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Credit risk in colonial India

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Abstract

Credit was scarce and expensive in colonial India. Existing explanations assume a lack of market competition let moneylenders charge high interest rates. The article challenges this view and constructs a novel framework to explain the rationality and strategies of lenders. Using new evidence from the Madras Presidency, the study finds that the interconnected issues of climate volatility and enforcement costs shaped the supply and prices of credit. Climate volatility and uncertain seasonal incomes led to high default rates. Enforcement of contracts through courts was expensive and not appropriate where there was no wilful breach of contract. Moneylenders responded to risk in innovative ways. They rationed credit and imposed inflexible enforcement terms in the dry regions that faced higher climatic risk, but used contracts and flexible pricing strategies in the irrigated zones where risks were lower.

KEYWORDS
rural credit, India, climate, institutional change, colonialism

This article studies risk, and institutional responses to risk, in a low-income agrarian economy, early twentieth-century South India. The nineteenth and early twentieth century was a period of limited economic development in India. Two-thirds of the population worked in agriculture.[1] Output and yield growth rates were low while average landholding remained small and the distribution unequal.[2] Investments in land improvement could have seen productivity increases.

[1] Roy, *Economic history of India*, p. 104.

[2] Kumar, 'Landownership and inequality'; Heston, 'National income'; Tomlinson, *Economy of modern India*; Sivasubramonian, *National income*; Chaudhary, Gupta, Roy, and Swamy, *New economic history*.

However, credit, supplied primarily by private moneylenders, was expensive. A received view says that concentration in capital ownership was a barrier to credit expansion, allowing the rich to monopolize credit markets, withhold supply, and price loans predatorily. Monopolistic pricing and inflexible repayment terms kept the poor in perpetual debt to the rich, and inequalities in credit markets enabled exploitation in land and labour markets.[3]

These explanations address the problem from the perspective of the borrower, making a set of assumptions about lending patterns that are not wholly persuasive. The colonial government tried to protect borrowers through restrictions on mortgage lending and interest rate ceilings. Regulatory measures made the market less competitive, reduced supply, and had little effect on prices.[4] This article approaches the problem from another perspective, that of the lender. It explores the hypothesis that lenders responded strategically to the relatively high costs of contract enforcement and unpredictable yields in rain-fed regions that were exposed to a high risk of harvest failure. By looking at ecological diversity and unregulated credit supply in the Madras Presidency, the study examines the impact of seasonal uncertainty on lending in two stages.

In the first stage, cropping and climate data from decennially collected statistical reports and government-funded agricultural science surveys are used to explain how climate volatility contributed to risk in South Indian credit markets. The Madras province contained wet (irrigated) and dry (rain-fed and semi-arid) regions. Wet districts benefited from proximity to fertile river deltas. Private investment was low and public investment was not high enough, leading to little increase in access to irrigation infrastructure in the dry districts.[5] When dams were built, the government designed them poorly and constructed them near fertile areas, leaving the dry districts continually water-scarce. In an average year, dry areas received between one-third and one-fifth of the rainfall of wet areas. Land in the driest terrains yielded about half the volume of crop per acre than land in the fertile deltas. The risks of crop failure were higher in the dry districts than the wet, presenting a greater set of challenges for money markets in the former relative to the latter. There was no insurance against climate volatility so crop failure had a significant impact on the repayment capacity of borrowers.

In the second stage, the study uses new data from government reports with a particular focus on credit reports from the interwar period to investigate lender responses to risk. Provincial governments commissioned surveys of rural credit markets to inform the timing and design of credit regulation. Reports on rural credit in Madras were scarce in the nineteenth century but increased in number during the interwar years. Policymakers in Bombay and Punjab regulated mortgage lending in the late nineteenth century to limit transfers of land from cultivators to urban moneylenders. Urban moneylenders scarcely lent in rural Madras so provincial policymakers did not believe that land alienation, or credit suppliers more generally, needed regulating in the nineteenth and early twentieth century.[6] The government in Madras regulated credit markets from

[3] Bhattacharya, 'Lenders and debtors'; Bose, *Credit*; Washbrook, 'Commercialisation of agriculture'; Hardiman, *Feeding the Baniya*; Bagchi, *Colonialism.*

[4] The regulation of credit markets was a provincial concern in colonial India. The provincial governments in Bombay and Punjab regulated mortgage lending in 1879 and 1900 respectively. On the impact of these laws on credit supply, see Chaudhary and Swamy, 'Protecting the borrower', and 'Policy of credit disruption'. The government in Madras enforced an interest rate ceiling on loans from moneylenders in the late 1930s. On the impact of this on credit supply, see Nath, 'State and rural credit markets'.

[5] Private investment was particularly low and funded just 1.7% of irrigation construction in India. Public money financed the majority of irrigation works. See Chaudhary et al., *New economic history*, p. 105.

[6] Catanach, *Rural credit*.

the late 1930s, following the large number of credit defaults during the Great Depression.[7] In addition to data collected from credit reports in the 1920s and early- to mid-1930s, the study also uses new material from District Gazetteers, famine reports, mortgage registration reports, court statistics, and case judgements.

The findings show that lenders mitigated risks in different ways, depending on the region. Contracts can offer a type of risk mitigation, but courts were expensive, while judges considered the enforcement of credit contracts and the imposition of penalty interest rates inappropriate when borrowers did not wilfully default on loans. To overcome climatic and seasonal uncertainty, lenders rationed credit and selectively chose richer clients in dry regions. When they did lend to the poor, loan extensions were unlikely. Creditors imposed non-contractual, inflexible enforcement methods to recover loans from the poor in high-risk areas. Lending in low-risk areas, however, was more inclusive and flexibly enforced. Creditors lending to rich peasants in dry areas or to a wider spectrum of borrowers in wet areas offered loan extensions and enforced repayments through formal, court-supervised procedures.

The study's findings suggest that money was expensive to borrow but monopoly power and resource misallocation do not provide adequate explanations. Safer borrowers—that is, farmers with large landholdings or small farmers with good quality land—did get credit. Poor peasants without disposable income either could not access credit or accessed credit by paying a high price for defaults caused by water-scarcity. Enforcement systems, in turn, differed according to the risk profile of the borrower. The article shows that lenders adapted their strategy to the region in question, trying to achieve a similar outcome (lower risk and enforcement costs) across regions.

The rest of the article consists of four sections. The first situates this research globally and justifies the need for contributions on microcredit risk in economic history. The second explores the relationship between ecological conditions and credit risk. The third and fourth provide evidence of selective lending strategies, enforcement systems. and credit pricing tactics in wet and dry regions.

I

Historians of South Asia have, in the majority of cases, studied credit markets to analyse inequities caused by market power. From the 1870s, a process of commercialization, or increasing the share of marketed surplus in production, led to high demand for credit. As mentioned before, the dominant interpretation holds that the rich controlled the credit supply and arbitrarily charged high interest rates to extract rents from the poor throughout the colonial period.[8] Studies of credit markets in colonial Madras echo similar concerns, suggesting that credit markets were inequitable because lenders acted monopolistically and borrowers had limited capacity to bargain.[9] There

[7] I have chosen to analyse the unregulated market. Moneylenders, unaffected by policy restrictions, could freely adapt pricing and enforcement decisions to climatic risk.

