Opinion

WEDNESDAY, SEPTEMBER 4, 2019

FROM RUSSIA WITH LOVE

Prime minister of India, Narendra Modi

Our strong partnership is complemented by a desire to promote a multi-polar world and the two countries closely cooperate towards this end in regional and multilateral fora

RationalExpectations

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We need one retail policy, not two

Making a distinction between local and foreign players in the retail sector is bad policy, govt should drop it

EVEN AS THE government tries to convince itself that it has not made a U-turn in its e-commerce policy—after WalMart spent $16bn to buy Flipkart!—and tries to come up with a solution to the alleged 'deep discounting' by the likes of Amazon and WalMart, it needs to address a more fundamental issue, that of having different rules for Indian and foreign businesses within the same sector.

Right now, the fight is about whether Amazon or WalMart can do 'deep discounting'; local retailers are protesting against this on grounds that their businesses are being destroyed. But, under the current law, there is nothing to prevent a Future Retail or a Reliance Retail from doing this on marketplaces, should they set them up. Imagine the furore if the US were to put restrictions on an Infosys while not putting the same on a US firm. So, before finalising its e-commerce policy, the government needs to think about a uniform policy for Indians and foreigners. Indeed, while India does not allow FDI in multi-brand retail, Samara and Amazon operate the More retail chain!; and since Indian firms can have FDI at group levels, how will the government ensure this money doesn't flow down to the retail chain? Again, one policy for one group of investors and another for a different set.

Also, not wanting 'deep discounts' is one thing, but can the government tell us what an acceptable level of discounting is, and apply it uniformly? It cannot be that a, say, 60% discounting is unacceptable in retail outlets, but is all right in the food space; the furore over Swiggy and Zomato is about their discounting driving Indian restaurateurs into bankruptcy. Also, given how the restaurant business is being revolutionised with 'cloud kitchens', among other changes, what is the government policy on this going to be? A narrow focus on just levels of discounts is counter-productive.

Right now, it is illegal for an Amazon or a WalMart to do discounting on their marketplaces, but this is OK for a Future Retail or a Reliance Retail!

And, though *The Times of India* (ToI) priced its newspaper—or 'product', as the marketing gurus that ran the newspapers called it—at ₹1 several decades ago, is the government going to take action here? After all, thanks to ToI, the price of a newspaper has little relationship with the cost of delivering it? But, the government will be quick to reply, this is different; since newspapers earn their revenues from advertising, this is not predatory pricing or 'deep discounting'. But, what if Amazon or WalMart argue that their business model is really about increasing market-share, or that the 'data' they collect on consumers and their buying behaviour more than makes up for the discounts they give? Indeed, this permits cross-selling as well. That's how Google and others justify offering free services, like email or maps, or, in the case of YouTube, free videos. Surely, such services are playing havoc with local industry—WhatsApp, for instance, killed lucrative SMS revenues for telcos.

And, if the destruction of local industry is the touchstone for policy intervention, surely this has to apply to RJio and its hyper-competitive pricing—clearly below its costs—that hit already struggling telcos badly? If maximising consumer welfare justifies RJio's pricing—this is probably true of free email, WhatsApp, etc—surely consumers are benefiting enormously from the 'deep discounting' of a WalMart or an Amazon?

If the issue is about the 'free' capital that foreign retailers can access while local retailers cannot, surely this applies to other areas as well? A big Indian firm getting FDI at the group level is really the same thing, even if there are so-called 'structures' supposedly in place to ensure this doesn't flow to the retail subsidiary. And, if free taxpayers' money allows an Air India to price its tickets below those of other full-service airlines like Jet Airways, isn't this 'predatory pricing' based on free equity capital that others don't have access to?

You would think this is something that should concern competition authorities in the country, yet the Competition Commission of India (CCI) has never raised this issue when, year after year, Air India gets fresh government funds. Indeed, CCI hasn't intervened even as the government is planning a ₹80,000-odd crore bailout package for MTNL and BSNL that, very clearly, will affect the competition landscape.

