Alinteri J. of Agr. Sci. (2021) 36(1): 433-442

e-ISSN: 2587-2249

info@alinteridergisi.com



http://dergipark.gov.tr/alinterizbd http://www.alinteridergisi.com/ DOI:10.47059/alinteri/V36I1/AJAS21064

RESEARCH ARTICLE

Reforms in Agriculture Sector and Paradigm Move in the Indian Banking towards Agriculture

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ARTICLE INFO

Article History: Received: 24.03.2021 Accepted: 25.04.2021 Available Online: 21.06.2021

Keywords:

Banking Sector Monetary Incorporation Credit Deposit Ratio Privately Owned Businesses

ABSTRACT

Indian Banking sector have commitment to contribute loan to the rural India. India filling in populace needs more food to satisfy the need. It is basic since horticultural area has been pushed as auxiliary area as opposed to essential. The elements like branch activities, number of branches in provincial regions, monetary incorporation and its effect, credit deposit ratio, loaning strategies, RBI strategy, sectoral advancement and different elements are broke down with observational proof and measurable importance. Late enactment carries the unrestricted economy to agribusiness and permit privately owned businesses to bring efficiency, work and new innovation to the area. The private area would now be able to put resources into present day farming exchanging stages or set up post-reap offices like distribution centres and cold stockpiles. The government strategies are constraining banks to loan more to the farming sector.

Please cite this paper as follows:

Dr. Shankar, U. (2021). Reforms in Agriculture Sector and Paradigm Move in the Indian Banking towards Agriculture. *Alinteri Journal of Agriculture Sciences*, 36(1): 433-442. doi: 10.47059/alinteri/V36I1/AJAS21064

Introduction

Agriculture sector contributes just 13% of the total national output (GDP) and draws in 44% labour force. It reveals the poor status of agriculture sector as contrasted with the industrial sector [13-18]. Little farmers experience the ill effects of item and market chances and rely upon non-institutional credit like moneylenders for useful and non-useful purposes, which are interlocked with different business sectors like produce in states like Punjab. In this unique circumstance, the new changes target acquiring new ventures in the agriculture sector, particularly from the private corporate area. It is expected that to get such ventures, liberation of the area is required as far as yield market and homestead contribution just as administrations market and land market [19-24]. The market hazards incorporate shortfall of market, less price for agriculture produce, high exchange cost and helpless bargaining power because of fragmented small land possession, less produce and unsecured income of farmers [25-29].

Role of Banks in Promoting Agriculture Sector

Banks are constantly alluded as "spine" for agricultural nations. Marketed banks need to help different areas to have adjusted development in the economy. It ought to guarantee that monetary development permeates through all segments of masses [30-37]. However, lamentably, in rural area little and Marginal farmers endure intensely because of non-accessibility of assets for their occupation. Medium and enormous scope agriculturists may get important assets through accommodation of satisfactory insurance, while little and poor farmers are denied of all solaces including capital speculation. World Bank report articulates around 1.1 billion individuals' in India is poor at provincial region. One of the significant purposes behind the neediness is a low availability for credits by provincial poor. This leads creators to contemplate the commitment of banks towards the rural area and which job they presently play in the economy [38-44]. On the off chance that banks are helping agrarian mass vigorously, the worry about low openness and payment raises questions about the exhibition of monetary areas in India. Both private and public banks have involved themselves in offering agriculture-based loans

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[45-49]. Banks are engaged with setting up consultancies to guide agriculturists to showcase rural produce. The link of HDFC with NAFED and SBI will assist to bring revolution in the rural India [3]

It is clear from the figure below that Nonperforming assets (NPA) of industry sector are very high when compared to agriculture and service sectors. There is volatility in the farm loans granted by banks for agriculture sector [50-54]. Wrongdoing in agribusiness advances is now on the ascent, even as banks prepare for large benefits following the line of farm advance waivers as of late reported by a few state governments. In the a half year to 30 September, Indian banks saw terrible advances ascend to 8.4% of their

horticulture book, an ascent from 7% as of March 2018, as per information from Reserve Bank of India (RBI). The awful advance proportion has climbed each year since 2011-12, as demonstrated in the bordering diagram. This compares to the developing homestead trouble, and as this Mint section noted on 21 May, farm wage development is at a three-year low [55-56]. Add the breakdown in food costs over the previous year, and the trouble in farm families is unmistakable. Deteriorating compensation and a breakdown in acknowledge from selling produce is sufficient to toss wages of farmers and credit instalment plans into confusion. Despite the base help value climb, narrative proof recommends farmers income is falling.

Bad loans rising

Farm loan waivers are back with a bang in the run-up to elections and, with them, delinquency rates in farm loans are also on the rise.