[8] Debt bondage is a running theme in this interpretation. Studies of credit in different Indian provinces argue that rich landowners coerced poor borrowers into exploitative labour contracts following defaults on expensive loans. On the United Provinces, see Musgrave, 'Rural credit'; Moosvi, 'Rural moneylender'. On Bengal, see Bose, *Peasant labour*. On Punjab, see Bhattacharya, 'Lenders and debtors'. On Western India, see Cheesman, '"Omnipresent Bania"'; Hardiman, *Feeding the Baniya*.

[9] Studies by Baker and Washbrook suggest that income followed wealth concentration as rich landowners controlled the supply of money in villages. Peasants had limited access to credit, borrowed at high rates, and were coerced into repaying

is, however, an observation bias in this literature, partly because the investigation of issues caused by excessive market power resulted in a focus on the borrower's position, overlooking the lender's rationale. Looking at the problem from the lender's accounts, it is apparent that supply shortages, pricing strategies, and harsh repayment conditions were outcomes of risk caused by region-specific ecological conditions. This article elucidates these conditions while identifying areas where actions (or inaction) by the colonial regime further constrained credit supply.

Development economists provide useful theories on risk and credit supply. This literature is potentially relevant to the economic history of India, though to date it has found few applications in that field. Scholars suggest that lenders take three factors into account when pricing and rationing credit.[10] First, lenders contend with information costs, or the costs of determining the creditworthiness of borrowers.[11] Second, creditors contend with enforcement costs, or the costs of enforcing punishments on borrowers should they default.[12] Third, creditors account for natural risk.[13] In the tropical-monsoon agricultural context, uncertainty regarding rainfall and the prospect of natural disasters such as droughts and famines are powerful drivers of default risk. Economists show that since lenders are unable to predict this default risk, they increase the lower and upper band of interest rates on rural loans. Economic historians have yet to consider fully the ways in which moneylenders, who were the sole bankers in Indian villages, responded to these different types of risk.[14] By analysing new data from wet and dry districts in colonial Madras, the study addresses this gap.

Ecological risk also provides a useful framework for investigating the pre-requisites for the development of rural financial markets. Risk, and responses to risk, in microcredit markets have received little attention in global economic history. Financial history has a well-developed scholarship on risk in sovereign debt markets, risk in insurance markets, and risk-taking in the banking industry.[15] Informal credit markets are under-researched.

Economists agree that access to credit markets is a requirement for investment-led growth, while economic historians consider the role of low information and enforcement costs as drivers of

expensive loans despite small and precarious earnings. See Baker, *Indian rural economy*; Washbrook, 'Commercialisation of agriculture'.

[10] Bottomley's seminal work on rural credit pricing presents two hypotheses. First, the 'lender's risk hypothesis' states that creditors priced loans accounting for high default risk in rural areas. Second, Bottomley argues that the high costs of enforcing contracts in courts needed to be factored into credit prices. See Bottomley, 'Premium for risk'; idem, 'Interest rate determination'. On default risk and credit rationing, see Stiglitz and Weiss, 'Credit rationing'.

[11] Stiglitz, 'Economic organization'; Aleem, 'Imperfect information'. Information costs are low when lenders and borrowers belong to the same village, as was the case in colonial India.

[12] When the costs of enforcing contracts in courts are high, creditors either charge high prices or adopt alternative, low-cost methods of enforcement. Ghosh and Ray, 'Information and enforcement'; Floro and Yotopoulos, *Informal credit markets*.

[13] Ghatak, 'Rural interest rates'. Ghatak discusses four types of default risk in rural credit markets. 'Natural risk' is driven by bad weather. 'Technical risk' is driven by failures in farming techniques and storage. 'Commercial risk' is driven by unpredictable commodity price fluctuations. 'Financial risk' is driven by the borrower's ability to default strategically.

[14] There is some work on climate, courts, and property rights in the context of Indian credit markets. On the link between the monsoon and banking, see Roy, 'Monsoon'. On property rights, courts, and credit, see Kranton and Swamy, 'Hazards of piecemeal reform'; Roy and Swamy, *Law and the economy*; Gupta, Mookherjee, Munshi, and Sanclemente, 'Community origins'.

[15] On sovereign debt markets, see Reinhart and Rogoff, *This time is different*; Yue and Wei, 'Sovereign debt'. On insurance markets, see Pearson, 'Moral hazard'. On banking risk, see Brunnermeier, Crocket, Goodhart, Persaud, and Shin, *Fundamental principles*; Dewatripont, Rochet, and Tirole, *Balancing the banks*. The focus on risk in financial markets excludes the risks faced by non-financial businesses. For summaries of risk in different contexts, see Casson and da Silva Lopes, 'Foreign direct investment'.

rural credit expansion in nineteenth-century Europe.[16] A recent article by Suesse and Wolf consolidates these assessments and considers the strategy of crop-switching to goods with high relative prices as an explanation for why landowners in eastern Prussia shared risk and pooled capital, thereby increasing the supply of credit from cooperatives in the nineteenth century.[17] Whereas microcredit markets expanded in an inclusive manner in parts of Europe, this study shows why under some environmental conditions, microcredit could remain expensive and develop exclusions.

II

By all measures, the agricultural sector performed poorly across colonial India. Heston estimates an average output growth of 0.7 per cent per year between 1868 and 1947.[18] In the same period, the population grew rapidly and the share of the labour force in agriculture remained stagnant.[19] Due to low growth in yields, the supply of commodities regularly failed to match demand. Food-grain production, in tons per person, declined by 30 per cent between 1901 and 1946.[20] In the same period, cash-crop acreage increased but did not substitute food crops. Landholdings were small, with the majority of cultivators owning less than 25 acres and the national average hovering around six acres in the late 1920s.[21] Contending with poor-quality soil, limited irrigation, and volatile rainfall, much of rural India remained in a state of subsistence crisis throughout the colonial period.

By 1930, there were 26 districts in Madras, some with more fertile soils than others. Two major rivers, the Cauvery and Godavari, ran from the western mountain range to the east coast. Other rivers were concentrated near the south-east coast. River-based canal irrigation was more developed in the deltaic and coastal areas. Wet districts located near the east coast, and downstream from the major rivers, also contained the most fertile lands. Land in the hinterland was generally dry and soil types were less conducive to high-yield agriculture. Figure 1 shows a dry corridor in central Madras, one that included the districts furthest away from rivers in the eastern and western parts of the province.

As for soil conditions, the deltas around rivers on the west and east coast were blessed with alluvial soil. Rusty-red lateritic soil was commonplace in low-lying areas partially inland from deltas. Both soil types were conducive to surface water retention, which enabled rice cultivation.[22] Tanjore, as an example of a delta region, was the largest rice-producing area in the province.[23] Land in the central corridor was a mix between black and red soil types. The northern part of the central corridor, in districts such as Bellary, Kurnool, and Anantapur, had some cotton

[16] Banerjee, Besley, and Guinnane, 'Thy neighbor's keeper'; Guinnane, 'Cooperatives as information machines'; Colvin, Henderson, and Turner, 'Origins of the (cooperative) species'.

[17] Suesse and Wolf, 'Rural transformation'.

[18] Heston, 'National income', pp. 897–9.

[19] Baker, *Indian rural economy*; Roy, *Economic history of India*.

[20] Sivasubramonian's estimates, cited in Heston, 'National income', p. 410.

[21] Strickland, 'Cooperation', p. 504.

[22] *Techno-Economic Survey*, pp. 69–75.

[23] In nine out of 11 municipalities in Tanjore, rice occupied over 85% of cultivated acreage in 1930. See *Statistical Atlas*, pp. 749–82.