Under normal circumstances, complaints of 'predatory pricing' and 'deep discounting' should be referred to CCI. Yet, most competition law the world over says that companies accused of 'predatory pricing' must have, among other factors, 'significant market power'; so, when RJio began its assault some years ago, CCI didn't intervene since RJio was a new entrant and had zero 'market power'. Going by that logic, CCI cannot interfere in WalMart/Amazon either as online's share in India's retail market is just around 1.5%. In which case, CCI's top-brass is probably contemplating whether the definition of 'significant market power' needs to be amended to also include, say, deep pockets.

Another issue for CCI to consider—and more so the government, before it finalises its e-commerce policy—is the larger issue of consumer and other welfare. One difficulty that competition authorities the world over have with digital giants like Google is that, with little chance of them jacking up prices—in this case, even beginning to charge for their services—there are few consumer groups complaining; but, anti-trust action is predicated on monopolists planning to hike prices once the competition is killed. So, the government needs to be clear about what it really wants. While the need to maximise consumer welfare is obvious, millions of farmers benefit from a complete supply chain, and lakhs of SMEs will benefit from the billions of dollars being invested by Amazon and WalMart in creating warehouses and supply chains. Does the government think the money they can make from just running 'marketplaces'—as opposed to trying to become bigger players in India's retail space—is enough to warrant such large investments? Once you ask the right questions, and have clarity in vision, the policy details are easy to flesh out.

SaltyRESPONSE

UP acting against the journalist who did the Mirzapur-school mid-day meal expose hurts governance and press freedom

THE SHAME THAT children in a government school in Mirzapur, Uttar Pradesh, being routinely denied their due by being served critically nutrient-deficient "meals"—if one can call them that—of roti and salt, instead of the regular meal plan under the mid-day meal scheme, should have stung the state government into taking immediate corrective measures. Instead, it chose to file a trumped-up case against the journalist who first highlighted the gross negligence of governance. Even though the UP chief minister ordered a probe into the matter, and two teachers, in charge of the implementation of the mid-day meal scheme, have been suspended, the whistleblower journalist, Pawan Jaiswal, has been booked for criminal conspiracy, cheating and defaming the state government. Not only does this make the state government seem vindictive and suppressive of criticism but also sets a precedent of harassment for whistle-blowing.

But, the fact is UP is no outlier. For all the flaws in the world press freedom rankings, India's position in the index has not changed significantly over the last six years, rising from 140 in 2013 to 133 in 2016, only to fall back to its current 140. While fake/biased news has seriously damaged the credibility of journalism in India, with public interest journalism, like Jaiswal's, under attack from those in power, India runs the risk of being perceived as much worse in terms of press freedom than it actually is. The Editors Guild of India has condemned the action against Jaiswal, but unless the public forces those in power to rein in their tendency to suppress criticism, cases like this could become all too common.

MINTING GAINS

PRACTICALLY SPEAKING, THE DEBATE OVER TRANSFERS FROM RBI's RESERVES TO THE CENTRE IS A NON-ISSUE

Making money while creating it

MADAN SABNAVIS
Chief economist, CARE Ratings
Views are personal

CENTRAL BANKING IS probably one of the more profitable businesses. The combined Federal Reserve income and expenditure statement shows a net profit margin (surplus before transfer to treasury to total income) of 55% in 2018. In the case of the Bank of England, the banking department had a margin of 16.4% in FY18, while for the issue department it was 54.3%. In 2018, the ECB had a margin of 58.6%, which is in line with the Fed. In case of RBI, for FY19, it has been a very impressive 91%, which wouldn't change much even if the special provision of ₹526 billion is excluded.