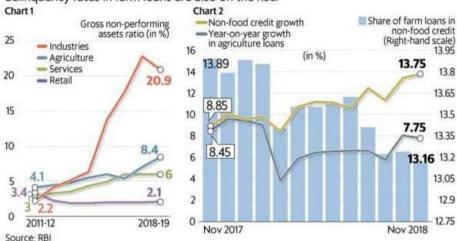


Figure 1. NPA of various Sectors

Indian banking sector has gone through various changes and changes over the previous a very long time to improve its exhibition to the global level. The monetary freedom of the nation relies upon the sound monetary framework working inside the country. India one of the biggest country

in south Asia, it has shifted monetary foundations, instruments and monetary framework. Indian financial framework was considered also created with the presence of unfamiliar and home-grown banks including all around created stock imprint.

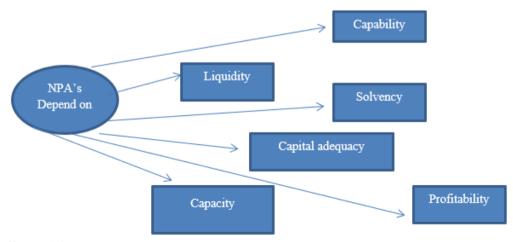


Figure 2. Factors affecting NPA

Loan waiver declared by state governments has influenced the credit culture in the country with numerous borrowers retaining reimbursement, fully expecting an

advance waiver. This antagonistically influenced the financial record of borrowers and their future possibilities of profiting new credit for rural purposes. This prompted

further disintegration of acknowledge culture as obvious from the undeniable degree of Gross NPA of 8.44 percent as

on March 31, 2019 in the agribusiness area.

Bank loan to Agriculture

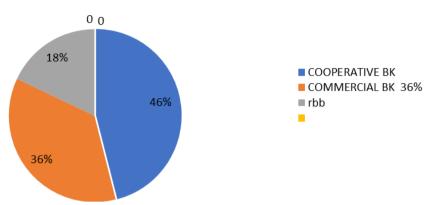


Figure 3. Bank loan offered by Different type of banks Source: RBI- 2019

It is clear from the above figure that Cooperative bank contribution is 46%, Commercial bank contributes 36% and RBB contributed 18% for agriculture.

Review of Literature

Sri Subramaniam and Sairavi Subramaniam in their article on Role of Banks in Agricultural Lending - India (2009) stated that it is obviously apparent that business banks credit strategy has moved towards Industry area instead of horticultural area. The majority of the territorial country banks will be working as co-operative banks, which has its own constraint for sourcing reserves due to member's subscription and familiarity with capital offer. Regional rural banks tasks were likewise confined to a specific district as independent organization. This probably won't help much for Indian farmers who need more assistance to save them out of the emergency. The nationalized bank must come out with more agricultural credit and advance to help the negligible and little country farmers, the destiny of agribusiness is consistently under scheme [12].

Hans Peter Binswanger, Shahidur R. Khandker in their article "The Impact of Formal Finance on the Rural Economy of India" mentioned that long haul credit goes generally to huge farmers. In general, farm obligation has most likely not expanded pointedly in genuine terms, as formal credit has basically filled in for credit from different sources. The accessibility of better financial offices seems to have defeated one of the snags to finding nonfarm exercises in country regions. Extended provincial account has had less of an impact on yield and work in farming than in the nonfarm area. Obviously, improved store administrations are a helpful assistance of the provincial populace, yet one should ask what has been the effect of substantial rustic credit and better monetary administrations on horticultural venture, creation, and country salaries. The authors' econometric results propose that the quick extension of business banks in rural regions has had a generously beneficial outcome on provincial nonfarm work and yield [7].

Sukhpal Singh in his article "Corporate Farming in India: Is it Must for Agricultural Development? - 2006 analysed that it is contended that enormous scope corporate horticulture is more effective than labourer cultivating common in the country. It prompts better allocated productivity, actuates higher private interest in horticulture, and results in higher yield, pay and fares. The normal size of the operational negligible possessions was just 0.35 hectares and those of the little property 1.41 hectares in 1992 contrasted and 2.69 and 5.79 hectares separately of the semi-medium and medium classification possessions and 15.41 hectares on account of enormous class property. The proprietorship holding midpoints for these classifications were significantly more modest with the exemption just of huge classification possessions which was somewhat bigger. Truth be told, it has been contended that the little and minor farmers even in states like Punjab are not practical for supporting a family and need bigger possessions. These little holders ought to escape cultivating on the off chance that they can't proceed onward to more fare situated and business crops like leafy foods as it won't be suitable to develop food crops on little property [13].

Gagan Bihari Sahu, Rajasekhar Durgam in their article" Banking Sector Reform and Credit Flow to Indian Agriculture" have examined that the development pace of complete credit was in every case not exactly that of stores in rustic and metropolitan spaces of all classes of regions during the pre-change time frame. This was valid in the instance of profoundly created and created classifications of locale during the change years. Strangely, this doesn't hold great on account of in reverse and exceptionally in reverse classes' locale during the second sub-time frame, where the development rate in credit was more than that of stores in both country and metropolitan regions. The high development pace of gathering all out credit in country spaces of in reverse and exceptionally in reverse classes of locale contrasted with other two classifications of regions can be ascribed to the mastery of supply-drove approach credit strategy in the regressive regions [4].