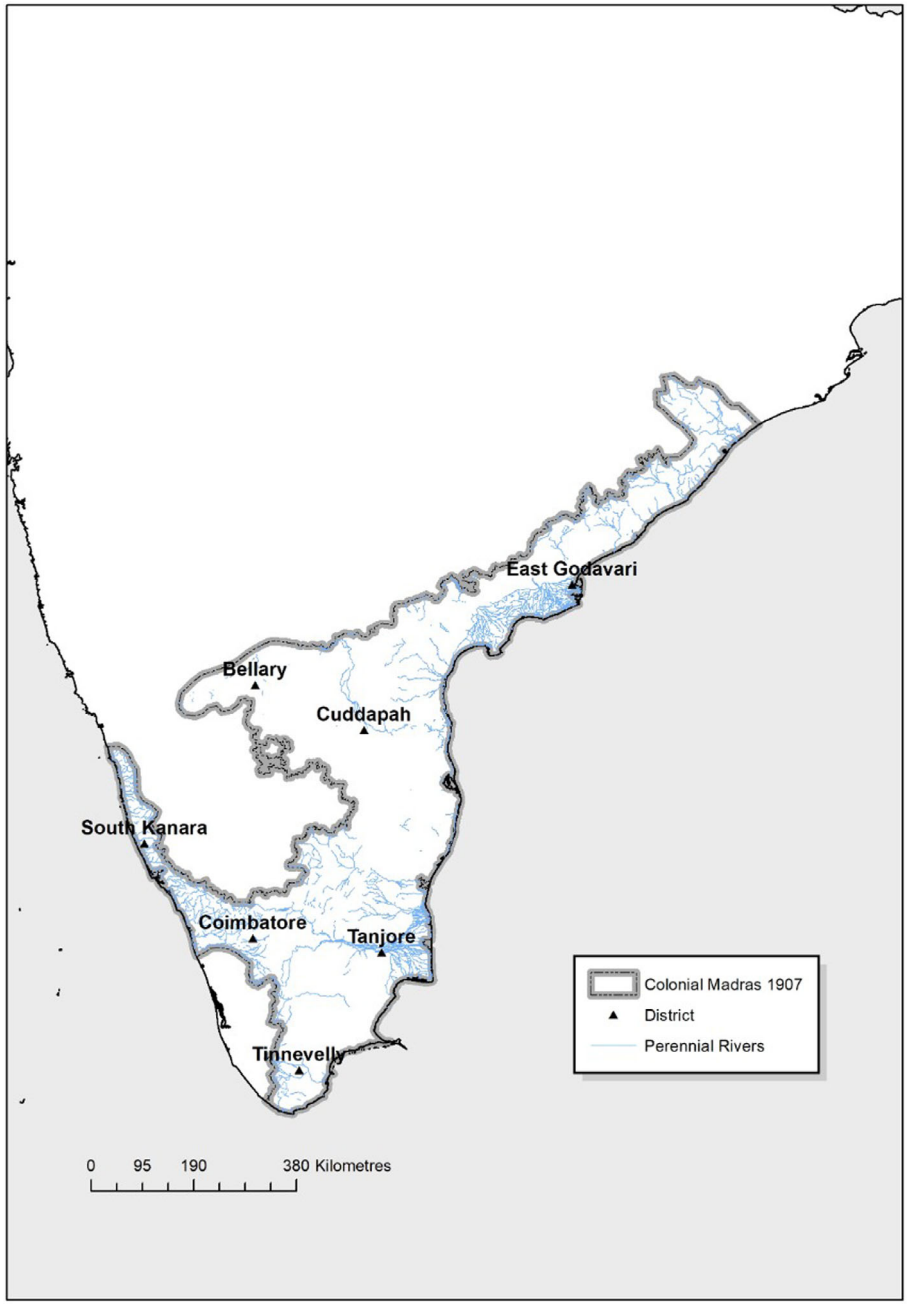

FIGURE 1 Select districts and perennial rivers in colonial Madras. Each district contained between six and nine municipalities. District points placed in the largest municipality. I selected these districts to reflect a mix of irrigated and dry agricultural regions. Tanjore, East Godavari, and South Kanara contained fertile soil types and were primarily rice-producing districts. Coimbatore and Tinnevelly had a mix of irrigated and dry areas. Approximately 50% of cropped land in Tinnevelly produced rice. Bellary and Cuddapah were dry districts, primarily millet-producing with some cotton cultivation. Subsequent sections of this article make reference to these districts, with a particular focus on the differences in credit supply between Tanjore and Bellary. *Source: Statistical Atlas*. [Colour figure can be viewed at wileyonlinelibrary.com]

cultivation.[24] However, millets occupied the largest share of acreage in these areas and across the central parts of the province.[25] Red loam was the most common soil type. Without sufficient rain or irrigation support, this porous soil was not nurtured enough to cultivate crops other than dry millets.[26] Later in this article, we will return to comparisons of credit supply in Tanjore and Bellary as representative examples of wet and dry districts.

Evidence on yields, land prices, and population density suggest that cultivators in the wet districts were better off than those in the hinterland. Delta municipalities reported an average population per cultivated acre of between one and three. In contrast, there was, on average, less than one person per cultivated acre in hinterland municipalities.[27] Rice cultivators regularly invested in purchasing livestock and running ploughs. In areas with millet cultivation, on the other hand, numbers of working cattle and ploughs per capita were much lower.[28] Rice cultivators typically harvested double the volume of crop per acre compared to cotton and millet cultivators. Millet yields exceeded cotton yields, a trend that continued into the 1950s.[29] From a survey in 1930, the average value per acre of land in the Shiyali municipality in the Tanjore district was around 800 rupees as compared to an average value of approximately 60 rupees in the Adoni municipality in the Bellary district.[30] Revenue collection in 1930 highlights this regional inequality. The government collected more than two rupees per person in land revenue from residents in delta districts. The corresponding figure for the hinterland was less than one rupee in 1930.[31]

Irrigation infrastructure benefited cultivators in the deltas. In the middle ages, Chola rulers constructed irrigation infrastructure in two forms and in two regions. The rulers invested in the construction of channels and dams to divert water from the Cauvery River to deltas in Tanjore.[32] The most famous example of such constructions was the Grand Anicut, built early in Chola rule. While large projects were concentrated in the deltas, tanks were common forms of water storage in the south-central districts, located primarily in Trichinopoly.[33] During British rule, this regional concentration continued. The government constructed dams, canals, and channels near the river deltas, while replacing tanks, which were poorly maintained in the pre-colonial period,

[24] *India Crop Calendar*, pp. 5–8.

[25] In seven out of eight municipalities in the Bellary district, millet cultivation accounted for more than 50% of total acreage in 1930; *Statistical Atlas*, pp. 323–60. The persistence of millets as dominant crops in the hinterland is corroborated in previous studies of the dry districts. See Washbrook, 'Commercialisation of agriculture'.

[26] *Techno-Economic Survey*, pp. 69–75.

[27] Population per acre in Bellary municipalities ranged from 0.28 to 0.65 in 1930. See *Statistical Atlas*, pp. 323–60.

[28] Working cattle refers to bullocks and buffaloes. The amount of breeding stock (cows, young bulls, she-buffaloes, and young buffaloes) show similar regional trends; *Statistical Atlas*.

[29] Output per acre saw little growth in the colonial period, with noticeable stagnation in the 1930s and 1940s; *Techno-Economic Survey*, pp. 81–2.