Central banking is quite a singular business because the organisation has to exist to ensure that currency is in the system, besides conducting other conventional functions like monetary policy, exchange rate management and public debt management. In a way, there are no 'real' financial statements like the ones for a commercial entity, where a sale is associated with cost of production or an asset, like a loan associated with a deposit that is created. For a central bank, money is created by the proverbial stroke of the pen, and the rest of the activities are managed accordingly in a seamless manner. At the end of the day, there is a surplus on account of these transactions, and the resulting amount is transferred to the government. But, how does this money get generated?

RBI earned ₹583 billion as interest in FY19 on holding of government securities. The stock of government securities held was around ₹9.9 lakh crore, and had increased by ₹3.6 lakh crore on a point to point basis during the year. These securities yield an interest payment to the holder, which is RBI. Interestingly, RBI had conducted a marathon size of OMOs of ₹3 lakh crore last year to ensure that liquidity was available to the system. Add to this the LAF, which supported the virtual continuous deficit to the extent of 1% of NDTL of the banking system in the region of ₹1-1.5 lakh crore. By buying such securities, the central bank earned interest paid by the government. At even, say, 7% interest rate, the earnings are substantial.

If one follows the trail of these perennial liquidity scarcity episodes, the path is quite fascinating. The government has to borrow to meet its fiscal commitments, and last year, had a gross borrowing programme of ₹5.71 lakh crore. These are subscribed mostly by banks, which then ran into a problem of liquidity as growth in deposits was tardy. RBI stepped in and provided liquidity on a daily basis through the LAF window, and on a permanent basis through the OMOs. With the latter supporting 53% of the gross borrowing programme, the deficit was monetised adequately. The government pays interest on these bonds, which adds to the central bank's profits, and is finally paid back to it as a transfer which supports the fiscal numbers. This 'circle of money' is the curious aspect of central banking, where there is a very impactful relationship between monetary policy and the Budget. Ironically, if the bonds are subscribed to by banks and there is no liquidity issue, RBI does not come into the picture, and the interest accrues to them instead of flowing back to the government.

This is not specific to RBI, but to all central banks. In case of quantitative easing, the Fed or ECB bought paper from banks and, hence, received income which would have otherwise gone to the original holders. Such paper was monetised by providing liquidity to the banks and, hence, was a win-win situation, where the system got funding while the central bank earned revenue. The cost was the liquidity, which is reserve money created by central banks constantly and, hence, does not matter unless it leads to inflation. When economic conditions are depressed, as is the case in India, this possibility does not arise and, hence, the impact is neutral.

There is another ₹290 billion which comes as forex gains for RBI. Here, too, the central bank has an inherent advantage when there are problems in the currency market. The central bank intervenes in the forex market when there is excess volatility and the rupee depreciates sharply. All the forex reserves reside with the central banks, and can be used during such contingencies. Intervention is by selling dollars in the market to enhance supplies and bring about equilibrium. Other 'speaking' operations are pursued by RBI to curb speculative activity in the market.

A situation of forex crisis bodes well for central bank revenues and, ultimately, for the government, which also gains when the surpluses are transferred

In FY19, RBI sold $15.4 billion in the market, which resulted in a capital gain. Intuitively, the rupee tends to depreciate over time, and as the sale takes place when the value is declining further, any sale will give a profit to RBI. Therefore, once again, a situation of forex crisis bodes well for central bank revenues and, ultimately, for the government, which also gains when the surpluses are transferred.

This is over and above the interest it earns by investing the forex reserved in securities outside the country. The earnings were ₹458 billion on holdings of ₹27,852 billion of forex assets in securities or deposits. In fact, when RBI bought dollars from banks to provide liquidity, it automatically added to its reserves. Here, too, the trail is predictable. As our balance of payments improves and dollars accrue to the system, they move to the central bank which monetises the same through the power given to it. Now, these reserves are invested in overseas assets and earn an income.

