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Highlights

Gig Economy | Financial Stability | Efficiency in Auto Sector | Opinion on Budget

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Macroeconomic Policies and Financial Stability in India

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Abstract

India has not witnessed any episode of extreme financial instability since the 1991 Balance of Payments (BoP) crisis, largely because of its insulated banking system with 90 per cent of bank liabilities being funded from retail depositors, sound macro-economic policies and cautious liberalisation, although spells of volatility have been observed in Indian financial markets following 2008 global financial crisis and 2013 taper tantrum. Periods of volatility have transformed the way fiscal and monetary policies work. Over the years, fiscal deficit reduction has freed up resources for the banking sector as the regulatory requirements have been progressively brought down. Fiscal policy has turned accommodative during periods of financial volatility and more recently the banking sector has been provided with capital as its provisioning requirements have increased after declaration of NPAs. In case of monetary policy, India formally adopted inflation targeting with price stability as the primary objective in 2016, after witnessing periods of high inflation. However, following the significant global volatility in recent times and the collapse of an NBFC behemoth in September 2019, the Indian central bank is now increasingly focused on maintaining financial stability. One such evidence was implicit when the Reserve Bank of India (RBI) refrained from raising interest rates in October 2018 policy to defend the Rupee against an overwhelming market consensus. In fact, RBI explicitly emphasized that the central bank was largely tolerant with the domestic exchange rate finding its market determined level and was concerned only to the extent that exchange rate depreciation feeds into headline inflation. The recent decline in growth numbers has further reinforced this consideration. In this article, we have focused on the banking sector and more recently NBFC sector, while outlining the recent policy changes which have been introduced to support the objective of financial stability.

Financial Stability: An Introduction

Financial stability has become extremely important in the present scenario with economic and financial systems witnessing extreme volatility over the years and outlier events have become the new normal. Financial

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stability is characterized by absence of any major financial crisis. It is a situation when a country, its institutions and markets continue to function smoothly (Rangarajan, 2006). Financial stability is achieved when there are no bank runs, institutional panics or collapses and the economy runs with acceptable levels of macroeconomic indicators including inflation, fiscal deficit and current account deficit among others.

There can be numerous causes of financial instability. There are particularly two schools of thoughts for explaining the source of financial instability. One is the cyclical school of thought (Kindleberger, 1978) according to which cyclicality of events causes episodes of financial crisis and instability. Here the asset price continues to build up until some one-off event changes the market perception, in turn causing the downward spiral in prices and an ultimate market crash. The other is the monetarist school of thought (Friedman and Schwartz, 1963) which believes only disruption in money supply can cause financial instability. Any disturbance which is not accompanied by a significant decline in quantity of money is termed as 'pseudo-financial' crisis by Schwartz (1986), Jadhav (2006). However, these theoretical premises on their own do not completely explain the realities of the financial instability episodes witnessed in past decades. It is driven by a combination of the macro policies pursued and the market sentiments.

An event which can lead to financial instability can be domestic or external. The external causes could be sudden change in oil price, speculative attack on currency, increased cross border capital flows owing to rapid changes in market perceptions, global monetary easing and subsequent tightening etc. On the domestic front, low domestic interest rate, excessively loose credit policy which can enhance leverage ratios, moral hazard problems and over spending by the Government could be potential causes of financial instability.

The 1990s was the time when the importance of financial stability came to the forefront with several economies including Finland, Sweden, Japan and some emerging economies witnessing economic and financial crisis. Global crisis of 2008 has led to increased focus on financial stability by both advanced and emerging market economies. While some (Bordo and Landon-Lane, 2010) have blamed the loose monetary policy for build-up of 2008 financial crisis, others believed asymmetric private information in the Market Backed Securities (MBS) market led to deepening of crisis. Geanakoplos (2010) concluded high leverage in stable periods makes the economy more vulnerable to the drop in leverage associated with periods of instability (Bauducco, Christiano & Raddatz, 2014).

Though the debate on the causes of 2008 crisis still continues, it was felt that a robust policy framework is an essential prerequisite for maintaining financial stability. Countries have started re-looking at their macro-policies while keeping in mind the overall financial stability objective.

In this article, we aim to analyse how the fiscal and monetary policies pursued in India have shaped and supported the country's financial stability. Although India has not witnessed any episode of extreme financial instability since the 1991 BoP crisis, there have been episodes of volatility and we trace how fiscal and monetary policies have aimed to provide stability to the system. We have focused on the Indian Banking sector, as banks, especially public sector banks are the major intermediaries in the Indian financial system.

The rest of the article is organized as follows. Section II describes the institutional details of the Indian financial system. Section III traces India's fiscal policy path and how banking sector has been impacted due to it. Section IV analyzes the characteristics of India's monetary policy and how RBI's steps have influenced the banking sector. Section V analyzes the most recent period of volatility experienced by the Indian financial system on account of the NBFC sector stress. Section VI concludes.

Financial System Architecture in India

The Indian financial sector comprises of commercial banks, insurance companies, non-banking financial companies, housing finance companies, co-operatives, pension funds, mutual funds and other smaller financial entities. RBI regulates banking sector, non-banking financial companies (NBFCs), as also the money, forex and government securities markets that are dominated by banks. There are separate regulators for capital markets, insurance sector and pension funds. The various players constituting financial system are inter-dependent. The total outstanding bilateral exposures among the entities in the financial system increased from ₹31.4 trillion in March 2018 to ₹36.3 trillion in March 2019.[1]

In India around 55 per cent of the total resource flow to commercial sector happened through the banking industry in FY19, making banks the major intermediaries between savers and borrowers. The commercial banking landscape is dominated by public sector banks. However, private sector is also catching up rapidly. The share of Public sector banks in advances was 61.1 per cent vis-à-vis 31.2 per cent of Private sector banks, as on March 31, 2019. The rest are occupied by Foreign Banks (4.1 per cent), Regional Rural Banks (2.8 per cent) and Small Finance Banks (0.6 per cent). As per RBI's Financial Stability Report, the network structure of the financial system indicates that SCBs were the dominant players accounting for 46.2 per cent of the total bilateral exposures as on March 2019.

Scheduled Commercial Bank Credit to GDP in India increased from 22 per cent in FY2000 to 53 per cent in FY14 and declined since then to reach 51.4 per cent in FY19. Thus credit to

[1] RBI's Financial Stability Report, June 2019

GDP has also not reached any alarming rate indicating absence of any bubble like situation.

Evolution of Fiscal Policy and Its Impact on Banking Sector

India used to run a high fiscal deficit in the 90s (Average: 5.78 per cent of GDP). Higher fiscal deficit impacts the economy through higher inflation and increased market borrowings which can crowd out private investment. However, after the passing of the Fiscal Responsibility and Budget Management Act, (FRBM Act, 2003), a conscious effort was made to rein in the fiscal deficit of the Centre and the States. FRBM Act aimed to institutionalize financial discipline, reduce India's fiscal deficit, improve macroeconomic management and the overall management of the public funds by moving towards a balanced budget and fiscal prudence. Various tax reforms were undertaken to increase the tax base through moderation in direct tax and corporate tax. According to FRBM Act fiscal deficit was to be reduced to 3 per cent by 2007-08. India was moving towards a lower fiscal deficit after the passing of the Act and during the high growth phase of 2003-04 to 2007-08 there was fiscal consolidation driven by revenue buoyancy. However, the election related populist spending by the Central Government in 2008-09, with substantial increase in wages and subsidies along with the fiscal stimulus in the form of reduction in taxes and duties, had a negative impact on India's fiscal condition. Also the international financial crisis prompted the Government to deviate from the fiscal consolidation process embodied in the FRBM Act and provide fiscal stimulus to support growth.

Since then the move towards lowering the Centre's fiscal deficit has been gradual. In 2017, the FRBM Committee submitted its report and the Government accepted the key recommendations in 2018 to bring down Central Government's Debt to GDP ratio to 40 per cent. Government also accepted the recommendation to use fiscal deficit target as the key operational parameter. The objective is to go towards fiscal deficit of 3 per cent of GDP. However, some leeway has been given to deviate from the fiscal deficit in case of economic uncertainties with a slippage of upto 0.5 per cent being allowed over pre-defined targets.

Fiscal deficit and debt levels have always been raised as pain points by the rating agencies and India's sovereign rating has been assigned the lowest grade, despite India not once defaulting on its debt. However, despite a higher consolidated fiscal deficit, India is relatively insulated from the vagaries of international financial markets as India's fiscal deficit is largely funded through domestic borrowings and India's sovereign foreign currency debt to GDP ratio is at 3.8 per cent as of June 28, 2019.

