP GROWTH OR EoDB RANKINGS DO NOT SOLVE THE PROBLEMS OF THE MAN ON THE STREET UNLESS IT RESULTS IN A TANGIBLE GAIN FOR THE INDIVIDUAL

# Micros, not macros, matter for the elections

**W**ITH A BLITZKRIEG of publicity on the achievements of the Central government in the areas of health, education, housing, insurance, etc, it is pertinent to ask the question as to whether or not economic matters when shaping the outcome of an election. The coming general elections will be important from two points of view. Firstly, the record of policies introduced has been amazing with there being probably zero faults. Secondly, a number of economic indicators present a good picture but it is still not clear whether they will matter.

In this context, the economic indicators that prevailed just prior to the elections can be examined in the last five elections to deduce whether macro indicators matter or not. Hence, for the 1996 elections, the GDP growth of 7.3% is for FY96 and 6.4% for FY95.

In 1996, the Congress lost power even while the GDP growth of that year was higher. Government spending was high but inflation was nasty. The 1998 elections were won by the BJP which, consequently, fell and economic indicators were not the driver when the IK Gujral government collapsed. Inflation had moderated to 6.84% but that did not matter. The last 4 elections that ran their full terms can be considered to be the test for the macro indicators as they were turning points for the respective governments.

The BJP came to power in 1999 on the back of higher GDP growth but very high inflation of 13.1%. This was the time when farm output had also climbed, thereby meaning that the rural community was happy. As it was a BJP government that fell and came back to power with a better majority, it looks unlikely that the economics mattered.

The 2004 elections was interesting because the 'India Shining' story of the BJP was bright with very high economic growth and low inflation supported by high farm output growth and a high deficit but which also meant liberal spending. Inflation, too, was very low and should have placated the electorate. Yet the government fell.

In 2009, the Congress went through the lowest GDP growth rate with a fall in output and very high

**MADAN SABNAVIS**  
Chief economist, CARE Ratings



inflation of 9.1%. But the government was voted back to power which was an achievement. The fiscal deficit was higher on the back of the stimulus being pursued by the government post the financial crisis. Here again, the macro indicators did not worry the electorate which voted the Congress back to power. The 2014 elections voted for change and, while the economy clocked higher growth in farm output and GDP on the whole, with support from the budget, the Congress was voted out of power. Inflation was high and could have worked against the incumbent government.

Hence, there does not appear to be a direct relationship with the macro variables which could be pointing in a very different direction. In the present scenario, the government has the advantage of very low inflation but has to face the challenge of slowing growth which means a lower pace of job creation, some farm distress and conservative budgets with the fiscal deficit at an all-time low of 3.4% in a pre-election year.

Hence, to make up for this weakness, there has been relentless advocating of the government's achievements in the social welfare area, which includes health, education, affordable housing, rural employment, farm

insurance, etc, in order to send the right signals to the people.

The reaction of people is hard to guess. In India, with a federal structure, a large part of the electorate may not be able to distinguish between the roles of the different layers of the government and could tend to attribute the gains and losses to a single government i.e, the Central one. They may not be swayed by announcements of schemes or achievements in numbers and might be more likely to vote for the government in case there has been a direct benefit gained from a concerned programme.

What will work for the government is the following: cash transfers as announced in the budget will be helpful to secure votes as it is a direct benefit. The smart move was to have this scheme introduced for FY19 itself which was not in the original budget so that the people know they are getting ₹2,000 this time which will be topped to ₹6,000 next year. The peculiar thing is that, once introduced, such schemes cannot be withdrawn and are also taken for granted and may not deliver additional brownie points for the next government in power. This happened for NREGA which worked the first time but then became part of the system.

