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Demonetisation : An Empirical Study of 5 Year Journey of Reforms and Progress in India[1]

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Abstract

Demonetize high value currency bank notes of ₹ 1,000 and ₹ 500 from 8th Nov 2016 midnight was to induce transparency and growth; curbed black money; reduce corruption; control terrorism; build foundation for less cash economy and bring equity to 130 crore citizens of India. Empirics show a rebound in Growth figures in 2017 itself and the way the people of India at-large welcomed the decision in the interest to secure future and patriotism, having been cursed and crushed for decades due to the cost of corruption, militancy, terrorism and high inflationary pressures on account of black money. Covid-19 had brought forth numerous challenges for economies globally beginning December 2019. The Financial inclusion, Banking and digital dividends to the poorest of the poor and the deprived section in Independent India post 1947 has improved. No impact of demonetisation on the rate of change of macroeconomic variables in pre and post the demonetisation period clearly nullifies any claims that it had slowed the pace of economic growth or disrupted the macroeconomic change in the economy.

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I. Introduction : India's Growth Story

INDIA HAS MADE enormous strides in the last 75 years of India's having regained independence. India enjoys a rich heritage, intense diverse cultural and socially rich setup. Economic growth and development in India, since 1980, has been amongst the fastest in the world; social indicators for literacy, education enrolment, disease and mortality, and gender have steadily improved; and poverty has fallen since the mid-1970s (World Bank, 2000). All this is despite having a population base of around 1.3 billion people, which had been growing at the given Hindu growth rate of 2.3% till

1 Invited Lead Chapter in "Demonitisation and the Indian Economy : 5 Years Hiccups and Achievements" in March 2022.

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2010 and at 1.7% henceforth. India today stands to be THE Youngest Nation globally with over 742 million people (71% of total population) below 35 years of age and over 65% of young working population (between 15-45 yrs of age). Various international agencies have forecasted India to be amongst the top three (3) economic nations by 2015-2025 (Agarwal, 1994, 1995, 2001; CFO Survey, 2018; Jaitley, 2018). With these, we hope to achieve the dream vision pictured by our Honorable President APJ Abdul Kalam jee in his work "India 2020" and our Honourable Prime Minister Narrendra Modi in his speeches since 2014. All this has been made possible only because of the dedicated and law abiding citizens of this great nation, who are the soldiers of the socio-economic growth and the vision of our leaders who are the pillars behind success of our sustained democratic progressive Bharat.

India has also developed a diversified industrial base and a relatively large, robust and sophisticated financial sector. India is known in the international spheres for its technical human resource, financial framework, manufacturing capabilities and the software sector. The FDI Flows on monthly basis in India have increased from US$ 0.2 billion/month (in 2000-01) to US$ 1.3 billion/month in 2010-11 to US$ 6.5 billion/month in 2020-21. The FDI Flows in 2021-22 are expected to be around US$ 90 billion (i.e. US$ 7.5 billion/month). These successes have taken place against a backdrop of India being the largest democracy of the world with a significant degree of political freedom and stability. It is a matter of pride that we have had the successful conduction of election ever since its independence in 1947. The total number of votes in India (671 million i.e. over 62% of population), which far exceeds the total population of America and it also exceeds the total population of the whole of Europe along with a participation of over 200 political parties (largest multi-party system base observed by any democratic country globally).

India's re-entry into the globalized world and sustained growth in the last decade (especially last 5 years) has opened up immense possibilities for becoming a truly favoured global democratic nation, economy and market. India has benefited from the old heritage (dating back to over 10,000 years), traditional value system and economic and societal norms. These have empowered India and Indians to accommodate and adjust with changing times and scenarios over the history. We have seen times when there was free movement of labor and capital in the golden arena of our nation Bharat. Today's globalization does encompass part of it, wherein capital and trade is certainly an issue. The gradual privatization and the consequent need to regulate investments; the growing importance of private investment and the emergence of the mixed-market economy are some of the characteristics of the political economy of India resulting from its engagement with the global economy in the 1990s. If we are really talking of a globalized world, then we need to free ourselves of these barriers and allow the market mechanism to freely flow and be part of this large society.

It has been widely observed and projected by numerous research studies that globalization and financial developments in the world economy have altered the economic frameworks of both developed and developing nations in ways that are difficult to comprehend. The persistent rise in the dispersion of current account balances of the world as a whole, wherein the sum of surpluses match the sum of deficits has grown substantially since the World War II (Agarwal & Agarwal, 2001; Agarwal, 2004; Agarwal & Agarwal, 2017). These global trends has led to creation of extensive levels of in-equalities of income, gender disparities, gender pay differences, civil disorders, un-employment and lowering standard of livings enhancing poverty and deprivation Globally.

India has tried to shield itself from such disorders; however the 1% of Global population having 50% Global wealth (Nov 2017) is a clear indication of challenges that lie ahead. In India it is estimated that 57 Indian Billionaires own wealth equal to Bottom 70% of India's Population (Credit Suisse, Nov 2016). The Government today is perplexed with this challenge to serve the society and induce equitable growth through creation of Jobs & Growth. The initiatives undertaken by the government under the Making in India campaign and the 21+ programs launched and monitored by the Prime Minister Narendra Modi himself in the last 4 years to induce financial inclusion, enhance banking, spread digital dividends, control inflation & money supply through drives like demonitisation, jan-dhan yojna, interlocking AADHAR and GST are expected to yield long term fruits which would be visible and appreciated in the coming 5 years. The mass support for most of these drives is a clear evidence of the faith and support by the people of India to foster these achieved.

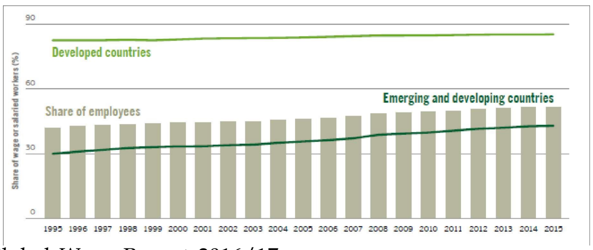
We have seen that countries in Asia and the Pacific, which are close to our hearth, have also not observed impressive and sustained growth which is inclusive and reduces poverty effectively without keeping up impressive rates of public and private investments in education, healthcare and infrastructure. Inclusive development and poverty reduction needs to focus on human capital development, social capital development, gender equality and development, and social protection. Human capital development would mean to create the necessary infrastructure for education, primary health care, and other essential services. Social capital development would mean facilitating participation of the poor and underprivileged in providing community based services in microfinance, health and natural resource management while reducing the leakages from the system that transfers benefits to the poor including setting up systems like AADHAR enabled databases (Pandya, 2019), which is steps ahead of the Social Security Number systems adopted in United States of America.

In Asia, Gender equality and development would mean enhancing the role of women in economic activities, promoting their health and welfare programs that promote investment in families and societies. Social protection means providing for a sustainable economic model that secures a life with dignity by establishing social safety nets especially in the ASEAN region where 70% of the population region faces vulnerable employment. With the policy prescription of fiscal prudence, liberalized markets and globalisation the incomes inequalities are on a rise. Developing countries that lag far behind the developed countries on inclusive development face a constant challenge to secure funds for development. It is essential to create and develop regulatory frameworks, institutions and market mechanisms that ensure higher productivity, technological advancement, connects with the grass root level while securing them a livelihood with dignity and human respect.

India, the baby elephant, is projected to grow at 8.5 % in 2022 (World Bank-IMF, S&P, ADB, RBI) despite recessionary trends in the world economy. Successful implementation of Disruptions like demonetization and GST in a large economy like India is a case of learning for most economies. The government in the past three years has also launched schemes like the Pradhan Mantri Jan Dhan Yojana, Atal Pension Yojana, Pradhan Mantri Jyoti Bima Yojana, Pradhan Mantri Suraskha Bima Yojana, Pradhan Mantri Kaushal Vikas Yojana, Pradhan Mantri Awas Yojana, National Career Service, Pradhan Mantri Ujjwal Yojana, Pradhan Mantri Jan Aushadi Kendra, Standup India and Digital India Program that have reached the poorest of the poor and connected them with the economic growth and development story of India. Cash Subsidy transfers and AADHAR enabled social incentives has reduced leakages from the public distribution systems. With highly leveraged corporate balance sheets, growing NPA problems and Covid-19 dent to the economy has been challenging to seek growth in private sector investment. It is the need of the hour to debate the policy frameworks which would guide sustainable growth and development in emerging and developing economies like India while taking into consideration the effects on agriculture, healthcare and climate change.

China, the roaring tiger, on the other hand is expected to grow at 6.5% in 2022. China has the potential to sustain strong growth over the medium term, provided it is able to take care of the leadership void (crisis) felt by the people, bureaucrat and policymakers in China and around the globe in the last 2 decades. To achieve this it needs accelerating reforms to rebalance towards less credit-intensive growth. It needs to concentrate on boosting consumption by increasing social spending and making the tax code more progressive. It needs to increase the role of market forces by reducing implicit subsidies to State owned Enterprises and opening more key sectors to private investment. It needs to deleverage the private sector with continued regulatory/ supervisory tightening, greater recognition of bad assets, and more market-based credit allocation. It also needs to ensure macro sustainability by gradual fiscal consolidation and less monetary accommodation. The focus of growth should shift to quality and sustainability of growth and less on quantitative targets. There is need to improve policy frameworks for center-local fiscal relations, financial stability, monetary policy, political realignment and manage data for modern China.

Labor is the most important resource that utilizes natural or capital resources in most productive manner to create and generate wealth for nations, companies, organizations and for themselves (Agarwal, Agarwal, Agarwal, Agarwal, 2017). Despite the technological revolution and advancements in the artificial intelligence, labor continues to be supreme and guides the functioning of all economic events and economic systems. Labor in itself is wealth of a nation. But it is not effectively utilized. Labor suffers from lack of employment opportunities, poverty, poor wage, income variations, immobility and many other problems. In developed economies, wages constitute about 70 % to 80 % of the pre-tax income and post transfer payments with at least one working member in each household. However in developing and emerging economies this share is less than 50% for example it is 40-50% in Argentina, 40% in Peru and 30% in Vietnam. Self-Employment is the main source of income in most of the developing and emerging economies for lack of employment opportunities, information, corruption, lack of transparency, and accountability in recruitments and lack of skills and adequate training. Despite the importance of labor in the world economy, labor market is far from perfect for lack of necessary information available.



Source: ILO Global Wage Report 2016/17

Figure 1
Share of Employees in Total Employment

Labor market in economics implicitly assumes perfect information. It believes that each individual knows everything about all the existing job offers and he or she is just to choose the number of hours he or she would like to contribute to earn a desired wage which is offered as per segmented market determined wages rates. The implicit assumption is erroneous and suffers from distortions. It makes the analysis of labor market to be far from reality. Besides this, there are a number of other distortions even in the most developed and efficient labor market such as : existence of gender discrimination both in terms job profile, number of hours, wages and promotions. In some countries, reservation policy based on caste both in terms offering jobs and promotions, immobility of labor, wage differentials due to nature of work or type of employer create labor market imperfections.

Theories developed in the past are the foundation stone, an important base, hold due importance for any further work in this field. However, with the changes over the last century, complexity and size of labor market and innovations and information technology it has become necessary to revisit some of the works developed so far. It is imperative to develop a mechanism or policy framework to deal with some of these and other distortions in the labor markets so as to bring about near perfect situation in the labor market to help both the job seekers and job providers and reach near full employment situation and take care of some of these other distortions.

1.1 *INDIA : Three Action Agenda Plan (Niti Aayog, 2017)*

NITI Aayog released its latest publication : India : Three Year Action Agenda 2017-18 to 2019-20 authored by Sh. Arvind Panigriha, the then Vice Chairman, NITI Aayog and released on 24th August 2017 at Vigyan Bhawan, Delhi. The agenda has been widely appreciated in media, by economists and others. However, the NITI Aayog has failed to give out of the box solutions.. Most of the actions suggested are opinion based rather than on logical derivation considering the targets and also financial, technical and other resource constraints and challenges. The agenda for India set by the highest and most powerful think tank of the country suffers from several weaknesses. It does not identify goals and also constraints. Any agenda in the short run or medium or long run can be of no meaningful purpose if it does not identify goals and constraints. Leaving long term vision to be done at the IInd and IIIrd stage is not justified. Several important sectors have been left out in Action Agenda.

The agenda for India set by the highest and most powerful think tank of the country suffers from several weaknesses opined Prof. J.D. Agarwal and Prof. Aman Agarwal, Economists and Professors of Finance, Indian Institute of Finance in a comprehensive article published in the latest issue of Finance India, Vol. XXXI No. 3, September, 2017 issue and re-printed with permission in AESTIMATIO, The EIB International Journal of Finance, Vol 16, pp 2-23 DOI :10.560/IEB.18.7. It does not identify goals and also constraints. Any agenda in the short run or medium or long run can be of no meaningful purpose if it does not identify goals and constraints. Leaving long term vision to be done at the IInd and IIIrd stage is not justified. Vision and goals in the short run i.e. for the next three years has to be defined first, priorities assigned and constraints to be taken care of. Otherwise the whole exercise is not of much use. The agenda and the estimates do not give the methodology used e.g. in chapter 3 and 4 the agenda of expenditures in the next three years is given. How has it been worked out, is not spelled out. On page 16 it states that due to uncertainty in the implementation of GST, estimates cannot be given while the GST has already been implemented on 1st July 2017. To fulfil the Action Agenda how much funds and other resources are required have not been spelled out either (Agarwal & Agarwal, 2017)

1.2 *India 2016: Demonetization Demystified*

An Historic step by PM Shri Narendra Modi to demonetising high value currencies bank notes (legal tenders) of Rs 500 and Rs 1,000 from November 8th, 2016 Midnight to Induce Transparency & Growth; Curb Black Money; Reduce Corruption; Control Terrorism / Militancy and bring equity to 120 crore citizens of India. This step by Government of India will enhance the Growth and Glory of India domestically and globally. This is a landmark and a very welcome decision. This is not only a War against Black Money, Corruption, Terrorism, Militancy; it is also truly a daring step in best interest of India and its people. This step is honouring over 120 Crore citizen who have been bearing a high cost of Inflationary pricing of essential commodities in India. The socio-economic impact of this decision by the Government of India has had a varid reaction since the public address by PM Narendra Modi on 8th November 2016 at 8.00 pm. The people at large have welcomed this decision in the interest of a secure future and patriotism, having been cursed and crushed for decades at the cost of corruption, militancy, terrorism and high inflationary pressures on account of Black Money and un-accounted wealth.

India has observed similar steps undertaken in pre-independent India in January 1946 (Demonetisation of Rs 1,000 and Rs 10,000 bank notes). However, high denomination notes of Rs 1,000, Rs 5,000 and Rs 10,000 were reintroduced in 1954. These bank notes were demonetised by Janta Government in January 1978 through the Higher Denomination Bank Notes (demonetisation) Act 1978. After the current Demonetisation No citizen can use these notes (legal tenders) for any transactions within India, except for certain emergency services like hospitals (including government medical stores) and transportation (railways & airways) till 10th November 2016 and transactions with Post Offices and Banks till 31st December 2016 (without declaration form) and 31st March 2017 (with declaration form). This step will have a long term bearing impact on Indians and the Indian Economy.