[30] Subsequent sections of the article analyse features of the credit market in Adoni and Shiyali. In Adoni, millets and cotton occupied 52% and 23% of cultivated acreage, average annual rainfall was 26 inches, there were 0.4 people and 0.02 ploughs per acre, and the municipality collected 0.64 rupees per acre in land revenue. In Shiyali, rice occupied 95% of cultivated acreage, average annual rainfall was 60 inches, there were 1.2 people and 0.1 ploughs per acre, and the municipality collected 3.5 rupees per acre in land revenue; *Statistical Atlas*, pp. 323–60, 749–82.

[31] *Statistical Atlas*.

[32] Kumar, 'Private property', p. 343.

[33] Parthasarathi, 'Water and agriculture', p. 502.

with wells in the south-central districts. In the process, water access increased substantially in the wet districts but insignificantly in the driest districts.[34]

Agriculture in Madras was seasonal. The south-west or summer monsoon ran from approximately June to September and the north-east or winter monsoon ran from approximately October to December. As shown in figure 2, the delta districts received a 'fairly distributed rainfall from both monsoons'.[35] Data from meteorological stations in 11 municipalities show that the Tanjore district experienced 45.35 inches of rainfall in an average year. However, for the majority of central districts, annual yields were unpredictable and relied on rainfall patterns in a concentrated three-month period around the winter monsoon. For example, an average year in the Cuddapah district experienced 27.16 inches of rainfall. Bellary had an average annual rainfall of 23.03 inches.[36] Describing the status of cultivators in Bellary, one district surveyor commented in 1915,

> The result is that the average ryot [peasant cultivator] of Bellary is poor … His food supply depends on the rains of June and July; if two successive monsoons fail his cattle die in thousands; and he himself, as will be seen later, lives from crop to crop and as usually [*sic*] hardly emerges from one famine before he is submerged under another.[37]

In other words, water scarcity, poor soil quality, and insufficient irrigation facilities led to a high likelihood of crop failure in the drier tracts of Madras. Investment in land improvement could have resulted in substantial increases in output, but money was scarce and expensive in the colonial period.

Private, informal credit was a valuable input in rural Madras. Lack of water access and poor-quality inputs combined with low levels of private investment suggest that supply did not match demand for credit in the dry regions. Interviews with district government officials, narrated in famine reports, recorded that smallholders needed credit either to build new wells and tanks or to improve dilapidated ones. Savings rates were low so cultivators also needed credit to purchase land, cattle, and ploughs.[38] Credit, however, was in short supply in the famine-prone regions.[39] According to a survey of five villages in the late 1920s, debts accrued to purchase land, improve the quality of land, and construct on land amounted to a small sum of two rupees per occupied acre in Bellary. In contrast, debtors borrowed 50 rupees per occupied acre to service these expenses in the three villages surveyed in Tanjore.[40] This suggests that investments to improve land yields were constrained by credit shortages in dry regions while demand was more easily serviced in the wet districts.

[34] Yanagisawa, 'Elements of upward mobility', p. 202; Mosse, 'Colonial and contemporary ideologies'; Parthasarathi, 'Water and agriculture', pp. 504–8; Ramesh, 'Value of tanks'; Saravanan, *Water and the environmental history*, p. 37.

[35] *Techno-Economic Survey*, p. 72.

[36] *Statistical Atlas*.

[37] *Madras District Gazetteers: Bellary I*, p. 101.

[38] *Report of the Madras Famine Code Revision Committee*.

[39] The colonial government attempted to rectify the problem by supplying welfare loans, termed *takkavi* loans, from the late nineteenth century. Narrow coverage and small loan sizes limited the success of this initiative.

[40] *Madras Provincial Banking Enquiry*, pp. 60–70. The source classifies borrowing by purpose. Debts accrued to finance the purchase of land, improvements to land, and construction on land amounted to 51,714 rupees in five villages in Bellary and 103,200 rupees in three villages in Tanjore. The recorded occupied area was 21,916 acres in Bellary and 2,046 acres in Tanjore.

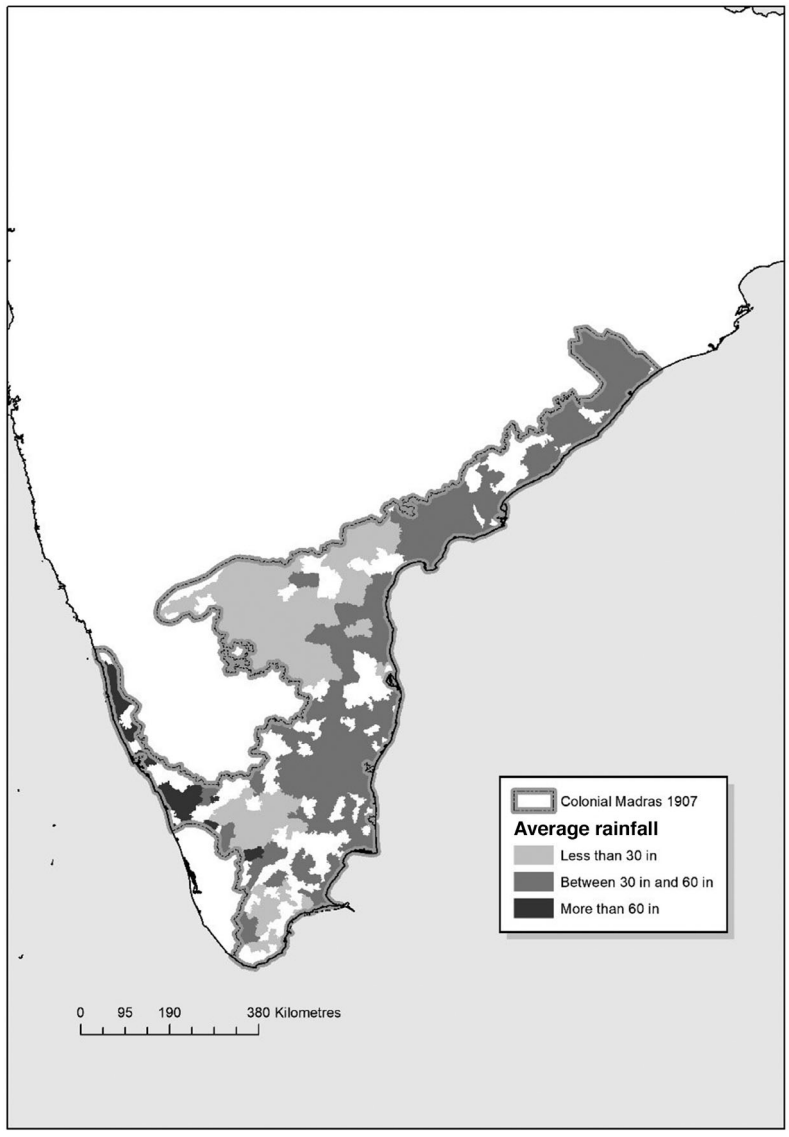

FIGURE 2 Average annual rainfall (inches) in 208 municipalities, 1870–1930. The colonial government set up meteorological stations in most municipalities from the late nineteenth century. In most cases, the source provides the average rainfall for each municipality from data collected between 1870 and 1930. In a minority of cases, meteorological stations were established later. In these cases, the source estimated the average from the year the station was established to 1930. In a handful of municipalities, the meteorological stations were 15 years old by 1930, only allowing for an estimated 15-year average. I use data from the nearest meteorological station when municipalities did not have one of their own. By 1930, there were 240 municipalities in Madras. The map uses modern-day vector data, adjusted to reflect colonial boundaries. To adjust for name and border changes in the post-colonial period, I provided an index number manually for each municipality, then matched these to the index numbers in the geo-vector municipality database of the shapefile. In using this method, 24 municipalities could not be matched and eight municipalities (not included in this map) were matched outside the provincial boundaries, bringing the number of successfully matched municipalities to 208. *Source: Statistical Atlas*.