Elections	Winner with alliance	GDP in preceding years	Inflation in preceding years	Agri output	Fiscal deficit ratio
1996	United Front with three PMs	7.3 (6.4)	9.96	-0.7	5.0
1998	BJP	4.3 (8.0)	6.84	-2.6	5.76
1999	BJP	6.7 (4.3)	13.1	6.3	6.4
2004	Congress	8.1 (4.0)	3.9	9.1	4.42
2009	Congress	3.1 (7.7)	9.1	-0.24	6.11
2014	BJP	6.4 (5.4)	9.6	5.6	4.48

Source: RBI and CMIE: as data is representative both the base years of 2004-05 and 2011-12 have been used

## Take a bow, Ericsson, & India, take a lesson

In recovering \$80 million from tycoon Anil Ambani, the Swedish company's lawyers played the nascent bankruptcy system expertly

**ANDY MUKHERJEE**  
Bloomberg



**ANIL AMBANI IS** not going to jail after all, and Ericsson AB got its money. The Swedish company's lawyers should take a bow.

While the future of the Indian tycoon's shrinking empire remains shrouded in uncertainty, at least questions over his near-term living arrangements got answered on Monday. Ambani thanked his "respected" elder brother, Mukesh, and sister-in-law, Nita, after avoiding a three-month prison term. India's richest man showed up just in time to help his younger sibling who has, in a little over a decade, lost 99% of his \$31 billion net worth.

The local unit of Ericsson had accepted a ₹5.5 billion (\$80 million) settlement to keep its petition for Reliance Communications Ltd.'s \$7 billion bankruptcy in abeyance. The telecom equipment vendor subsequently won a contempt-of-court order to put chairman Anil Ambani in jail if the long-delayed payment—which he personally guaranteed—wasn't received by Tuesday.

When a history of the early years of India's 2016 bankruptcy code is written, Ericsson's lawyers will deserve a glowing mention. For an unsecured creditor to walk away with a 48% recovery of its claim—while secured lenders wait patiently for RCom to sell its spectrum, redevelop its land assets and pay them something—shows that the Swedish firm played its cards well.

It also shows the secured creditors, led by State Bank of India, in a rather

poor light. They have been deluding themselves since June 2017, when they agreed to an out-of-court restructuring, including a plan to convert part of their debt into equity at almost ₹25 a share. Luckily, that plan went nowhere. RCom shares closed on Monday at ₹4.

A revised restructuring later that year also saw little progress. RCom, having decided to exit its money-losing 2G and 3G mobile operations, planned to offload spectrum, fibre and media convergence nodes to Mukesh Ambani's hyper-aggressive 4G service. RCom and Jio officially called off the deal on Monday, just as the younger Ambani got bailed out by his brother. With RCom now seeking an in-court bankruptcy resolution, banks are back to square one.

To see just how badly they have bungled RCom, consider the stinging rebuke the lenders received from an appeals judge at India's bankruptcy tribunal last week:

"You (State Bank of India) have failed. JLF (Joint lenders' forum) has failed. No sale (of assets) took place. You clapped with RCom and claimed that you would recover around ₹37,000 crore (\$5.4 billion) from sale to Jio... You failed..."

Even now, the lenders have no real plan. Jio's entry has crashed prices of telecom services, and led to shutdowns

and bankruptcies, including of RCom. Mukesh Ambani may still have appetite for assets controlled by his younger brother, but a bidding war is doubtful.

Recent comments by the founder of India's most successful telecom company, Bharti Airtel Ltd. chairman Sunil Mittal, should worry the banks deeply. When reporters asked Mittal on the sidelines of the Mobile World Congress in Barcelona if he would bid for RCom's spectrum out of bankruptcy, he questioned the very premise of airwaves being sold by tribunal-appointed resolution professionals. The spectrum was a sovereign asset

belonging to the Department of Telecommunications (DoT), Mittal said, according to an *Economic Times* report. He asked why the DoT didn't take the spectrum back and pool it with its own auctions.

