Access to financing in India and its impact on the environment in the form of economic development

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Abstract: Access to finance has played an important role in India's economic growth, but the impact of this growth on the environment has not been studied enough. This paper looks at how credit in personal loans, agriculture, industry, services, farmer schemes and ESG financing has shaped development and then how that development has affected the environment. Sector wise data and graphs are used to show how credit deployment supported growth in these areas. The environmental side is studied through indicators such as emissions, groundwater use, waste from construction, fertiliser use and the adoption of sustainable practices. The findings show that while financing in personal loans, agriculture, industry and services has supported expansion, it has also brought higher emissions, waste, resource pressure and pollution. At the same time, farmer schemes and ESG financing have shown how credit can also reduce some of these effects by supporting sustainable practices. The study makes the point that finance itself is not good or bad, but the way it is directed decides whether it adds to environmental problems or helps solve them.

Introduction: Access to finance is often regarded to be the one of the most important contributors to economic growth and development. It enables a wide range of activities that fuel the nation's growth. In a quickly developing country like India, financing and access to it both have significant implications not only on the economy but also on the environment. Directly or indirectly, each and every investment leaves its footprint on the environment, making finance and environmental footprint, two very closely related concepts. The understanding of this relationship in India began as early as India's independence when the Fifth-Five year plan (1974-1979) was implemented. The implementation of the plan has been pivotal to India's economic journey since. The plan emphasized on the importance of building India's financial structure to be a foundation for self-dependent growth. The plan also made finance to be a crucial roadmap to enhance industrial capacity, to stimulate development of rural regions and to support key sectors such as energy and agriculture. This approach planted the seeds for India's long-term economic progression, highlighting the fact that access to finance is not just a portal to economic growth, but also a factor that dictates the sustainability of said economic growth.

The genre of activities that financing supports play a major part in determining the nature of the impact on the environment. When financial resources are allocated towards the traditional development projects such as industrial expansion, construction, extraction of natural resources; they more often than not lead to environmental degradation due to the emissions, resource exploitation, and many other adverse effects on the environment. Contrastingly, when such resources are used to fund to environmentally responsible activities like renewable energy, sustainable agriculture, or green enterprises, it can result in a large positive environmental and ecological impact.

This paper explores the impact that access to financing in India has on the environment. It studies the role of banks and other financial institutions in ensuring the development of the country either by financing high-carbon sectors that have major adverse effects on the environment or by financing green and climate conscious initiatives to ensure development in

a sustainable manner. It also demonstrates how integrating environmental considerations into financing decisions can lead to real sustainable growth.

By examining the intersection of finance, economic development, and environmental outcomes, this paper seeks to highlight the critical role of financial decision-making in determining whether India's development is one of long-term sustainability or short-term growth at an ecological cost.

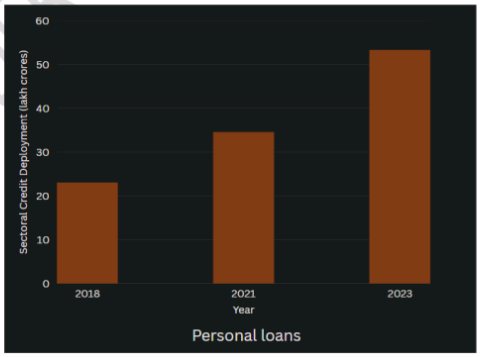
Literature review: Previous research has established a strong link between financial development and economic growth. Levine (1997) provides both theoretical and empirical evidence that financial sector development enhances capital allocation, stimulates entrepreneurship, and promotes long-run growth, while Rajan and Zingales (1998) similarly highlight how access to well-functioning financial markets fosters investment and innovation. In the Indian context, recent Reserve Bank of India (RBI) reports emphasize the role of credit expansion in supporting investment across agriculture, industry, and services, underscoring finance as a driver of sectoral growth. More recently, work on green finance has examined how credit can be aligned with sustainability, with Nenavath and Mishra (2023) showing that green finance and fintech innovations contribute to both economic growth and environmental quality in India. Emerging studies on ESG adoption also suggest that sustainable credit practices can align financial development with environmental goals, yet few studies integrate the economic benefits of financing with its environmental consequences within a single framework, and there remains limited cross-sector analysis linking lending patterns to environmental outcomes.

Conceptual framework: Sector-based input: Access to finance generally refers to the ability of individuals, organisations and governments to be in a financial position strong enough to meet their needs while also investing in their growth and covering their risks. In India, it has a much broader scope ranging from traditional bank loans and infrastructure financing for large-scale development projects to ESG (Environmental, Social, and Governance) financing for sustainable growth and government backed credit schemes and so much more. These are financial tools crucial to economic development because they enable investment in infrastructure, consumption of goods and services and innovation across many major sectors. Between the years of 2018, 2021, and 2023, or rather during and after the COVID-19 pandemic, the increased financial access helped keep the economy stable and drive economic development by stimulating demand, supporting industries and strengthening services. This section of the paper illustrates this economic stability and development of India through the examples of the rising deployment of credit in different sectors, special loan schemes for the agriculture industry and ESG financing while demonstrating how financial access meant positive economic outcomes through the COVID-19 pandemic.