The positive outlays of this demonetisation outlined on 9th November 2016 at various forums and published by New Indian Express Newspaper(Agarwal, 2016), some of which have already been witnessed in the last 1 year, have been

i. rise in per-capita income to double its current level within the next 5-8 years (by end of 2018)*(observed)*;
ii. replenishment of banks with fresh liquidity resolving emerging liquidity crunch and NPA problems in the banking system in India *(already attained)*;
iii. strengthening the Rupee value against US Dollar to Rs. 60/- per US$ *(observed)*;
iv. increase FDI & FII investment from an average of US$ 2.5 billion per month to US$ 4 billion per month in the next 3 months through formal channel given the increase in transparency and reduction in parallel economy *(already crossed US$ 5 billion in 2016-17 and US$ 6.5 billion in 2020-21)*;
v. The Foreign Exchange Reserve are expected to rise to over US$ 400 billion by 31st December 2016 *(already crossed in 2017; and now at 650 billion in November 2021)*;
vi. collection of about Rs. 5,00,000/- Crores in the next 3 months from domestic markets and about Rs. 10,00,000/- Crores in the 1st Quarter of 2017 from global markets *(already crossed in December 2016)*;
vii. Inflation (CPI) to see a slide down by at least 50 basis points in the next quarter to 4% *(already observed and under control with RBI efforts)*;

viii. credit off take to increase in the 1st quarter of 2017 *(did initially, but reversed due banks control on lending given their NPA positions and Covid-19 downturn)*;
ix. corrections in the stock markets and reality sector which have been on a roaring high for the last decade despite global recession and downturn in almost all segments of industry in India and globally, hence the sensex is expected to fall by 3,000 points in this week and fall in reality values by 30% of their notional value in November 2016 *(already observed)*;
x. enhanced confidence in the currency as an established International Reserve Tradable Currency *(already being observed, given international wide acceptance and recent Moody's Rating)*;
xi. enhancement of Global ranking by Transparency International and other International Agencies like World Bank; IMF; Moodys and others *(already observed in 2017 and 2018)*;
xii. Money Supply (M3) to be brought under control with New Currency replacing Old with excessive reserves within the Banking System *(already observed)*;
xiii. removal of fear of fake currency, which a citizen bore whenever making payments *(already done)*.

Some of the difficulties which are expected to be faced by the citizen outlined on 9th November 2016 at various forums and published by New Indian Express Newspaper(Agarwal, 2016), some of which have already been witnessed in the last 1 year, have been

i. availability of funds (petty cash) to undertake day to day family consumptions for minimum a week *(already observed)*;
ii. Not all citizens are banked, hence changing of old currency would be chaotic within the given banking framework *(already observed)*;
iii. reality sector would see a further downturn in India with erosion of notional value of real estate holdings *(already observed)*;
iv. migrant workers and domestic tourists would face difficulty given their holding limited cash in these high denominated bank notes for meeting their day to day needs in this week *(already observed)*;
v. GDP is expected to be sluggish in the short run, however would have positive rebound in the long run *(already observed; also marked by World Bank Estimates/projections of 6.7% in 2017; 7.3% in 2018; 7% in 2019; 6.5% 2020; and 9.5% in 2022)*;
vi. New Money drives away Old money, hence the Rs. 2,000 bank noteare expected to go in vaults of those who are influential and have been hoarders of Black Money *(already observed)*;
vii. small businessmen and shopkeepers will find it difficult to manage their daily operations *(already observed)*;
viii. profitability of such small business is expected to take a hit *(already observed)*;
ix. limit on exchange of currency from Banks/Post Office and encashment via ATMs with put citizens and small business / shopkeepers into difficulty *(already observed)*.

People of India have borne these labour pains with honour for a better future tomorrow. This is the greatest rewards to honest and worst punishment to corrupt and holders of black money. Agarwals in their addresses have said that in last few years, it had become quite difficult for large portion of the Indian citizen,over 800 million, to have a decent living despite being honest taxpaying earners. This step by GOI would have a sea face change to be observed in the way international investors and international markets view India as a Safe Investment Option. However, it is important that the Prime Minister's Office and the Government tries to motivate citizens to change their mind-sets which would only be boasted on the account of greater accountability on the part of politicians and office bearers of public services.

Demonetisation or scrapping of a currency is a very high costly affair from the point of view of cost to the central bank of a country, very high administrative costs, and loss of prestige of the currency internationally (in short span). But given the circumstances, it is at times most imminent step to curb black money, corruption, terrorism and militancy which trouble the common man on a daily basis. The decision pronounced by PM Narendra Modi is the boldest decisions in the right direction. Prime Minister Modi deserves all praise for this decision. I welcome this decision whole heartedly.

1.3 *Financial Inclusion, Banking and Digital Dividends*

An interlock between Financial Inclusion, Banking and Digital Dividends fosters creation of social security facilities; employment growth and a social equilibrium in the society. Global Dis-equilibrium and interdependence, unemployment, establishing balance between need for survival, socio-economic growth & environment discipline, focus on issues to build sustainable future in interlocked global economic environment, digital revolution, dividends and security are major concerns and global challenges before the economies today.

Digital revolution has fostered more than 40% of world population have access to internet and over 20% of the poorest people in the world have mobile phones. Digital revolution has also empowered women participation and the common man on streets. Even the extremely poor (BPL families), disabled and downtrodden are the key beneficiary of this revolution. Digital technologies are accessible by over 7.4 Billion global population with around 1.1 billion people having high speed internet, with India having the highest growing portfolio. The key concerns before governments, regulatory bodies and the common man on street are the issues of privacy; social fabric being destroyed, cyber security threats; funds flow controls; money laundering and terrorist threats, access to internet and banking facilities which are becoming more expensive contrary to their being extensive cost of operations.

It is expected that online banking; mobile banking; virtual banking; developmental banking; retail banking; corporate banking and cooperative banking besides digital wallets play a major areas of thrust in the banking sector and financial inclusion today. This would further reduce cost, unless banks take to profiteering as done by some banks as observed in last 14 months after demonetisations. The move by the FM to induce/expand Post office Banking (as proposed by IIF Professors for last 7 years at various National Channels – DD, Lok Sabha TV, AIR, other TV Channels & print medias) would have far reaching impact of Financial Inclusion especially to the masses and rural India. We at IIF have also proposed the following - Banking on Wheels; Agro banking; Education banking; Micro banking; Islamic banking; Healthcare Banking and Skill banking as major stepping stone for banking tomorrow for financial Inclusion.

While delivering a Keynote Address on "Financial Inclusion, banking and Digital Dividends" at Digital Wallet Summit, 2017 being organized at Bengaluru, India on 16th June, 2017, Prof. J.D. Agarwal, Chairman and Professor of Finance, Indian Institute of Finance said the world economy is moving towards new economic order. He advocated the need for social security facilities; employment growth and a social equilibrium in the society. While addressing a large audience, Prof. Agarwal said Global Dis-equilibrium and interdependence, unemployment, establish balance between need for survival, socio-economic growth & environment discipline, focus on issues to build sustainable future in interlocked global economic environment, digital revolution, dividends and security are major concerns and global challenges before the economies today.

According to Prof Agarwal the world has entered a digital revolution today. More than 40 % world population has access to internet and even the 20% of the poorest people in the world have mobile phones. He emphasized that with digital revolution women participation has enhanced, they are more empowered, common man is empowered to develop independently and extremely poor, disabled and downtrodden would benefit maximum from the digital revolution. Digital technologies are spreading rapidly in developing countries. 7.4 Billion global population have internet access with around 1.1 billion people having high speed internet access said Dr. Agarwal. Speaking on cyber security, Prof. Agarwal said privacy issues; social fabric and access to information; risks due to cyber security; government concerns on control; money laundering and terrorist threats are major issues before governments across globe today. He strongly outlined online banking; mobile banking; virtual banking; developmental banking; retail banking; corporate banking and cooperative banking besides digital wallets, as major areas of thrust in the banking sector and financial inclusion today. He also mentioned Post office banking; banking on wheels; agro banking; education banking; micro banking; Islamic banking; healthcare banking and skill banking as major stepping stone for banking tomorrow for financial Inclusion.

Prof. Agarwal, while appreciating and welcoming a landmark decision of Prime Minister Shri Narendra Modi for demonetizing high value currency bank notes of ₹ 1000/- and ₹ 500/- from 8th November, 2016 midnight, to induce transparency & growth, curbed black money; reduce corruption; control terrorism and bring equity to 120 crore citizens of India. He further said that the move of the PM will enhance growth and glory of India both domestically and globally in times to come. Prof. Agarwal strongly emphasized that the step is not only a war against Black Money, Corruption, Terrorism; militancy but it is also a daring step in the best interest of India and its people. This step is honouring over 120 crore citizens who have been bearing a high cost of inflationary pricing of essential commodities in India. According to him, people at large have welcomed this decision in the best interest of a secure future and patriotism, having been cursed and crushed for decades due to the cost of corruption, militancy, terrorism and high inflationary pressures on account of black money.

According to Prof. Agarwal, the positive outlays of this demonetization includes rise in per capita income to double of its current level within next 5 to 8 years; replenishment of banks with fresh liquidity resolving emerging liquidity crunch and NPA problems in the banking system; strengthening value of Rupee value; increase in FDI and FII Investment in the country; increase in foreign exchange reserves; inflation likely to slide down gradually; corrections in the stock markets and realty sector; enhanced confidence in the currency and global ranking and Money supply brought under control. However, Prof. Agarwal said the Indian citizens are also expected to face some difficulties in the short run such as availability of petty cash; even today not all citizens are banked; realty sector may see a further downturn; migrant workers and domestic tourists would face difficulty in short run; GDP is expected to be sluggish in the short run, profitability of small businesses may be hit adversely; high denomination notes of Rs. 2000 are expected to go into vaults of influential and hoarders of black money. But still "the decision pronounced by PM Narendra Modi is the boldest decision in the right direction and he deserves all praise for this decision" said Prof. Agarwal. The key issues which require attention of the Government and policy makers. According to him, necessary support to policy changes, trust and confidence hold the key to growth and prosperity.

While delivering a key note speech at WASME (World Association of Small and Medium Enterprises) and 21st International Conference on Small and Medium Enterprises (ICSME) Prof. J.D. Agarwal mooted again the creation of a Green Fund (Environment Fund) by Small & Medium Enterprises (SMEs). The fund is to be created jointly by SME and the government as a proportion of Equity or out of profits and Grants from the Government. The governments should facilitate creation of such Green fund to maintain Ecology and Environment. According to Dr. Agarwal, degradation of environment and ecology may result into extinction of civilization or spread of diseases and unnatural deaths. Prof. Agarwal was delivering a keynote speech on Green Finance for SMEs : Sustainable Financial Development in Session II of the Conference in Stein Auditorium, India Habitat Centre, Delhi. Shri Shiv Pratap Shukla, Honble Minister of State, Ministry of Finance, Government of India was Chief guest in the Session. Other Speakers included Mr. Dumisani J Msibi; Shri S.P. Singh; Mr. Tushar Pandey and Dr. L.C. Sharma.

Prof. Agarwal while delivering his keynote speech highlighted the contribution of SMEs enumerating data with respect to their number; their share in industrial units at 95%; employment to work force at about 40%; their share in exports at around 40% and their share in total Manufacturing output at around 45%. According to Prof. Agarwal, SMEs are the backbone of Indian Economy . Dr. Agarwal stated that there is a need for US $3000 billion in industry as Green finance. He emphasized that the use of various natural resources including energy, raw materials, water, land, biogas, air and capital and labor should be effectively utilized. There should be effective mechanism of managing waste, environment and controlling pollution. He highlighted the existing financial eco system consisting of banks, mobile wallets, micro finance institutions, INGOS & NGOs, Money Transfer organizations and retailers & merchants and Government departments. However he focused that SME should create internal resources by setting aside a part of profit as reserves.

For maintaining sustainability, SMEs and actually all business enterprises should save costs by monitoring environment, energy and water and be particularly careful that there is no degradation of environment due to construction, operations, maintenance, air and water pollution. He highlighted that there is a need for solid waste management. Speaking on sustainable financial development, he appreciated UNEP / United Nation initiative taken in 1992 to encourage financial institutions to fullfil their role for sustainable world. He reiterated that both the government and private enterprises including SMEs should be conscious of sustainable financial development by creating a Green Fund (Environment Fund) jointly by business enterprises and the government. He cautioned that economic growth is the biggest destroyer of ecology and environment. Society may collapse due to population, climate, water, agriculture and energy . He opined that there is a need to focus on economic development simultaneously with a focus on economic growth by paying equal attention to UN millennium goals.

The UNI News on Government Assures Green Finance to SMEs by Minister on November 30th, 2017 at WASME 2017. UNI News is in tune with IIF proposals (a) Prof. J.D. Agarwal (2017) "Creation of a Green Fund

(Environment Fund) mooted : Dr. J.D. Agarwal" Keynote Address at WASME 2017 on Nov 30th, 2017 and (b) Prof.J.D. Agarwal and Prof. Aman Agarwal (2007, 2008) in their work presented at Global Forum 2007 in Gothenburg Sweden and discussed at various Parliament's in Europe and other International forums. Proposal article "Climate Change, Energy and Sustainable Development" published in Finance India, March 2008 and proposed by OECD Forum 2008.

The new RBI Governor faces several challenges during his term to reverse the prevailing trend in the banking system (Agarwal, 2017). In the recent past, the banks excessively suffered from heavy losses. The total consolidated loss of Public Sector banks has been reported to Rs. 20,000 crores in FY 16 after setting aside 115% of their pretax earnings toward bad loans as against a consolidated profit of Rs. 30969 crores last year. Gross bank Loans in entire banking sector has gone up to 8.7% in June 2016 from 4.8% as of March 2015 following doubling of the ratios of bad loans in PSBs to 11.3% from 5.4% in the same period. The banks have written off about ₹ 2,50,000 crores in the last 3 years and about ₹ 4,56,000 crores in the last 10 years. The capital adequacy ratio Is not nearing meeting the Basel III norms. In the last three years RBI has been excessively focusing on monetary policy and interest rate mechanism to throttle the liquidity management in the economy under the garb of managing inflation. Monetary policy and other policies must be in consonance with the economic and government policies in power. There was a lack of perfect coordination between the RBI and the government, while there is a need to be a perfect coordination between the RBI and government to achieve the desired results rather than acquiring contradictory stances.