As secured lenders cringe at that thought, Ericsson's lawyers can bask in their success. First, they snagged a sweet deal by exploiting RCom's initial reluctance to enter in-court bankruptcy. Then, they succeeded in getting a credible jail risk for Anil Ambani thrown into the mix to ensure the deal was honoured. Finally, they got their client \$80 million. Really nicely done.

*This column does not necessarily reflect the opinion of the editorial board or Bloomberg LP and its owners.*

## LETTERS TO THE EDITOR

The right choice

The choice of young BJP leader Pramod Sawant as the new Goa chief minister must have the backing of all right-thinking people. Sawant is currently the speaker of the Goa Legislative Assembly and, like his predecessor, Manohar Parrikar, is known for his clean image and simple lifestyle. In a move to placate the coalition partners, the BJP has offered the post of two deputy chief ministers to Maharashtrawadi Gomantak Party's Sudin Dhavalikar and Goa Forward Party's Vijay Sardesai. However, with political uncertainty looming large in Goa, Pramod Sawant will have his task cut out in keeping the flock together and running the show  
— Ravi Chander, Bengaluru

Lokpal

The appointment of Justice PC Ghose as the first Lokpal (the country's first anti-corruption ombudsman) could be termed as a significant development in independent India's long drawn-out and yet unfinished battle against corruption on the corridors of power. While corruption is found to be eating into the vitals of the nation, an absence of political will to strike at its roots and its eradication through institutionalised mechanisms such as the Lokpal perhaps explains the growing public cynicism of the political class on the ground. It is hoped Lokpal would usher in a new era where corruption in high places doesn't go unpunished. Strengthening existing legal frameworks to improve conviction rates in corruption cases also brooks no delay  
— M Jeyaram, Madurai

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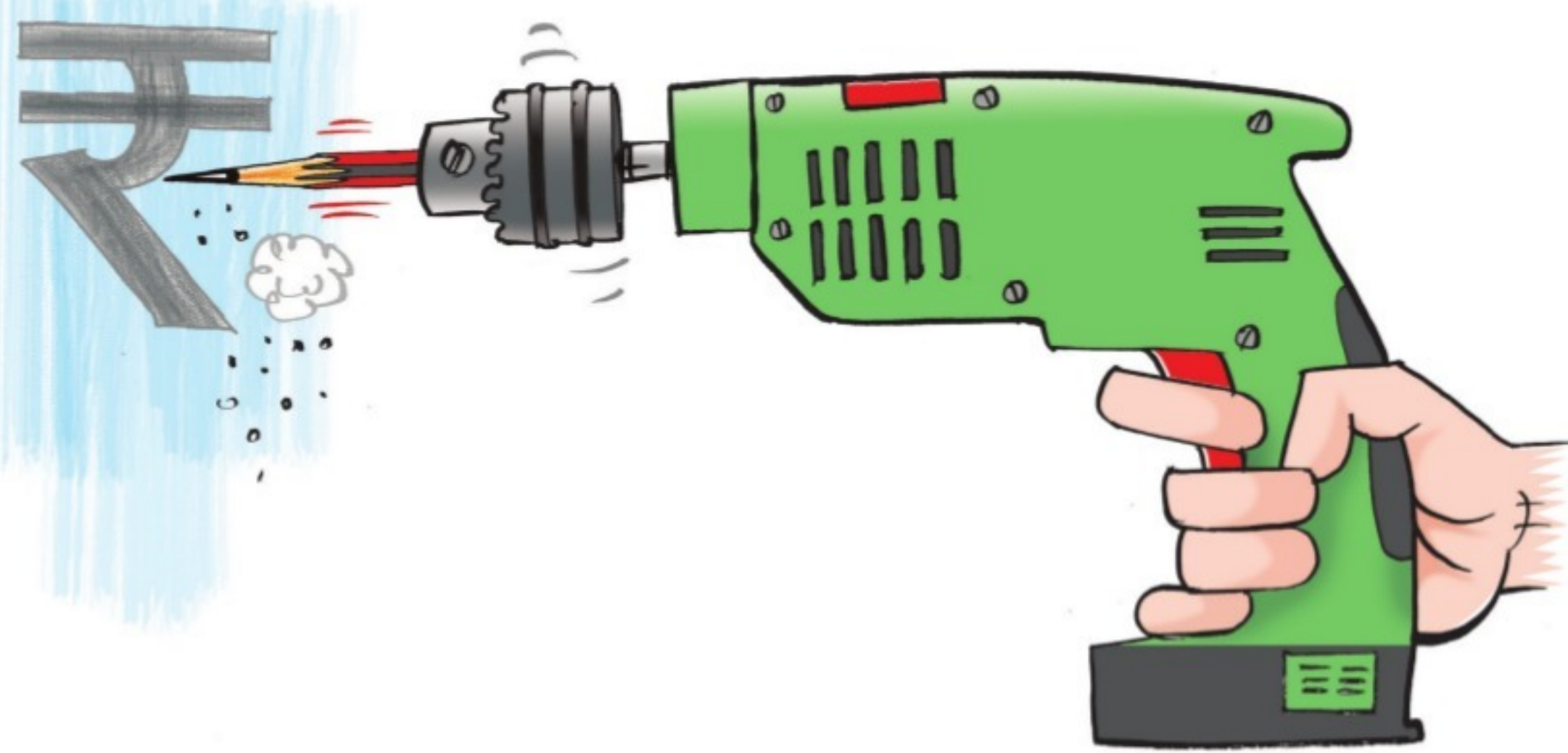