Sectoral Credit Deployment

Personal loans: In India, in 2018, personal loans saw significant deployment. By 2021, this number had increased substantially. This steep rise was majorly driven by an increase in demand for housing loans, education loans and other minor and major consumption related borrowing, all of which was due to the COVID-19 pandemic. The pandemic acted as a silent stimulant for economic growth because it increased households' need for liquid money which caused banks to expand their lending, in turn increasing customer spending and stimulating short term economic activity. And by 2023, personal loan deployment had reached a new high. This quick yet steady growth in credit deployment in personal loans is a reflection of the consumer confidence, rising disposable incomes, and better general economic recovery from downturns, all of which contribute to India's GDP in the form of higher demand for goods, service, housing, and more.

	2018	2021	2023
₹Credit deployed (in lakh crores)	23.03	34.56	53.31
₹ increase from previous time period (in lakh crores)	-	11.53	18.75
% increase from previous time period	-	50.05%	54.26%

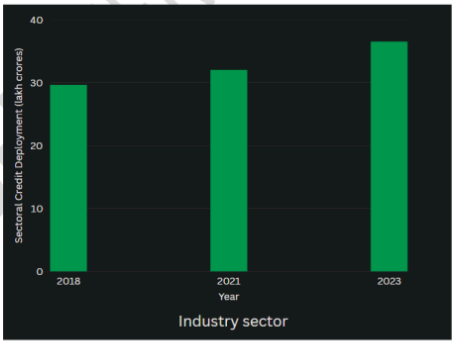


- Credit deployed increased from ₹23.03 lakh crore in 2018 to ₹34.56 lakh crore in 2021 and further to ₹53.31 lakh crore in 2023.

- This reflects a 50.05% rise from 2018–2021 and a 54.26% rise from 2021–2023, showing rapid expansion in consumer borrowing postCOVID.

Industry Sector: In 2018, the total credit deployed to the industry sector in India stood at approximately ₹30 lakh crores. By 2021, the industry sector didn't see much expansion in terms of credit deployment, likely due to the COVID-19 pandemic and its adverse effects on industrial production and investment. However, by 2023, there was a small jump in credit deployment to the industry sector. This post-COVID recovery can be related to a resurgence in manufacturing, infrastructure development, and capital expenditure, all of which directly lead to GDP growth and increased employment opportunities, or in other words, economic development.

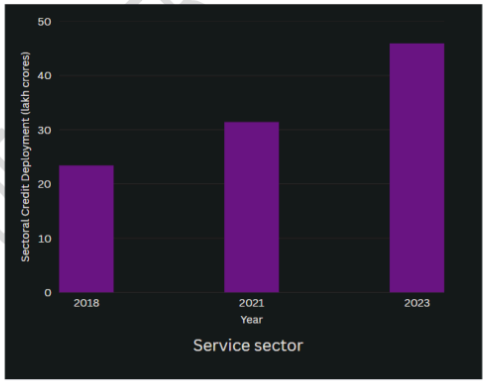
	2018	2021	2023
₹Credit deployed (in lakh crores)	29.64	32.02	36.53
₹ increase from previous time period (in lakh crores)	-	2.38	4.51
% increase from previous time period	-	8.03%	14.08%



- Credit rose from ₹29.64 lakh crore in 2018 to ₹32.02 lakh crore in 2021 and to ₹36.53 lakh crore in 2023.
- The increase of 8.03% (2018–2021) and 14.08% (2021–2023) highlights slower initial growth due to COVID disruptions followed by industrial recovery.

Service Sector: In 2018, a strong foundation was laid for the expansion of the service sector for the following few years, by increasing lending to it. By 2021, the credit deployed had a reasonable increase, highlighting the sector's strength during the pandemic due to the rapid expansion of healthcare, logistics and digital services in India. In 2023, there was a significant increase in credit deployed of almost 50%. This boom directly corresponds with rapid urbanisation, digitisation, and scaling of professional services, trade and healthcare; all of which have generated employment and significantly contributed to GDP growth and economic development across India.

	2018	2021	2023
₹Credit deployed (in lakh crores)	23.41	31.42	45.92
₹ increase from previous time period (in lakh crores)	-	8.01	14.5
% increase from previous time period	-	34.21%	46.15%



- Credit expanded from ₹23.41 lakh crore in 2018 to ₹31.42 lakh crore in 2021 and surged to ₹45.92 lakh crore in 2023.
- This marks a 34.21% increase from 2018–2021 and 46.15% from 2021–2023, indicating strong post-COVID service sector expansion.