The major bonus was ₹526 billion, which comes under write-back of provisions no longer required. The committee that worked out the complicated route to using RBI's excess reserves came up with an ideal formula, based on prudent global practices. While the well-executed formula talks of basic tenets to be adhered to, the broader question, which is posed in some quarters, is whether or not there can ever be a risk to a central bank, which has unlimited access to 'reserve money' and runs what can be called, at the limit, a notional balance sheet?

This point may be pertinent; while depletion of forex reserves can drive a central bank down, the same never can happen for domestic currency, which can be issued, at will, by the central bank. A fair question is what exactly a contingency reserve is meant for, especially as the balance sheet has real assets—securities, bank deposits, forex—which are mapped notionally to liabilities, where even the 'real component' of currency actually has no limits for a central bank.

The argument is similar to whether a government can ever default on its domestic loans for want of money. Does this then mean that, practically speaking, this debate over transfer of reserves is a non-issue?

China's most indebted firm too big to fail

There might be a method to the madness of Evergrande's wild spending; its newest diversification into e-vehicles potentially helps lower real-estate costs

NISHA GOPALAN
Bloomberg

THERE IS A lot working against China's most indebted property firm. China Evergrande Group is sitting on $113.7 billion in debt and its core profit fell 45% in the first half of the year. Real-estate growth is slowing, with banks under orders to curb home loans. President Xi Jinping's refrain that houses are for living in, not speculation, has been cropping up more frequently.

Time to rein things in, right? Not Evergrande. The company, whose portfolio already includes theme parks and a football club, now wants to become the world's biggest electric-vehicle maker in the next three to five years. It's burning through precious cash—160 billion yuan ($22 billion)—to build factories in Guangzhou.

Investors are voting on this folly with their feet. The company's shares have fallen 30% this year, making Evergrande the worst performer among Hong Kong-listed Chinese developers. The property firm's borrowing costs are among the highest in the offshore dollar market and its bonds are tumbling.

For anyone gawking at Evergrande's improbably ballooning debt load, just waiting for the doomsday clock to strike midnight, there is a valuable lesson: This firm is too big to fail. Evergrande is one of China's biggest developers—with projects in 226 cities—and its billionaire founder, Hui Ka Yan, is the country's third-richest man. With property accounting for about a quarter of China's gross domestic product, any instability in the sector has proven too much for Beijing to stomach. Time and again, the government has reluctantly reopened the credit spigots to boost a flagging real-estate market. Just look at 2008, 2011 and 2014.

Crucially, Evergrande has China's largest land reserve, with 276 million square metres (905 million square feet) of gross floor area, according to Citigroup Inc. While the developer has a lot of exposure to China's smaller cities, where growth is slowing rapidly, it also dominates redevelopment in big, rich cities such as Shenzhen, where profit margins are robust.

Land is scarce in Shenzhen, and urban renewal—demolishing old, low-density buildings to make way for high-rise apartments—is widely seen as the answer to the city's growing population. These projects also give Evergrande access to cheap lots, which helps keep its land costs among the lowest of its peers, according to Toni Ho, an analyst at RHB Securities. If the protests in Hong Kong accelerate China's plans to make Shenzhen the the next "global cosmopolis," according to state-run Xinhua News Agency, Evergrande could be in a plum position.

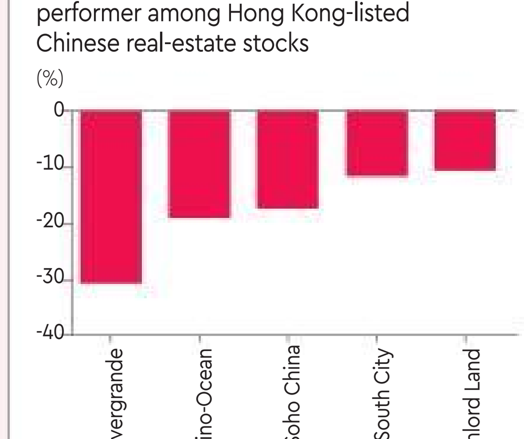
The company's diversification into electric cars is sure to bleed money for years, and competition is getting stiffer. During his visit to China last week, Elon Musk managed to score a tax break for Tesla Inc. But carrying out one of Xi's signature projects has its perks: For example, clean-car manufacturers can get land much more cheaply from local governments than real-estate developers. That helps explain why a host of firms including Country Garden Holdings Co. and Agile Group Holdings Ltd. are jumping in.