When the demand for credit was met, it was met by small-scale, informal moneylenders. Commercial banks and regulated forms of finance did not supply credit to rural cultivators. Corporate, joint-stock, and indigenous banks operated in cities but not in the villages. Cooperative banks provided some credit but only captured a minimal share of the rural market. An official report showed that moneylenders captured 93 per cent, cooperatives 6 per cent, and government welfare loans 1 per cent of total market share in 1935.[41] Moneylenders were rarely professional lenders in Madras. Rural households with disposable income commonly provided loans to other cultivators.[42]

Several moneylenders operated within villages. According to credit surveys, 2,429 agriculturist moneylenders operated in 141 surveyed villages in 1935. There was some variation between districts. For example, there were between two and five moneylenders per village in South Kanara and Tanjore, both well-irrigated districts. Market structure differed in other wet districts. There were 17 agriculturist moneylenders in the one village surveyed in East Godavari and approximately 52 lenders per village in Tinnevelly. There were marginally fewer lenders per village in wet districts compared to those in dry districts. In the dry districts, markets in Bellary were more concentrated than others. There were between four and five lenders per village in Bellary. In the majority of other dry districts, there were between 20 and 30 lenders per village. These numbers suggest that the market, even in the less developed villages, was competitive.

The competitive market structure, however, does not imply that money was easily accessible. Since cultivators also lent money, having enough disposable income was the requirement to lend, but this condition was not easily met in Madras. Wealthy landowners with savings often allocated part of their disposable income to moneylending. Less wealthy cultivators allocated profits made in year n to the credit market in year $n + 1$.[43] Borrowers and lenders were not necessarily distinct agents in the credit market. A government report from the late 1920s stated that a cultivator-cum-moneylender 'may borrow for his own needs during the cultivating season'.[44] This feature created a distinctive risk structure. Crop failures simultaneously bankrupted borrowers and constrained the supply of money. Cultivators without profit in year n both defaulted on loans and restricted the availability of credit in year $n + 1$. Crop failure was a common occurrence. In the decade between 1938 and 1948, the monsoon failed three times. The provincial government marked cycles in 1938–9, 1945–6, and 1947–8 as 'bad years', with a more serious famine in the winter of 1945.[45] Despite initiatives by the colonial and early post-colonial governments, crop insurance schemes did not succeed across the region. Extraordinary indemnity costs, given the frequency of failed harvests, discouraged crop insurance.[46]

The money market operated seasonally, around the timing of the monsoon, further affecting short-term fluctuations in credit supply. The demand for credit was high in the autumn, while the demand for repayment peaked at the end of the spring harvest when commodities were to be traded.[47] As a result of this link between credit and seasonality, moneylenders in rural villages

[41] *Report on Agricultural Indebtedness*, p. 40.

[42] *Madras Provincial Banking Enquiry*.

[43] Panikar, *Rural savings*, shows that this trend persisted in the post-colonial period. Credit was commonly supplied by cultivators with disposable income in the 1950s.

[44] *Madras Provincial Banking Enquiry*, p. 220.

[45] *Scheme of Crop Insurance*, p. 9.

[46] For barriers to designing crop insurance schemes in colonial and contemporary India, see Dandekar, 'Crop insurance in India'; Mishra, *Agricultural risk*; Nair, 'Crop insurance'.

[47] Roy, 'Monsoon', pp. 335–40.

TABLE 1 Default rates in 76 villages, 1929

Village type	Villages	Total borrowing (rupees)	Default servicing (%)
Mostly wet	33	2 987 151	40
Mostly dry	43	2 885 445	34
Total	76	5 843 836	37

Notes: The Banking Enquiry Committee surveyed lending patterns in select villages within each district. I have made a distinction between 'mostly wet' and 'mostly dry'. 'Mostly wet' villages are in the districts where the majority of cultivated acreage produced rice. The opposite is the case in the 'mostly dry' villages. Cropping patterns have been taken from the *Statistical Atlas*. 'Mostly wet' districts include: Ganjam, East and West Godavari, Kistna, Nellore, Chingleput, South Arcot, Tanjore, Ramnad, Tinnevelly, and South Kanara. 'Mostly dry' districts include: Guntur, Vizagapatam, Chittoor, Salem, Coimbatore, Trichinopoly, Madura, Kurnool, Bellary, Anantapur, and Cuddapah. 'Default servicing' measures the proportion of loans, relative to total lending in the village, provided to repay prior debts. Ratios calculated by the author.
Sources: Madras Provincial Banking Enquiry, pp. 56–75; *Statistical Atlas.*

commonly provided loans on a short-term basis of four to six months.[48] Lenders provided loans in monthly instalments, matching changing input requirements during the production cycle. Cultivators borrowed in one month to cover the costs of fertilizer while borrowing in another to finance the renting of cattle.[49]

Given the frequency of failed harvests, it is unsurprising that default rates were high in Madras. According to the Provincial Banking Enquiry's survey of 76 villages in the late 1920s, creditors provided 37 per cent of total loans for the repayment of prior debts. As illustrated in table 1, 2.2 million rupees out of the total 5.9 million rupees credited to borrowers went towards servicing previously defaulted debts in all the villages surveyed.[50] The problem was not unique to the year these data were collected. The Banking Enquiry reported on credit markets in the 1928–9 season, prior to the commodity price crash in the early 1930s. Prices declined from the previous year but not enough to cause structural changes in default rates.[51] Moreover, high default rates were a constant concern in the rural credit market. Naidu and Vaidyanathan, writing in a period of rising commodity prices in the late 1930s, commented that 'the root cause of the indebtedness of the Indian peasant is the insufficiency of his income which is the result of uneconomic holdings, lack of attention to improved methods of cultivation, manuring, irrigation or the introduction of seasonal crops … and the frequent failure of crops due to bad seasons'.[52]

If, as noted by Naidu and Vaidyanathan, environmental conditions were a cause of high default rates, then village surveys in the Banking Enquiry present a regional puzzle. As illustrated in table 1, a larger percentage of loans in the wet villages went towards servicing previous defaults than in the dry villages. The villages surveyed in the Bellary district, located in the Adoni municipality, contained 'a light black soil' and were 'at the mercy of deficient monsoons'.[53] Yet each of the three villages in this region reported ratios of debt servicing to new loans of under 20 per cent. In contrast, the village of Gollapallam in the Coconada municipality in the East Godavari district reported ratios of 90 per cent. The municipality was well located, by the Godavari

[48] Strickland, 'Cooperation', p. 510.

[49] *Madras Provincial Banking Enquiry*, pp. 86–8.

[50] Ibid., pp. 60–70.

[51] McAlpin, 'Price movements'.

[52] Naidu and Vaidyanathan, *Madras Agriculturists' Relief Act*, p. 2.

[53] *Madras District Gazetteers: Bellary I*, pp. 84–92.

River. One village in the Tanjore district reported prior debt servicing rates of more than 40 per cent, which was higher than the rates in Bellary.[54] This is particularly puzzling as the village surveyed in Tanjore was located in the Shiyali municipality, a fertile location near the Cauvery River.