Shaktikanta Das in his article "Indian Banking Sector: Current Status and the Way Forward" -2019 observed that the disintegration in resource nature of Indian banks, particularly that of PSBs, can be followed to the credit blast of 2006-2011 when bank loaning developed at a normal pace of more than 20%. Different components that added to the decay in resource quality were unfavourable full scale monetary climate; remiss credit examination and postauthorize checking guidelines; project deferrals and cost invades; and the shortfall of a solid liquidation system until May 2016. The new structure settles on between loan boss arrangements required and accommodates a greater part choice to win. Further, any place fundamental, the Reserve Bank will give headings to banks for commencement of bankruptcy procedures against borrowers for explicit defaults with the goal that the force towards successful goal remains positive. It is normal that the changed prudential structure for goal of focused on resources will support the upgrades in credit culture that have been introduced by the

endeavours of the Government and the Reserve Bank up until this point, and that, it will go far in advancing a solid and strong monetary framework in India [11].

Objectives

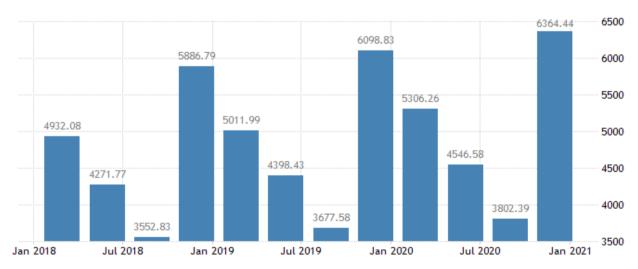
To study the reforms in agriculture sector.

To analyse the paradigm move in the Indian banking sector towards agriculture.

To offer suggestions to improve agriculture sector.

Reforms in Indian Agriculture Sector

In these challenging times, the Government of India recently passed three new bills namely the Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020 (FPTC); the Farmers (Empowerment and Protection) Agreement of Price Assurance and Farm Services Bill, 2020 (FAPAFS); and the Essential Commodities.



SOURCE: TRADINGECONOMICS.COM | MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION (MOSPI)

Figure 4. GDP from agriculture

It can be understood from the above chart that after the reforms in agriculture sector the GDP has increased. GDP from Agriculture in India increased to 6364.44 INR Billion in the fourth quarter of 2020 from 3802.39 INR Billion in the third quarter of 2020. It is estimated that India's agriculture sector accounts only for around 14 percent of the country's economy but for 53 percent of total employment.

Table 1. Distribution of gross domestic product (GDP) across economic sectors from 2009 to 2019 in percentage

Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Agri	16.7	17	17	16.8	17	16.8	16.2	16.4	16.4	15.4	15.9
Industry	31.1	30.7	30	29.4	28.4	27.6	27.3	26.6	26.5	26	24.9
Service	45.9	45	45.4	46.3	46.7	47.8	47.8	47.8	47.9	48.8	49.9

Source: Published by Aaron O'Neill, Mar 31, 2021

The IT industry plays an important role in India's economy, in 2016/2017; it produced about 8 percent of India's GDP, decrease from previous years, when it made up about 10 percent of the country's economy. However, the IT industry is developing.

The FPTC act permits farmers to trade freely outside the state and within the state beyond the physical premises of APMC markets. State governments are forbidden from levying market fee, cess or levy outside APMC areas. The public authority has attempted milestone rural changes, liberating farmers from limitations on special of their produce and finishing the imposing business model of brokers. It has likewise opened the window for private capital by permitting farmers to go into manages huge purchasers like exporters and retailers. It upholds consistent electronic exchange and assists farmers with finishing the

syndication of merchants, Yields better re-visitations of farmers and raises wages, ranch produce can move openly from surplus to deficiency areas, makes public market; high terrorizing cost mandis will go and shopper improves and less expensive items [14].

Essential commodities have removed from the list cereals, pulses, oilseed, edible oils, onion and potatoes. Farming attracts private investment in cold storage, warehouses, and processing and raise farm incomes. FAPAFS relates to contract farming. This act attracts private investment in farming and link farms to global markets. Agribusiness has become significantly more unpredictable in the course of recent hundreds of years. To utilize modern terms, rural tasks relied upon neighbourhood conditions and deals were restricted to the local area. With approach of innovative transportation, the activities stay nearby, yet deals have gotten worldwide.

The farmers must acknowledge the three new homestead laws which will profit them by infusing contending markets. Capital infusion is urgent in agribusiness for it to profit by scale underway and promoting. The opening of APMC markets has shown that market costs can increment by at any rate 38% through the e-NAM. The job of corporates, particularly in agribusiness advertising, is dreadfully huge as they can move a more noteworthy segment of the buyer rupee to farmers [8].