Being in Beijing's favor and securing low-cost inputs is no bad thing for a cash-strapped developer like Evergrande. Maybe there's a method to the madness of its wild spending.

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

Property downturn

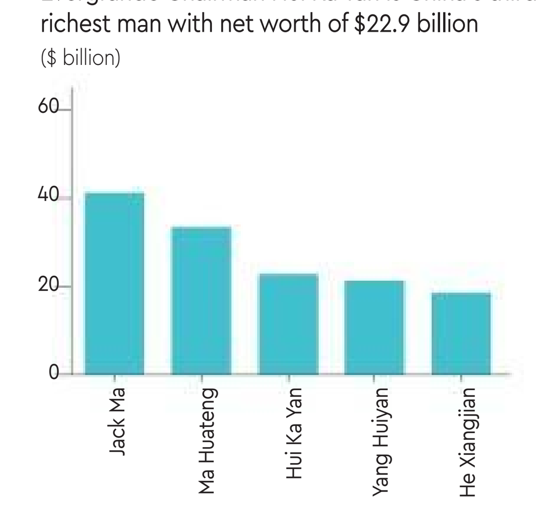
Evergrande shares have fallen by almost a third this year, making it the worst performer among Hong Kong-listed Chinese real-estate stocks



Source: Bloomberg Intelligence

Money, money, money

Evergrande Chairman Hui Ka Yan is China's third richest man with net worth of $22.9 billion



Source: Bloomberg Billionaires Index

LETTERS TO THE EDITOR

State of the economy

The Modi government's claim that the economic growth is robust is belied by the fall in GDP growth. The government has to come out of the denial mode and acknowledge the mess the economy is in to revive it. Prime minister Narendra Modi's wish to make India a $5 trillion economy appears to be a distant hope. The present rate of growth falls far short of what is needed. The deceleration in growth invalidates Modi's 'Harvard-versus-hard work' jibe. Still, there is no depletion of the political capital invested in Modi because of the continuing appeal Hindutva among the masses. Economic issues of vital importance are conveniently buried in the manufactured issues linked to 'nationalist sentiment'. Former PM Manmohan Singh's attribution of the slump in the economy to Modi government's 'all-round mismanagement' holds good for BJP to counter easily. When core sectors like manufacturing, agriculture, real estate, construction and services have taken such a strong hit and consumption and investment are almost at an all-time low; an economic revival needs more than mere token measures. The quick-fix measures unveiled by the government do not suffice to undo the damage caused by demonetisation and hastily-implemented GST. BJP rode to power on the promise of creating jobs; but the Modi government has failed to create jobs and prevent the loss of existing jobs. There is dearth of talent in the government to run the economy; the failure to make use of the continued services of the country's best economists now costs the economy dear.

— G David Milton, Maruthancode

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Internet companies likely to sail into an unsafe harbour

When the government is relying on the intermediaries for development, economic growth, innovation and social transformation, the new Rules, for what they are, suggest that the government's stated goals are at odds with its policies

WHILE THE INTERNET ecosystem has been extremely busy with an acrimonious jostling between "data rationalists" and "data emotionalists" for the last two years, both sides have missed the elephant in the room—i.e. the draft amendments to the Rules governing safe harbour provisions enshrined in Article 79 of the Information Technology Act, 2000. Since the formation of the new government at the Centre, as per the recent media coverage, there seems to be some positive news for data rationalists: the issue of data seems to have been detached from the e-commerce policy for the time being, and there appears to be serious rethinking of some of the more restrictive provisions of the draft privacy and data protection Bill.