One explanation could focus on borrowing patterns and propose that consumption debts were high in Madras. Influential commentators on credit in the colonial period, including Malcolm Darling and C. F. Strickland, argued that peasants borrowed beyond their expected income to spend on weddings and ceremonies.[55] In practice, however, the majority of borrowing catered for seasonal working capital requirements rather than consumption. Data from the Banking Enquiry's survey of 76 villages in 1929 shows that lending for ceremonial expenses as a ratio of total new loans accounted for 15 per cent in wet villages and 16 per cent in dry villages. Borrowing to pay old tax bills accounted for a much smaller share, 2 and 4 per cent in wet and dry villages respectively. The ratio of consumption to total credit was 16 per cent in wet Tanjore and 24 per cent in dry Bellary.[56] More puzzlingly, consumption debt was higher, but default rates were lower, in Bellary than in Tanjore.

Another explanation could consider lenders' power and predatory pricing as explanations for default variation. Borrowers could have defaulted on loans due to their inability to repay expensive credit in the wet villages. However, the opposite scenario is equally plausible, that, if rice-growing regions were likely to have a more stable season than dry ones, this should be reflected in the lower price of credit. In Tanjore, for example, cultivators in or near the delta had access to a constant supply of water including in years with failed monsoons. As a result, one would expect loans in rice regions to have been cheaper than loans in dry regions owing to the lower likelihood of crop failure.

In practice, the evidence shows that neither assumption held true. There was little district-level variation in the price of credit. Lenders provided loans seasonally and charged interest on these loans at monthly intervals.[57] According to the Banking Enquiry, annualized interest rates varied between 12 and 24 per cent, and this variation existed across most districts. Indeed, the report suggests that interest rates varied between 9 and 24 per cent in villages within the wet Tanjore district and between 12 and 24 per cent in the villages within the dry Bellary district. A survey of the Bellary district noted that money rates varied 'from 1 to 2.5 per cent *per mensem*'.[58] In the Tanjore District Gazetteer, the surveyor reported that interest rates 'never seem to fall below ten and in some cases rises as high as 24 per cent'.[59] According to the District Gazetteer of the Godavari district, a primarily rice-growing region, 'the rates of interest on loans are much as the same as usual, 12 to 24 per cent being common'.[60] Moreover, it does not seem likely that interest rates on loans in wet districts were more likely to congregate at the lower end of the range. According to the Tanjore district surveyor, interest rates varied 'by the security offered and the amount borrowed'.[61]

To sum up the discussion so far, cultivators dominated the credit supply and the market operated seasonally. Frequent crop failures affected the borrower's ability to repay and the lender's

[54] *Madras Provincial Banking Enquiry*, pp. 60–70.

[55] Darling, *Punjab peasant*; Strickland, 'Cooperation'.

[56] *Madras Provincial Banking Enquiry*, pp. 60–70.

[57] Strickland, 'Cooperation'; Roy, 'Monsoon'.

[58] *Madras District Gazetteers: Bellary I*, p. 101.

[59] *Madras District Gazetteers: Tanjore I*, p. 112.

[60] *Madras District Gazetteers: Godavari I*, p. 91.

[61] *Madras District Gazetteers: Tanjore I*, p. 112.

disposable income to lend. Default rates were higher in the wet regions than the dry ones, and this problem was not driven by interest rate variations or the proportion of consumption (unproductive) debt. The next section shows that lending strategies explain the regional differences in default rates and credit supply constraints. Creditors adopted safer lending strategies in dry districts and more risky strategies in wet districts. The wide range in interest rates within villages represents the moneylender's flexibility in changing rates at the level of the individual loan. As subsequent sections will show, enforcement costs and the type of collateral attached to loans explain fluctuations in intra-village interest rates.

III

Crop characteristics differed by agro-ecological regions, offering borrowers different capacities for loan repayments in wet and dry districts. Rice cultivation, though more valuable, was more labour-intensive and had a higher water requirement than dry crops. In contrast, cotton and millets are 'rain-prudent crops, growing under varied conditions of rainfall and sustained by the deep moisture-holding capacity of black soil'.[62] The versatility of the millet crop allowed peasants the flexibility to grow both cotton and cereal crops year-round.[63] Though richer, cultivators in Tanjore double-cropped less than the cultivators in drier Salem and Coimbatore.[64] Cultivators in the drier Tanjore municipalities grew millets and groundnuts in years with limited rainfall, and rice varieties with comparatively lower water requirements and finger millets in good years.[65] From a survey of villages in the dry Kistna district, the Banking Enquiry found that cultivators growing 'five crops together on one bit of land' was common.[66] On the disadvantages of single-cropping, the Banking Enquiry observed, 'the *ryot* may borrow from two places from the same crop and pay neither'.[67] Single-cropping cultivators in rice-producing regions, therefore, had less insurance against droughts and waterlogging than double-cropping cultivators in dry districts. Creditors in dry regions were in a position to recover loans from the landowners who could plant multiple crops, even in the bad years when one crop might have failed.

Additionally, credit requirements were low in the dry districts and high in the wet districts. The Banking Enquiry estimated that the average debt per acre across the province was 58 rupees in 1929. Surveys of cultivation costs suggest that 58 rupees was a reliable figure for the average working capital required per acre in a single rice-growing season. Two different government surveys, one in 1929 and another in 1947, suggest that the average cost of rice cultivation per acre varied between 45.99 and 85.14 rupees in 1930 prices.[68] The cultivation of millets and cotton in the dry districts demanded a lower set of expenses per acre. According to Rao and Rajasekhar, sorghum and cotton cultivation in Bellary cost the cultivator, on average, nine and 12 rupees per

[62] Hazareesingh, 'Cotton, climate and colonialism', p. 9.

[63] Hazareesingh, 'Cotton, climate and colonialism', suggests that cotton tended to mature later than millets in the colonial period.

[64] *Techno-Economic Survey*, pp. 94–5.

[65] *Madras District Gazetteers: Tanjore I*, p. 100.

[66] *Madras Provincial Banking Enquiry*, p. 14.

[67] Ibid., p. 220.

[68] *Madras Provincial Banking Enquiry*, p. 168; *Agricultural Statistics of India*, p. 174. The author adjusts costs in the source to 1930 prices using the commodity price index in McAlpin, 'Price movements'.

acre respectively.[69] These were between a quarter and a fifth of the expenses incurred by rice cultivators in Tanjore.[70]

The size of borrowing increased with the size of landholding, yet marginal or additional borrowing fell with each additional acre owned. According to a survey of 564 families in 1935, debt per capita among large landowners was over four times higher than debt per capita among smallholders. However, the debt per acre accrued by large landowners was 38 per cent lower than the debt per acre accumulated among smallholders.[71] The Banking Enquiry's estimate of 58 rupees per acre exceeded the average borrowed by tenants in richer deltas and smallholders in the dry interior. However, the figure is lower than the average borrowed by smallholders in the rich deltas and large landholders in the hinterland. Farm labourers borrowed less than the average smallholder.[72]

The average size of landholding was larger in dry districts. The average landholding in seven municipalities in the dry Anantapur, Bellary, and Kurnool districts was 12.12 acres in 1930. In contrast, the average size of landholding in five wet municipalities in the East Godavari, Ganjam, Ramnad, and Tanjore districts was 3.7 acres.[73] The average landholding size in the Adoni municipality in Bellary was 10.79 acres in comparison to an average size of 4.88 acres in the Shiyali municipality in Tanjore.[74] A further contrast between the wet and dry districts was that the former provided steadier work to tenants and labourers. In Bellary, tenancy was rare, while labourers were commonly temporary workers who worked seasonally and emigrated in bad years. Indeed, the 1951 census recorded large movements of labour from famine-prone areas to rice deltas in bad years. In contrast, tenancy was common and permanent in Tanjore. The delta reported a large number of tenants and cultivating owners, while also reporting a low number of temporary labourers.[75] Tenants accessed the credit market, at times borrowing from landlords on sharecropping arrangements.[76] Labour was more permanent, which created a more conducive structure for investment.