The challenge before the new RBI governor is to ensure that RBI fulfills its prime responsibility of facilitating banks and financial institutions function efficiently and effectively minimizing the bad loans; appropriately regulating the banking and financial system in the country, managing a stability with minimum volatility in foreign exchange, maintaining appropriate liquidity in the system for the efficient functioning of the business and industry, government and banks, particularly when the banks are excessively suffering on account such as high level of NPAs ; lack of capital adequacy ratio; lack of appropriate digitalization and their outreach to areas and people who deserve their presence. etc

The new RBI governor should ensure and facilitate in enhancing the dignity of the currency through stability and ensuring robustness of the credit system. RBI is responsible for operating the currency and regulating the banking system, controlling the existence of reported fake currencies, depreciating rupee, rising NPA and lack of credit to meet the demand f business and industry. These are challenges that cannot be ignored by the Central Bank of any country. RBI's over focus on containing fiscal deficit, controlling liquidity through interest rate mechanism, proved to be counter-productive for the business and industry; people of the country and the nation for the sustainable growth and development in a developing economy like India. RBI under Raghu Rajan as its governor, was adopting IMF guided policies or policies which were relevant in developed nations like UK and USA and other developed countries where the growth rate, as well as inflation, is very low. India would reach that kind of stage at least in another 10 years. RBI in my opinion should not be an alternative to the government in terms of managing the economic affairs of the country. Fiscal deficit, inflation, economic growth, economic development at a sustainable level is primarily the responsibility of the government in power. RBI should facilitate the government in achieving these goals.

India in its 71st year of Independence continues to be challenged with scarcity and access to adequate capital. The rising NPAs in the banks and low efficiency continue to question the RBI policy and guidelines that monitor and regulate the financial system. Inability of RBI to maintain low volatility in the foreign exchange market and depreciating rupee continues to question whether there exists an apex body that monitors the working of the financial system. This is a challenge which Governor Shaktikant Das focused and to a great extent has been able to bring off charts from critical position.

Maintaining Capital adequacy ratio as per Basel norms III is another challenge before the new Governor of RBI. As the deadline approaches in 2018 for meeting the Basel III requirements there would be continuous pressure on the banks to reorient their investments from risky assets to less risky asset profiles. RBI should ensure that Capital Adequacy ratio is maintained by banks themselves, Instead of burdening the exchequer for subsidizing NPAs or investing in the capital of the banks to maintain Capital Adequacy Ratio. Banks are commercial undertakings, there is no justification in the government to facilitate CAR by infusing investment in the capital of banks. Why should tax payer fund commercial undertaking.

The RBI needs to take immediate steps in monitoring any lopsidedness on part of the banks. Monetary Policy that needs to manage the supply and demand of currency must ensure that interest rate does not create artificial supply and demand gaps that lead to regressive growth. Monetary policy has world-wide been accommodative to economic objectives and must at the time of growth for economies like India provide the necessary impetus that it needs to become an emerging power. Monetary Policy stances have restricted the approach of the RBI Governor to mere inflation targeting. It is a policy stance much relevant to the developed economies as against developing economies. Developed countries have robust financial systems and markets that continue to enjoy the confidence of the international investors in the most adverse circumstances. However developing economies continue to be challenged for want of easy and accessible capital together with domestic and international investors' confidence.

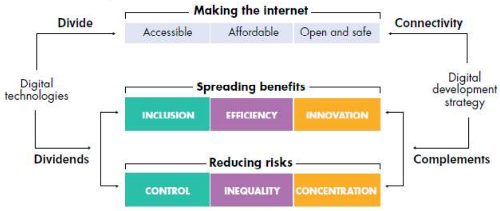
In India the financial sector provides about 75.5% of the GDP as domestic credit as against 373.8% of GDP in Japan, 168.8% of GDP in United Kingdom, 253.5 in United States and 140.6% of GDP in Germany, nowhere close to the availability of credit in any of the advanced nations. India ranks 54th among 163 nations, for providing domestic credit to business and industry from its financial sector. RBI needs to play a positive role in this direction.Inflation & Monetary Policy may be one of the objectives of RBI . It cannot be the sole and only objective as it has been made out during the Rajan's period. Similarly cleaning up on the balance sheets of commercial banks at one go resulting into low profitability or heavy losses cannot be considered to be a wise decision as it puts pressure on the government's funds and holding its targets to maintain fiscal deficit within control.

RBI's has to play an important and positive role as regulator and lender of last resort to banks and banking system. It has to ensure controlling the rise in gross NPAs to about 12 percent is a unfortunate state. It is a loss to the banks, nation and also the depositors at the hands of some unscrupulous people. It is a clear case of nexus between the large borrowers, bankers and some politicians who influence bank's decision-making. RBI should concentrate of introducing Financial technology, Indian Banking system is way behind. Digital linking of accounts and transactions would not only facilitate transfers but would also help in evasion and avoidance of taxes and frauds. Jan dhan Yojana through digital banking and also introducing Islamic banking would make financial inclusion more successful.

The RBI should also insist to implement priority sector lending more of a mandatory. Once again the commercial banks are focusing on large borrowers and also big businesses and industrialists. Banks as public sector entities have a social responsibility and should positively contribute towards the goals of the governments in social service schemes to take care of the poor and marginalized people in the country. This is a challenge before the new RBI governor.

RBI and also banks need to reverse the current alarming situation of heavy losses, excessive size of bad loans, Banks and RBI to also ensure that it is minimize losses and earn profits. The total consolidated loss of Public Sector banks have been reported to ₹ 20,000 crores in FY 16 after setting aside 115% of their pretax earnings toward bad loans as against a consolidated profit of Rs. 30969 crores last year. Gross bank Loans in entire banking sector has gone up to 8.7% in June 2016 from 4.8% as of March 2015 following doubling of the ratios of bad loans in PSBs to 11.3% from 5.4% in the same period.

Given these challenges, the revamping of PMs Making in India program and the banking reforms in place, we see that the Banking tomorrow would foster on Online Banking (Partially done); Mobile Banking ; Virtual Banking / Financing (Partially done at Micro Finance); Developmental Banking; Retail Banking (done in key cities only); Corporate Banking; Cooperative Banking; Virtual (Crypto) Currency Banking (yet to introduced by Central Banks including RBI); Post Office Banking (Aman Agaral 2012-2016); Banking on Wheels (J.D. Agarwal 2015-2016; Aman Agarwal, 2017); Agro Banking through Kissan Credit Card (J.D. Agarwal 1997-1999) & Corporate Farming (J.D. Agarwal 1997-1999); Education Banking; Micro Banking; Islamic Banking (Aman Agarwal 2012, 2016); Healthcare Banking; Skill Banking; Online Banking (Pure Online Banks).

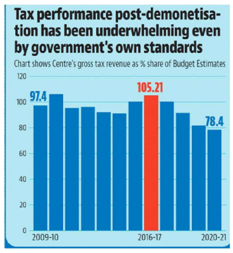


Source : World Bank; WDR (2016)

Figure 2
Financial Inclusion, Banking and Digital Dividends : Transformation

The Introduction of Goods and Services Tax (GST) has brought forth - Economic Unification of the Country; One Country One Tax; Game Changer – Doing Away with Multiple Taxes; Reduce Tax Evasion; Transmission from Un-Organized to Organized (Formal) Sector; Balance Sheet Formation – Declaration of Profits; Growth in GDP Figures (Results Visible); Job Market Enhancement; Better Performance at Lower Costs; Better Revenue Collection (1st Qrt, Change of Tax Basket); Widen Tax Payers Base (Over 15 Crore New Tax Payers i.e. 64.42 % businesses registered in July 2017); Growing Share of Organized Market; Boast Warehousing, Supply Chain Mgt & Third Party Logistics; Input Cost Benefits (Yet to be Realized); Reduce Competition; Facilitate Digitilization; Enhance Ease of Doing Business ; Bring forth Level Playing Field; Enhance Clarity in Taxation with Simplification; Equitable Growth in Economy; Implementation of Government Financial Schemes for MSMEs; Creation of Strong Brand and Ease to Capture Customers; Standardization of Products and Services; Better Bargaining Power.; Ease in Raising Funds from Equity and Debt Markets; Immunity to Defaults / Failures by improving resistance of players for shielding against different Economic Environments; Transfer of Risk; Logistics Costs to go down by 8% - 30%; Profit Conscious Approach; Living Standard Improvement for All; Better Management of Investment Assets for Growth; Reduce Wasteful Expenditure – Cutting down something not essential based on ZBB; Brand Development; Better Services at Lower Costs.

Some of the key challenges before GST are Implementation is a Big Challenge; Cash Transaction to be done away : Not to Evade GST; India has been a Cash Economy; Social Fabric, Established Systems & Access to Information; Digitalization Risks due to Cyber Security ; Bank Risks (Charges & Dominance Position Behaviour); Concerns over Governmental Control; Money Laundering. Also the emerging Cyber Security threats are adding to the complexity of introduction of GST with the issue given by existing digital frameworks / AADHAR Card on Privacy Issues; Social Fabric and Access to Information; Risks due to Cyber Security; Governmental Concerns on Control; Money Laundering; Terroristic Threats; BITCOINS : New Hawala Mode of Transaction – Sovereignty Threat.



Source : Hindustan Times

Figure 3
Cash-to-GDP Ratio from 2009-10 to 2020-21

Today we see GST averaging at ₹ 1.1 lakh crore (averaged for last 1 year) with the peaks at ₹ 1.30 to 1.35 lakh crore per month between October-December 2021. This has given the government a fair leg room to cope up with the fiscal deficit on account of vaccination and covid-19 downfall in 2020-2022.

1.4 *Demonitisation : A 5 year Journey*

Agarwal (2016) had estimated that the following positive impacts of this demonitisation will be there in the article in Indian Express on 12th November 2016 (a) rise in per-capita income (₹ 94,797 (2015-16); ₹ 1,04,880 (2016-17); ₹ 1,15,293 (2017-18); ₹ 1,26,521 (2018-19); ₹134226 (2019-20) (Economic Survey 2020-21)]; (b) fresh liquidity for banks; (c) strengthening the Rupee value against US Dollar; (d) increase FDI & FII investment; (e) Foreign Exchange Reserves will rise to over US$ 400 billion by December 31, 2016; (f) collection of about ₹ 5,00,000 crore in the next 3 months from domestic markets and about ₹ 10,00,000 crore in the Q1, 2017 from global markets; (g) Inflation (CPI) to slide 50 basis points; (h) credit off take to increase; (i) corrections in the stock markets and reality sector; (j) enhanced confidence in the currency; (k) enhancement of Global ranking; (l) Money Supply brought under control and (m) removal of fear of fake currency (Agarwal, 2016). Most of which have come true as can be seen in the figures presented in Table III.

Agarwal (2016) also expressed the following difficulties which would be felt: (a) availability of funds; (b) changing of old currency would be chaotic; (c) reality sector would see a further downturn; (d) migrant workers and domestic tourists would face difficulty; (l) GDP is expected to be sluggish in the short run, however would see positive rebound in the long run; (j) ₹ 2,000 bank notes are expected to go in vaults of those who are influential; (k) small businessmen and shopkeepers will find it difficult to manage; (l) profitability of small business to take a hit; (m) limit on exchange of currency put citizens and small business/shopkeepers into difficulty. This has also been seen to come true in 2016-2018, however with the support of the people of India, the Banking Officials and commitment of the government, the painful process of change of currency and liquidity crunch was smoothened to the best possible manner under the effective reign of RBI.

Demonetisationgenerally is a decision of the Central Bank jointly with the Government in power to recall certain currency notes being used as a legal tender from the economy on account of excessive black money or counterfeit currency circulation. Usually, all the currencies issued by central bank can be used as a legal tender as the value they carry is promised by the central bank and once the value has been demonetized/recalled/revoked, the said specified currency note cannot be used for circulation. Globally the central banks follow a practice wherein older currency notes are recalled and new currency notes with enhanced security features are issued to overcome the menace of counterfeit currency. However many incidences of demonetisation on account of reduction of cash in circulation on account of black money or corruption is also done by Governments in collaboration through the central banks. It is important to understand that Back Money is money earned, however taxes due (if any) have not been paid upon the respective government authorities.

Demonetisation is a costly affair with very high administrative costs, and loss of prestige of the currency internationally (in short span, however gaining of strength in long run). But given the circumstances, it is, at times, the most imminent step to curb black money, corruption, terrorism and militancy (Agarwal, 2016). Demonetisation as a measures is undertaken to (a) tackle the menace of parallel economy / black money / shadow economy; (b) cash circulation in connection to corruption; (c) to counter counterfeit currency menace ; (d) to check terrorist activities / terror funding ; (e) to check election financing influencing voters .

If we talk of the 2 largest economic zone in the world being Europe and USA, we can see that in a move aimed at hampering cash transactions by terrorists, drug dealers and money launderers, the European Central Bank on May 4th, 2016 had announced an end to the Euro 500 bank note and in the United States, the largest denomination is US$ 100, after the Federal Reserve discontinued the US$ 500, U$1,000, US$5,000 and U$10,000 bills in 1969. There are still many ways to hide illegal transactions, like using offshore banks, shell companies, Precious metals (Gold, Silver, Diamonds & others) and even Crypto Products (so called crypto-currencies like Bitcoin) which also allow financial transactions outside the purview of central banks and regulators (Agarwal, Agarwal, Agarwal, Agarwal, 2016, 2018, 2019, 2021).

India as a matter of fact has one of the highest levels of currencies in circulation which is more than 12% of its GDP value, and the ₹ 1, 000 and ₹ 500 rupee notes account for 24.4% (around 2300 crore pieces) of currencies in circulation but over 85% in terms of the value of the currency in circulation (see Table I).Keeping this in mind, one must know that India is not an outlier in this segment as there are various other countries such as USA's US$100 note and Japan's ¥10,000 which account for over 80% of currencies under circulation (Biju, 2021).

Table I
Currency Circulation of ₹ 100, ₹ 500 and ₹ 1,000 Bank Notes in November 2016

Denomination	Number of Units in Circulation(in millions)	%age of units out of total circulation	%age value out of total value of notes in circulation
₹ 100 note	15778	17.5	09.6
₹ 500 note	15707	17.4	47.8
₹ 1000 note	6326	7.0	38.6

Note : As per RBI, 87% of the transactions in India are cash transactions. Debit cards at ATMs account for 88% and 94% (by volume and value respectively) of the debit card transactions, and 12% and 6% account for POS transactions. The infrastructure growth is slow – The POS machines and ATMs are 1.2 million (and there are around 14 million merchants in India, in essence, more than 90% of the merchants are not using the POS machines) and 0.19 million respectively. (From 2013 to 2015, ATMs increased by 43% and POS machines by 28%)

Source : Byju (2021)

Some of the key reasons given for introducing Demonetisation by various economies are (a) the back money menace to be reduced; (b) terror financing to be hit as most of the counterfeit currency and/or illegal trafficked US$ money converted using black money for illegal activities is used ; (c) the counterfeit currencies (FICN see Table II)which find way in real economy, stock markets, shell companies and VC funding can get rooted out ; (d) the mobilization of deposits in the banks will increase, which may lead to increased credit flow and lowering of lending rates as a outfall ; (e) the black money leads to the inconspicuous demand and inflationary, which can be brought under control; (f) government revenue collection can increase ; (g) real estate corrections ; (h) less cash economic frameworks ; (i) honouring honest tax payer and those who function in formal economic systems ; (j) to formalize the un-organized markets ; (k) reduce undue influence in elections hence improving governance, as black money generation is circulated to influence voters votes and also for the funding of elections by business community; (l) expectation of the reduction of Fiscal Deficit of the Govt.