In India, banks are required to maintain Statutory Liquidity Ratio (SLR) in proportion to their Net Demand and Time

Liabilities (NDTL). In the '90s when the fiscal deficit used to be high, the SLR also was at very high levels (maximum: 38.5 per cent in 1992) and banks were touted as the captive investor base for government securities. It was only in 1997 that the SLR was brought down to 25 per cent. Although government securities are highly secure and imparted a level of safety to banks, the resources of banks stayed tied. The reduction in SLR freed up banks' resources, which helped banks in increasing their advances. Besides the SLR requirements, it may be noted that Indian banks have pre-emptive regulations that are higher than most other countries in the world (see Table 1). These also affect the banks' business. Any change in the government's borrowing programme due to increased fiscal deficit can impact bond yields. This can impact the trading book of banks which hold government securities in the form of SLR requirements, for which they have to make provisioning. This, in turn, impacts their capital and stability. In 2016, after demonetisation, the banks were holding ample liquidity as banking credit was growing slowly so they invested it in government securities. In 2018, the government yields shot up, thereby increasing the provisioning stress on banks' portfolio. Thus, with a view to addressing the systemic impact of sharp increase in the yields on government securities in India, RBI granted banks the option to spread provisioning for Mark To Market (MTM) losses on

Table 1: Pre-emptive Regulation in India and Abroad

Country	CRR (in %)	SLR (in %)	Priority Sector Lending (%)
BRICS			
Brazil	Multilayered structure:Basic 31% on time deposits	0	Agriculture & Housing
Russia	4.75	0	Not well defined
India	4	18.75	40% of lending portfolio (18% for Agriculture, 10% for weaker sections & MSME based on investment in plant & machinery)
China	10.5	0	None
South Africa	2.5	0	None
ASEAN			
Indonesia	6	0	20% of lending portfolio to SME only
Thailand	1	0	20% of deposits (Agriculture:14%, SME:6%)
Malaysia	3	0	Interest rates capped at 200 bps above base lending rate for SME
Philippines	16	0	8% of lending portfolio to SME only

Source: SBI Research

investments held in Available For Sale (AFS) and Held For Trading (HFT) for the quarters ended December 31, 2017 and March 31, 2018. This provided some stability to the banks. Given the situation, RBI also directed the banks to build an Investment Fluctuation Reserve.

Notwithstanding the events that have impacted the banks adversely, India has not witnessed any collapse of the banking system in the past decades. While large public sector ownership has been seen as positive in preventing bank runs in the past, it has also raised questions about moral hazard and crony capitalism. Publicly held institutions can also be directed to fulfil the developmental needs. There have been instances of farm loan waiver announcements, which have a detrimental impact on the credit culture. This can also generate instability in banks' finances. In the Indian context banks lent heavily to the infrastructure sector, supporting the economy's needs for infrastructure investment. With deterioration in asset quality of infrastructure projects post 2013 the banks' balance sheets suffered.

In particular, during 2000-14 there was massive credit flow to infrastructure sector. Banking credit to infrastructure sector grew from ₹72.43 billion in 2000 to ₹8363.56 billion as on March 30, 2014, displaying CAGR of 40.4 per cent. If we look at the total non-food credit during this period it grew at CAGR of 21.2 per cent, less than the infrastructure sector. Thus, it is clearly visible that there was a push specifically given to infrastructure sector. Within the infrastructure sector, the power sector advances grew from ₹32.89 billion in 2000 to ₹4869.02 billion as on March 30, 2014, displaying CAGR of 42.9 per cent. The telecommunication advances grew from ₹19.92 billion in 2000 to ₹882.04 billion as on March 30, 2014 (CAGR of 31.1 per cent). Roads and Ports sector advances grew from ₹19.62 billion in 2000 to ₹1578.6 billion as on March 30, 2014, (CAGR of 36.8 per cent). Push to higher credit disbursement during this period is one of the reasons for the current banking sector woes of deteriorating asset quality. As the asset quality of infrastructure projects deteriorated, the credit growth has cooled down significantly (Refer toTable 2). In 2015-19 periods the CAGR for infrastructure sector credit slowed to a mere 3 per cent. The NPA ratio of infrastructure sector has forced banks to make provisioning requirements, thus impacting their profitability.

Table 2: Credit Growth (CAGR, per cent)

	2000-04	2005-09	2010-14	2015-19
Infrastructure	63	39	22	3
Power	79	30	27	1
Telecommunications	43	40	10	6
Roads and Ports	47	29	21	3

Source: RBI

In the Indian context, as a majority of banks are public sector organizations, Government has taken steps to shore up their capital in the wake of higher NPAs.

The amount infused in PSBs by the Government is ₹3.1 lakh crore from FY15 till November 2019. This has provided stability to the banks. Furthermore, the introduction of Insolvency and Bankruptcy Code, 2016 is a major step in helping the banks to deal with their stressed assets.

Evolution of Monetary Policy and Its Impact on Banking Sector

Reserve Bank of India has been formulating the monetary policy and regulating the credit and currency system of India since its inception. However, as India had significant development needs at that time, monetary policy was heavily influenced by the Government policy. Development considerations are still present as is evident by setting up of the priority sector norms by RBI and regulation of special institutes catering to the development of agriculture and small industries (NABARD, SIDBI among others). However, the practice of automatic monetisation of fiscal deficit through creation of ad hoc treasury bills was abolished in 1997, thereby completely separating monetary policy from the fiscal policy (Mohan & Ray, 2019). Since then, Reserve Bank of India has been using various instruments (CRR, Repo, Liquidity Adjustment Facility operations and Open Market Operations) to achieve the objectives of price stability and to provide adequate credit to productive sectors so as to support economic growth. As per the official RBI website, with liberalisation, the Bank's focus has shifted back to core central banking functions like monetary policy, bank supervision and regulation, and overseeing the payments system and onto developing the financial markets. Since 2004, RBI has added financial stability as an additional objective in view of the fast growing size and importance of the Indian financial sector.[2]

During 2008, increase in administrative petroleum products' prices and firming up of global crude oil and metal prices led to double digit domestic inflation. Thus to curtail inflation and keep inflationary expectations under check the central bank resorted to restricted monetary policy. In late 2008, however, RBI had to reverse its policy so as to prevent the country from the impact of global crisis. In 2009-10, there was a shift in policy towards recovery of growth momentum and consequently, measures were undertaken to improve transmission and enhance transparency in loan pricing. The subsequent three years were mired in higher inflation and low growth. However, owing to loose monetary policy globally during these years, India continued to remain one of the favourite destinations for foreign capital. RBI had to sterilise the liquidity flowing in, leading to accretion of forex reserves.

In 2013-14 again, there was turmoil in the

[2]Macroprudential policies – Indian experience, Address by Anand Sinha, Deputy Governor of the Reserve Bank of India, at the Eleventh Annual International Seminar on Policy Challenges for the Financial Sector on "Seeing both the Forest and the Trees – Supervising Systemic Risk", (June 2011)

global financial markets owing to the news of withdrawal of monetary stimulus by the US. Capital outflows happened from emerging markets to safe havens. India was particularly impacted during this period as it faced pressure of currency depreciation amidst capital outflows, elevated oil prices leading to higher inflation and current account imbalance and increased fiscal deficit. Accordingly, RBI adopted a multiple indicators approach and took a number of measures to support the economy. Supported by various factors including collapse in global commodity prices, proper supply management and reduced domestic demand some moderation in inflation was achieved. However, still sticky inflationary pressures led RBI to adopt flexible inflation targeting (FIT) regime in 2014. Under FIT, RBI adopted headline consumer price index (CPI) inflation as the nominal anchor with the medium-term target set at 4 per cent within a tolerance band of +/- 2 per cent, while supporting growth (Mohanty, 2017).

In 2016-17, RBI constituted a six member Monetary Policy Committee (MPC) and entrusted them the task of setting the benchmark interest rate. Inflation was explicitly announced as the primary goal, while keeping in mind the objective of growth. Overtime, with growing concerns about financial uncertainty RBI mandate has decisively shifted from inflation targeting to growth in order to maintain financial stability. This is clearly visible from the monetary policy statements since Oct'18 (Refer to Table 3).