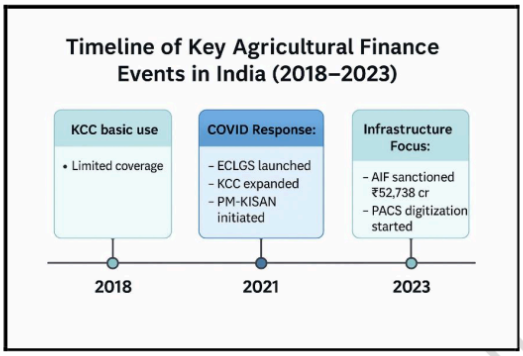
The patterns of major increases in credit deployment for personal loans, industry and service sectors between 2018 and 2023 goes to show that access to financing has been a major contributor to India's economic development. The increased funds for the personal loans boosted consumer demand and household investment, industrial credit fuelled infrastructure and production and manufacturing growth. And finally, the service sector had used this credit expansion to scale and expand to make sure it remains invulnerable to emergencies like the pandemic. Together, these patterns and trends help establish the prominent relationship between access to finance in India and India's economic development.

Schemes for farmers and agriculture sector: In 2018, access to finance in India in the agricultural sector was adequate but very limited in scope and innovation. The primary tool was the Kisan Credit Card (KCC); it mainly supported short term crop loans. In march of 2018, there were nearly 23.5 million operating KCC accounts. But, many small farmers, especially those in allied sectors like dairy and fisheries, remained outside such schemes. And although there were interest subvention schemes to help reduce the cost of borrowing, implementation of them was not even across all states and heavily dependent on institutions, many of which lacked funding and were inefficient.

In 2021, as a response to economic disruptions caused by COVID-19, the government introduced credit schemes like Emergency Credit Line Guarantee Scheme (ECLGS), which allowed loans free of collateral to agri-MSMEs. Through this scheme, guarantees amounting to ₹3.61 lakh crore were issued. Additionally, the KCC program was widened to include farmers in allied sectors like animal husbandry and fisheries, drastically increasing coverage. A campaign across India from November of 2021 to February of 2022 aimed to provide KCC facilities to all the eligible animal husbandry and fishery farmers. Furthermore, the PM-KISAN scheme provided direct income support to farmers, with over ₹3.46 lakh core distributed among approximately 11 crore beneficiaries through 18 instalments.

By 2023, the focus shifted to infrastructure and digital credit delivery through initiatives such as the Agriculture Infrastructure Fund (AIF) and digitisation of Primary Agricultural Credit Societies (PACS). The AIF sanctioned more than ₹52,738 crore to more than 87,500 projects with the aim of improving harvest management. Additionally, efforts were underway to digitize 67,000 PACS across India by 2027.

These reforms modernized agri-supply chains, reduced postharvest losses, and supported climateresilient farming practices through green finance initiatives. This transformation in the credit landscape helped enhance rural incomes and directly contributed to India's postpandemic rural economic recovery and inclusive growth.



ESG Financing: In 2018, ESG financing in India was relatively unheard of. While environmental awareness and social responsibility of investment decisions was growing, actual financing activity was quite limited. Issuances of green bonds was low, and there was little to no institutional support. But this was the early stage that helped lay the groundwork for introducing sustainability in India's financial ecosystem. The actual impact on economic development was minimal, but it initiated thoughts about sustainable and environmentally and socially responsible financing.

In 2021, there was a major breakthrough in ESG financing. ESG labelled bond issuances by Indian companies surged by 500% to reach $8.2 billion, with green bonds alone accounting for almost $6.6 billion. This was largely due to the need for sustainable recovery following COVID-19, with capital directed towards utilities, clean energy, transport, and healthcare facilities. This rather enormous inflow of sustainable capital not only supported the sectors affected by the pandemic but also helped shift India towards a greener economy. It boosted employment opportunities in clean energy and improved renewable power infrastructure.

In 2023, the momentum around ESG financing matured into a more institutionalized framework. The Reserve Bank of India issued sovereign green bonds worth ₹8,000 crore to fund public green infrastructure, and SEBI introduced regulations for ESG mutual funds, boosting transparency and investor confidence. By this point, ESG had transitioned from a niche to a mainstream segment in India's financing landscape.

By 2023, ESG financing matured into an institutionalised framework. The Reserve Bank of India (RBI) issued sovereign green bonds worth ₹8,000 crore in order to fund public green infrastructure. The Securities and Exchange Board of India (SEBI) introduced regulations for ESG mutual funds, this helped gain investor confidence and transparency. At this point, ESG had become a staple segment in India's financial ecosystem.

These few steps strengthened capital markets and encouraged international investments.It also provided longterm and lowrisk funding for climatealigned development projects. It supported India's broader economic and environmental goals.