Table II
Counterfeit Currency / Fake Indian Currency Notes (FICN) in Circulation in 2016 (FICN Notes seized between 2011-2015)

	₹ 500		₹ 1,000	
2011	3.8 lakhs	15.41	0.99 lakhs	9.90
2012	5.3 lakhs	26.51	1.65 lakhs	16.54
2013	4.29 lakhs	21.48	1.94 lakhs	19.48
2014	2.9 lakhs	14.52	1.46 lakhs	14.69
2015	2.61 lakhs	13.05	1.58 lakhs	15.84
Total	**18.9 lakhs**	**90.98**	**7.64 lakhs**	**76.47**

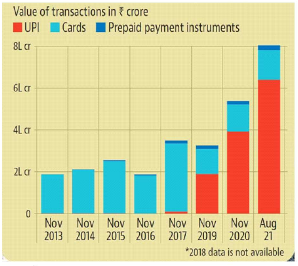
Note : As per the statements given in Rajya Sabha by Mr. Arjun Ram Meghawal (Minister of State for Finance), the total FICN is to the tune of Rs 400 Cr, however as per the Lok Sabha Website between 2011 and 2015, the RBI has seized around 26 lakh counterfeit notes of denomination Rs 500 and Rs 1000 amounting to Rs 167 Cr. Amongst the two, the FICN of Rs 500 currency notes were higher (both in numbers and in value). As per a study done by ISI (Indian Statistical Institute), at any given point of time, the FICN is to the tune of Rs400 Cr and annually the FICN pumped into the economy is Rs 70 Cr.

Source : Byjus (2021)

Though some of the points pointed out above are critical and need serious attention, however one also needs to understand that black money is not stored in the form of cash only and has found its place in precious metals (like gold, silver, diamonds and others), domestic / foreign real estate, art, shell companies, foreign currency and others. Demonetisation is found to have short term impact on black money circulation and its creation, given that black money is not only generated because of corruption and tax evasion. There large number of other factors which are responsible for black money general in a country like (a) high tax rates; (b) secondary job options ; (c) low level of financial inclusion; (d) low penetration of banking services ; (e) charges levied by banks and financial institutions towards transaction and also balance maintenance in accounts . Hence government needs to look at other reform measures to enhance financial inclusion with transaction taxes reduced to the minimum possible. Demonetisation of the magnitude of 2016 also believed to lead to sudden and huge demand for the new currencies when there is panic amongst the common man (already we have seen the case wherein people have looted fair price shops, cash carrying companies seeking higher insurance, etc). Also we see that this panic leads to people hoarding currencies which have further reduced the liquidity in the market given that the MSMEs / small trade/ shopkeepers are face liquidity difficulties. We also see the black marketing of the new currency notes taking a rise leading to creation of newer forms of illicit money and corruption in newer dimension's. The establishments such as banks, hospitals, retail chains, corporate, go under a lot of stress which also pushes them to hold on to more liquidity defying the prime purpose of inducing demonetisation. Another area is drop in rural demand as the cash usage become restricted.

Some of the challenges outlined in research studies indicated that (a) the financial inclusion of the banking sector penetration is low as only 27% of the villages have a bank within 5 Kms (Economic Survey 2015-16); (b) despite recording breaking implementation of Jan-Dhan Accounts, the banking penetration is low-on an average 46% in all the states (Economic Survey 2015-16); (c) strong hold and presence of the informal economy which accounts for over 45% of GDP and 80% of employment demonetisation has a greater impact on the informal economy and its inhabitants; (d) logistics and cost challenges of replacing all the ₹ 500 and ₹ 1000 currency notes – as per the RBI documents costed the exchequer about ₹ 12,000 crore as it has to replace over 2,300 crore pieces of these currencies; (e) the decision to issue ₹ 2,000 denomination currency and withdrawal of ₹ 500 and ₹ 1000 currency brought forth the challenge for day to day transactions in India where were centered around ₹ 500 note (more than 47% were in circulation). The process has led to huge rush and long queues of the people in front of ATMs and as per the statement of the finance minister the ATM recalibration would take around 2 to 3 weeks. (f) as per Finance Ministry, ₹ 17,50,000 crore worth of currency notes were in circulation in October-end, out of which over 85% percent or ₹ 14,50,000 crore is in the now-defunct ₹ 500 and Rs 1,000 notes. So far for the first four days, the government has been able to pump in ₹ 50,000 cr (on an average ₹ 12,500 Cr). Going by these numbers it had take around 3-4 months to replace these notes as against the 50 days announcementmade by the Prime Minister.

Some of the positive outlays seen of demonetisation are (a) the online service providers found ways to push up sales on credit, discounts, coupons and EMIs ; (b) digital wallets and digital platforms got a serious boast with over 700% increase in overall traffic on these platform; (c) over 1,000% growth in the value of money was observed in Paytm accounts within 3-4 months of demonetisation.; (d) the average transaction value had increased by 200% and mobile financial app downloads have increased by 300% within the 1st two months ; (e) about 5 million transactions each were observed on November 12th and 13th (Saturday and Sunday respectively) itself. In August 2021, we can see that UPI, Cards and Pre-payment Instruments has surpassed ₹ 8 lakh Crore Worth of Transactions (See Figure 4) and the volume and value can be seen in Figure 5.



Source : Hindustan Times

Figure 4
UPI Transactions Growth between Nov 2013 – Aug 2021

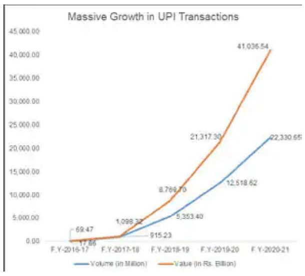
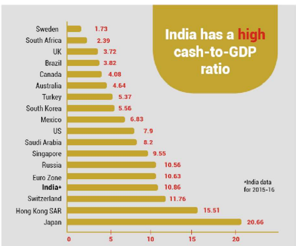


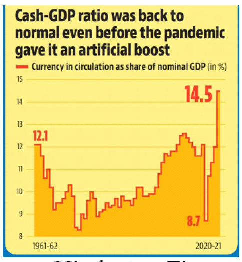
Figure 5
UPI Transaction Growth between 2016-2021

This step of demonetisation was undertakenas some of the earlier measures by the Government of India to control black money like (a) Money Laundering Act (2001) (Zdanowicz, Welch and Pak, 1995, 1996; Agarwal & Agarwal, 2004) ; (b) KYC Norms introduction in December 2004 (Agarwal & Agarwal, 2004)(c) Financial Intelligence Unit monitoring Funds movements cross borders; (d) almost every decade the government had announced IDS (Income Declaration Scheme); (e) set up SIT (Special Investigation Team) on Black Money ; (f) The Black Money (Undisclosed Foreign Income and Assets) and Imposition of Tax Act, 2015, which came into force on July 1, 2015, under which the tax rate imposed was 60% ; (g) the leaks of the Panama Papers, the government constituted a Multi-Agency Group (MAG) comprising officers of the Central Board of Direct Taxes, Reserve Bank of India, Enforcement Directorate, and Financial Intelligence Unit ; (h) The Benami Transaction Bill, 2015 which is an anti-black money measure that aims to seize unknown property and prosecute those indulging in such activities; (i) amended DTAA's and is in negotiations with some other countries and also signing Automatic Exchange of Information (AEOI) with countries like Switzerland. Most of these have been effective, but in short run and most of these have not yielded to reduction of the ills of back money, corruption, counterfeit currency, election funding and terrorism funding on account of large parallel economy in the long run. When we see India Cash to GDP Ration, it has been considered to be very high historically due to lack of financial inclusion and poor network of banks prior to 2015 (see Figure 6). Though Japan tops the list and so is the case with many other large developed nations. When we look at current figures of 2021, the ratio has even jumped up to as high as 14.5% (see Figure 7) on account of Covid-19 fears and Cash hoardings due to long periods of lockdowns in 2020 and bank transaction cost increased in 2020-21.



Source : Byjus

Figure 6
Cash-to-GDP Ratio in 2016 (Intra Country Comparison)



Source : Hindustan Times

Figure 7
Cash-to-GDP Ratio from 1961-2021 (Inter Country Comparison)

II. Literature Review

Demonetization can be used as an instrument for fighting crime, tax evasion, and activities in the underground economy has been advocated in the past. One of the more well-known recent contributions along these lines was made by Rogoff (2016, 2017).

To help the eradication of counterfeit currency, and to introduce new currency in the place of the old currency, demonetization has taken place a few times. This first scenario was in Sri Lanka when the government of Ceylon declare the Sri Lankan Dollar 50 and Sri Lankan Dollar 100 notes illegal tender. The then Finance Minister of Sri Lanka N.M. Perera spelt out the objectives of the demonetization drive as "bringing of the large amount of currency in economy into the banking sector". The move is believed to have created the base for the strong Sri Lankan banking sector of the 1970's. There was no chaos. The common Sri Lankan responded positively and it is said to have contributed to the return of the party in power in the next general elections (Javed, 2020).

The demonetization that took place in North Korea is slightly different from the conventional case in that the move was sprung on the people without warning, and most critically, huge limits were placed on the ability to convert cash holdings, that resulted in wiping out considerable household savings and the working capital of many private entrepreneurs. Citizens were instructed that they had a bare minimum of seven days to convert a limited amount of their old currency to the new currency at a rate of 100:1 (one new won would be worth 100 old won). As social opposition to these moves began to manifest itself, the government was forced to backtrack, offering compensatory wage increases, sometimes paying workers at the old wage rates in the new currency, amounting to a 100-fold increase in money income. The result has been a literal disintegration of the market, as traders, intimidated by the new rules of the market, reduced the supply, reportedly forcing some citizens to resort to barter (Noland, 2010).

The Ghanaian Demonetization has also resulted in failure even though the main mission was to put a plug on tax evasion, corruption and improve liquidity position of the already fragile economy. The ordinary Ghanaian lost faith in the country's banking system and migrated the savings and investment in physical assets and foreign currency holdings increasing spread of black money and inflation in Ghana (Javed, 2020).

The last Secretary General of the USSR Mikhail Garbochev under his economic and political reform programme named "Perestroika" and "Glasnot" went for withdrawal of large Rubble bills from circulation in late 1980's. The move backfired and resulted in mass protest and the ultimate demise of the once mighty USSR. Previous investigations into the causes of demonetization in the Russian economy have placed differing emphasis on a number of factors involving inherited Soviet institutions, changes in macroeconomic policies, and problems and delays in structural reforms. Neplatezhi (1998); Woodruff (1998); and Commander and Mumssen (1998) places some stress on factors from all three of these classifications, although the conclusions of these studies vary considerably. In the particular Soviet context, there exist certain advantages to regional and local administrations from the use of money surrogates and inflated non-cash prices (Gaddy and Lckes, 1998).

The demonetization of 2016 was not the first such episode in Indian monetary history either. There were twice other similar scenarios, one in 1946 and in 1978 prior to 2016. The first time, in the year 1946, demonetization was implemented to bring out concealed income held in the form of hoarded

Currency. The ₹ 1,000 and ₹ 10,000 currency notes were pulled back from circulation as legal tenders and people had to exchange them at RBI after explaining the plausible reason to the authorities. This has made the people who evade tax, at those times cautious (M.K., 1967). The officials, during the implementation were not sure whether this move would be effective or not, including then then Governor and Deputy Governor of RBI. This move was considered to be a failure because not much was garnered in the form of unreturned currency, as 94 % of the money had been returned to RBI (Lahiri, 2020). In 1954, the Government introduced new currency notes of ₹ 1,000, ₹ 5,000, and ₹ 10,000 which in 1978, the Government demonetized ₹ 1,000, ₹ 5,000, and ₹ 10,000 notes.The demonetisation done in 1978 under the Morarji Desai government was the second demonetization, where only 1.5 % of the currency was affected, which in turn resulted in lesser disruption of the public. "The idea that black money or wealth is held in the form of notes tucked away in suit cases or pillow cases is naïve" and "such an exercise seldom produces striking results" (Patel, 2002). The shared characteristic between the two episodes was that the rationale and goal behind them were similar, in which the public have successfully converted the currency, that resulted the main objective of taxing the undeclared income go unfulfilled.

In the beginning we assume that the 2016 demonetization was first released on 8th November 2016 as a double ended tool to weed out "black money" and "corruption". We expect to find significant positive average opinion of the "research papers" on the success regarding former. In this literature review we also record the opinion presented by the researchers regarding observation of a sudden announcement and implementation of "*Notebandi*" was a problem with dire consequences along the lines of various "social groups" be it "rich to poor", "rural to urban" and so on and on the "belief in the ability of common citizen to earn an honest living". Out of 107 research papers reviewed there are 43 which present the opinion that the 2016 demonetization has tightened the boundaries on black money activity. Out of the 107 there are 36 which support the same but the context of their opinion is for the long term. On the other hand out of the 107 there are 22 which believe that the noose around black money activity was not tightened by the 2016 demonetization and within the 107 there are 37 which have the same opinion but in the long term context which is noteworthy.

However the 2016 demonetization was first released on 8th November 2016 as a double ended tool to weed out "black money" and "corruption". An example of "corruption" being the "judicial election" efforts and so forth: being financed with the "black money". Out of the 107 research papers reviewed 34 were of the opinion that "corruption" activity will be restricted by the 2016 demonetization. Out of the 107 there are 28 which present the same opinion but in long term context. Out of the 107 there are 68 which believe the 2016 demonetization did not tighten the noose around "corruption" and out of these 68 there are 34 which hold the same opinion for the long term. This last part is a reflection of the earlier opinion held by the 'research papers' of the 2016 demonetization not being able to tighten the noose around 'black money' significantly. Out of the 107 there were 7 which have expressed opinion on the same including 2 which have presented opinion in long term context but access for said "research papers" was not available.

The third important opinion expressed by many sources [of information, news records and so forth] was that the sudden announcement and implementation of "*Notebandi*" was a problem with dire consequences along the lines of various "social groups" be it "rich to poor", "rural to urban" and so on. This was confirmed with approximately 79 %research articles reporting a general negative influence from the sudden and abrupt announcement and implementation of "*Notebandi*". Out of the 78 there were 4 which have expressed opinion on the same.

In the end the "research papers" were reviewed with the purpose of estimating their overall opinion on the influence of "*Notebandi*" on the "belief in the ability of common citizen to earn an honest living". A significant 51% of the "research papers" were of the opinion that "*Notebandi*" had a general negative influence on the "belief in the ability of common citizen to earn an honest living" out of which 24% of the "research papers" expressed the same for the long term context. Out of the 107 there were 4 which have expressed opinion on the same including 3 which have presented opinion in long term context and 1 in medium term context but access for said "research papers" was not available.