Cultivators in dry districts achieved a degree of insurance against bad seasons and default risk through higher average landholdings. Despite limited improvements in technology, including irrigation, seeds, and fertilizer, scale provided average landholders with insurance against environmental fluctuations. As shown in table 2, in 1929 the average landholder in the Adoni municipality in Bellary earned just over half the revenue of the average landholder in the Shiyali municipality in Tanjore. However, landholders in Bellary borrowed significantly less than landholders in Tanjore. As noted, the costs of cultivation were low in Bellary. A survey of select villages in each district shows that the average debt per acre in Bellary was 17 rupees in 1929 and 21 rupees in 1935. In contrast, the average debt per acre in Tanjore was 116 rupees in 1929 and 86 rupees in 1935.[77]

[69] Rao and Rajasekhar, 'Commodity production', p. 17.

[70] According to Kolliner, the minimum cost of cultivating millets was five rupees per acre in Bellary in the late 1920s, around one-tenth the cost of cultivating rice in Tanjore. See Washbrook, 'Commercialisation of agriculture', p. 146.

[71] *Report on Agricultural Indebtedness*, p. 42.

[72] According to one report in 1935, one moneylender provided loans of 25 rupees, half the recorded debt per acre, to farm labourers; ibid., p. 16.

[73] *Statistical Atlas*.

[74] Ibid, pp. 323–60, 749–82.

[75] *1951 Census of India*, pp. 14–22.

[76] *Madras District Gazetteers: Tanjore I*, pp. 108–11; Baker, *Indian rural economy*, suggests that sharecropping was a common feature of the Tanjore delta.

[77] The *Madras Provincial Banking Enquiry* and *Report on Agricultural Indebtedness* arrived at these figures by dividing the total lending by number of acres in each village surveyed.

TABLE 2 Annual revenue per average landholder, 1929

Municipality	Land size (acres)	Crop	Annual yield (tons per acre)	Output (tons)	Price (rupees per ton)	Annual revenue (rupees)
Adoni (Dry)	10.79	Sorghum	0.25	2.7	75	203
Shiyali (Wet)	4.88	Rice	0.48	2.3	171	393

Notes: I have chosen one municipality in Bellary (Adoni) and one in Tanjore (Shiyali). Average land size has been taken from the *Statistical Atlas*. Annual yield, taken from the *Agricultural Statistics of India*, measures the average output per acre for select crops in 1937. Output was calculated by multiplying yields by land size. The price of each crop was obtained from the *Madras Provincial Banking Enquiry*. Surveyors in the Banking Enquiry Committee provided grain prices from two markets in each district for the year 1928–9. Agriculture in that year was not exposed to unpredictable price shocks and therefore reflects an average price from a successful harvest. The source provides prices per maund. I have scaled up the prices to per-ton estimates for easier comparison with yields and output. Annual revenue was calculated by multiplying prices by output. The table assumes that cultivators did not diversify crops.

Sources: Madras Provincial Banking Enquiry, pp. 9–12; *Statistical Atlas*, pp. 323–60, 749–82; *Agricultural Statistics of India*, pp. 105–6.

TABLE 3 Borrower characteristics in 141 villages, 1935

Village type	Lending per village (rupees)	Borrowers per household	Borrowers per lender	Debt per borrower (rupees)
All villages	109 339	0.8	27	206
Tanjore	59 595	0.8	96	332
Bellary	39 365	0.4	11	812

Notes: Between 1 and 16 villages were surveyed in each district across the province. Lending per village was measured by dividing the total value of lending by the number of villages surveyed. Borrowers per household was measured by dividing the number of borrowers by the total number of households in the villages. Borrowers per lender was measured by dividing the number of borrowers by the number of moneylenders (agriculturist and professional included). Debt per borrower was measured by dividing the total lending by the number of borrowers in each district. Calculations were made by the author.

Source: Report on Agricultural Indebtedness, pp. 30–42.

In other words, average landholders in dry Bellary were more likely to repay loans than average holders in Tanjore, because credit was biased towards the larger holders. Lower risk-bearing economies of scale in Tanjore led to higher default rates in comparison to dry regions.

Creditors selectively allocated credit to the large landholders in the dry districts, whereas lending was less scale-biased in the wet districts. Inequality in landownership was higher in the dry districts compared to the wet regions. In Bellary, for example, land was either owned by poor peasants in several scattered holdings under five acres or owned in estates of 20 acres and more by large landowners.[78] Without the benefit of diversification, that is, with their dependence on single crops on poor quality land, smallholders in dry areas were excluded from credit.[79] As illustrated in table 3, the credit market was smaller and more concentrated in Bellary compared to Tanjore. The volume of money credited in Bellary villages, approximately two-thirds the size of total lending in Tanjore villages, went to fewer households in the former. As shown, 40 per cent of households borrowed in Bellary. In contrast, 80 per cent of households borrowed in Tanjore.

[78] Washbrook, 'Commercialisation of agriculture', pp. 132–4.

[79] *Madras Provincial Banking Enquiry*, pp. 15–17.

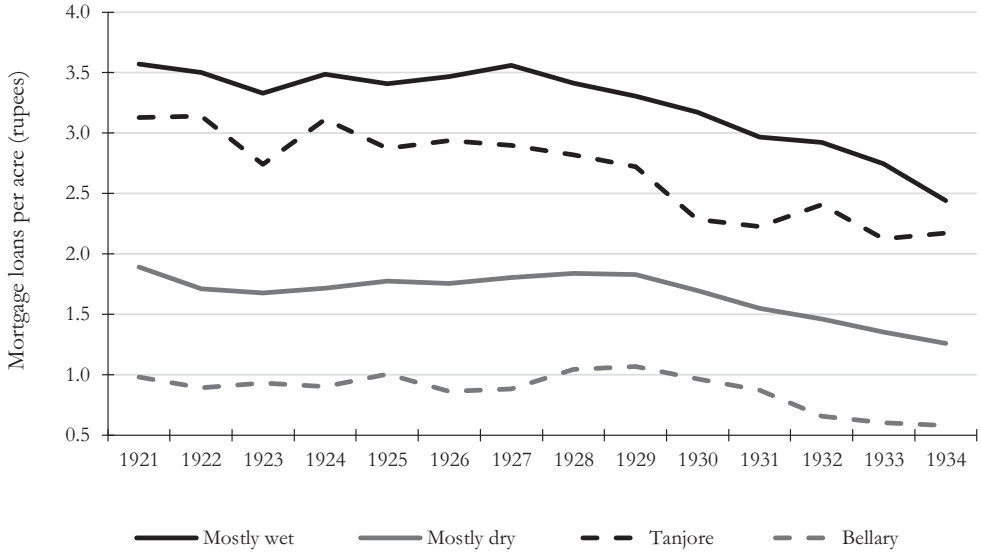

FIGURE 3 Value of mortgage loans per acre in Madras districts, 1921–34. The Registration Department recorded the number and value of mortgages registered in each district across the province. The distinction between wet and dry districts is drawn in the same format as tab. 1. The value of mortgages is divided by the number of acres in each district. Acreage was obtained at the municipality level from the *Statistical Atlas*. I added up the municipalities to calculate the total acreage in each district. Throughout the period, the Registration Department recorded mortgage registrations in the Negapatam municipality, located in the Tanjore district, separately from the district data. The figure excludes acreage and mortgage data for the Negapatam municipality in the Tanjore series but includes it as part of the 'mostly wet' series. The figure excludes the South Arcot district as mortgage data were not reported for several years. *Sources: Report on the Administration of the Registration Department*; *Statistical Atlas*

Fewer households borrowed, but the average credit per borrower in Bellary was almost three times larger than the average in Tanjore.