Empirical results suggest that financial instability might impact the outcomes of mandated policy goals for inflation in future. In the US, frequent mentions of financial instability terms at the FOMC, particularly during bust periods, resulted in a statistically significant reduction in the funds rate relative to that implied by a simple Taylor rule based on Federal Reserve staff forecasts of inflation and unemployment rates.

Indian banks also face the dilemma of monetary transmission from the RBI signalling rate / policy rate / repo rate to setting lending rates. The large share of public deposits in total liabilities for banks in India has important implications for macro stability and policy transmission. First, with banks funding themselves through retail deposits, the source of vulnerability to external contagion is significantly reduced. Second, only 1 per cent of the bank borrowings is currently at the RBI policy rate. Third, the share of public deposits has a preponderance of low cost Current Account and Savings Account (41 per cent approximately) that is mostly interest rate agnostic in India with an average interest rate of around 3.5 per cent. The rest are time deposits with a fixed interest rate for the duration of the deposit tenure. It is difficult to cut deposit rates since India does not have a well-developed social security system and the senior citizens depend on interest income from bank deposits as a source of income after retirement.

Compared to India, demand deposits in developed economies (the UK, the US,

Table 3: Analysis of MPC Statements

	Oct'18	Dec'18	Feb'19	Apr'19	Jun'19	Aug'19
Positive sentiment on inflation			✓	✓	✓	✓
Negative sentiment on inflation	✓	✓				
Positive sentiment on growth	✓					
Negative sentiment on growth		✓	✓	✓	✓	✓
Key statement	The inflation outlook calls for a close vigil over the next few months, especially because the output gap has virtually closed and several upside risks persist.	Excluding food items, inflation has remained sticky and elevated, and the output gap remains virtually closed.	The output gap has opened up modestly as actual output has inched lower than potential.... The need is to strengthen private investment activity and buttress private consumption.	...the output gap remains negative and the domestic economy is facing headwinds, especially on the global front. The need is to strengthen domestic growth impulses by spurring private investment which has remained sluggish.	There is scope for the MPC to accommodate growth concerns by supporting efforts to boost aggregate demand, and in particular, reinvigorate private investment activity, while remaining consistent with its flexible inflation targeting mandate.	Addressing growth concerns by boosting aggregate demand, especially private investment, assumes the highest priority at this juncture while remaining consistent with the inflation mandate.
Rate cut	No	No	Yes (25 bps)	Yes (25 bps)	Yes (35 bps)	Yes (25 bps)

Source: RBI

Singapore, Eurozone countries) do not pay any interest rate and the deposits can be withdrawn at any point of time without any penalty. This minimises the cost of deposits significantly. Second, even in the time deposit category, the deposits are mostly floating and are linked to a bank's external benchmark.

Regarding improvement in monetary transmission of policy rate to lending rate, RBI has progressively moved from bank rate to Marginal Cost of Lending Rates (MCLR) and finally to an external benchmark regime from October 1, 2019 to facilitate monetary transmission. However, for monetary transmission banks need to link their liabilities as well to an external benchmark. But one of the problems in India is no bank can do this alone as that would lead to its customer switching away to another bank. With external benchmarking of lending rates, bank margins might be subject to volatility and while this could result in a regime of low interest rates for lenders, it could also impact the depositors and this have implications for financial stability in future. In particular, an external linked benchmark could imply two-way interest rate movements that could be swift. Our estimate suggests that there are around 41 million senior citizens term deposit accounts in the country with total deposit of ₹14 lakh crores / 7 per cent of India's GDP. The average deposit size per account is around ₹3.3 lakh and interest income from such deposits forms 5.5 per cent of Private Final Consumption Expenditure in FY19.

As price stability is not sufficient for financial stability, RBI has also been taking various measures to maintain financial stability. Various macro-prudential norms are being modified by RBI from time to time, keeping in mind the needs of the economy while preventing the formation of asset price bubbles. Adequate liquidity is another prerequisite for financial stability. Drying up of liquidity can destroy erstwhile well-functioning financial institutions through the confidence channel. RBI has been actively managing liquidity through various measures.

Recent Crisis: NBFC Sector

There were 9,659 non-banking financial companies (NBFCs) registered with the Reserve Bank as on March 31, 2019, of which 88 were deposit accepting (NBFCs-D) and 263 were systemically important non-deposit accepting NBFCs (NBFCs-ND-SI).[3]

Though all NBFCs-D and NBFCs-ND-SI are subject to prudential regulations such as capital adequacy requirements and provisioning norms along with reporting requirements, their norms were simpler compared to banking sector until recently. India's macro-policy is focused on consumption to drive growth and NBFC sector in India was encouraged to grow to support consumption. They were lending in sectors where banks refused to go or did not want to go. The advances of NBFC-ND-SI witnessed double-digit growth in the past few years. Demonetisation also helped them in accessing excess liquidity floating in the market, which they used to further their lending. Problems in the NBFC sector started surfacing in Q3 of FY19, when a few large NBFCs defaulted on their payments. Since the NBFC sector borrows for short-time period and lends for longer duration, this asset-liability mismatch has always been a concern. However, with market sentiments turning sour the problem magnified. There was liquidity squeeze and smaller NBFCs were more severely impacted. The better rated NBFCs have been able to stay afloat, though

[3] Financial Stability Report, June 2019

their borrowing costs have also gone up.

The textbook explanation of the recent NBFC crisis lies in the Financial Instability Hypothesis by Minsky (1992). According to this hypothesis, over time capitalist economies tend to move from a financial structure dominated by hedge finance units to a structure in which there is large weight to units engaged in speculative and Ponzi finance. Furthermore, if an economy with a sizeable body of speculative financial units is in an inflationary state, and the authorities attempt to exorcise inflation by monetary constraint, then speculative units will become Ponzi units and the net worth of previously Ponzi units will quickly evaporate. Consequently, units with cash flow shortfalls will be forced to try to make position by selling out position. This is likely to lead to a collapse of asset values (Minsky, 1992). When it comes to interconnectedness between banks and NBFCs, the share of NBFC credit in All Scheduled Commercial Bank (ASCB) credit has gone up from 3.6 per cent in 2008 to 6.5 per cent in 2018. The share of bank borrowings to total NBFC borrowings has increased from 21.2 per cent in March 2017 to 23.6 per cent in March 2018 and further to 29.2 per cent in March 2019[4]. With increasing interdependence, NBFC crisis can take some toll on Indian banks' balance sheet. However, the exposure is not so much that it threatens financial stability of the banking system. Liquidity problem of NBFC sector has contributed to slowdown in construction, SME and automobile sectors. To ensure stability in the system, the Government has taken various steps including a special Liquidity Infusion Facility (LIFt) for housing finance companies, change in regulatory authority of Housing Finance Companies from National Housing Bank to RBI among others. On November 18, 2019, the Government has amended the country's Insolvency and Bankruptcy Code (IBC) 2016 which will help in speedier resolution of NBFCs, including housing finance companies, with asset sizes greater than ₹500 crore via the IBC.

In addition, the central bank has also announced various measures to boost the NBFC sector, including increasing the single-exposure limit to 20 per cent of Tier 1 capital (from 15 per cent), priority lending status for loans to NBFCs that on-lend to finance agriculture, small businesses and homebuyers, subject to certain regulations, harmonisation of different categories of NBFCs into fewer ones based on the principle of regulation by activity rather than regulation by entity, harmonising risk weights on NBFC exposure (NBFCs will be risk weighted as per the ratings assigned by the rating agencies registered with SEBI and accredited by the Reserve Bank of India), partial credit guarantee from the Government on banks' asset purchases from NBFCs, raising of External Commercial Borrowings (ECB) by

[4]Financial Stability Report, June 2019

NBFC, a certain part of the lending to NBFC (upto 1 per cent of the Bank's NDTL) can be now used for meeting the requirement of Liquidity Coverage Ratio (LCR) by banks. Majority of these measures are to provide short-term stability to the NBFC sector and companies associated with them. However, measures like appointment of Chief Risk Officer (CRO) for NBFCs with asset size of more than ₹50 billion and bringing of regulatory norms of NBFCs at par with banks will provide better supervision of NBFC sector. This will enhance financial stability in India.

Conclusion

In India, at times of stress in the financial sector, the monetary and fiscal policies have been accommodative and have provided supportive measures so that the situation does not spiral out of control. This has helped in limiting the span of crisis. The interconnectedness between the various financial intermediaries, although increasing, has not been very high. Thus the risk of contagion has been low. The recent NBFC crisis, however, shows that all the players of the financial market have to be well-regulated to support the aim of financial stability.