Table II
Summary of Select Few Literature Review Studied

	Research Papers	Boundaries tightened on Black money	Boundaries tightened on Corruption	Sudden significant negative impact on social groups	Significant negative impact on belief in ability to earn an Living
1	Daya and Mader (2018)	No	No	Yes	Yes
2	Sanyal (2018)	No	No	Yes	Yes
3	Ramakumar (2018)	No	No	Yes	Yes
4	Goyal (2017)	RNF	RNF	Yes	Yes
5	Mathur (2018)	No	No	Yes	No *
6	Sijariya and Teotia (2017)	Yes*	Yes*	Yes	Yes
7	Agarwal (2017)	No	No	Yes	Yes
8	Senthamizhselvi (2017)	No	No	Yes	Yes
9	Kalyani (2016)	No	Yes*	Yes	Yes
10	Kumar, & Kumar (2016)	Yes*	No	Yes	Yes
11	Sivathanu, (2018)	Yes*	NA	NA	NA
12	Lahiri (2020)	No	No	Yes	NA
13	Ganesan & Gajendranayagam (2017)	Yes*	Yes*	Yes	Yes
14	Mohd, (2016)	No	No	Yes	Yes
15	Agarwal, Ghosh, Li, & Ruan (2019)	No	NA	Yes	Yes
16	Gupta, & Kumar (2016)	Yes*	NA	Yes	NA
17	Betz, Anderson, & Puthanpura, (2017)	NA	NA	Yes	NA
18	Rajagopalan, (2020)	No	No	Yes	NA
19	Tandon and Kulkarni (2017)	Yes*	Yes*	NA	NA
20	Kulkarni and Tapas (2017)	No	No	Yes	NA
21	Dash (2017)	No	NA	Yes	NA
22	Shirley (2017)	No	No	Yes	Yes*
23	Mahajan and Singla (2017)	No	No	Yes	NA
24	Goel (2018)	Yes*	NA	Yes	NA
25	Sobti (2019)	Yes*	NA	Yes	n.
26	Shukla & Gupta (2018)	NA	NA	Yes	NA
27	Ghosh (2017)	RNF	RNF	RNF	RNF
28	Chandrasekhar and Ghosh (2018)	NA	No	NA	Yes
29	Singh (2017)	Yes*	Yes*	Yes	Yes
30	Balaji and Balaji (2017)	Yes*	Yes*	NA	NA
31	Pachare (2016)	Yes*	NA	Yes	NA
32	Bhavnani & Copelovitch (2018)	NA	NA	Yes	NA
33	Mohindra & Mukherjee (2018)	No	No	Yes	Yes
34	Viswanathan, Jaikumar, Sreekumar & Dutta (2021)	NA	NA	Yes	NA
35	Gupta (2016)	NA	NA	Yes	NA
36	Goriparthi and Tiwari (2017)	No	No	Yes	NA
37	Fouillet, Guérin, & Servet (2021)	No	No	Yes	Yes
38	Fisman, Schulz, and Vig, (2016)	NA	Yes	NA	NA
39	Veerakumar (2017)	Yes	Yes	Yes	No
40	Mehta, Patel, and Mehta, (2016)	Yes	NA	Yes	NA
41	Roy, Kohli, Kumar, Sahgal, & Yu (2017)	Yes*	Yes*	Yes	No*
42	Krishnan and Siegel (2017)	No	No	Yes*	Yes*
43	Athique (2019)	Yes*	NA	Yes	Yes
44	Chauhan and Kaushik, (2017)	No	No	Yes	NA

(Contd...)

Table II (Continued)

45	Singh, Sawhney, & Kahlon (2018)	NA	NA	Yes	No*
47	Thakur (2017)	Yes*	Yes*	Yes	Yes
48	Preethi & Sangeetha (2017)	Yes*	Yes*	Yes	Yes
49	Pal, Chandra, Kameswaran, Parameshwar, Joshi & & Johri (2018)	NA	Yes	Yes	Yes
50	Patil, Parab, & Reddy (2018)	No	NA	Yes	NA
51	Patel, & Parikh (2017)	NA	NA	Yes	NA
52	Maindola, & Dubey (2018)	RNF	RNF	RNF	NA
53	Chopra (2017)	RNF	NA	No*	No*
54	Mohan, & Ray (2019)	NA	NA	Yes*	Yes*
55	Singhal (2017)	NA	NA	No*	No*
56	Khan, (2019)	NA	NA	NA	NA
57	Soni, Soni, & Soni (2017)	No	No	Yes	Yes
58	Lahiri, (2016)	No	RNF	Yes	Yes
59	Chopra, Yadav& Chopra, (2019)	NA	NA	NA	indifferent*
60	Mahmood, (2017)	MA*	MA*	Yes	Yes
61	Babu, & Rao (2017)	No	No	Yes	No*
62	Chanda, (2016)	No	No	Yes	Yes
63	Mukhopadhyay (2016)	Yes*	Yes*	Yes	Yes
64	BriceNo, and de Hurtado, (2019)	RNF	RNF	RNF	RNF
65	Babu, (2016)	RNF*	RNF*	Yes	RNF*
66	Rasel, Hosain, Sultana, & Kabir (2019)	RNF* No	RNF* No	Yes	RNF*
67	Gana (2017)	No*	NA	Yes	Yes
68	Wadhwa (2019)	Yes*	Yes*	Yes	Yes
69	Gautam and Jain (2019)	Yes*	Yes*	Yes	Yes
70	Beg & Joshi (2017)	Yes	Yes	Yes	Yes
71	Chaurasia, Verma, & Singh (2019)	NA	NA	NA	No*
72	Syamsundar & Sabariga (2017)	Yes*	Yes*	No*	No*
73	Bhardwaj & Bangia (2019)	NA	NA	Yes	indifferent*
74	Tagat & Trivedi (2020)	No	No*	Yes	Yes*
75	Aggarwal & Narayanan (2021)	No	No	Yes*	Yes*
76	Parab & Reddy (2020)	NA	NA	Yes	Yes*
77	Kumar & Pasha (2017)	No	No	Yes	No*
78	Agarwal, Basu, Ghosh, Pareek & Zhang (2018)	No	No	Yes	Yes
79	Dharmapala & Khanna (2017).	No	No	Yes	Yes
80	Beyer, Chhabra, Galdo & Rama (2018)	Yes	Yes	Yes	Yes
81	Bansal & Jain (2018)	Yes*	RNF	Yes	RNF*
82	Kaur (2016)	RNF	RNF	RNF	RNF
83	Kumar, Nayak & Shekhar (2018)	NA	NA	Yes	No*
84	Raychaudhuri (2017)	RNF	RNF	RNF	RNF
85	Jain, Thakur, & Dash, (2020)	Yes*	Yes*	No	No
86	Bose, (2019)	NA	NA	Yes	No*
87	Chowdhury, & Hosain (2018)	No	No	Yes	Yes*
88	Kandpal, Mehrotra, & Gupta (2019)	Yes	Yes*	Yes	No
89	Lal, (2018)	Yes*	Yes*	Yes*	Yes*
90	Sheetal, Purohit, & Anup (2019)	Yes*	No	Yes	No*
91	Kumar (2016)	Yes*	Yes*	No*	No*
92	Kapadia (2016)	No	No	Yes	Yes
93	Syngle (2017)	No	No	Yes	Yes*
94	Enara and Gowda (2018)	No	No	Yes*	Yes*
95	Shaikh & Deshpande (2018)	No	No	RNF	RNF
96	BriceÃo and de Hurtado (2019)	Yes*	Yes*	No*	No*
97	Muthulakshmi & Kalaimani (2017)	Yes*	Yes*	Yes	Yes
98	Sam, Chakraborty & Srinivasan (2021)	Yes*	Yes*	Yes	NA
99	Arun, Srinagesh, & Ramesh (2017)	indiff.	indiff.	Yes*	Yes*
100	Khan & Faisal (2018)	NA	NA	Yes	Yes*
101	Naiknaware & Kawathekar (2018)	NA	NA	RNF	RNF
102	Kumar, & Singh (2019)	Yes	Yes	Yes	Yes
103	Mundhe, (2016)	Yes*	Yes*	Yes	Yes
104	Shukla (2017)	NA	NA	Yes	No*
105	Karmakar & Narayanan (2020)	NA	NA	Yes	Yes
106	Kumar (2017)	Yes*	Yes*	No*	No*
107	Jauhari, Indapurkar, Maheswari, & Raj (2018)	Yes*	NA	Yes	Yes
108	Hosain, (2019)	No	No	Yes	Yes

Note : * Opinion with Respect to Long Run
MA Moderately Agree
RNF Result Not Found
NA Not Available

Source : Self Formulated

Given that there are mixed reviews of the subject in over 125 studies evaluated and based on the Literature Review presented above, we decided to make qualitative assessment of the impact of demonetisation in India in November 2016 and henceforth on the macro-economic data taking 8th November 2016 as an event date with 5 year data prior to demonetisation and 5 year period hence. Also we have decided to undertake socio-economic analysis of the its journey of last 5 years after the macro-economic data evaluation.

III. Research Methodology followed for Quantitative assessment of impact of Demonetisation on Macro-Economic Variables of Indian Economy

We estimate the Null Hypothesis that

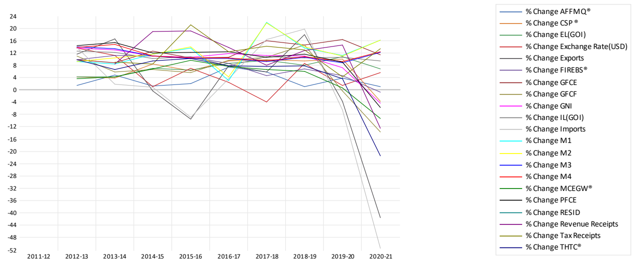
Hypothesis H0:*The means of the Rate of Change in MacroecoNomic Indicators is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in MacroecoNomic Indicators is Not equal pre and post demonetisation*

IV. Empirical Analysis for Quantitative assessment of impact of Demonetisation on Macro-Economic Variables of Indian Economy

We have tried to make Quantitative assessment of impact of Demonetisation on Macro-Economic Variables of Indian Economy. We have taken the following variables for assessment namely - GNI : Gross National Income ; AFFMQ®: Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying; MCEGW ®: Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply; THTC®: Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication ; FIREBS ®: Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services ; CSPS® : Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services; PFCE: Private Final Consumption Expenditure; IL: Internal Liabilities of the Government; EL: External Liabilities of the Government ; GFCE: Government Final Consumption Expenditure; GFCF: Gross Fixed Capital Formation; RR : Revenue Receipts of the Government of India; TR : Tax Receipts of the Government of India; ER : Exchange Rate in US$) the indicators through 2011 to 2021 a period of 10 years.

Figure 8 and Table III reflects that the percentage change in the different macroeconomic indicators mentioned above through 2011 to 2021 a period of 10 years.



Note: GNI : Gross National Income ; AFFMQ®: Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying; MCEGW ®: Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply; THTC®: Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication ; FIREBS ®: Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services ; CSPS® : Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services; PFCE: Private Final Consumption Expenditure; IL: Internal Liabilities of the Government; EL: External Liabilities of the Government ; GFCE: Government Final Consumption Expenditure; GFCF: Gross Fixed Capital Formation; RR : Revenue Receipts of the Government of India; TR : Tax Receipts of the Government of India; ER : Exchange Rate in US$

Source : Table III

Figure 8
Macro Economic Variables for last 10 years (in % Change)

Table III
Macro Economic Variables for last 10 years

	2011-12	2012-13	2013-14	2014-15	2015-16	Demonitisation : 8th November 2021	2016-17	2017-18	2018-19	2019-20	2020-21
M1	1734230	1894940	2054700	2291680	2602540		2681960	3267330	3710285	4125948	4794299
M2	1739270	1899980	2097060	2339110	2664110		2774020	3376540	3850884	4276911	4964324
M3	7359200	8382020	9497330	10545550	11617620		12791940	13962590	15430874	16799963	18844578
M4	7385170	8407990	9654530	10719280	11826030		13048140	14263390	15798161	17233404	19354122
GNI	8659505	9827250	11093638	12320529	13612095		15215269	16913491	18768912	20118353	19239492
AFFMQ®	1762983	1786897	1872305	1894401	1934120		2075252	2194824	2217408	2303790	2325548
MCEGW®	2373988	2458558	2561081	2733213	2993343		3217705	3426904	3633517	3659389	3319280
THTC®	1413116	1551143	1652062	1807689	1992825		2146379	2309860	2488049	2577945	2026128
FIREBS®	1530877	1680031	1867407	2073714	2294787		2492967	2609016	2786855	2915680	2891811
CSP ®	1025982	1069646	1110794	1203115	1276797		1395982	1533809	1677298	1844316	1776408
PFCE	4910447	5614484	6475649	7247340	8126408		9126533	10090759	11254014	12262064	11569766
GFCE	968375	1062404	1156509	1301762	1436171		1586658	1838117	2104235	2446579	2724740
GFCF	2997733	3324973	3515621	3750392	3957092		4338671	4799139	5493320	5472006	4723349
IL(GOI)	4347164	4893303	5484848	6045007	6691709		7207802	7985087	8813554	9751000	10665547
EL(GOI)	170088	177289	184581	197514	210262		228258	250090	269961	299250	319489
RR		1557338	1688047	2008065	2390845		2721784	2941166	3318998	3801097	3327262
TR		946081	1030692	1117113	1353336		1520773	1735646	1961739	2043371	2315748
ER (US$)	[1] 47.92	[1] 54.41	[1] 60.50	[1] 61.14	[1] 65.47		[1] 67.07	[1] 64.46	[1] 69.92	[1] 70.90	[1] 74.81
Exports	1465959	1634319	1905011	1896348	1716384		1849434	1956515	2307726	2219854	1299355
Imports	2345463	2669162	2715434	2737087	2490306		2577675	3001033	3594675	3360954	1633266

Note: GNI :Gross National Income ;AFFMQ®: Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying; MCEGW ®: Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply; THTC®: Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication ; FIREBS ®: Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services ; CSPS® : Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services; PFCE: Private Final Consumption Expenditure; IL: Internal Liabilities of the Government; EL: External Liabilities of the Government ; GFCE: Government Final Consumption Expenditure; GFCF: Gross Fixed Capital Formation; RR : Revenue Receipts of the Government of India; TR : Tax Receipts of the Government of India; ER : Exchange Rate in US$;

Source : Reserve Bank of India RBI Bulletin (2010-21), Economic Survey (2020-21)

The data shows that imports and exports saw a negative growth by end of March 2016 and which was Not affected by Demonetisation in the year 2017. The Revenue Receipts and the Tax Receipts also saw the highest changes of 19% and 21% in March 2016. Demonetisation was announced on 8thNovember 2016 and we Notice that Money Supply measures M1 and M2 changed only by 3.05% and 4.13% as compared to 13.56% and 13.89% in the previous year. The Money Supply measures M3 and M4 changed by 10.11% and 10.33% which was nearly the same change as last year at 10.17% and 10.32%. The GNI changed by 11.78% in 2017 and the highest change was observed in PCFE and tax receipts. The only negative change of -3.90 was observed in the Exchange Rate (in US$) which is an indication of Appreciation in the Indian RupeeCurrency by 3.90%. All other indicator in 2017 and 2018 showed a positive change. There is a negative change in the macroeconomic aggregates in 2021 because of Covid-19 Corona Virus Pandemic Impact. The Demonetisation did Not impact the change in the macroeconomic variables on a Year-on-Year (YoY) basis as can be seen from the Table IV Below.