ILLUSTRATION: ROHNIT PHORE

**RAJESH SHUKLA,  
MEGHA SHREE &  
P GEETHA RANI**

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# Return on skill: The widening earnings gap

A substantial share of the population is still at skill Levels 1 and 2 (86%), and is therefore earning comparatively much lower than those with skill Levels 3 and 4. This is a huge concern for policymakers as well as the youth of India. There is an urgent need to take a serious look at the education system including technical vocational training in order to correct the anomalies that currently exist

**T**HE SLOW PACE OF job generation has been a major cause of concern and is an issue that will continue to be headlined as the Lok Sabha elections of 2019 approach. However, the quality of employment is a topic that is rarely talked about. The widening gap in the earnings of workers with different skill levels is an important aspect that needs to be looked at from a policy perspective. The lack of studies on the return on skills in the Indian labour market, too, poses a challenge. To this effect, the People Research on India's Consumer Economy (PRICE) analysis of its comprehensive ICE360° Survey, 2016, data—conducted among 60,360 households—provides key insights into the major determinants of return to skills.

Our data suggests that individuals who are classified as having skill Level 4 have the highest average annual individual income of ₹4,20,000 (\$6,000, based on the average exchange rate in 2019). This is about 1.5 times higher than that of a worker with skill Level 3 (₹2,80,000 or \$4,000). This person's earning is approximately 2.4 times higher than that of skill Level 2 type worker (₹1,76,000 or \$3,000). This worker, in turn, has an income that is 3.1 times higher than that of his skill Level 1 counterpart (₹1,37,000 or \$2,000).

Even within the same employment type, there are significant differences in earnings at different skill levels. A regular salaried earner, at skill Level 4, on an average, makes ₹5,00,000 per year (\$7,000), which is about 2.2 times higher than his counterpart at skill Level 1.

The Indian labour market is currently dominated by skill Level 2 workers (56%) who perform tasks such as operating machinery and electronic equipment. Nearly 30% of the labour force constitutes people with skill Level 1, and are engaged in performing simple routine, physical or manual tasks. About 11% of the workforce are individuals at skill Level 3, and are employed to work with written records, make simple calculations, and use interpersonal communication skills in specialised fields. A minuscule share of the workforce (3%) is at skill Level 4, and performs tasks that need complex problem-solving, decision-making and creativity-based tasks.