Also, the contemporary issue for macroeconomists is assuring adequate aggregate demand in the current context of synchronized global slowdown. Monetary policy could only act to some extent – experience shows we have been in an era of low interest rates for a decade but that has done little to boost aggregate demand. But this has led to increasing household debt (in the US it increased from $12.5 trillion in Q1FY08 to $13.9 trillion in Q2FY19). In the Indian context, total financial liabilities of households have jumped by a massive 58 per cent in FY18 to ₹7.4 lakh crores (22 per cent jump in FY17)[5]. Given such a large jump in household leverage, the question that arises is if monetary policy will retain its effectiveness in India? Also, current low level of interest rates in India could put question marks on financial stability in terms of a judicious balance between lenders and depositors. A discussion of all such is however beyond the scope of the current article.

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Future of Gig Economy: Opportunities and Challenges

Gobinda Roy* and Avinash K Shrivastava**

Abstract

The term "gig economy" is defined by a market which is based on a fixed-term contract or that is paid per project by a company, third party, or online marketplace. The impact of the gig economy at work is very pervasive and felt across industries. It has completely changed the way of engaging people at work and has brought a fundamental shift in how our economy operates. Due to its unmatched merits, the number of gig workers will keep growing, as many of the best and brightest workers turn to gig for their primary employment. Though gig economy provides enormous benefits to the workers in terms of flexibility, employment, freedom, etc., at the same time it has an adverse impact on the industry working environment. In this article we have discussed the current trends of gig economy along with its merits and demerits in global as well as the Indian context.

Introduction

The mass adoption of the internet and increasing penetration of smartphones, connect online users across the countries over the digital platforms. This helps organizations share their talent needs and contact the remote online workers on digital platforms (Healy *et al.*, 2017). These trends make the gig economy more relevant and prominent in today's digital era. Gig economy is a free market system where organizations contract with independent workers for a short-term project or service engagement (Techtarget, 2020). A full-time job has been a tradition for decades; however, the addition of a larger number of the workforce every year, digital disruption, and recent economic downturn make many potential job-seekers unable to secure the permanent jobs (Manyika *et al.*, 2016). The paucity of permanent jobs encourages them to join in contractual jobs as an independent worker, popularly called as "independent workers" or "gig workers" or "freelancers". In a few advanced countries, the young workforce opted for these contractual jobs as a lifestyle choice in order to avoid binding rules and regulations of permanent jobs. However, in many countries, gig platforms provide "bridge employment" before joining permanent jobs. The gig

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economy has got popularity among the digital start-ups as it helps them to pay the lower wages to contractual workers and avoid potential law-suits by employees during economic downturns (Friedman, 2014). The main participants in the demand side of the gig economy are online start-ups, small and medium enterprises, solo entrepreneurs, even some big corporations who regularly recruit gig workers on short and long-term assignments. The supply side is dominated by individual workers or small agencies, freelancers, freelance agencies and independent consultants. A recent study suggests that gig economy is booming across the countries. In the USA, the number of freelancers has gone up from 3.7 million in 2014 to 62.2 million in 2019 (Statista, 2020; Pofeldt, 2019). Lately, the emergence of many gig online platforms like Upwork, Guru, Fiverr enable organizations to recruit gig workers (also called freelancers) across the countries. Similarly, many freelancers or independent workers join online platforms to sell their services to off-shore clients. Hence, digital platforms make it easy for freelancers to find jobs/projects online. As Stephane Kasriel, CEO of the world's largest freelance platform Upwork puts it, one of the key factors of increased freelancing activity is hiring from big companies. According to him, among the Fortune 500 companies, 30 per cent are now using top freelancing platforms and major recruiters are technology companies on the platforms (Pofeldt, 2019).

Previous studies on gig economy mainly focused on how regulatory framework and policies ensure better working environment and wages and compliance with existing labour laws for gig workers in local and global contexts (Graham *et al.*, 2017; Kässi & Lehdonvirta, 2018; Aloisi, 2015). In the advanced nations, the emergence of the entrepreneurial generation increases the interest in jobs with flexible terms without any formal employment contract. This leads to formation of the shadow corporation in the mainstream economy (Friedman, 2014). The introduction of leading digital outsourcing platforms in gig economy has encouraged many skilled professionals from an emerging economy to join in gig workforce. Now corporations have access to talents from different countries on these platforms at a fraction of the cost of their home countries. These pose challenges to gig professionals to attract a good number of jobs from clients at competitive fees. In order to be successful in this economy, gig professionals have to be proficient in staying organized, sustaining client relationships and meeting deadlines for overseas clients, finally coping emotionally to work with clients from different cultures and geography (Ashford *et al.*, 2018). Hence, personal branding is an important factor for gig professionals for long term growth. Similarly, judicious use of marketing channels for lead generation is an important factor for long term sustenance in gig profession.

The gig economy is also getting bigger in India as many young educated professionals in India are joining on large global freelancing platforms. The number of gig workers in India was 15 million in 2015, only second to the US with 53 million freelancers (Verma, 2018). The popularity of gig work among the hiring professionals in India mainly attributed to "drive efficiency, innovation, and competitive advantage" while maintaining the human resource cost at its minimum. Indian freelancers are mainly joining the gig economy due to work hour flexibility, opportunity of being their own boss, option to choose the job based on their interest and workload. Interestingly, 41 per cent of Indian gig workers are engaged in Information Technology (IT) and/or related jobs while recruited by their local and global clients (Verma, 2018).

In this work, we present an exploratory study about the future of the gig economy. We have also included the marketing and branding challenges of gig professionals/agency in dynamic gig economy which is by its own nature not bounded by geographical and cultural boundaries. This study also presents major trends in gig work and skill set demanded by global clients. The rest of the article is organized as follows. Section 2 presents the literature survey of the gig economy and discusses the major work done by the researchers in this field of study. In Section 3 the trends of the gig economy and the scenario in the Indian economy are presented. Section 4 provides brief details about the marketing and branding strategies used in the gig economy. Opportunities for the gig economy with an emphasis on Indian economy have been discussed in Section 5. Section 6 covers the challenges followed by the conclusion, implications and future research directions of the work in the concluding section.