Table IV
Macro Economic Variables for last 10 years (in % Change)

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21
M1	9.27	8.43	11.53	13.56	3.05	21.83	13.56	11.20	16.20
M2	9.24	10.37	11.54	13.89	4.13	21.72	14.05	11.06	16.07
M3	13.90	13.31	11.04	10.17	10.11	9.15	10.52	8.87	12.17
M4	13.85	14.83	11.03	10.32	10.33	9.31	10.76	9.08	12.31
GNI	13.49	12.89	11.06	10.48	11.78	11.16	10.97	7.19	-4.37
AFFMQ®	1.36	4.78	1.18	2.10	7.30	5.76	1.03	3.90	0.94
MCEGW®	3.56	4.17	6.72	9.52	7.50	6.50	6.03	0.71	-9.29
THTC®	9.77	6.51	9.42	10.24	7.71	7.62	7.71	3.61	-21.41
FIREBS®	9.74	11.15	11.05	10.66	8.64	4.66	6.82	4.62	-0.82
CSP ®	4.26	3.85	8.31	6.12	9.33	9.87	9.36	9.96	-3.68
PFCE	14.34	15.34	11.92	12.13	12.31	10.57	11.53	8.96	-5.65
GFCE	9.71	8.86	12.56	10.33	10.48	15.85	14.48	16.27	11.37
GFCF	10.92	5.73	6.68	5.51	9.64	10.61	14.46	-0.39	-13.68
IL(GOI)	12.56	12.09	10.21	10.70	7.71	10.78	10.38	10.64	9.38
EL(GOI)	4.23	4.11	7.01	6.45	8.56	9.56	7.95	10.85	6.76
RR	NA	8.39	18.96	19.06	13.84	8.06	12.85	14.53	-12.47
TR	NA	8.94	8.38	21.15	12.37	14.13	13.03	4.16	13.33
ER (US$)	13.54	11.20	1.06	7.07	2.45	-3.90	8.48	1.39	5.52
Exports	11.48	16.56	-0.45	-9.49	7.75	5.79	17.95	-3.81	-41.47
Imports	13.80	1.73	0.80	-9.02	3.51	16.42	19.78	-6.50	-51.40

Note: GNI : Gross National Income ; AFFMQ®: Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying; MCEGW ®: Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply; THTC®: Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication ; FIREBS ®: Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services ; CSPS® : Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services; PFCE: Private Final Consumption Expenditure; IL: Internal Liabilities of the Government; EL: External Liabilities of the Government ; GFCE: Government Final Consumption Expenditure; GFCF: Gross Fixed Capital Formation; RR : Revenue Receipts of the Government of India; TR : Tax Receipts of the Government of India; ER : Exchange Rate in US$

*Source :*Reserve Bank of India RBI Bulletin (2010-21), Economic Survey (2020-21)

4.1 *Checking the stability of the Rate of Change of Macro-Economic Variables Pre & Post Demonetisation*

4.1.1*Money Supply – M1*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Money Supply M1 is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Money Supply M1 is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Money Supply M1 for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table V below:

Table V
Money Supply M1

t-Test: Two-Sample Assuming Unequal Variances

	M1	*M1*
Mean	10.69902225	12.40948094
Variance	5.368014726	59.6721845
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	-0.424181432	
P(T<=t) one-tail	0.346626012	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.693252024	
t Critical two-tail	2.776445105	

Source : Self Computed

4.1.2 *Money Supply – M2*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Money Supply M2 is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Money Supply M2 is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Money Supply M2 for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table VO below

Table VI
Money Supply – M2

t-Test: Two-Sample Assuming Unequal Variances

	M2	*M2*
Mean	11.26233686	12.7392516
Variance	3.961953621	53.12464532
Observations	4	4
Hypothesized Mean Difference	0	
Df	3	
t Stat	-0.390947406	
P(T<=t) one-tail	0.360973306	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.721946612	
t Critical two-tail	3.182446305	

Source : Self Computed

4.1.3 *Money Supply – M3*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Money Supply M3 is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Money Supply M3 is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Money Supply M3 for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table VII below

Table VII
Money Supply – M3

t-Test: Two-Sample Assuming Unequal Variances

	M3	*M3*
Mean	12.10189711	9.661950921
Variance	3.186347887	0.60405321
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	2.506499715	
P(T<=t) one-tail	0.033152307	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.066304615	
t Critical two-tail	2.776445105	

Source : Self Computed

4.1.4 *Money Supply – M4*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Money Supply M4 is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Money Supply M4 is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Money Supply M4 for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table VIII below

Table VIII
Money Supply – M4

t-Test: Two-Sample Assuming Unequal Variances

	M4	*M4*
Mean	12.50716569	9.873185498
Variance	4.708868111	0.644604469
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	2.276799091	
P(T<=t) one-tail	0.042543264	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.085086528	
t Critical two-tail	2.776445105	

Source : Self Computed

4.1.5 *GNI : Gross National Income*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in GNI (Gross National Income) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in GNI (Gross National Income) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of GNI (Gross National Income) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table IX below

Table IX
GNI (Gross National Income)

t-Test: Two-Sample Assuming Unequal Variances

	M1	*M1*
Mean	11.97851732	10.27467578
Variance	2.058498306	4.34834178
Observations	4	4
Hypothesized Mean Difference	0	
Df	5	
t Stat	1.346285775	
P(T<=t) one-tail	0.118010606	
t Critical one-tail	2.015048373	
P(T<=t) two-tail	0.236021212	
t Critical two-tail	2.570581836	

Source : Self Computed

4.1.6 *AFFMQ®: Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in AFFMQ® (Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in AFFMQ® (Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of AFFMQ® (Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table X

Table X
AFFMQ® (Real Gross Value Added at Factor Cost by Industry of Origin for Agriculture, forestry & fishing, mining and quarrying)

t-Test: Two-Sample Assuming Unequal Variances

	AFFMQ®	*AFFMQ®*
Mean	2.35323377	4.495841007
Variance	2.774396365	7.276140115
Observations	4	4
Hypothesized Mean Difference	0	
Df	5	
t Stat	-1.351692615	
P(T<=t) one-tail	0.117201737	
t Critical one-tail	2.015048373	
P(T<=t) two-tail	0.234403473	
t Critical two-tail	2.570581836	

Source : Self Computed

4.1.7 *MCEGW®: Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply*

Now we estimate the Null Hypothesis that

Hypothesis H0 : *The means of the Rate of Change in MCEGW ® (Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply) is equal pre and post demonetisation*

Hypothesis H1 : *The means of the Rate of Change in MCEGW ® (Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply) is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of MCEGW ® (Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XI

Table XI
MCEGW ® (Real Gross Value Added at Factor Cost by Industry of Origin for Manufacturing, construction, electricity, gas and water supply)

t-Test: Two-Sample Assuming Unequal Variances

	MCEGW®	*MCEGW®*
Mean	5.992711114	5.184511202
Variance	7.394146719	9.2636425
Observations	4	4
Hypothesized Mean Difference	0	
Df	6	
t Stat	0.396040968	
P(T<=t) one-tail	0.352887272	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.705774544	
t Critical two-tail	2.446911851	

Source : Self Computed

4.1.8 *THTC® : Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in THTC® (Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in THTC® (Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of THTC® (Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XII below

Table XII
THTC® (Real Gross Value Added at Factor Cost by Industry of Origin for Trade, hotels, transport & communication)

t-Test: Two-Sample Assuming Unequal Variances

	THTC®	*THTC®*
Mean	8.983855137	6.662331825
Variance	2.841897835	4.134273436
Observations	4	4
Hypothesized Mean Difference	0	
df	6	
t Stat	1.757901261	
P(T<=t) one-tail	0.064635002	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.129270003	
t Critical two-tail	2.446911851	

Source : Self Computed

4.1.9 *FIREBS ®: Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in FIREBS ® (Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in FIREBS ® (Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of FIREBS ® (Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XIII

Table XIII
FIREBS ® (Real Gross Value Added at Factor Cost by Industry of Origin for Financing, insurance, real estate and business services)

t-Test: Two-Sample Assuming Unequal Variances

	FIREBS®	*FIREBS®*
Mean	10.65116922	6.182517537
Variance	0.411348882	3.729419142
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	4.392037602	
P(T<=t) one-tail	0.005881958	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.011763915	
t Critical two-tail	2.776445105	

Source : Self Computed

4.1.10 *CSPS® : Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in CSPS® (Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in CSPS® (Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services) is Not equal pre and post demonetisation*

The t stat is higher than t-critical for all % change of CSPS® (Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XIV

Table XIV
CSPS® (Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services)

t-Test: Two-Sample Assuming Unequal Variances

	CSP®	*CSP®*
Mean	5.634559113	9.630111786
Variance	4.167085893	0.109732809
Observations	4	4
Hypothesized Mean Difference	0	
Df	3	
t Stat	-3.864082905	
P(T<=t) one-tail	0.015324367	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.030648733	
t Critical two-tail	3.182446305	

Source : Self Computed

Here we find that the t-stat is more than t critical which means that we reject the null hypothesis that the means of the previous period prior to demonetisation is Not same as that post demonetisation in CSPS® (Real Gross Value Added at Factor Cost by Industry of Origin for Community social & personal services).

4.1.11 *PFCE: Private Final Consumption Expenditure*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in PFCE (Private Final Consumption Expenditure) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in PFCE (Private Final Consumption Expenditure) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of PFCE (Private Final Consumption Expenditure) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XV below

Table XV
PFCE (Private Final Consumption Expenditure)

t-Test: Two-Sample Assuming Unequal Variances

	PFCE	*PFCE*
Mean	13.43054	11.4667
Variance	2.815366	0.761463
Observations	4	3
Hypothesized Mean Difference	0	
Df	5	
t Stat	2.006775	
P(T<=t) one-tail	0.050531	
t Critical one-tail	2.015048	
P(T<=t) two-tail	0.101061	
t Critical two-tail	2.570582	

Source : Self Computed

4.1.12 *GFCE: Government Final Consumption Expenditure*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in GFCE (Government Final Consumption Expenditure) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in GFCE (Government Final Consumption Expenditure) is Not equal pre and post demonetisation*

The t stat is higher than t-critical for all % change of *GFCE (Government Final Consumption Expenditure)* for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XVI

Table XVI

GFCE (Government Final Consumption Expenditure)

t-Test: Two-Sample Assuming Unequal Variances

	GFCE	*GFCE*
Mean	10.36312	14.2684319
Variance	2.506254	6.969360582
Observations	4	4
Hypothesized Mean Difference	0	
Df	5	
t Stat	-2.53736	
P(T<=t) one-tail	0.026031	
t Critical one-tail	2.015048	
P(T<=t) two-tail	0.052061	
t Critical two-tail	2.570582	

Source : Self Computed

4.1.13 *GFCF: Gross Fixed Capital Formation*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in GFCF (Gross Fixed Capital Formation) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in GFCF (Gross Fixed Capital Formation) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of *GFCF (Gross Fixed Capital Formation)* for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XVII

Table XVII

GFCF (Gross Fixed Capital Formation)

t-Test: Two-Sample Assuming Unequal Variances

	GFCF	*GFCF*
Mean	7.209858045	8.583181628
Variance	6.361212303	40.10598902
Observations	4	4
Hypothesized Mean Difference	0	
Df	4	
t Stat	-0.402930011	
P(T<=t) one-tail	0.353803201	
t Critical one-tail	2.131846786	
P(T<=t) two-tail	0.707606402	
t Critical two-tail	2.776445105	

Source : Self Computed

4.1.14 *IL: Internal Liabilities of the Government*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in IL (Internal Liabilities of the Government) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in IL (Internal Liabilities of the Government) is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of IL (Internal Liabilities of the Government) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XVIII below

Table XVIII
IL (Internal Liabilities of the Government)

t-Test: Two-Sample Assuming Unequal Variances

	IL(GOI)	*IL(GOI)*
Mean	11.39073554	9.876988732
Variance	1.242999531	2.110938651
Observations	4	4
Hypothesized Mean Difference	0	
Df	6	
t Stat	1.653125063	
P(T<=t) one-tail	0.074695676	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.149391352	
t Critical two-tail	2.446911851	

Source : Self Computed

4.1.15 *EL: External Liabilities of the Government*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in EL (External Liabilities of the Government) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in EL (External Liabilities of the Government) is Not equal pre and post demonetisation*

The *t* stat is higher than t-critical for all % change of EL (External Liabilities of the Government) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XIX

Table XIX
EL (External Liabilities of the Government)

t-Test: Two-Sample Assuming Unequal Variances

	EL(GOI)	*EL(GOI)*
Mean	5.45191379	9.229586405
Variance	2.232842985	1.611510483
Observations	4	4
Hypothesized Mean Difference	0	
Df	6	
t Stat	-3.853387264	
P(T<=t) one-tail	0.004213374	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.008426748	
t Critical two-tail	2.446911851	

Source : Self Computed

The *t*-statistics is more than the t-critical value which means we reject the null hypothesis of equal means pre and post demonetisation period for external liabilities of the Government of India.

4.1.16*RR : Revenue Receipts of the Government of India*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in RR (Revenue Receipts of the Government of India) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in RR (Revenue Receipts of the Government of India) is Not equal pre and post demonetisation*

The t stat is lower than t-critical for all % change of RR (Revenue Receipts of the Government of India) for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XX

Table XX
RR (Revenue Receipts of the Government of India)
t-Test: Two-Sample Assuming Unequal Variances

	Revenue Receipts	*Revenue Receipts*
Mean	15.47104018	12.31848154
Variance	37.57560096	8.534296915
Observations	3	4
Hypothesized Mean Difference	0	
Df	3	
t Stat	0.823406595	
P(T<=t) one-tail	0.235315733	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.470631465	
t Critical two-tail	3.182446305	

Source : Self Computed

4.1.17 *TR : Tax Receipts of the Government of India*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in TR (Tax Receipts of the Government of India) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in TR (Tax Receipts of the Government of India) is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of TR (Tax Receipts of the Government of India)for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XXI

Table XXI
TR (Tax Receipts of the Government of India)
t-Test: Two-Sample Assuming Unequal Variances

	Tax Receipts	*Tax Receipts*
Mean	12.82463872	10.92225412
Variance	52.00987114	20.84204171
Observations	3	4
Hypothesized Mean Difference	0	
Df	3	
t Stat	0.400638469	
P(T<=t) one-tail	0.357756103	
t Critical one-tail	2.353363435	
P(T<=t) two-tail	0.715512205	
t Critical two-tail	3.182446305	

Source : Self Computed

4.1.18 *ER : Exchange Rate in US$*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in ER (Exchange Rate in US$) is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in ER (Exchange Rate in US$) is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of ER (Exchange Rate in US$)for pre demonetisation period from 2012-16 and post demonetisation period 2017-2020 as can be seen in Table XXII

Table XXII
ER (Exchange Rate in US$)
t-Test: Two-Sample Assuming Unequal Variances

	Exchange Rate(USD)	*Exchange Rate(USD)*
Mean	8.216430357	2.106168406
Variance	29.89672694	25.79729983
Observations	4	4
Hypothesized Mean Difference	0	
df	6	
t Stat	1.637515861	
P(T<=t) one-tail	0.076318451	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.152636902	
t Critical two-tail	2.446911851	

Source : Self Computed

4.1.19 *Exports*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Exports is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Exports is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Exportsfor pre demonetisation period from 2012-16 & post demonetisation period 2017-20 as can be seen in Table XXIII.