The engagement over data between the stakeholders is going to be protracted, but the draft revised Rules are a clear and present danger. It is well known that since the amendment of the IT Act in 2008 and the notification of the Rules in 2011, the consumer internet businesses have thrived, inviting much foreign direct investment (FDI) and even more foreign investments in Indian start-ups by global investors and companies alike.

Consequently, the Indian digital start-up system is booming—young founders, it has been seen, are aiming for nothing less than unicorns (usually a privately-held start-up company valued at over $1 billion). The primary reason for this is that in the form of a secured and safe harbour, the Rules have so long provided a very clear framework of how intermediaries should be treated in the world's largest free-market open economy.

All that is set to change now, with the possible notification of the new Rules that make the safe harbour very unsafe for any internet company to sail into, and how?

The current provisions of the intermediary guidelines state that an internet intermediary is granted safe harbour on three conditions:

1. The service provider merely provides access to communication systems over which information made available by the third parties is transmitted or temporarily stored;
2. The service provider does not initiate the transmission, or in any way selects the receiver or modifies the content; and
3. The intermediaries follow due diligence while discharging their duties.

By a Supreme Court ruling in 2014, knowledge was redefined to be actual knowledge and the process was determined to be notice and take down.

Under the new draft Rules, inter alia, the following provisions have been added:

Section 3(5): "The intermediary shall enable tracing out of such originator of information on its platform."

Section 7: "The intermediary who has more than 50 lakh users in India ... shall: (i) be a company incorporated under the Companies Act, 1956, or the Companies Act, 2013; (ii) have a permanent registered office in India with a physical address; and (iii) appoint in India a nodal person of contact and alternate senior designated functionary, for 24x7 coordination with law-enforcement agencies..."

Finally, Section 9: "The intermediary shall deploy technology-based automated tools or appropriate mechanisms, and with appropriate controls, for proactively identifying and removing or disabling public access to unlawful information or content."

Here are the specific problems with the draft changes.

Section 3(5), the most powerful platform for P2P networking does not need to collect "track back" information for its business needs. Why empower it to collect from India? Most of the companies that provide "digital" services to Indian companies—both online and offline—do not need to have permanent offices and establishments in India as would now be required under the new Section 7. Why deprive Indian companies from their services? Finally, why allow proactive monitoring of content of Indian citizens under the garb of law-enforcement requirements under Section 9?

Furthermore, in addition to the unacceptable fact that the tail, i.e. the Rules, cannot wag the dog, i.e. the parent Act, it appears that the Rules are meant to throw the baby out with the bathwater. A problem that is perceived to be created by not more than four companies (the problem probably being sharing data with law-enforcement agencies without going into the long-drawn MLATS, or the mutual legal assistance treaties, process) is sought to be solved by making new Rules that affect literally hundreds of companies, most of which are founded and managed by Indians and readily share data with law-enforcement agencies even if the data is located outside India!

> Section 3(5), the most powerful platform for P2P networking, does not need to collect "track back" information for its business needs. Why empower it to collect from India?

Here are a few recommendations as a compromise:

1. Do not empower the intermediaries vis-a-vis the citizens more than they are under section 3(5);
2. To determine the impact of an intermediary, 50 lakh users is paltry, probably 10% of internet users is appropriate, i.e. 50 million (5 crore) average annual users;
3. One permanent representative in the form of a nodal officer should suffice, instead of the entire "permanent establishment"; and
4. Do not give any intermediary the power to monitor user content proactively even in the name of "automated tools".

At a time when the ground situation is such that every intermediary in India has to fight with either a state government or individual ministries to ensure, extend and secure the safe harbour provisions, the intermediaries are faced with the safe harbour becoming very unsafe for them! Also, at a time when some intermediaries are perceived to have control over users and even governments, please do not empower them more legally and, finally, when the government is relying on the intermediaries for development, economic growth, innovation and social transformation, the new Rules for what they are suggest that the government's stated goals are at odds with its policies.