Literature Review

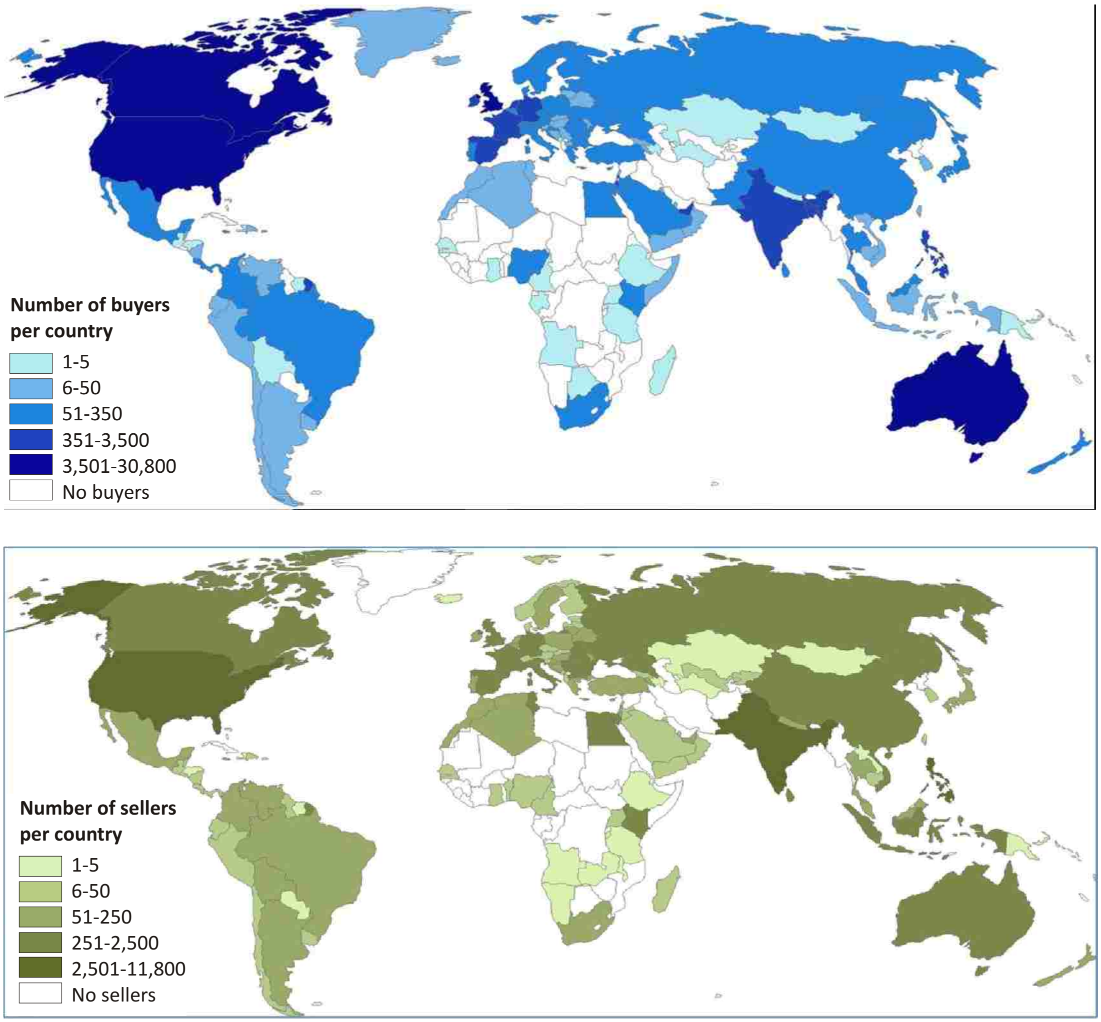
As per Cambridge Dictionary (2020), the nature of work in the gig economy indicates "a way of working that is based on people having temporary jobs or doing separate pieces of work, each paid separately, rather than working for an employer". Research study termed it as a new avatar of Taylorism in the form of micro fragmentation of the labor market based on hyper-temporary tasks called gig work or micro-task (Aloisi, 2015). Additionally, globalization and computerizations lead to the formation of leading gig work sourcing platforms (Upwork, Amazon Mechanical Turk, Uber, TaskRabbit, etc.) and making the gig economy present across the countries (Aloisi, 2015). Digital sourcing platforms are playing a crucial role in giving "people in poor countries access to buyers in rich countries". Contribution of this gig economy may not be significant as compared to the traditional economy; still, the turnover of this industry is estimated at about 1.3 trillion and this economy is employing 53 million workers (Staffing Industry, 2019). Previous research examined the livelihood of digital workers in sub-Saharan Africa and south-east Asian regions and highlighted the issues they are facing like bargaining powers, economic policy for inclusion, lack of opportunity for upgrading their skill for greater participation in global supply chain of workforce in gig economy (Graham *et al.*, 2017). A recent study suggested that gig working environment is characterized by three actors such as gig workers (also known as freelancers or independent contractors), the requester (clients), and intermediary platform firms (Meijerink & Keegan, 2019). Intermediary digital platform plays a crucial human resource role in connecting gig workers and clients without any formal employment contract, however ensuring project delivery and payment process (Meijerink & Keegan, 2019). In order to exist in this competitive market, previous findings suggested that gig professionals should upgrade their skill through certifications and simultaneously, the industry should be strengthened by good regulatory strategies and democratic control over the digital platforms (Graham *et al.*, 2017). Moreover, digital disruption brings many major changes/trends in the ways gig professionals adopt the new work environment to manage their professional and personal lives.

Trends in Gig Economy

Along with the popularity of gig work outsourcing platforms like Upwork, Guru, freelancers.com, etc., it has been found that demand-supply of gig work became more globally dispersed. Demand comes mostly from advanced nations like the USA, UK, Canada, Australia, etc (See Figure 1). However, supply comes from the low-income countries like India, Philippines etc. (Graham *et al.*, 2017). Freelancers in the USA get 75 per cent of their gig work from local clients, whereas in developing nations (India, Pakistan, Philippines), freelancers get about 90 per cent gig works from overseas clients. Since, USA gig workers work for their local clients, their hourly wages are historically higher than their counterparts in other nations. Recent trend shows freelancers in low income countries can charge higher per hour wages (USD 4/hr. to USD 20/hr.) after upskilling in IT/programming domains. However, employers from the developed nations can have access to freelancers in low-income countries on the digital platforms (Beerepoot & Lambregts, 2015). Hence, they play the "labour arbitrage" and hire the workers at the cheapest rate. So, in the global content, gig economy is pre-dominantly pro-employers and there is downward pressure on labour wages (Graham *et al.*, 2017). There is also a positive trend in gig economy as many big corporations started hiring freelancers for short and long term projects.

Initially, only bootstrapping entrepreneurs, cash-strapped ventures and small businesses used to hire freelancers as support workers. Now, many fortune 500 companies started to outsource many non-core jobs like marketing, back-office jobs, HR functions to gig professionals (Caminiti, 2018). In the gig economy, number of job seekers is always more than the number of jobs created on the digital platforms and gig workers always face stiff competition from fellow workers from

Fig 1: Distribution of Buyers and Sellers in Gig Economy

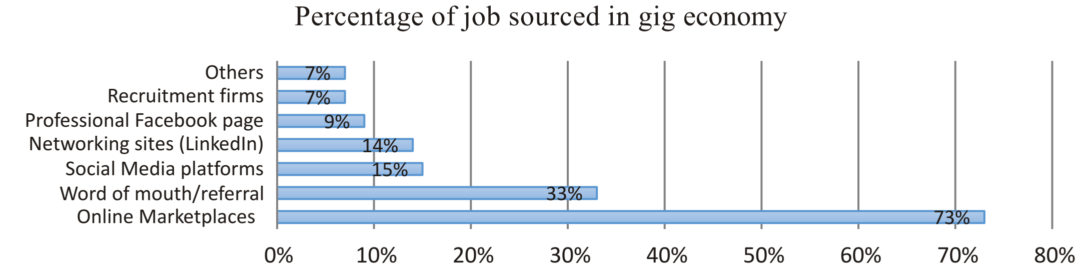


Source: Graham, Hjorth & Lehdonvirta, 2017

other countries. Figure 2 shows the various job sources as used by the freelancers and online market space is the topmost (73 per cent) job source for gig workers.

The three important market players in online marketplaces are Freelancer.com, Upwork.com and Fiverr.com with 31 million, 17 million, and 7 million registered users respectively (Warner, 2020). Getting a stream of gig jobs on these online market space

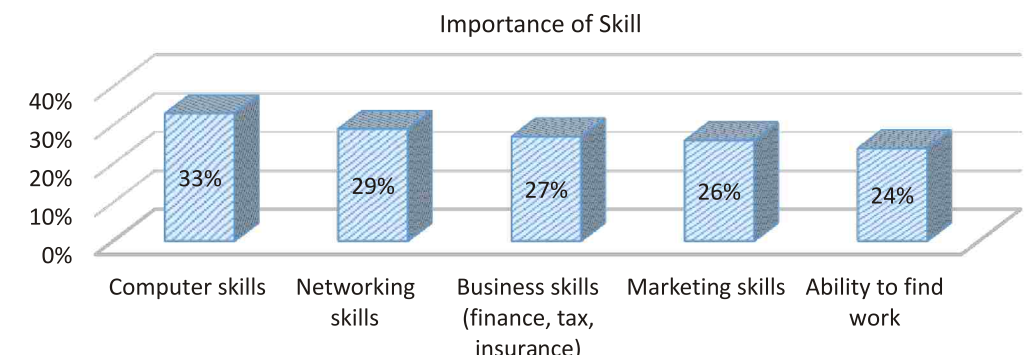
Figure 2: Sources of Freelancing Jobs



Source: Warner, 2020

becomes very challenging as many freelancers from developing nations bid for the jobs at lower wages rate (fees/hour). Many inherent skills of freelancers like marketing skills, networking skills, computer skills help them to get jobs on the online platforms (see Figure 3). Figure 3 indicates gig workers believe that computer skills (33 per cent) would empower them for better career advancement in the industry (Warner, 2020). Another important trend in the gig economy is that more and more young people find this profession more lucrative (52 per cent gig workers are below 28 years) as compared to older generation (2 per cent freelancers are above 60 years) due to heavy reliance on technology related platform for job sourcing (Warner, 2020). However, older gig workers earn more money than the younger freelancers. Interestingly, 50 per cent of the gig workers are intermittent workers as only 28 per cent freelancers are engaged in gig work on a daily or weekly basis. Based on the latest 2018 Payoneer Freelancer Income Survey, average hourly rate of a global gig worker is \$19. However, their rates vary from \$11 to \$28 depending on industry and skill set

Figure 3: Importance of Skills for Career Advancement in Gig Economy Platform



Source: Warner, 2020

(Thibodeaux, 2020). Because of flexibility of worktime, work freedom, gig economy observes increasing participation of women in the freelance workforce. Hence, gig economy augurs a changing dynamics in workforce management, cultural diversity, and access to global resources.