Table XXIII
Exports

t-Test: Two-Sample Assuming Unequal Variances

	Exports	*Exports*
Mean	4.52570956	6.921202653
Variance	138.1895036	79.57755188
Observations	4	4
Hypothesized Mean Difference	0	
df	6	
t Stat	-0.324660034	
P(T<=t) one-tail	0.378229627	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.756459253	
t Critical two-tail	2.446911851	

Source : Self Computed

4.1.20 *Imports*

Now we estimate the Null Hypothesis that

Hypothesis H0:*The means of the Rate of Change in Imports is equal pre and post demonetisation*

Hypothesis H1: *The means of the Rate of Change in Imports is Not equal pre and post demonetisation*

The *t* stat is lower than t-critical for all % change of Importsfor pre demonetisation period from 2012-16 & post demonetisation period 2017-20 as can be seen in Table XXIV

Table XXIV
Imports

t-Test: Two-Sample Assuming Unequal Variances

	Imports	*Imports*
Mean	1.828965418	8.302944384
Variance	87.34064611	146.6246773
Observations	4	4
Hypothesized Mean Difference	0	
Df	6	
t Stat	-0.846497213	
P(T<=t) one-tail	0.214869012	
t Critical one-tail	1.943180281	
P(T<=t) two-tail	0.429738023	
t Critical two-tail	2.446911851	

Source : Self Computed

As evaluated in section 4.1.1 to section 4.1.20 it is clearthat the impact of demonetisation cannot be seen in the pace of the change in the macroeconomic variables either through the chart or through the *t*-tests.

4.2 *Money Supply Analysis to understand its support to Macro-Economic Activities*

We have taken Broad Money and Narrow Money to evaluate and make an understanding of these two critical Monetary Policy Measures as Money Supply used by Central Banks as indicator for Macro-Economic Activities pre and post Demonetisation.

Table XXV

Money Supply M3 as a Proportion of other Macro-Economic Variables

	2011-12	2012-13	2013-14	2014-15	2015-16		2016-17	2017-18	2018-19	2019-20	2020-21
M3/GNI*100	84.98	85.29	85.61	85.59	85.35	Demonitisation : 8th November 2021	84.07	82.55	82.22	83.51	97.95
M3/AFFMQ®*100	417.43	469.08	507.25	556.67	600.67		616.40	636.16	695.90	729.23	810.33
M3/MCEGW®*100	309.99	340.93	370.83	385.83	388.12		397.55	407.44	424.68	459.09	567.73
M3/THTC®*100	520.78	540.38	574.88	583.37	582.97		595.98	604.48	620.20	651.68	930.08
M3/FIREBS® *100	480.72	498.92	508.58	508.53	506.26		513.12	535.17	553.70	576.19	651.65
M3/CSP®*100	717.28	783.63	855.00	876.52	909.90		916.34	910.32	919.98	910.90	1060.82
M3/PFCE*100	149.87	149.29	146.66	145.51	142.96		140.16	138.37	137.11	137.01	162.88
M3/GFCE*100	759.95	788.97	821.21	810.10	808.93		806.22	759.61	733.32	686.67	691.61
M3/GFCF*100	245.49	252.09	270.15	281.19	293.59		294.84	290.94	280.90	307.02	398.97
M3/IL(GOI)*100	169.29	171.30	173.16	174.45	173.61		177.47	174.86	175.08	172.29	176.69
M3/EL(GOI)*100	4326.70	4727.88	5145.35	5339.14	5525.31		5604.16	5583.03	5715.96	5614.02	5898.35
M3/Revenue Receipts *100		538.23	562.62	525.16	485.92		469.98	474.73	464.93	441.98	566.37
M3/Tax Receipts		885.97	921.45	944.00	858.44		841.15	804.46	786.59	822.17	813.76
Rate of Change of M3 / Rate of Change in Exchange rate*100		116.57	132.15	1051.16	153.92		422.67	-225.39	134.47	645.82	232.71
M3/Exports*100	502.01	512.88	498.54	556.10	676.87		691.67	713.65	668.66	756.80	1450.30
M3/Imports*100	313.76	314.03	349.75	385.28	466.51		496.26	465.26	429.27	499.86	1153.80

Source : Self Computed

Table XXVI

Narrow Money Supply M1 as a proportion of Macro Economic Variables

	2011-12	2012-13	2013-14	2014-15	2015-16		2016-17	2017-18	2018-19	2019-20	2020-21
M1/GNI*100	20.03	19.28	18.52	18.60	19.12	Demonitisation : 8th November 2021	17.63	19.32	19.77	20.51	24.92
M1/AFFMQ®*100	98.37	106.05	109.74	120.97	134.56		129.24	148.87	167.33	179.09	206.16
M1/MCEGW®*100	73.05	77.08	80.23	83.85	86.94		83.35	95.34	102.11	112.75	144.44
M1/THTC®*100	122.72	122.16	124.37	126.77	130.60		124.95	141.45	149.12	160.05	236.62
M1/FIREBS® *100	113.28	112.79	110.03	110.51	113.41		107.58	125.23	133.14	141.51	165.79
M1/CSP®*100	169.03	177.16	184.98	190.48	203.83		192.12	213.02	221.21	223.71	269.89
M1/PFCE*100	35.32	33.75	31.73	31.62	32.03		29.39	32.38	32.97	33.65	41.44
M1/GFCE*100	179.09	178.36	177.66	176.04	181.21		169.03	177.75	176.32	168.64	175.95
M1/GFCF*100	57.85	56.99	58.44	61.11	65.77		61.82	68.08	67.54	75.40	101.50
M1/IL(GOI)*100	39.89	38.73	37.46	37.91	38.89		37.21	40.92	42.10	42.31	44.95
M1/EL(GOI)*100	1019.61	1068.84	1113.17	1160.26	1237.76		1174.97	1306.46	1374.38	1378.76	1500.61
M1/Revenue Receipts *100		121.68	121.72	114.12	108.85		98.54	111.09	111.79	108.55	144.09
M1/Tax Receipts		200.29	199.35	205.14	192.31		176.36	188.25	189.13	201.92	207.03
Rate of Change of M3/ Rate of Change in Exchange rate*100		0.68	0.75	10.87	1.92		1.25	-5.59	1.60	8.04	2.94
M1/Exports*100	118.30	115.95	107.86	120.85	151.63		145.02	167.00	160.78	185.87	368.98
M1/Imports*100	73.94	70.99	75.67	556.10	104.51		691.67	108.87	103.22	122.76	293.54

Source : Self Computed

Table XXVII

Rate of Change of Macro-Economic Variables vis-à-vis Broad Money Supply M3

	2012-13	2013-14	2014-15	2015-16		2016-17	2017-18	2018-19	2019-20	2020-21
Rate of Change of GNI/ Rate of Change in M3*100	97.03	96.85	100.20	103.12	Demonitisation : 8th November 2021	116.52	121.96	104.32	81.04	-35.89
Rate of Change of AFFMQ® / Rate of Change in M3*100	9.76	469.08	507.25	556.67		600.67	616.40	636.16	695.90	729.23
Rate of Change of MCEGW (R)/ Rate of Change in M3*100	25.63	340.93	370.83	385.83		388.12	397.55	407.44	424.68	459.09
Rate of Change of THTC(R)/ Rate of Change in M3*100	70.28	540.38	574.88	583.37		582.97	595.98	604.48	620.20	651.68
Rate of Change of FIREBS® / Rate of Change in M3*100	70.10	498.92	508.58	508.53		506.26	513.12	535.17	553.70	576.19
Rate of Change of CSP(R)/ Rate of Change in M3*100	30.62	783.63	855.00	876.52		909.90	916.34	910.32	919.98	910.90
Rate of Change of PFCE/ Rate of Change in M3*100	103.16	149.29	146.66	145.51		142.96	140.16	138.37	137.11	137.01
Rate of Change of GFCE/ Rate of Change in M3*100	69.86	788.97	821.21	810.10		808.93	806.22	759.61	733.32	686.67
Rate of Change of GFCF/ Rate of Change in M3*100	78.54	252.09	270.15	281.19		293.59	294.84	290.94	280.90	307.02
Rate of Change of IL (GOI)/ Rate of Change in M3*100	90.39	171.30	173.16	174.45		173.61	177.47	174.86	175.08	172.29
Rate of Change of EL(GOI)/ Rate of Change in M3*100	30.46	4727.88	5145.35	5339.14		5525.31	5604.16	5583.03	5715.96	5614.02
Rate of Change of Revenue Receipts/ Rate of Change in M3*100	NA	538.23	562.62	525.16		485.92	469.98	474.73	464.93	441.98
Rate of Change of Tax Receipts/ Rate of Change in M3*100	NA	885.97	921.45	944.00		858.44	841.15	804.46	786.59	822.17
Rate of Change of Exchange Rate/ Rate of Change in M3*100	97.39	116.57	132.15	1051.16		153.92	422.67	-225.39	134.47	645.82
Rate of Change of Exports/ Rate of Change in M3*100	82.63	512.88	498.54	556.10		676.87	691.67	713.65	668.66	756.80
Rate of Change of Imports/ Rate of Change in M3*100	99.30	314.03	349.75	385.28		466.51	496.26	465.26	429.27	499.86

Source : Self Computed

Table XXVIII

Rate of Change of Macro-Economic Variables vis-à-vis Narrow Money Supply M1

	2012-13	2013-14	2014-15	2015-16		2016-17	2017-18	2018-19	2019-20	2020-21
Rate of Change of GNI/ Rate of Change in M1*100	145.52	152.85	95.89	77.28	Demonitisation : 8th November 2021	385.94	51.14	80.92	64.18	-26.97
Rate of Change of AFFMQ® / Rate of Change in M1*100	14.64	56.69	10.23	15.46		239.12	26.40	7.59	34.77	5.83
Rate of Change of MCEGW (R)/ Rate of Change in M1*100	38.44	49.46	58.27	70.16		245.62	29.79	44.47	6.36	-57.38
Rate of Change of THTC(R)/ Rate of Change in M1*100	105.40	77.17	81.68	75.50		252.50	34.90	56.90	32.25	-132.14
Rate of Change of FIREBS® / Rate of Change in M1*100	105.14	132.29	95.79	78.59		283.00	21.33	50.28	41.26	-5.05
Rate of Change of CSP(R)/ Rate of Change in M1*100	45.92	45.63	72.06	45.15		305.89	45.24	69.01	88.88	-22.73
Rate of Change of PFCE/ Rate of Change in M1*100	154.72	181.93	103.32	89.42		403.30	48.41	85.03	79.95	-34.85
Rate of Change of GFCE/ Rate of Change in M1*100	104.78	105.06	108.90	76.12		343.37	72.61	106.79	145.22	70.19
Rate of Change of GFCF/ Rate of Change in M1*100	117.80	68.01	57.90	40.63		315.99	48.63	106.69	-3.46	-84.46
Rate of Change of IL (GOI)/ Rate of Change in M1*100	135.57	143.39	88.55	78.87		252.73	49.41	76.53	94.94	57.90
Rate of Change of EL(GOI)/ Rate of Change in M1*100	45.69	48.79	60.75	47.58		280.47	43.82	58.61	96.84	41.75
Rate of Change of Revenue Receipts/ Rate of Change in M1*100		99.55	164.37	140.53		453.59	36.93	94.76	129.66	-76.96
Rate of Change of Tax Receipts/ Rate of Change in M1*100		106.08	72.70	155.89		405.43	64.74	96.09	37.14	82.29
Rate of Change of Exchange Rate/ Rate of Change in M3*100	146.07	132.80	9.20	52.13		80.29	-17.88	62.58	12.43	34.07
Rate of Change of Exports/ Rate of Change in M1*100	123.93	196.46	-3.94	-69.96		254.02	26.53	132.41	-33.99	-255.99
Rate of Change of Imports/ Rate of Change in M1*100	148.93	20.56	6.91	-66.47		114.97	75.25	145.91	-58.04	-317.34

Source : Self Computed

M3 is the measure of the Broad Money Supply which is an important indicator of the developments of the money supply. M3's proportion the macroeconomic indicator indicates that manner in which it supports each activity or transaction in the economy. We can observe that M3 is ranges from 84.98% of GNI to 97.96% in 2020-21. Hence it is supportive of all the activities in terms of proportion to the overall activity in the economy.

Currency with the public and deposit money of the public taken as M1 is about 24.92% of GNI and much lesser proportion to the overall economic indicators which provides sufficient support to the economy as it indicates strength in the financial intermediation process through the evaluation of the two tables that represent the proportions of the M3 and M1 supporting different macroeconomic activities. (see Table XXV and Table XXVI)

Table XXVII and Table XXVIII indicate the per-cent rate of change in the macroeconomic variable to the rate of change in M3 and M1 respectively. It is an indicator of how money supply in India influences the various indicators where we observe that in year ending March 2017 indicates that the macroeconomic variables changed to much higher proportions that any other years for the change in M1 whereas there is No stark difference in the rate of change in macroeconomic indicator with M3 in years from 2012 to 2021. This further indicates that the reduction in M1 in 2017 due to monetisation had lesser impact on the macroeconomic activity of the economy. A more plausible reason could be the enhanced digitalisation and financial intermediation during that demonetisation period which supported the economic activity. A turnaround can be seen in the exports and imports from 2016 to 2017 which is a positive change. Also in 2020 the macroeconomic variables have seen the negative impact due to lockdowns initiated during the Covid-19 Period.

4.3 *Checking the Elasticity of GNI to M13, AFFMQ, MCEGW, FIREBS, THTC, CSPS and Demonitisation as Dummy Variable*

Autocoreelation is not a serious problem in this estimated value of GNI as can be seen through Table XXIX. GNI is significantly affected by M3, THTC in the last 10 years. The coefficeint of M3 is positively impacting the GNI in the past 10 years. This does Not specifically count out the effect of demonestisation but is indicates that the effect has narrowed out after 2017. The dummy of demonetisation is Not affecting GNI which indicates that demonetisation did not affect the GNI.