Farmer's earnings are as much influenced by yields and item quality as by global interest and supply confounds. Dangers can be diminished by improving data accessibility. This data incorporates value data, specialized data, hazard moderation systems and safeguard institutional plans. The test of having self-supportable rural area has not been settled anyplace on the planet. The rich nations have alleviated it by setting out more grounded monetary open doors somewhere else and by dying down agribusiness. While farming remaining parts a more modest supporter of financial development, food security itself is important. A self-supporting farming area will be a competitive edge for India [10].

Corporate Farmers

Reliance group acquired 3,500 acres of land from farmers. They have separate units trading in food and agricultural produce, the automobile, industry and garments and apparel. IEEFL has 12 farms in Tamilnadu covering 650 acres. Organic production for domestic and export markets is commenced on these farms. Airtel acquired 300 acres of land from the Government of Punjab called the 'Field Fresh Agri Centre of Excellence' near Ludhiana. They have protected cultivation including poly-houses, glass and green houses, and net houses.

On-going enactment carries the unregulated economy to agribusiness and permit privately owned businesses to bring efficiency, work and new innovation to the area. The private area would now be able to put resources into current horticulture exchanging stages or set up post-collect offices like distribution centres and cold stockpiles. The changes

liberate farmers from limitations on how to sell their produce? They facilitate for lower charges and better offices for farmers. The idea of an unrestricted economy in horticulture will prepare for corporate area and make it more proficient. The rise of private venture is relied upon to patch up the area by driving usefulness, embracing new creating work, expanding innovation, the acknowledgment, and in conclusion coordinating store network "from farm to junction". We distinguished three urgent regions where the venture by corporate area could shift the direction of horticulture. The new changes have set out sufficient open doors for private area to contribute and remove long-forthcoming issues in agribusiness. In the long run, guiding of private speculation is likewise expected to create number of positive externalities in the horticulture area which will likewise help in accomplishing government's level headed of multiplying farmers pay. Waste lands are offered on long term lease by the government to companies to do farming.

Corporate cultivating is a drive endeavoured in numerous Indian states close by contract cultivating. Corporate cultivating alludes to coordinate possession or renting in of farmland by business associations to create for their hostage handling prerequisites or for the open market. With the passageway of private players, it is conceivable that current mandis will re-evaluate themselves by diminishing the predominance of permit raj, release the section boundaries for the brokers, bringing down the market expenses, and putting resources into present day offices. It will likewise make the clumsy player bankrupt and make rivalry, accordingly, clearing path for lower charges and better offices for farmers. Though individuals think corporate cultivating will hurt the farmers because of cultivating's corporatization, the public authority contended that it would incite underlying changes in the agrarian business sectors in a few dimensions. The government contended that the new guidelines would make a biological system that would empower the farmers to exchange uninhibitedly in the market in light of value signals, improving the ranchers' procuring and government assistance. The new Bills give the feeling that farmers had pointless limitations to exchange unreservedly for farming items, and mandis is the assigned space for all exchanges.

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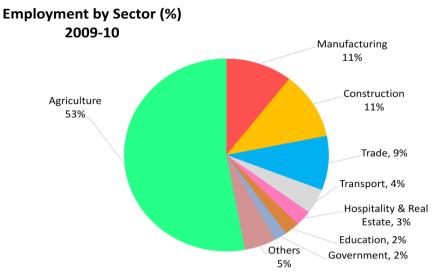


Figure 5. Employment sector wise

It is clear from the above figure when compared to other sectors Agriculture offers major employment opportunities in India.

Paradigm Move in the Indian Banking Sector towards Agriculture

For little farmers to broaden crops or improve their pay. they should approach credit at sensible paces of interest. Sadly, while the volume of credit has improved throughout the long term, its quality and effect on horticulture has just weakened. During 2021-22 Budget, Finance Minister Nirmala Sitharaman has again set another rural credit focus of Rs 16.50 lakh crore, 10% more than the objective of Rs 15 lakh crore for the current financial year. In 2011-12, the objective was Rs 4.75 lakh crore. Smoothing out the agri-credit framework to work with higher harvest advances to farmer producer associations (FPO) of little farmers against item stocks can be a mutually advantageous model. With cell phone entrance among farming families being pretty much as high as 89.1 percent, improving institutional credit conveyance is required through innovation driven answers for diminish the monetary rejection [2]

The pressure in the farm sector have step up, 38.2 per cent increase in default of loans by farmers in the during March 2018. Regardless of the farm loan waiver schemes offered by several states and the climb in minimum support price by the Centre, the RBI reported that NPAs in the farm sector have gone up by over Rs 23,000 crore to Rs 83,153 crore by March 2018 from Rs 60,161 crore in March 2017 [5].