Marketing and Branding Strategy in Gig Economy

Technology adoption brings in a major disruption in gig economy, as this opens up doors to clients for accessing talents from both developed and developing nations. Similarly, digital platforms help millions of freelancers from developing nations to apply for the jobs posted on these websites. However, marketspace becomes cluttered due to mushrooming of fake profiles on gig platforms. This leads to hundreds of applicants for a simple admin job posted on a freelance website. This becomes very challenging for client to select the best talent for the job. Freelance platforms such as Upwork and Freelancer.com have taken various measures to weed out those non-serious freelancers by putting various checks on the personal verification, background verification, previous earning credentials, delisting of inactive profiles etc. Still, gig workers find it challenging to get new contracts on a regular basis. Creating a personal brand in the gig economy platform is an uphill task as he or she needs to position himself/herself as competent and reliable in the crowded marketspace. He/she also needs to position himself/herself as more creative and cost effective with respect to stable employees in the same domain (Petriglieri *et al.*,2019).

It has been found that gender plays an important role in influencing client's attitude towards freelancer's brand. Women need to work harder to build reputation online though they get two-third of wages of their male counterparts (Barzilay & Ben-David, 2016). However, irrespective of genders, freelancers on gig platform can build brand by optimizing their fees, feedback score, and showcasing experience and certifications (Barzilay & Ben-David, 2016). For building a brand as a reliable gig professional, the key skills a gig worker needs to have are remaining viable in offering, staying organized, maintaining verified identity on digital media other than the gig sourcing platform, sustaining relationships with previous clients, and coping emotionally while delivering projects in cross-cultural set-ups (Ashford *et al.*, 2018). Self-branding is critical at this stage for gig workers for long term success.

Previous studies suggested that in the context of online gig working platforms, self-branding of freelancers can be created by a strong social relationship (Grugulis & Stoyanova, 2011) which acts as the main source of "procurement of employment opportunities" on the gig platforms (Gandini, 2016). Besides creating a strong self-branding, it is often a challenge to gig worker to reach new clients by using various offline and online media channels.

Lately, freelancers use gig digital platforms to source the jobs on a regular basis (73 per cent) (see Figure 2). Additionally, they use social media (15 per cent) and word of mouth marketing (33 per cent) to reach the new client segment and showcase their projects and experience (Warner, 2020). Lately, gig workers are increasingly using search engine marketing (paid marketing) such as pay-per-click (PPC) and Facebook paid campaign to reach their target segments without involving digital gig platforms. This helps them to get rid of stringent terms and conditions, and high commission charged by the leading digital platforms for every project they delivered on the platforms (Key, 2017). Because of low cost, trust, utility, and ease of implementation, the number of gig workers are increasing, who use email marketing in apprising their customers and prospects about various products/services offered on a regular basis (Key, 2017).

Opportunities in Gig Economy

The term Gig Economy was coined during the recession, where most of the workers relied on short-term employment after losing their jobs. According to MetLife's 17th Annual U.S. Employee Benefit Trends Study 2019, 85 per cent of gig workers in U.S are interested in continuing contract work in the next five years, as opposed to a traditional work role. These gig workers are not just typical freelancers who are interested in this type of work. Full-time employees are earning extra cash through gig, and are thinking of "going gig" full time by leaving their current employers for contract or freelance work. Apart from an increased availability of talent, gig economy provides an opportunity in providing "bridge employment" during recession when traditional full time jobs are beyond their reach (Donovan *et al.*, 2016).

There is an increasing opportunity for gig work in corporate world. In the corporate world 'war for talent' is nothing new and with intense competition, most organizations tend to focus on bottom lines to increase profits. This is the sweet spot for all those freelance professionals, who sacrifice the comfort and security (or may be not) of the corporate world, to do the work they love, and be their own master. Companies are latching onto this tribe as it helps them get an immediate workforce, reduce cost and innovate faster. Learning and development, customer support, corporate website development and support, as a set of business activities, have always employed freelancers and now most companies prefer to have only a couple of regular employees in those functions and get the rest of the work done through external experts. This model allows companies to tap the most recent and relevant knowledge and expertise, at a fraction of the cost.

Gig economy creates a great opportunity in Indian employment sector. Presently, the Indian economy is facing jobless growth leading to lack of inclusive growth. The gig economy would be able to provide gainful employment to the youths. It can also create new opportunities for women as it enables women to have flexibility in terms of work place and working hours leading to a surge in their enrolment in such jobs. Larger participation of gig workers in corporate functions can help firms to rationalize the workforce and reduce the cost of operation.

Challenges in Gig Economy

Though count of gig workers are increasing day by day, these gig professionals have been facing many challenges to get quality work/projects on a regular basis. First, there are lack of laws in addressing gender discrepancies while getting gig work on online gig platforms (Barzilay & Ben-David 2016). Second, there is lack of framework and governmental support for creating conducive environment for quality work/projects, worker's protection, and access to benefits as provided by traditional job (Donovan *et al.*, 2016). The advent of gig economy and online talent portals has given a new definition to 'jobs', employees and employers who do not fit within the framework of current labour laws, presenting a major challenge and the need for new labour models (Horney, 2016). Such jobs are known as self-employed or micro-entrepreneurs and are not entitled to the benefits that regular employees enjoy, as is apparent in U.K. Uber's situation (Lusher, 2017). This new business model severely compromised the long-term needs of the staff. The short allocation model ensures a flow of funds but is viewed as less stable and highly exploitable given the versatility it provides (CIPD Report, 2017).

Another problem for gig staff is that there is no guarantee of a steady income and therefore it is hard to ascertain the person's creditworthiness. In the Indian scenario, this issue is important, as there is no social safety net for the unemployed. Intellectual property and confidentiality problems may trigger legal tangles and conflicts (Vaidyanathan and Bose, 2017). These add to the complexity of the already nebulous relationship. An important challenge to employers is maintaining confidentiality of data and obtaining intellectual property of the product/services rendered by the freelancers. The freelancers could be working for several competitors at the same time putting the company's interests at risk, as there is no "non-compete" clause in casual work arrangements. Hence, employing people on a short-term basis and entrusting them with vital information could be a cause for concern.

However, the biggest challenge to most of the freelancers (experienced or novice) is to find consistent work on digital platform. Additionally, they face issues of payment protection after the successful delivery of work. The gig economy presents some unique challenges for human capital management. Keeping up with the changing laws surrounding independent contractors, and compliance with the Affordable Care Acts requirements, are just a few issues that businesses must face. Moreover, the organization has to dedicate precious time and resources to manage these administrative tasks. There are potential opportunity costs, which companies may face. Companies should have proper due diligence for selecting the jobs which can be performed by gig workers. At the same time, it should ensure privacy, cost and optimization of other resources.

Conclusion

This article examines the important roles of stakeholders in gig economy and highlights how various factors affect the growth and importance of gig economy in Indian and global context. Description of contemporary literature and market survey confirm the fact that scope of gig economy not only covers service industry, but also manufacturing industry at higher pace (Gleim *et al.*, 2019). The role of digital platforms are crucial for bringing gig culture in developing countries, and in the remote corners of the world. Gig economy offers many opportunities to gig workers such as flexible work environment, working in interest areas, access to global job postings. However, it poses many challenges to freelancers in the form of less payment, lack of social benefit and job security. The opportunities for corporates are related to hiring freelancers namely reduced costs, less obligation, and talent on demand. However, organizations may face many challenges for ensuring privacy of data, information, IPR while managing the business functions with the help of freelancers.

Based on the in-depth literature review, we have found little mention about the ways that organization can use freelancing for ensuring copyright and data security. Hence, future research may look into the role of data privacy and security issues in gig economy. Similarly, there is dearth of literature in analysis of wages and payment protection concern of freelancers on digital platforms. This warrants for further study on protecting rights of freelancers in gig economy. Further, very few research focus on how gig professionals can build their online brand and use various marketing channels for long term growth and career opportunity in this economy. So in future research direction should include study about the important factors that influence marketing of freelance products and building strong brand in gig economy.