Table XXIX

Regression Results of GNI as dependent Variable

Dependent Variable: LOG(GNI)
Method: Least Squares
Date: 12/16/21 Time: 16:20
Sample: 1 10
Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.110154	2.441704	-1.683314	0.2343
LOG(M3)	0.784081	0.178622	4.389616	0.0482
LOG(AFFMQ_)	0.318092	0.231933	1.371483	0.3038
LOG(MCEGW_)	0.032247	0.188271	0.171281	0.8798
LOG(FIREBS_)	-0.284783	0.229910	-1.238673	0.3411
LOG(THTC_)	0.594040	0.096987	6.124924	0.0256
LOG(CSP__)	-0.124225	0.125038	-0.993497	0.4252
DUMMY	-0.001115	0.015568	-0.071627	0.9494

R-squared	0.999913	Mean dependent var	16.45687
Adjusted R-squared	0.999610	S.D. dependent var	0.295967
S.E. of regression	0.005842	Akaike info criterion	-7.456936
Sum squared resid	6.83E-05	Schwarz criterion	-7.214868
Log likelihood	45.28468	Hannan-Quinn criter.	-7.722484
F-statistic	3299.703	Durbin-Watson stat	2.876953
Prob(F-statistic)	0.000303		

Source : Self Computed

The Table XXX below provides the estimate with HAC-Newey West Method which indicates that there is Not much correction in the standard error or the coefficients which indicates that autocorrelation is Not a serious problem in the model.

Table XXX
Estimate with HAC-Newey West Method

Dependent Variable: LOG(GNI)
Method: Least Squares
Date: 12/16/21 Time: 16:23
Sample: 1 10
Included observations: 10
HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.110154	2.678777	-1.534340	0.2647
LOG(M3)	0.784081	0.252942	3.099849	0.0902
LOG(AFFMQ_)	0.318092	0.283747	1.121039	0.3788
LOG(MCEGW_)	0.032247	0.270393	0.119261	0.9160
LOG(FIREBS_)	-0.284783	0.318500	-0.894138	0.4656
LOG(THTC_)	0.594040	0.096451	6.158998	0.0254
LOG(CSP__)	-0.124225	0.105148	-1.181429	0.3589
DUMMY	-0.001115	0.015319	-0.072791	0.9486

R-squared	0.999913	Mean dependent var	16.45687
Adjusted R-squared	0.999610	S.D. dependent var	0.295967
S.E. of regression	0.005842	Akaike info criterion	-7.456936
Sum squared resid	6.83E-05	Schwarz criterion	-7.214868
Log likelihood	45.28468	Hannan-Quinn criter.	-7.722484
F-statistic	3299.703	Durbin-Watson stat	2.876953
Prob(F-statistic)	0.000303	Wald F-statistic	61756.96
Prob(Wald F-statistic)	0.000016		

Source : Self Computed

Overall it can be observed that there is No impact of demonetisation on the rate of change of macroeconomic variables in pre and post the demonetisation period which clearly nullifies any claims that it had slowed the pace of economic growth or disrupted the macroeconomic change in the economy. The proportion of money supply to the macroeconomic variables also indicates that adequacy of the money supply towards the transactional possibility of the macroeconomic aggregates. Transactions during and post demonetisation became more digitalised. The paper does not ascertain as to velocity with which money changed hands post digitalisation which possibly could be the reason that despite the liquidity squeeze there was no significant difference observed in the macroeconomic variables.

V. Socio-Economic Analysis for assessment of impact of Demonetisation the Indian Economy and the Common Man

We can see from Section IV that overall there is No impact of demonetisation on the rate of change of macroeconomic variables in pre and post the demonetisation period which clearly nullifies any claims that it had slowed the pace of economic growth or disrupted the macroeconomic change in the economy. Now we try to bring out some of the socio-economic benefits which have been observed as an outfall of demonetisation as a major reforms step in inducing financial inclusion, equity and less cash economic frameworks.

i. *Less Cash Economy and Digital Transactions :*The increase in digital payments significantly since demonetisation is an indication of less cash transactions framework. Currency in circulation was 12.1% of India's nominal GDP in 2015-16, the year before demonetisation. It plummeted to

8.7% in 2016-17 as the banking system was struggling to put cash back into the system after demonetisation. Since then, this ratio has climbed steadily and it reached 12% in 2019-20. A restoration of currency in circulation to nominal GDP ratio shows that there was no significant impact of demonetisation until 2019-20.This number reached an all-time high of 14.5% in 2020-21. The latest number is more a result of the pandemic's economic disruption; 2020-21 saw an annual contraction of 3% in India's nominal GDP, which pushed up the cash-GDP ratio, than a sudden increase in preference of cash in the Indian economy.There has been sudden rise in Cash to GDP ratio in 2020 and 2021 on account of Covid-19 lockdown scare, hence cash holding has gone up.

ii. *Digital Influx and Financial Inclusion :* The JAM Trinity (Jan Dhan Yojna, Aadhaar and Mobile) has seen a sea fold rise and the way direct benefit transfers could be possible during Covid-19 lockdown and the introduction of 1 Nation 1 Ration Card facility. The Opening of Jan Dhan Accounts of 44.17 Crore beneficiaries banked so far ₹ 149,969.70 Crore Balance in beneficiary accounts from most having zero balance to begin 5 years ago.

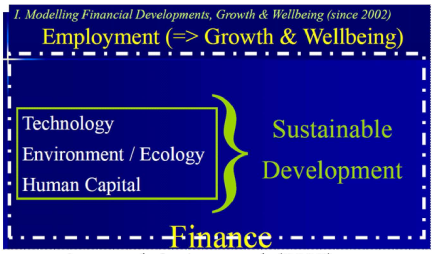
iii. *Empowering the Common Man with Prosperity and Security :* We can see how digital modes are used for transfer of funds and the banks accounts have helped the poor and the BPL families be empowered with the fact that these funds what they earn during the day get utilized for the benefit and growth of the family as against being stolen or spent on non welfare enjoyment activities with most being daily wage earners. Also the fact that since they do not carry large currency, the chance of any theft is minimized. Credit Card companies in the 1970 had projected that with introduction of Credit Cards, the cash usage will reduce and digital payments will increase, however given the restrictive usage and credit evaluation process, large masses in India and across the world could never benefit from this framework, which we have got to see with digital wallets and other payment gateways empowering the poorest of the poor to transfer and transact money for revenue and expenditure on day to day basis.

iv. *Formalisation of Economic Systems and Institutions :* We have seen the strengthening of the formal economy on account of demonetisation, GST framework and the JAM Trinity. A large number of other reforms have made MSMEs to formalize their revenue and expenses mode, which now can be digitally tracked and accounted for in the economic growth of the nation and individuals. The AADHAR Card framework has also helped in unifying the formalization of the economy (Pandya, 2019).

v. *Better projections of Macro-Economic Variables :* With more formularization of economy we see better macro-economic variables at hand, which intern help policy makers in institutions like NITI Aayog to make appropriate policies and transfer benefits to the required segment of the society.

vi. *Better Control of Central Bank – RBI* on the key economic indicators like Inflation, Savings and Investments is now possible with digital imprints and the way masses transact using bank accounts, digital payment gateways, digital wallets as against only Cash which was the main source of transaction for the masses in the pre-demonetised world.

vii. *Sustained Growth and Development:* It is important that for a sustainable growth and development model we need to have interplay of technology, environment and human capital. Demonetisation helped formalize the economy and have a better understanding of this framework. The last 6 years of Nobel prize have focused on these aspects to induce sustainable growth, which we have been projected in our works and address since 2002 (see Figure 9).



Source : Agarwal & Agarwal (2002)

Figure 9

Modelling Sustainable Development, Growth and Human Well-Being

VI. Summary and Conclusion

The landmark decision of Prime Minister Shri Narendra Modi of demonetizing high value currency bank notes of ₹ 1,000/- and ₹ 500/- from 8th November 2016 midnight, to induce transparency and growth; curbed black money; reduce corruption; control terrorism; build foundation for less cash economy and bring equity to 130 crore citizens of India. This has enhance structured growth and will enhance glory of India both domestically and globally in times to come. We had started seeing rebound in Growth figures in 2017 itself and the way the people of India at large have welcomed this decision in the best interest of a secure future and patriotism, having been cursed and crushed for decades due to the cost of corruption, militancy, terrorism and high inflationary pressures on account of black money. Covid-19 had brought forth numerous challenges for economies globally beginning December 2019. India was no different, we had a 2020-21 Quarter 1 GDP fall to (–) 23.9% immediately after the 1st longest lockdown in 2020 with overall GDP (-) 7.7% to about 7% in 2020-21 and 9.5% projected for 2021-22.

Many of the positive outlays identified on November 9th, 2017 of this demonetization includes rise are per capita income to double of its current level in 5-8 years (average growth of 8% in last 5 years); replenishment of banks with fresh liquidity resolving emerging liquidity crunch (already achieved) and NPA problems in the banking system (already reduced); strengthening value of Rupee value; increase in FDI and FII Investment in the country (FDI grown from U$ 5 billion per month in 2015-16 to U$ 6.5 billion per month 2020-21 and FII being over US$ 35 billion in 2020-21 highest of last 7 years flows); increase in foreign exchange reserves; inflation likely to slide down gradually (already observed and stable in last 2 years despite inflationary and deflationary pressures); corrections in the stock markets and realty sector (already done, and newer heights achieved); enhanced confidence in the currency and global ranking and Money supply brought under control (already done with M3 at 9.5% averaging for last 5 years, where as it used to be between 15-18% prior to 2015). Some difficulties faced in the short run were availability of petty cash; even today not all citizens are banked despite JAM trinity; realty sector is still seeing a further downturn; migrant workers and domestic tourists face difficulty in short run, however more so now due to Covid-19; GDP is expected to be sluggish in the short run (however has shown resilience and a rebounding growth even during Covid-19 jumping from – 7% (2020-21) to + 7% (2021-22) and expected growth projections of 9.5% (2022-23) by RBI, World Bank, IMF, S&P Moody's and others), profitability of small businesses have already taken a hit adversely (many who have re-aligned in-accordancew with Covid-19 New Norms, have regained rest still building); high denomination notes of ₹ 2000 have gonein vaults of influential and hoarders of black money (as is visible from large number of raids done by Enforcement Directorate in last 5 years).

It is strongly felt that the decision pronounced by PM Narendra Modi is the boldest decision in the right direction and he deserves all praise for this decision for inducing Financial inclusion, Banking and digital dividends to the poorest of the poor and the deprived section in Independent India post 1947. The necessary support to policy changes, trust and confidence hold the key to Growth and Prosperity of the people of India.

To tackle the urgent problem of un-employment in India and various other economies, our work on General Theory of Employment, Wealth and Efficient labour market (Agarwal, Agarwal, Agarwal, Agarwal, 2017) through setting up of a National Labour Exchange. National Labour Exchange can be a vehicle of facilitating information for available jobs i.e. employment opportunities at given return to labour and availability of labour offering the services for a return based on their value addition. The proposed work will fill the exiting gap of asymmetrical information. The paper proposes setting up of a National Labour Exchange along the lines of National Stock Exchange, Bombay Stock Exchange and Commodity Exchanges Worldwide in order to promote efficiency in the labour market, full employment and generating wealth and positive contributions to GDP. The paper also considers that Labour as a valuable Resource and a Wealth of the Nation, having potential to generate more wealth. The paper opposes the concept of Wages or Price of Labour as in classical economics, but supports Recordo's theory of Value and Laissez faire through efficient labour market. The paper opposes Keynesian theory outlining Government Intervention to generate Employment though Monetary Policy changes and Fiscal Policy as Keynesian theory based Book on The General Theory of Employment, Interest and Money is a product of Great Depression of 1931-36 not reflecting normal economics and business conditions in the economy when business failed and labour laid off in abundance. The paper critically evaluates various theories on Labour. We are happy to see that Delhi Government has introduced "Roozgar Exchange" and also the "Job Exchange" being proposed by UP Government is much in line with the proposal model. Also we were happy to learn from Dr. Bibek Debroy (Chairman PM Economic Council & Member Niti Aayog) that NITI Aayog has been considering our proposed model to induce employment in the economy.

The proposed work would induce competition both among employers and labour to maximize the productivity, maximizing wealth, GDP and social welfare. Labour, instead being idle or underemployed would prefer to pick up a job with lower return. It would provide transparency, avoid exploitation of labour, efficiency in labour market would help foreign investors, to know about the skill, experiences, qualifications and desired return of labour in a country. This is in turn will remove any fears regarding the availability of labour in a given industry.

The payment to labour should be based on return to labour on the basis of value addition, rather than as wages as is being currently done. Payment of wages is exploitative on one or the other ground. Labour is resource (wealth) as much as land or capital and deserves return to labour. The proposed work states that the wages paid to labour should be replaced by "*Return to Labour*" based on value addition. Return to Labour would be automatically directly linked to productivity. It would give dignity and enhance or reduce return. The proposed work would create one NATIONAL market for labor exchange, uniting the country and its countrymen to one Common Working Platform removing the discrimination of regional imbalances, labor immobility and information asymmetries that create distortion in the demand or supply of labor. It would encourage labour at all levels to acquire certificates, degrees, skill and focus on maximizing productivity so as to quality for a composite score to be high to get better return on jobs and choice of firms.

The proposed Model of creating efficient Labour Market through National Labour Exchange will facilitate an automatic way for Full Employment, generating wealth for the nation, firm and Labour, easy access to information about the availability of Labour (man hours) and jobs. It would also help save employment costs in a Market Driven Economic System with Asymmetric Information. National Labour Exchange as proposed would also help Rating Certificates, Diplomas, Degrees, skill development and experiences based on Scores and would facilitate transparency in the Efficient Labour Markets. It would automatically adjust the return to labour based on value addition and economic and business conditions avoiding the problems of laying off. Efficient Labour Market would facilitate perfect or nearly perfect mobility of labour through National Labour Exchange.

Our empirical analysis clearly shows that that there is No impact of demonetisation on the rate of change of macroeconomic variables in pre and post the demonetisation period which clearly nullifies any claims that it had slowed the pace of economic growth or disrupted the macroeconomic change in the economy. The proportion of money supply to the macroeconomic variables also indicates that adequacy of the money supply towards the transactional possibility of the macroeconomic aggregates. Transactions during and post demonetisation became more digitalised. The paper does not ascertain as to velocity with which money changed hands post digitalisation which possibly could be the reason that despite the liquidity squeeze there was no significant difference observed in the macroeconomic variables. The series of reform processes initiated by the Government of India since 2014 including demonetisation, GST, JAM Trinity and others have fostered the strength in Indian economy to wither away and stand strong against Covid-19 like scenarios. Indian economy has rebounded back in 2021 and is expected to grow at 9.5% in 2022 on account of the reforms initiated and RBI's regulatory prudence being obsereved.

India marching into the next decade is strong, confident and having roboust engines of Growth. It now with due diligence and profound structural framework to be provided by government, regulators and the leaders of India, which can convert omnipotent markets to yield growth momentum to jobs (employment), reduction in in-equalities of income, reduction in gender disparities (work/pay) and bring Indians out of the nexus of poverty as we say in Chandragupta's period and India's historical periods as the Golden Bird. Jai Hind.

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