Table 2. NPA Outstanding from Agriculture

-	The state of the s					
	Agriculture Advantages Outstanding					
	Year	Loans	NPAs			
	3/31/2014	7,69,489	34,082			
	3/31/2015	8,34,842	37,726			
	3/31/2016	1,041,599	48,845			
	3/31/2017	1,114,313	60,161			
	3/31/2018	1,163,253	83,153			

It is observed from the above table that the increase in loan and outstanding amount from farmers. When compared

to industrial sector NPA's of agriculture sector is less. If corporate farming becomes profitable chances of outstanding amount to bankers will decrease. Without understanding the elements of business, credit, and relationship network secured in the provincial economy, any mediation may prompt unexpected and unwanted results like food frailty and joblessness, which the government official should consider prior to drafting any new regulation [91].

The Government of India fixes agribusiness credit dispensing focuses for the financial area consistently and banks have reliably outperformed these objectives. The subtleties of Agriculture Credit Targets fixed by the Government and the accomplishment by the Banks, throughout the previous three years (2014-15 to 2016-17) as detailed by National Bank for Agriculture and Rural Development (NABARD) [15].

Profit	NPA
2020 Aug - 15.9%	8.4%
2020 Sep 15.8%	8.5%
2020 Oct 16.1%	8.2%
2020 Nov 16.3%	8.1%
2020 Dec 16.2%	8.2%
2021 Jan 16%	8%
2021 Feb 16.2%	8.2%
2021 Mar 16.1%	8.1%
2021 April 16.2%	8.1%
2021 May 16.3%	8%

Source: The Business Standard

Correlation result

		Profit	NPA
Pr	ofit	1	
NF	Α	-0.73428	1

R = -0.73428

Result: Negative correlation

Paired sample t test

Ho: There is no difference between Profit and NPA H1: There is difference between Profit and NPA

t-Test: Paired Two Sample for Means				
	Profit	NPA		
Mean	16.11	8.18		
Variance	0.027666667	0.026222		
Observations	10	10		
Pearson Correlation	-0.734284443			
Hypothesized Mean Difference	0			
df	9			
t Stat	82.03448276			
P(T<=t) one-tail	1.50487E-14			
t Critical one-tail	1.833112923			
P(T<=t) two-tail	3.00974E-14			
t Critical two-tail	2.262157158			

The output indicates that mean for the profit is 16.11 and for the NPA it is 8.18.

If the p-value is less than significance level, the difference between means is statistically significant. p-value (3.00974) is higher than the standard significance level of 0.05, hence null hypothesis accepted. The sample data support the hypothesis that the population means are no different. Specifically, the Profit mean is greater than the NPA mean. Hence the null hypothesis accepted, there is no correlation between Profit earned in agriculture and Non-Performing assets of banks. NPA depends on capability, liquidity, solvency, capacity and capital adequacy of any sector for whom loan is granted. Profit alone doesn't determine NPA of banks

Farmland Banks enable land transfers to escalate farms; the tasks for coordinating farmland merging have been positioned to stakeholders. The condition of nearby farmland administration has for some time been basic to hindering composed solidification, while liberation works with 'savage' corporate farmland use. Interestingly, proof from Hikawa Town in Shimane Prefecture shows how outstandingly solid nearby command over farmland empowers union, yet in the 'cautious' interests of the neighbourhood occupants [6].

Findings

- Corporate farmers with scientific training and investment able to do agro-processing as well as production of various kinds of microbial and botanical products, they don't divert loan for unproductive purposes and dilute the purpose of such loan.
- The cost of inspection and transaction diminishes when the company obtains in greater part from bigger farmers than retailers.
- Use nano-innovation for upgrade of food quality and security, will diminish the wastage being used of synthetic substances
- Use of GPS innovation, drones and robots will cause agribusiness to be more beneficial, simple and harmless to the ecosystem.
- Banks pay more attention to corporate farmers as their credit worthiness is sound
- There is better utilization of waste materials in agribusiness, distribution centres in private area

- will be more and private stockrooms will be expanding.
- 'Internal Working Group to Review Agricultural Credit' can be set up to find out the reasons for regional inequality and suggest solutions to address the restrictions in retrieving institutional agricultural credit.
- NAFIS Report stated, 72 per cent of the credit requirement of farmers was met through institutional sources and 28 per cent from noninstitutional sources.

Suggestions

- e-Kisan mandi will enable direct marketing of produce from B to C at minimal cost and quick payment. Such alternative marketing channels to be introduced.
- Banks ought to foster a MIS to signal agrarian advances endorsed against gold as security in CBS to isolate such advances for powerful observing of end use of assets.
- To control the mis-use of revenue sponsorship, banks ought to give crop advances, qualified for revenue aid, just through KCC mode.
- Banks ought to be permitted to give advances to farmers up to 0.1 million, can acquire insurance security with their reimbursement limit on the incomes of the borrowers.
- To improve simplicity of credit, the constraint of 0.3 million for forgoing insurance security by the banks in the event of tie-up game plans ought to be overhauled.