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A Study to Measure the Efficiency of the Automobile Companies in Indian Scenario Utilizing Data Envelopment Analysis

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Abstract

The present study has utilized Data Envelopment Analysis to measure the efficiency and super efficiency scores of the automobile companies, in the Indian scenario during the period 2011 -12 to 2016-17. Data related to 10 automobile companies, considered as decision making units, are extracted from the CMIE Prowess database. Input oriented variable return to scale has been utilized in this study. Three inputs related to cost and two outputs related to profitability are taken into consideration. It was observed that 40 per cent of the automobile companies were performing below efficiency and 60 per cent at super efficiency level. Further, an endeavour has been made in this article to understand the changes in the efficiency and the super efficiency scores by taking into consideration return on net worth and return on capital employed as outputs and the costs as input. Spearman rank correlation has been applied to investigate if there was any significant difference between the ranks obtained. It is also observed from the study that return on net worth is an important criterion for evaluating the efficiency of the companies.

Introduction

Efficiency is defined as the ratio between the output and input. Optimum efficiency can be achieved by either maximizing the output (keeping the input constant) or minimizing the inputs (keeping the output constant). The former is known as Output Oriented Approach while the latter is known as Input Oriented Approach. Efficiency can easily be calculated if there are one output and one input. But the problem arises if there are more than one output or input.

Data Envelopment Analysis (DEA) provides solution to this problem. It is an operations research technique developed by Charnes *et al.* (1978) to measure the efficiency of the Decision-Making Units (DMUs) if there are multiple inputs or outputs. In this article, two outputs and three inputs are taken into consideration. Inputs are also known as

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independent variables and output is known as dependent variable. The automobile companies are taken as DMUs for this article.

In case of multiple inputs and outputs, Charnes *et al.* (1978) have defined efficiency as ratio between the weighted sum of outputs and weighted sum of inputs. Weights are being assigned on the basis of suitable programming. Linear program has been formed by taking the coefficients to be the inputs and output values. They basically assumed constant returns to scale. Later on, Banker *et al.* (1984) in their paper established the variable returns to scale which encompassed both the increasing as well as decreasing returns to scale.

Indian automobile sector has been taken into consideration for the study as it plays a crucial role in the growth of the economy. The automobile sector contributes approximately 7.5 per cent of the India's GDP and approximately 49 per cent of manufacturing GDP with a large economic multiplier impact[1]. The sector includes two wheelers, trucks, cars, buses and three wheelers. India has emerged as Asia's fourth largest exporter of automobiles behind Japan, South Korea and Thailand. The country[2] is expected to top the world in car volumes with approximately 611 million vehicles on nation's road by 2050.

The present study has been conducted to measure the efficiency scores of the companies belonging to the automobile industry in the Indian scenario utilizing the DEA from 2011-12 to 2016-17. The contribution of this study lies in investigating which companies in the automobile industry are working efficiently by measuring the efficiency scores. Three inputs related to cost structure of the companies and two outputs related to profitability and sales have been taken into consideration for this study. Linear program has been formulated to calculate the efficiency scores of the companies belonging to the automobile industry. The next section focuses on literature review followed by sections on methods, results and finally are the concluding remarks.

Literature Review

DEA has been applied in the context of several sectors some of which are discussed here.

Malhotra and Malhotra (2008) applied DEA on financial data of 16 pharmaceutical firms with three input variables and nine output variables. Tehrani *et al.* (2012) in their study have utilized DEA to explore the relevant model needed to evaluate the financial performance of 36 private entities in the Iranian scenario. The study revealed that 75 per cent of the entities were inefficient while the remaining were efficient. The paper also analyzed the weakness of different firms. Memon and Tahir (2012) have tried to investigate the efficiency level of the companies related to the manufacturing sector

[1] Source: www.moneycontrol.com

[2] Accelerated growth-Frontline-The Hindu: https://frontline.thehindu.com

in Pakistan. Four inputs related to cost and two outputs related to profitability were taken into consideration for the study. It is observed that majority of the companies underperformed under both constant returns to scale and variable returns to scales scenarios. Feroz *et al.* (2003) in their research article have demonstrated the advantages of using DEA over financial ratio analysis to compute the overall efficiency of an entity. The article provides insights into the disadvantages of using financial ratio as a mean to compute the managerial efficiency of a company and emphasizes how DEA can offset the disadvantage by providing reliable information which can be extremely beneficial for the analyst.

Tandon and Malhotra (2014) in their article have investigated the efficiency of the commercial banks in the Indian scenario for the period 2010-12. The commercial banks considered included public and private sector banks along with foreign owned banks. The analysis revealed that only 16 per cent of the total 48 banks were efficiently performing. The study also revealed that there was not much significant difference between the technical efficiency of public and private sector banks but there was an ample scope of improvement for foreign banks. Karimzadeh (2012) have tried to measure the efficiency of the Indian commercial banks utilizing DEA. A total of 8 banks were taken into consideration for the study comprising of public as well as private sector banks. Efficiency scores were computed for these banks. Based on the analysis of the sample taken for the study, it was revealed that the public sector banks were more efficient than the private sector banks. Nandkumar and Singh (2014) in their paper have computed the efficiency scores of 5 public sector banks and 5 private sector banks through DEA. The study revealed that the efficiency of the banks has increased in general due to the financial reforms in the banking sector. The paper highlights that the private sector banks are the better performers than the public sector banks. The main reason for lower efficiency of the banks may be attributed to an increase in non-performing assets in the banking sector. Bhattacharyya *et al.* (1997) have investigated the efficiency of the Indian banks through DEA. It was revealed from the study that the public sector banks were the best performers in terms of efficiency scores followed by foreign banks and private sector banks respectively.

Nandy (2011) in his paper has evaluated the efficiency of the automobile companies in the Indian scenario using DEA. The paper also suggests measures to convert an inefficient company into an efficient company.

Mazumdar and Adhikary (2010) on the other hand, in their paper, have measured technical efficiency in the Indian automobile industry during 2004-06 using a stochastic production frontier.

Works of Banker *et al.* (1984), Andersen and Petersen (1993), Golany and Roll (1989) and Bowlin (1998) have also been referred to while formulating the linear programming to compute the efficiency and super efficiency scores of the manufacturing companies as well as choosing the appropriate number of decision making units for the present study.

Data and Methodology

The present study has been conducted taking into consideration two outputs and three inputs. The two outputs relate to sales and profit and the three inputs relate to the cost structure of the automobile companies. PBDITA (Profit before Depreciation Interest Tax and Amortization) has been taken as the proxy of the profitability of the organization. The sales basically reflect the turnover of the companies. The inputs taken for the study include a) raw materials, stores and spares; b) power, fuel and water charges and c) compensation to the employees. These constitute more than 50 per cent of the total cost. The data related to the above five variables of the ten automobile companies are extracted from the CMIE Prowess database for the time period of 2011-12 to 2016-17 (i.e. for 6 years). The automobile companies are selected on the basis of turnover. We have also taken into consideration return on net worth and return on capital employed as outputs and different costs/sales as inputs. All the automobile companies for which any data for the five variables related to the time period taken for our study was unavailable were removed from the scope of the study. The efficiency score has been computed following Charnes *et al.* (1978). The descriptive statistics of the 5 variables taken for the study are put forth in Table 1.

Table 1: Descriptive Statistics of Variables: (₹ million)

Variables	N	Minimum	Maximum	Mean
Sales	10	6998.00	57144.00	23983.11
PBDITA	10	1640.00	17116.00	5635.22
Raw Material	10	2199.00	18584.00	7577.11
Power	10	1422.00	9328.00	4241.44
Compensation	10	588.00	4368.00	1988.55
Valid N (listwise)	10			

Source: Author's computation

The methodology followed is as follows: (i) Computing the efficiency and super efficiency scores of the Indian automobile companies using DEA; (ii) Ranking the different automobile companies as per their efficiency and super efficiency scores during the time period taken for the study; (iii) Investigating the number of companies working below the efficiency score of 1 and those working at super efficiency level.