A particular characteristic of Indian labour force is that while the higher skill levels are dominated largely by higher educated workers, casual jobs are offered to those with lower educational qualifications. In the past, there was no advantage for female workers to be highly educated, as it did not translate into higher wage earnings when compared to their not-so-well-educated counterparts. However, in recent times, factors such as age, education, skill levels, gender, sector of employment as well as digital access play key roles in income differentials. These correlations have been established

using robust statistical exercises.

Skill and education linkages are critical to assessing returns to skills: The central idea being that there is a premium on higher education and hence better educated workers receive higher earnings. Age is normally associated with the person's experience and thus plays a key role in determining the earnings. At the basic skill levels—i.e. Level 1 and Level 2—the earnings increase with age, but the rate of increase is marginal. Entry-level workers at skill Levels 3 and 4 belong to the age group of 21-25 years, implying that there is a certain minimum education needed to accomplish these higher-order skill levels and, therefore, higher earnings. This further widens the gap between workers at skill Levels 1 and 2 in relation with those at skill Levels 3 and 4 (see the accompanying graphic).

Earnings by levels of education are illustrated with the age-earnings profiles of the population in 15-65 years group. As expected, there is a clear positive relationship between the levels of education and earning as experience and on-the-job training add to increased skill over the years. This relationship is strengthened as one moves up the educational ladder (see graphic).

Gender is another key determinant in the earnings differential. Data suggests males earn almost 1.2 times the wages earned by females. This earnings gap gives men an advantage in the overall job market. But there has been a healthy upswing in the share of females being recruited for jobs with higher skill levels. Significantly, there is no glass ceiling in the earnings of men and women at jobs that need higher skill sets.

Digital usage, too, has emerged as one of the prominent factors in the earnings differential. Data shows that, as skill levels rise, ICT (information and communications technology) usage too grows. Besides, the use of internet at the individual level also shows a positive relationship with returns to skills. The internet-using individual earns more than double that of non-users. For example, if an average Indian earns ₹100, the ICT user earns ₹169, while the non-ICT user's earnings are only ₹80. This is evident across all skill level types. Based on this, one can argue that internet usage plays a vital role in increased earnings.

In conclusion, a substantial share of the population is still at skill Levels 1 and 2 (86%), and is thus earning comparatively much lower than those with skill Levels 3 and 4. This is a huge concern for policymakers as well as the youth of India. There is an urgent need to take a serious look at the education system including technical vocational training in order to correct the anomalies that exist, and enable the growing workforce to respond to the demand for skilled workers as well as improve their earnings.

(CONCLUDED.)

**Skill and education linkages are critical to assessing return on skill: The central idea being that there is a premium on higher education and so better educated workers receive higher earnings**

## Eyes on the prize

SRINI CR

The author is chief digital officer, Tata Communications

What businesses can learn from sports about digital transformation

**W**HEN IT COMES to how we work and play, technology is turbocharging our lives. In no sector is it more apparent than in sports, where work and play combine to create the perfect digital storm. In North America—home to the world's biggest domestic sports market—sports revenue is set to leap by 47% in just 10 years, by 2021. That equates to \$25 billion, in one market alone. And digital technologies provide the crucial pivot.

The proliferation of the internet and connected devices has created a disruptive landscape. For leaders in sporting industry, this has meant adapting quickly to ensure they are keeping pace with new trends—and keeping fans' eyes on the ball. The opportunity for growth is immense and technology is powering it. But this doesn't just have to be a success story for sport—other industries should take note, too.

We recently commissioned an industry report called 'Show Me the Money!' with experts from HSBC, Formula 1, European Tour and DAZN sharing insights around commercial opportunities that digital platforms offer for sports. Apart from providing a roadmap for the digital transformation of sports, it gives other industry leaders a clear view on how these organisations got it so right.

So, how exactly is the sports industry getting the top score? And what key lessons can other industries take away in order to step-up their digital transformation journeys?