Conclusion

There is no case for evacuation of roofs ashore possessions for corporate business to work in rural creation area or for farmers to harvest economies of scale, on grounds of size limit, given there exists a more liberated land-rent market. In the event that operational property are to be expanded for more practical tasks, that can be accomplished by making the land rent market more effective or by pooling land together under some coemployable ventures, for all things considered purchasing information sources and selling produce, notwithstanding agreeable cultivating. In the event that horticultural development is to be partaken to understand the prudent circle of development and conveyance, just a worker cultivating framework utilizing present day innovation of creation can accomplish it, as the East-Asian experience has appeared. Not just it is more serious contrasted with the industrialist/corporate cultivating framework. additionally labourers do react and receive new advances of creation at whatever point opportunity emerges. The experience of the Green Revolution in Punjab is a great illustration of this. Besides, it can utilize more work as the labourer farmers substitute work for capital much better, than the industrialist cultivating can at any point do, given its ordinary rationale to expand benefit.

RBI need to update their principles to comprehend that still India is a farming base economy and it a non-industrial nation like India need to develop, first provincial destitution should be destroyed. This must be accomplished by drawing out the Indian farmers out of obligations and assisting them with having financial freedom in their profession. Creating provincial initiative, local area authority and rural schools could bring the information for the naïve farmers. This may assist them with getting mindfulness about financial items and administrations accessible. Need for bank is give a lift for the economy regardless of areas, if banks have halfway perspectives on farmers, the perspectives may be upsetting the development of the banking sector as well.

References

- Akshi Gupta & Zeba Khan, 2020. There's business in farming: How companies gain from agri sector reforms-Business Standard.
- A.S. Mittal, 2021. Need to Reform Agri-Credit System in Business world.
- Deepak Kumar, 2005. Roles of the Banking Sector in Indian Agriculture ICFAI.
- Gagan Bihari Sahu, Rajasekhar Durgam, 2005. Banking Sector Reform and Credit Flow to Indian Agriculture in Economic and Political journal.
- George Mathew, 2021. Farm loan defaults. The Indian express.
- Hanno Jentzsch Abandoned land, corporate farming, and farmland banks: a local perspective on the process of deregulating and redistributing farmland in Japan Journal of Contemporary Japan 2016
- Hans Peter Binswanger, Shahidur R. Khandker, 1992. The Impact of Formal Finance on the Rural Economy of India in *Journal of Development Studies*.
- Monojit Bhattacharya / Mainak Mazumdar Business Line - 2020
- Rahul Deodhar Agriculture Reform 2020: A Step in the Right Direction.
- Shaktikanta Das Indian Banking Sector: Current Status and the Way Forward in RBI Bulletin -2019
- Sri Subramaniam and Sairavi Subramaniam, 2009. Role of Banks in Agricultural Lending India. SSRN Electronic Journal.
- Sukhpal Singh, 2006. Corporate Farming in India: Is it Must for Agricultural Development?
- Ganesh Babu Loganathan, Praveen M., Jamuna Rani D., "Intelligent classification technique for breast cancer classification using digital image processing approach" *IEEE Xplore Digital Library* 2019, 1-6.
- M. Viswanathan, Ganesh Babu Loganathan, and S. Srinivasan, "IKP based biometric authentication using artificial neural network", AIP Conference Proceedings (2020), Volume 2271, Issue 1, 030030.
- Mohammed Abdulghani Taha and Ganesh Babu Loganathan, "Hybrid algorithms for spectral noise removal in hyper spectral images" AIP Conference Proceedings (2020), 2271(1), 030013.
- Dr.Idris Hadi Salih, Ganesh Babu Loganathan, "Induction motor fault monitoring and fault classification using