Results and Discussion

Ranking the automobile companies based on the efficiency and super efficiency scores

The study has been conducted taking into consideration three inputs related to cost, i.e., a) raw material, stores and spares; b) power, fuel and water charges; c) compensation to the employees, and two outputs related to sales and profit (PBDITA), for the period from

2011-12 to 2016-17. Each and every company in the automobile industry has been considered as a decision-making unit for the study. A total of ten automobile companies/DMUs have been taken into consideration. Input oriented variable returns to scale approach has been utilized in this article. Thus, the objective was to minimize the inputs keeping the output constant. Those companies whose efficiency scores were 1, are considered to be efficient. For them super efficiency scores were computed further.

The ranks computed as per the efficiency and super efficiency scores of the different automobile companies are shown in Table 2.

An endeavor has been made further to investigate the efficiency and super efficiency scores taking into consideration return on net worth and return on capital employed as outputs and different components of cost divided by sales as the inputs. Return on net worth (RONW) is taken as the ratio of profit after tax and net worth while return on capital employed is taken as the ratio of profit before interest and tax and capital employed. Capital employed is taken as: fixed assets + current assets – current liabilities. The ranks were computed on the basis of the efficiency and super efficiency scores. The ranks obtained as well as the efficiency and super efficiency scores are reflected in Table 3.

Spearman rank correlation was conducted between the ranks obtained by the automobile companies as per Table 2 and Table 3. It was found out that the Spearman rank correlation was 0.842 which is significant at 0.01 level (2-tailed). Hence it can be concluded that there is not much significant difference between the ranks obtained by the automobile companies taking sales and PBDITA as the outputs and return on net worth and return on capital employed as the outputs.

Table 2: Efficiency and Super Efficiency Scores and the Ranks based on Set 1 of Inputs and Outputs

Name of the Company	Efficiency Score	Super Efficiency Score	Rank
Ashok Leyland Ltd.	0.8597		9
Bajaj Auto Ltd.	1	1.9023	2
Eicher Motors Ltd	1	2.352	1
Hero Motocorp Ltd.	1	1.1647	6
Mahindra & Mahindra Ltd.	1	1.7733	3
Maruti Suzuki India Ltd.	1	1.3157	4
V E Commercial Vehicles Ltd	1	1.1798	5
T V S Motor Co. Ltd.	0.8106		10
Tata Motors Ltd.	0.933		7
Volkswagen India Pvt. Ltd.	0.8992		8

Conclusion

It is observed from the study that Eicher Motors Ltd is the most efficient company followed

Table 3: Efficiency and Super Efficiency Scores and the Ranks based on Set 2 of Inputs and Outputs

Name of the Company	Efficiency Score	Super Efficiency Score	Rank
Ashok Leyland Ltd.	0.8411		8
Bajaj Auto Ltd.	1	1.2122	3
Eicher Motors Ltd	1	1.2211	2
Hero Motocorp Ltd.	1	1.1505	4
Mahindra & Mahindra Ltd.	1	1.1344	5
Maruti Suzuki India Ltd.	1	1.3212	1
V E Commercial Vehicles Ltd	1	1.0421	6
T V S Motor Co. Ltd.	0.779		10
Tata Motors Ltd.	0.8325		9
Volkswagen India Pvt. Ltd.	0.8589		7

by Bajaj Auto Ltd and Mahindra and Mahindra Ltd when we are taking into consideration the first set of inputs and outputs. It is further observed that out of the ten automobile companies, six companies namely Bajaj Auto Ltd, Eicher Motors Ltd, Hero Motocorp Ltd, Mahindra & Mahindra Ltd, Maruti Suzuki India Ltd and V E Commercial Vehicles Ltd are working above the efficiency score of 1. It is also observed that 4 companies namely T V S Motor Co. Ltd, Tata Motors Ltd, Volkswagen India Pvt Ltd and Ashok Leyland Ltd are working below the efficiency score of 1. Thus 60 per cent of the companies are super efficient (score of above 1) and 40 per cent of the companies are inefficient (score below 1). Further, based on the second set of inputs and outputs, it is observed that Maruti Suzuki India Ltd is ranked as the most efficient company followed by Eicher Motors Ltd and Bajaj Auto Ltd. It has also been observed that 60 per cent of the companies of the automobile industry are working at super-efficiency level and 40 per cent of the companies are inefficient (score below 1). In both the cases above, majority of the companies in the automobile sector are efficient.

It can be observed from the study that in terms of efficiency Maruti Suzuki India Ltd is ranked as number 4 based on the first set of inputs and outputs and number 1 when the second set of inputs and outputs are considered. If we refer to the share price fluctuation of Maruti Suzuki for the last 5 years it reflects an increasing trend. The price being ₹3725.00 as on April 1, 2015 and touching ₹8814.00 as on April 1, 2018 as per NSE. If we refer to Tata Motors Ltd it was ranked number 7 as per the first set of inputs and outputs while in case of the second set of inputs and outputs it was ranked number 9. If we refer to the share price fluctuation of Tata Motors Ltd for the last 5 years we can observe a decreasing trend. The price being ₹511.00 as on April 1, 2015 and touching ₹214.00 as on

April 1, 2019 as per NSE. It seems that the second set of outputs, like the RONW is a better criterion for judging the efficiency of the companies, at least in the automobile sector.

Thus, the management and decision makers should try to give due importance to return on net worth along with other parameters as an evaluating criterion to measure the efficiency of the companies.

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Perspectives on Budget 2020

On Corporate Bonds and More

Priti Agarwal*

The budget this year is quite beneficial from the point of view of infrastructure. Many measures including tax incentives have been announced to deepen the corporate bond market and incentives to Sovereign Wealth Fund (SWF) is one such measure in that direction.

In order to incentivize the investment by SWF of foreign Government in the priority sector, this budget has granted 100 per cent tax exemption to their interest, dividend and capital gains income in respect of investment made in infrastructure and other notified sectors before March 31, 2024 and with a minimum lock-in period of 3 years. It is to be noted that such concessions/exemptions shall be available to SWF which is wholly owned and controlled, directly or indirectly by the Government of a foreign country and is set up and regulated under the law of such foreign country.

Besides, the budget also announced abolition of Dividend Distribution Tax (DDT). The global yield seeking infrastructure investors would be benefitted with the abolition of DDT. However, it may reduce incentive for Indian promoters and investors to look at Infrastructure Investment Trust (InvITs).

The major reason for incentives to SWF probably has been due to India requiring enormous investments in infrastructure sector which is estimated to be over $1 trillion over next 4 years. While NIIF (National Investment and Infrastructure fund) was set up by GoI in February 2015 which manages over $4 billion of capital commitments across 3 funds to fund infra sector, it alone would not be able to meet the humungous requirement and hence funding by global SWFs is a necessity.

For renewable energy segment the budget proposals are positive. The incentives to SWF itself are positive for renewable energy segment as most of the global investors look at investing in clean energy segment.

Besides, the Budget also proposes extension of Kisan Urja Suraksha evam Uhaan Mahaabhiyan (KUSUM) scheme for setting up solar pumps for 20 lakh farmers and for providing assistance to set up solar plants in barren land of farmers. Also large solar power capacity installation along railway tracks has

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been announced. All these measures will push solar energy capacity additions. It would help government move towards achieving its renewable energy installation targets, generating extra resources for railways and also aims at creating an additional revenue stream for the farmers.

The budget has allocated ₹22,000 crores for power and renewable energy sector. Further, the announcement of 100 per cent tax concession to SWFs on investment in infrastructure projects along with concessional tax rate for power generating companies are significantly positive for new investment in the sector.

Perfect Budget Does Not Exist

Swagat Bose*

When we often refer to the Budget or any other major policy framework of the Government, we rarely keep an eye on the finer details and rather rely heavily on processed information, which by virtue of populist demand, only tracks what is in trend. Herein, inherent bias and political partisanship often render a coloured vision as such.

There is no such thing as a perfect budget. It is rather always welcome if Government Policy strays away from citizen appeasement and focuses more on structural reforms over a span of time. This is something which has been witnessed in Budget 2020.

If we would like to read the fine print, we actually look at macroeconomic indicators like unemployment, growth, inflation etc. The budget has focused on rationalising the income tax structure. Also, several measures and initiatives towards structural reforms in the agricultural sector have been undertaken.

Most importantly, the Government, in order to reinforce its focus on vocational training, has allocated some money for skill development. The introduction of bridge courses and the thrust on the infrastructure-focused skill development opportunities by National Skill Development Agency are steps in the direction of more generation of employment. Though these may not be adequate compared to the increase in the working population in India, it is no doubt a welcome step to achieve the objectives of Skill India in the coming days.

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