The long and winding career

People are working longer for reasons of choice and necessity

ACROSS THE DEVELOPED world, the workforce now comes in fifty shades of grey. Since 2008 the average labour-force participation rate of 55- to 64-year-olds in OECD countries has risen by eight percentage points. Depending on your point of view, that trend can be spun as ruthless capitalism requiring workers to spend more years down the salt mines or as a sign that society that is finally recognising the value of its older employees.

A new OECD report, "Working Better with Age", points out that the employment of older workers is vital, if prosperity is to be maintained. The median age of citizens in the OECD is set to rise from 40 now to 45 in the mid-2050s; on current trends, by 2050 there will be 58 retired people for every 100 workers, up from 41 today.

Many people will be more than happy to work longer. A recent survey of 1,000 British retired people found that a quarter thought they had stopped too early (on average they had quit at 62). A third said that they had lost their purpose in life after they retired.

Bartleby has reached an age at which many of his contemporaries have stopped working. The appeal is understandable. Retirement gives you the chance to sleep late and avoid the morning commute. On a summer's day, you can enjoy the sunshine; on a winter's day, you can avoid the cold and rain. No longer do you have to sit through endless meetings or check email obsessively.

But work has many compensations. It keeps the mind active and gives people a purpose in life. The first month of retirement may seem idyllic, but boredom is bound to ensue. Grand plans to learn languages and travel the world can quickly fizzle out. Furthermore, the camaraderie of colleagues provides a social network; spending all week at home can lead to loneliness. It will be a while before Bartleby retires to his seaside cottage, "Dunwritin".

Working longer should be easier now that most jobs require mental, rather than manual, labour. But the physical strain of being a fireman, miner or construction worker makes it harder to keep working in your 60s.

Of course, many people are working longer not because they enjoy what they do, but because they cannot afford to quit. That is not solely because governments have been pushing up the state retirement age. In practice, the average age at which people actually retire (the "effective" retirement age) differs from the official age by several years. In part, that is because many people do not rely on the state pension as their sole source of income and need work-related pensions to supplement it. These can be taken earlier than the official date.

> Statistics indicate that age discrimination in the workforce has been reduced, if not entirely eliminated. Some countries now have laws prohibiting discrimination

However, companies have been phasing out pensions linked to final salaries and replacing them with "defined contribution" schemes. Under the latter, workers end up with a pot of savings at retirement that needs to be reinvested. The income from such pots has been reduced by very low interest rates. Women tend to have smaller retirement pots (thanks to their years spent raising children), making their difficulties particularly acute. They need to keep working.

That helps to explain the long-term trends. The effective male retirement age across the OECD was 68.4 in the late 1960s and then steadily fell to reach a low of 62.7 in the early 2000s. At that point it started to increase, reaching 65.3 by 2017. For women, the pattern has been similar. The effective retirement age fell from 66.5 in the late 1960s to 60.9 in 2000, and then rebounded to 63.7 by 2017.

These statistics indicate that age discrimination in the workforce has been reduced, if not entirely eliminated. Some countries now have laws prohibiting discrimination on the grounds of age, although surveys suggest older workers still feel disadvantaged, particularly when it comes to promotion.

Two issues seem to hold employers back. The first is that older workers tend to command higher salaries, because of the seniority system. The OECD suggests that the premium for long tenure should be reduced. The second is a skills deficit; one in three 55- to 65-year-olds in OECD countries either lack computer experience or cannot pass technology tests.

This can be tackled with proper training, organised by the government or by companies themselves. But the over-55s should take it upon themselves to keep up with technological changes. Become a silver surfer. Your livelihood may depend on it.