- deep learning probablistic neural network" Solid State Technology (2020), 63, 6, 2196-2213.
- Ganesh Babu Loganathan "Design and analysis of high gain Re Boost-Luo converter for high power DC application", *Materials Today: Proceedings* (2020), Volume 33, Part 1, 13-22.
- Ganesh Babu Loganathan, E. Mohan, R. Siva Kumar, "Iot Based Water and Soil Quality Monitoring System", International Journal of Mechanical Engineering and Technology (IJMET) (2019), 10(2), 537-541.
- Suganthi K, Idris Hadi Salih, Ganesh Babu Loganathan, and Sundararaman K, "A Single Switch Bipolar Triple Output Converter with Fuzzy Control", *International Journal of Advanced Science and Technology*, (2020), 29(5), (2020), 2386 2400.
- Ganesh Babu Loganathan, "Can Based Automated Vehicle Security System", International Journal of Mechanical Engineering and Technology (IJMET) (2019), 10(07), 46-51.
- Loganathan, Ganesh Babu, Vanet Based Secured Accident Prevention System (2019). *International Journal of Mechanical Engineering and Technology*, 10(6), 2019, 285-291. https://ssrn.com/abstract=3451201
- B.K. Patle, Ganesh Babu L, Anish Pandey, D.R.K. Parhi, A. Jagadeesh, A review: On path planning strategies for navigation of mobile robot, *Defence Technology*, Volume 15, Issue 4, August 2019, 582-606.
- R. Sujith Kumar, G. Swaminathan, Ganesh Babu Loganathan, "Design and analysis of composite belt for high rise elevators", *Materials Today: Proceedings*, Volume 22, Part 3, 2020, 663-672.
- A. Senthil Kumar, Venmathi AR, L.anesh Babu, G. Suresh, "Smart Agriculture Robo With Leaf Diseases Detection Using IOT", European Journal of Molecular & Clinical Medicine, Volume 07, Issue 09, 2462-2469.
- Ganesh Babu L 2019 Influence of benzoyl chloride treatment on the tribological characteristics of Cyperus pangorei fibers based nonasbestos brake friction composites Mater. *Res. Express* 7 015303.
- Sivam, S.P.S.S., Loganathan, G.B., Kumaran, D., Saravanan, K., Rajendra Kumar, S., 2019. Performance Evaluation of Yield Function and Comparison of Yielding Characteristics of SS 304 in Annealed and Unannealed Conditions. *MSF* 969, 637-643.
 - https://doi.org/10.4028/www.scientific.net/msf.969 .637
- A. Devaraju, P. Sivasamy, Ganesh Babu Loganathan, "Mechanical properties of polymer composites with ZnO nano-particle", Materials Today: Proceedings (2020), Volume 22, Part 3, Pages 531-534
- Qaysar S.Mahdi, "Prediction of Mobile Radio Wave Propagation in Complex Topography", *Eurasian Journal of Science & Engineering*, Volume 4, Issue 1 (Special Issue); September, 2018, 49-55.
- Qaysar S. Mahd, "Survivability Analysis of GSM Network Systems", Eurasian Journal of Science & Engineering, Volume 3, Issue 3; June, 2018, PP 113-123.
- Qaysar S.Mahdi, "Comparison Study of Multi-Beams Radar under Different Radar Cross Section and Different Transmitting Frequency", Eurasian Journal of Science & Engineering, Volume 3, Issue 3; 2018, 1-11.

- Ellappan Mohan, Arunachalam Rajesh, Gurram Sunitha, Reddy Madhavi Konduru, Janagaraj Avanija, Loganathan Ganesh Babu. "A deep neural network learning-based speckle noise removal technique for enhancing the quality of synthetic-aperture radar images", Concurrency and Computation-Practice & Experience, https://doi.org/10.1002/cpe.6239.
- A. Senthil Kumar, G.Suresh, S. Lekashri, L. Ganesh Babu, Dr. R.Manikandan, "Smart Agriculture System With E Carbage Using Iot", International Journal of Modern Agriculture, Volume 10, No.1, 2021, 928-931.
- Ganesh Babu Loganathan, Idris Hadi Salih, A. Karthikayen, N. Satheesh Kumar, Udayakumar Durairaj. (2021). EERP: Intelligent Cluster based Energy Enhanced Routing Protocol Design over Wireless Sensor Network Environment. International Journal of Modern Agriculture, 10(2), 1725 1736. http://www.modern-journals.com/index.php/ijma/article/view/908
- Babu Loganathan, Ganesh; E. Mohan, Dr. High Quality Intelligent Database Driven Microcontroller Based Heartbeat Monitoring System. *International Journal of Engineering & Technology*, [S.l.], 7(4.6), 472-476, 2018.
- Muthuramalingam, T., Saravanakumar, D., Babu, L.G. Experimental Investigation of White Layer Thickness on EDM Processed Silicon Steel Using ANFIS Approach. Silicon 12, 1905-1911 (2020).
 - https://doi.org/10.1007/s12633-019-00287-2
- G, Sai Krishnan and Loganathan, Ganesh Babu and K, Selva Ganapathy and N, Srivathsan and M, Vasanth and G, Venkatateja, Development of Superhydrophobic Nanocomposite Coatings on FRP Sheet Surface for Anti-Icing and Wear-Resistance Applications (August 5, 2019). Proceedings of International Conference on Recent Trends in Computing, Communication & Networking Technologies (ICRTCCNT) 2019. https://ssrn.com/abstract=3432305 or http://dx.doi.org/10.2139/ssrn.3432305
- S.P. Sundar Singh Sivam, Ganesh Babu Loganathan, K. Saravanan, S. Rajendra Kumar, "Outcome of the Coating Thickness on the Tool Act and Process Parameters When Dry Turning Ti-6Al-4V Alloy: GRA Taguchi & ANOVA", International Journal of Innovative Technology and Exploring Engineering (IJITEE), 8(4), 2019, 419-423.
- Sivam Sundarlingam Paramasivam, S., Loganathan, G., Kumaran, D., Saravanan, K. "Function of Taguchi Grey Relation Analysis for Influencing the Process Parameter for Getting Better Product Quality and Minimize the Industrial Pollution by Coolants in Turning of Ti-6Al-4V Alloy," SAE Technical Paper 2019-28-0065, 2019, https://doi.org/10.4271/2019-28-0065.
- Sivam S.P.S.S., Loganathan G.B., Saravanan K., Dinesh Guhan S., Banerjee A. (2021) Effects of Drilling Process Parameters Using ANOVA and Graphical Methods. In: Kumaresan G., Shanmugam N.S., Dhinakaran V. (eds) Advances in Materials Research. Springer Proceedings in Materials, vol 5. Springer, Singapore. https://doi.org/10.1007/978-981-15-8319-3_35
- Muthuramalingam T., Ganesh Babu L., Sridharan K., Geethapriyan T., Srinivasan K.P. (2020). Multi-response Optimization of WEDM Process