Economic development and its impact on the environment

Negative Environmental Impacts from Credit-Driven Economic Development

Personal Loans Sector (Housing, Consumption, Vehicles)

The sharp rise in personal loan deployment between 2018 and 2023 played a key role in increasing consumption and construction activity, boosting short term economic growth. However, this also worsened urban environmental conditions. Road transport now accounts for about 20–30% of urban air pollution, a problem that has grown as vehicle registrations increased by almost 25% between 2020 and 2023. Similarly, rapid building and renovation of homes supported by housing loans led to construction and demolition waste rising to about 150–500 million tonnes annually in 2023. These outcomes show that while personal loan growth stimulated demand and expanded GDP, it also brought with it significant costs in terms of emissions and waste.

Industry Sector (Manufacturing, Heavy Industry, Mining)

Credit extended to industry during the post-COVID period supported recovery in manufacturing, infrastructure, and employment. At the same time, this revival has added to environmental pressures. In 2022, India's carbon dioxide emissions from energy combustion reached 2693 million tonnes, which was a 6.5% increase from the previous year. This growth was closely tied to the credit-backed expansion of heavy industry. Furthermore, despite regulations, nearly 72% of industrial wastewater remains untreated, and about 66% of discharges did not meet safety norms. While industrial financing created new capacity and contributed to GDP, it also reinforced unsustainable practices and pollution.

Services Sector (Logistics, Tourism, Trade, Digital Services)

The services sector showed strong post-COVID expansion, supported by rising credit flows. Growth in logistics and digital infrastructure created employment and increased India's economic output, but also drove energy and fuel use. Diesel consumption in transport climbed significantly, with trucks being responsible for most of the diesel demand. Similarly, India's data centre industry recorded an energy demand increase of 4.4% year on year, reaching 139 billion kWh by mid-2023. These figures underline that while credit to services helped accelerate urbanisation and digitisation, it also added heavily to fossil fuel use and emissions.

Agriculture Sector (Credit Schemes like KCC, PM-KISAN, AIF)

Credit schemes in agriculture improved rural incomes, supported supply chains, and aided recovery during and after the pandemic. Yet these schemes also intensified ecological stress. Loans for pumps and tubewells have contributed to groundwater being depleted at close to half a metre per year in heavily irrigated regions. Use of fertiliser has risen from 170.6 kg per hectare in 2017 to 193.2 kg in 2022, as subsidised credit made chemical inputs more accessible to the farmers. While this enabled higher yields and farm growth, it also led to overexploitation of water resources and heavier chemical dependence.

Positive Environmental Contributions from Credit-Driven Economic Development

Personal Loans Sector (Housing, Consumption, Vehicles)

Credit deployment in housing has also supported the growth of energy efficient homes. Certified green buildings now consume 40–50% less energy than traditional structures, and subsidised financing for modern appliances and efficient HVAC systems has lowered household energy demand. These outcomes show how consumer credit, when channelled into sustainable construction and technology, can reduce environmental impact while supporting economic development in housing.

Agriculture Sector (KCC, PM-KISAN, AIF)

Agricultural credit has also been directed towards practices that are more sustainable. Schemes have supported diversification into activities such as fisheries and horticulture, which reduces the risks of monoculture and spreads income sources for farmers. Credit under the Agriculture Infrastructure Fund has financed drip irrigation systems and solar powered pumps, improving water use efficiency while keeping agricultural output stable. These initiatives show how rural growth through credit can align with better resource use.

ESG Financing (Green Bonds, Renewable Projects, Clean Tech)

By 2023, ESG financing had shifted from a small segment to a mainstream part of India's credit landscape. The Reserve Bank of India issued sovereign green bonds worth ₹8,000 crore to fund public green infrastructure, and SEBI introduced ESG fund regulations to improve transparency. These measures directed capital into renewable projects and climate aligned development, encouraging investment while reducing dependence on fossil fuels. ESG financing therefore shows how credit, when regulated and focused, can bring economic development and environmental benefits together.

Conclusion: This study looked at how access to finance in India has affected the environment through growth in sectors like industry, agriculture and energy. The results show two sides. On one hand, credit has driven harmful practices such as overuse of groundwater, higher emissions, deforestation and a larger carbon footprint. On the other, it has also supported sustainable growth by backing renewable energy projects, farmer schemes and ESG based investments.

The idea of the research is to show that financing itself is not good or bad. Its impact depends on where the financeis directed to. If credit supports unsustainable activities, the damage grows. If it is directed towards greener options, it can support development without harming the environment. A stronger push for ESG financing and green subsidies can help make sure growth and sustainability move together.

Future work can take this forward by looking at sector wise data in more detail, for example comparing financing of renewables with coal, and by measuring the long term environmental effects. Cross-country studies could also show how India's financing compares to other economies.

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