**Attract new audiences, stay relevant:** Every business needs to foster existing customer base and attract new customers in order to grow, bring in new revenue streams and remain relevant. In the sports industry, it has been achieved through introduction of new platforms and formats to engage fans, which make sports more accessible for audiences and keep existing fans loyal. It's a similar story for retail businesses seeking to make more meaningful connections with consumers. Customers must be enticed to spend time with your brand through a multitude of avenues. The online experience is key to this. In the case of a retailer, mobile apps must interact with the in-store experience to offer highest levels of customer service and personalisation. Doing so ensures loyal customers return, and new customers understand the value in engaging with your brand.

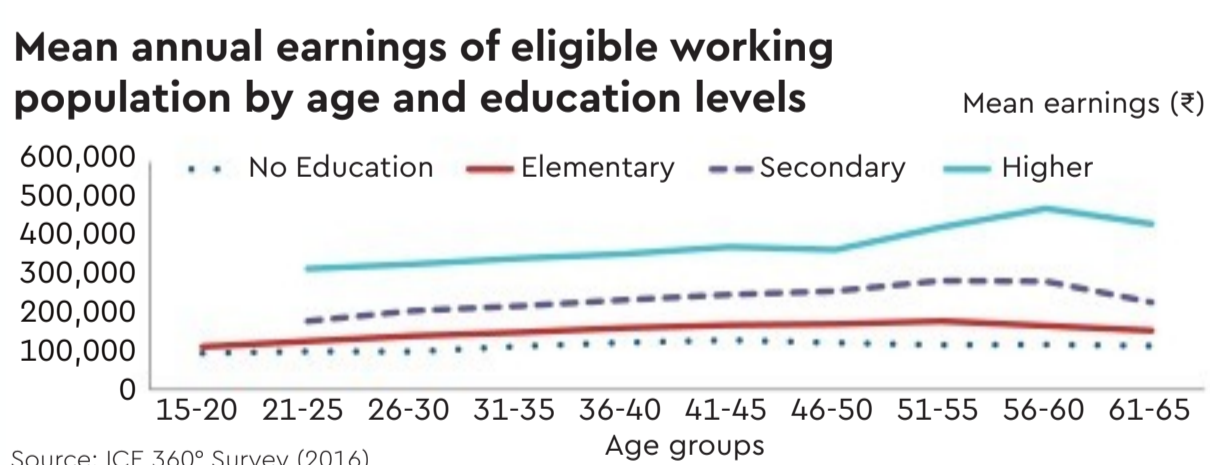
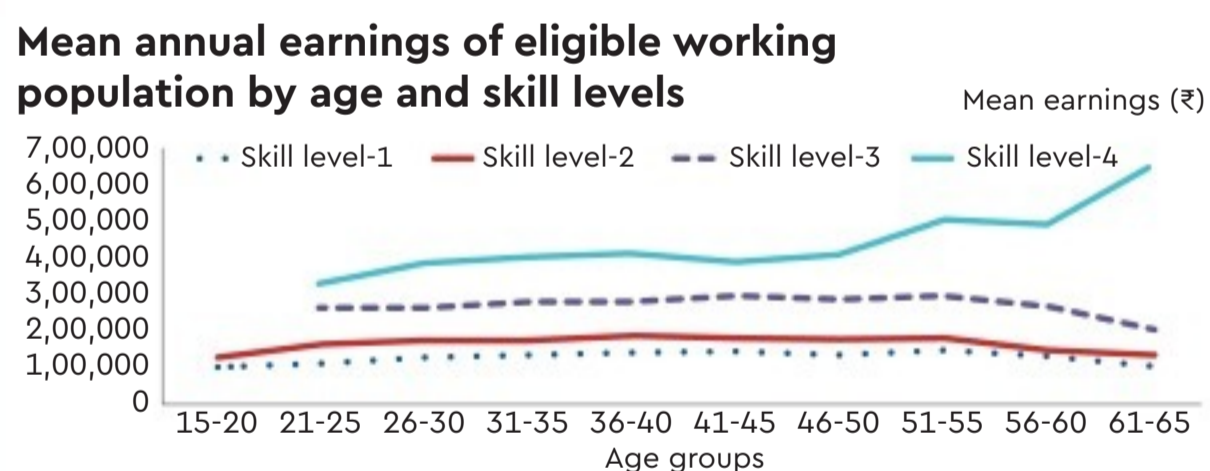
**Get personal and connect with your customers:** Our report highlighted the sports industry's success at connecting with customers on an emotional level, leveraging digital platforms, to build brand loyalty. Similar tactics can be implemented for other industries. Take financial services—being 'human', accessible, quick to address and anticipate customers' needs is essential. Utilising AI and predictive analytics can ensure customer satisfaction and stickiness.