THE ECONOMIST

BLOCKCHAIN IN EDUCATION

A digital ledger of certificates

Like finance and logistics, blockchain can make an important impact on education

SRINIVAS KAMADI
The author is vice-president and services offering head, Infosys

WIDESPREAD DIGITAL TRANSFORMATION has changed the way organisations function across industries, with research being conducted into methods to integrate contemporary technology into traditional sectors. Some of the most influential technologies that have emerged have centred on artificial intelligence (AI), machine learning (ML) and automation. Blockchain is now a worthy contender to these technologies, possessing the potential to revolutionise multiple sectors. While its effects have already been discussed in major areas such as finance, cybersecurity and logistics, an area that is of equal importance is the effect blockchain can have on the education space.

As talent acquisition becomes an important concern across industries, universities are tasked with providing their students the best possible chance to secure employment opportunities. Within this framework, a compilation of the capabilities students possess is of essence, creating a direct link between the universities and their potential employers. The process of recording these capabilities, however, suffers from two major problems.

Firstly, these records do not contain a holistic view of the knowledge the student possesses as the only aspects being evaluated are purely academic, leaving no scope for extracurricular activities that the student may undertake voluntarily. The same is true of working professionals, where the only records present are of the professional targets achieved, ignoring after-work knowledge that the employee may acquire during his/her term of employment. The second problem is that the information that is recorded is mostly in the form of physical assets, such as paper documents, which can be easily misplaced. An additional problematic aspect of this reliance on physical records is that the information tends to exist in scattered silos, leaving no possibility of integrating the information in any other manner but manually.

Information security is the most contemporary issue that is plaguing the education space. Most countries suffer from the menace of fake certificates that are readily available—as cheap as Rs 2,000—and are used by candidates to enhance their prospects of employment. As a result, organisations are faced with a simultaneous talent crunch and excess of applicants as they are now required to spend a large amount of time and money to verify all certificates and transcripts submitted. Digitisation has aided in this process by the movement of all physical records to digital platforms. This, however, raises the prospect of the loss of all digital records due to cyber threats such as hackers and digital thieves. Such a situation can have repercussions beyond merely the academic domain, with a lack of verifiable certificates leading to inefficient governance and a weak healthcare system due to the cross-linking of user data in the current world.

Blockchain to the rescue: It is into this troubled space that blockchain arrives and has begun to create viable solutions. The digitisation of records represents the first space where the influence of this technology can be felt. Although most universities and organisations have moved from physical to digital transcripts and records, these are still stored in on-site databases. Blockchain allows for the creation of a central server on the cloud where multiple universities and organisations can store records, creating a database that is easily accessible, no matter the geographical location. Within this centralised server, individual profiles can be created for every student and employee who tags their records and renders them unique, thereby combatting the problem of fake certification. An added advantage of these profiles is they remain dynamic and are agnostic to categorisations such as academic and extracurricular, allowing for every profile to be updated in real-time when the individual gains additional capabilities. Such a situation implies that organisations can verify an individual's credentials more easily and will save on both financial and temporal costs.

From a security perspective, the hub model of information reduces the points of entry for cyber threats while securing the limited ports that exist with elements such as data encryption and two-factor authentication. By securing data in transit, blockchain allows for greater data transparency without the fear of incursions. The creation of digital ledgers also makes tracing the path of information much easier in cases when theft and falsification do occur.

Clearly, blockchain has the potential to transform education. There are, however, certain roadblocks that must be overcome. Cultural indifference and education towards digital records is the first challenge, as geographies persist in their preservative attitudes towards paper records. Also, data registration is a slow process and some countries still do not possess adequate infrastructure to regulate such a system. These challenges can be overcome, as showcased by the work being done by universities and organisations in the US such as the MIT. The Indian government, too, has put into place plans for the creation of an indigenous blockchain network. Given this scenario, blockchain is set to change the way the education space functions and help ensure that fraud and information security will cease to be menacing issues.