Parameters of Inconel 718 Alloy Using TGRA Method. In: Sattler KU., Nguyen D., Vu N., Tien Long B., Puta H. (eds) Advances in Engineering Research and Application. ICERA 2019. *Lecture Notes in Networks and Systems*, vol 104. Springer, Cham.

https://doi.org/10.1007/978-3-030-37497-6_56

- Babu, L.G. (2020). Influence on the tribological performance of the pure synthetic hydrated calcium silicate with cellulose fiber. In *Journal of the Balkan Tribological Association*, 26(4), 747-754.
- Sai Krishnan G., Shanmugasundar, Pradhan R., Loganathan G.B. (2020) Investigation on Mechanical Properties of Chemically Treated Banana and Areca Fiber Reinforced Polypropylene Composites. In: Praveen Kumar A., Dirgantara T., Krishna P.V. (eds) Advances in Lightweight Materials and Structures. Springer Proceedings in Materials, vol 8. Springer, Singapore. https://doi.org/10.1007/978-981-15-7827-4_27
- Dr. Kapila Uma Shankar, Dr. Waqar Ahmad, Sallar Ashqi Kareem, "beta volatility and its consequences for hedging systematic risk with reference to stock market during covid-19", *Information Technology in Industry*, Volume 09, Issue 03,2021, 482 - 492.
- Dr. Uma Shankar, "Debt Restructuring to Elongate Asset Quality of Banks in India", Solid State Technology (2020), Volume 63, Issue 6, PP No. 14540-14549
- Dr. Kapila Uma Shankar, "Analysis on Social Banking for Sustainable Growth and Satisfaction on Social Targets", International Journal of Advanced Science and Technology, Volume 29, Issue 7, 14487-14491.
- P. Govindasamy, Kapila Uma Shankar, "Covid-19 And Global Financial Markets with Special Focus to Gdp Growth Projection, *Capital Mobilization and Performance of Stock Market*" Volume XI, Issue VII, 2020, PP No. 1-9.
- Dr. Uma Shankar. (2021). Impact of Quantitative Easing on Economic Crisis During Pandemic. International Journal of Modern Agriculture, 10(2), 3342 3350. http://www.modern-journals.com/index.php/ijma/article/view/1168
- Dr. Uma Shankar. (2021). Influence of Financial Statement Comparability on Applicability of Earnings. International Journal of Modern Agriculture, 10(2), 3323 - 3332. http://www.modernjournals.com/index.php/ijma/article/view/1166.
- P. Govindasamy, Kapila Uma Shankar; R. Ravimohan. "Indian capital market analysis 2020 year end and 2021 year beginning". *Journal of Contemporary Issues in Business and Government*, 27(2), 2021, 6677-6693. doi:10.47750/cibg.2021.27.02.645
- Dr. Othman, M.M., Ishwarya, K.R., Ganesan, M. and Babu Loganathan, G. (2021). A Study on Data Analysis and Electronic Application for the Growth of Smart Farming. Alinteri Journal of Agriculture Sciences, 36(1): 209-218. doi:10.47059/alinteri/V36I1/AJAS21031
- Kapila Uma Shankar (2017), Prospects and Challenges in GST Implementation - An India Perspective. Printing Area International Research Journal 5(35), 0130 - 0137.
- Kapila Uma Shankar, (2017), Digital Economy in India: Challenges and Prospects. International Journal of Research in Management Studies (a peer review open

- access international journal www.ijrms.com), 2(11), 6-11.19.
- Kapila Uma Shankar (2017), International Journal of Research in Management Studies (A peer review open access international journal - www.ijrms.com), 2(9), 20 - 28. 20.
- Kapila Uma Shankar (2016), Benefits of the Adoption of International Financial Reporting Standards (IFRS) in INDIA A Study, International Journal of Multidisciplinary Research Review Peer Reviewed Journal, 1(21), 103-108.
- Kapila Uma Shankar, B.R. Megha Raj, (2015), The Relationship Between Exchange Rate and Selected Information Technology Stocks Listed in Bombay Stock Exchange of India, *Indian journal of applied research*, impact factor; 3.6241, 5(6),498 -500.
- Dr.P. Govindasamy; Dr.Kapila Uma Shankar; R. Ravimohan. "Modeling of dividend payout, retention, yield, capital gains and irrelevance and its impact on value of the firm". *Journal of Contemporary Issues in Business and Government*, 27(2), 2021, 5166-5178. doi: 10.47750/cibg.2021.27.02.528