**Meeting customer expectations:** In sport, a live event is a main draw for fans, whether they are in-person at the stadium or watching on TV. As the digital experience improves for fans, many sports are looking at ways to enrich the live experience at venues to match up. We're seeing innovative applications of AR and data analytics to give fans real-time insights on players and athletes. Similarly, AR can be leveraged, for example, in heavy industry like manufacturing for new insights and increased efficiencies.

**Services, and experiences for the digital world:** As people's daily lives are optimised with digital technology, their expectations in terms customer service and experience rise—whether in sport, retail, banking, or other sectors. Scalability, flexibility and agility are the facets for data-driven businesses that want to stay ahead of the curve. Professional services businesses, for example, often have a lot of bright minds, but may lack clarity/resources to identify which technologies are best to invest in. Businesses must consider the opportunities afforded to them by digital transformation to diversify, from a customer-centric point of view. Arguably, the professional services sector hasn't been the fastest to adopt new technologies, but these organisations are building consumer-led functionality within their products, which until recent decades had largely been paper-based.

**Choose your platforms wisely:** There are more ways for fans to watch sports and engage with personalities than ever before—and the same goes for businesses and their customers. But in the rush to make the most of the digital platforms available, there's a risk the point may be missed. For businesses, it is imperative they focus on the platforms that can reflect and support their organisation the best. Just like in sport, businesses must ensure their digital strategy focuses on the areas that provide the best ROI. For example, what are their priority geographies? Which areas are they seeking to grow in? How can they better tighten up processes and procedures? Whether you are selling football tickets or insurance, being bold but strategic with your digital transformation goals is the first step to ensure that your customers will see you as a front runner, stepping up your game.

**Just like in sport, businesses must ensure their digital strategy focuses on areas that provide the best ROI**



Source: ICE 360° Survey (2016)

**D**ENTAL CARIES IS a medical term for tooth decay or cavities. These occur when bacteria living in our mouth produce acid, which then begins to eat away at our teeth or erodes the tooth enamel. One cannot see, feel or taste such bacteria. There are over 700 different strains of tiny oral bacteria (though most people are host to less than 100), which do us no harm. Most of them are, in fact, beneficial, called probiotics, which aid in the digestion of foods. Nevertheless, there are some species in the mix that cause tooth decay and gum diseases. The two most known 'bad' bacteria are streptococcus mutans and porphyromonas gingivalis.

The process of acid formation begins when, after meals or snacks, the bacteria in the mouth metabolises the food, resulting in acidic byproduct. Along with the saliva and food particles, the bacteria accumulate on the surface of the teeth in a sticky film called plaque. The plaque forms easily in cracks, pits or fissures in the back teeth, between teeth and near the gum line. So, the villain is plaque, and plaque's evil minion is acid. The question also is what happens if the food itself is acidic (food with low pH rating)? If so, there is probably no need for the bacteria to metabolise these acidic foods to form a plaque, which themselves could be dangerous for our teeth.

However, it is clear that whether con-

## Is sugar the cause of dental caries?

Since sugar is not acidic, it doesn't directly harm our teeth, cannot cause tooth decays on its own

**ABINASH VERMA**

Director general, Indian Sugar Mills Association. Views are personal

ducted by our teeth or converted by our mouth's bacteria, acids can potentially erode our teeth's enamel, causing cavities and tooth decay. Therefore, it is important to realise that the kind of foods we eat play an important role in affecting or protecting our teeth. Clearly, if the food is acidic or assists the 'bad' bacteria in metabolising it into acid, it is not good for our teeth. However, and quite importantly, the threat could be averted if such acid formed or caused to be formed is not allowed to form a plaque on our teeth. In other words, we can protect our teeth by: (a) reducing our intake of acidic foods and/or, (b) ensuring that the foods or acids are not allowed to

much time to reach plaque on our teeth. Let us address the first concern about intake of acidic foods. For that we should know which are these acidic foods, having very low pH value (a pH of 0 indicates a high level of acidity, and a pH of 7 is neutral, whereas a pH of 14 is most basic or alkaline). Highest on the list would be citrus fruits, lemons, pickles, grains, tomatoes, coffee, processed foods, high protein foods, sodas, fresh & processed meats, etc. It's surprising to see a lot of 'good' foods in the acidic list, but that's how it is. For example, lemon juice has a very low pH of 2-2.35 and tomatoes have a pH of 4.3-4.9, and so on. Unfortunately, some fruits like



blue pome (pH 2.8-3.4), grapes (pH 2.9-3.82), pomegranates (pH 2.93-3.2) and even apples and mangoes, having pH of below 4.8, are acidic.

On the other hand, pure water is neutral with pH of 7, whereas most vegetables have a pH of 6.5-7, and are almost neutral. Foods like yoghurt, milk, herbs & spices, beans & lentils, herbal teas, olive oil, nuts, mustard, millet, soybeans, etc, are alkalis or neutral. Unlike what people may perceive, sugar has a pH of around 7, and thus is not acidic, but is absolutely neutral.

Therefore, unlike popular belief and myth, sugar, in itself, cannot form a plaque on our teeth and eat the enamel. Can we

then say that sugar is not harmful to our teeth? For that, we need to look at the second aspect on whether the 'bad' bacteria needs only sugar to form acids/plaque. Is the evil minion for the bacteria only sugar, or are there other factors that help the 'bad' bacteria in forming the plaque?

To metabolise any food, the bacteria requires adequate time. Therefore, the faster a food is removed, the less chance it will have to feed the bacteria. It also, however, means that sticky foods, which don't get easily washed away, either naturally with saliva or with the water we drink, give more time to the bacteria to metabolise them into acid. Numerous studies con-

ducted by the New York University College of Dentistry, on the staying power of food and teeth, found that cooked starches, particularly potato starch in products such as potato chips, cling longer to the teeth than many sugar foods, like chocolate bars.

Other studies have found that tooth decay is related to the frequency of eating than to the amount of starch or sugar. Frequent snacking reintroduces food particles, enabling plaque buildup. One can eat any food, including sweets or starch, at reasonable gaps for them to be washed away, either naturally by saliva or through continuous intake of water, or even by brushing or flossing regularly. Despite what one believes or people write, no health study has conclusively demonstrated a link between tooth decay and soda drinks.

**Concluding, one can safely say that:** (a) Since sugar is not acidic, it does not directly harm our teeth and cannot cause tooth decays on its own;

(b) The 'bad' bacteria form acid/plaque by feeding on and metabolising several foods, and not only sugar;

(c) Sticky foods are dangerous and too much snacking, not giving time between meals for the saliva or water to wash away the acid or plaque, are more dangerous and stronger threats to tooth decay;

(d) Regular cleansing, including brushing and flossing, will check all teeth decay, and allow us to eat anything we want.