The number and value of mortgages registered during the interwar period support the finding that credit supply was smaller and more selective in Bellary than in Tanjore. Between 1921 and 1934, the value of mortgage loans per acre in Bellary varied between 0.6 and 1 rupee, much smaller than the range of 2.4 and 3.6 rupees per acre in Tanjore. As for number of borrowers, there were one to two mortgagors per 1,000 acres in Bellary, in contrast to the range of five to eight mortgagors per 1,000 acres in Tanjore.[80] The debt per borrower, however, was high in Bellary, as the average mortgagor borrowed between 410 and 503 rupees.[81] In Tanjore, the average size of mortgage borrowing was between 416 and 488 rupees.[82] The average mortgagor borrowed more than twice the annual revenue of a 10-acre farm in Bellary and marginally higher than the annual revenue of a four-acre farm in Tanjore.

As shown in figure 3, other wet and dry districts showed similar trends in the number and size of mortgages during the 1920s and early 1930s. The value of mortgages per acre was between two

[80] *Report on the Administration of the Registration Department*; *Statistical Atlas*.

[81] Average loan size estimated by dividing total value by total number of mortgage registrations

[82] The average size of borrowing was higher in Bellary than in Tanjore in nine of the 14 surveyed years.

and three times higher in the wet districts than the same figure in the dry areas.[83] The average size of mortgage loans, however, was systematically higher in the drier tracts. An average mortgagor in a dry district borrowed between 384 and 471 rupees whereas the typical mortgage transaction in wet districts averaged between 316 and 393 rupees.[84] The combination of few borrowers and high average loan sizes was a typical feature of credit markets in districts neighbouring Bellary. The average value of mortgages per acre in the dry Anantapur district, for example, was 0.5 rupees in 1929.[85] In the same year, the average debt per borrower was 639 rupees in the Banking Enquiry's survey of select villages in the district. Explaining why debts accrued per borrower were high, the surveyor commented that the borrowers 'were proprietors of whole or part of the land they cultivated and therefore naturally commanded higher credit'.[86]

In short, in dry Bellary the ratio of borrowers to households was low, debt per acre was low, and debt per capita was high, which suggests that the borrowers in Bellary were richer than the borrowers in Tanjore. Mortgage registrations corroborate this finding and show that it applies to other districts with similar ecological conditions. The size of landholding mitigated the restrictions of poor quality and enabled larger landowners to borrow in the dry regions. Richer peasants in dry areas, with the benefit of crop diversification and insurance against volatility, accessed credit and invested in production. Poor peasants in dry districts, however, had limited access to the credit market, which constrained their investment potential.

That lenders infrequently secured loans with mortgage contracts in high-risk areas is, *prima facie,* counter-intuitive. Mortgage contracts can offer lenders a viable solution to manage risk, which suggests that we should see a high volume of, and less selective, mortgage lending in riskier markets. The next section turns to a comparison of enforcement systems in wet and dry regions to explain why credit contracts were uncommonly used in high-risk regions.

IV

Lenders could secure loans with contracts and enforce these in courts to mitigate default risk. However, this section shows that contract enforcement was complicated in agrarian economies with a high-risk climate. Borrowers in dry regions did not wilfully default on contracts, and lenders in dry districts could not afford the costs of contract enforcement. When cultivation was less risky and loans were for amounts higher than the enforcement costs, as was more likely the case in the wet districts, lenders relied on courts to recover loans but increased interest rates to compensate for contract fees. When it was cost-efficient to do so, moneylenders in Madras secured loans with promissory notes and upgraded these to mortgage instruments if defaults persisted.

Nineteenth-century contract laws regulated the use of promissory notes. The 1872 India Contract Act (ICA) and the 1881 Negotiable Instruments Act (NIA) encouraged and regulated the use of contracts in rural credit. The act defined a negotiable instrument as 'a promissory note, a bill

[83] Classification of districts as 'wet' and 'dry' is conducted in the same format as tab. 1.

[84] *Report on the Administration of the Registration Department*.

[85] Anantapur shared similar climate and soil conditions to Bellary. Most farmers cultivated millets, with few cultivating cotton.

[86] *Madras Provincial Banking Enquiry*, p. 1046.

of exchange or cheque payable either to order or to bearer'.[87] It defined promissory notes as 'an instrument in writing (not being a bank-note or a currency-note) containing an unconditional undertaking signed by the maker, to pay a certain sum of money only to, or to the order of, a certain person, or to the bearer of the instrument'.[88] Promissory notes were fixed contracts. Referring to contracts in rural credit markets, the NIA declared that 'where a debtor, owing several distinct debts to one person, makes a payment to him, either with the express intimation or under circumstances implying, that the payment is to be applied to the discharge of some particular debt, the payment if accepted, must be applied accordingly'. By referring to promissory notes as a model example of a debt contract, the NIA confirmed its legitimacy as legally binding.[89]

In general, promissory notes or pro-notes defined lending terms including the loan principal, rate of interest, and repayment or maturity date. Signatures or thumb prints from lenders, borrowers, and co-applicants were universal features of these contracts. Borrowers who did not have the skills to read promissory notes typically relied on the assistance of teachers in local schools as well as village accountants and clerks. According to the Banking Enquiry, borrowers approached 'the village schoolmaster, or *karnam* [village accountant] or other friend conversant with arithmetic to ensure that he has not been cheated'.[90] Creditors presented pro-notes to local courts following defaults.

When promissory notes did not retrieve repayment, creditors upgraded contracts to mortgage instruments and petitioned courts to order the transfer of the borrower's land to cover defaulted dues. Land and tax laws regulated the use of mortgage instruments. By 1900, two structures of tax and ownership operated throughout most of the province. First, *ryotwari* tenure provided ownership rights to the government. The government fixed land taxes for a period of 30 years and collected tax payments directly from the cultivator.[91] Second, in *zamindari* settlements, pre-colonial elites retained the proprietorship of landed estates. As proprietors of this land, the owners of landed estates paid taxes to the colonial government. The vast tracts of land owned by *zamindars* were divided into individual plots and leased to cultivators at a privately determined rent. *Ryotwari* or government-cultivator settlements formed the 'principal tenure of the province'.[92] According to government reports, cultivators owned 90.09 million acres of rural land in 1930. The government-cultivator arrangement operated in 60.05 million acres while the owner-tenant arrangement operated in 23.6 million acres.[93] Land taxes were a valuable source of revenue for the colonial government. As a deterrent to tax evasion, the judiciary enforced title transfers in courts to ensure transparent information on landholders and tax assignment.[94]

Land tenure systems did not affect the supply of mortgages in high-risk markets. Cultivators owned, and were proprietors of, the majority of plots in the driest tracts. *Ryotwari* settlements constituted 100 per cent of total acreage in the Bellary district, with similar ratios of 96 and 99 per cent

[87] Negotiable Instruments Act, section 13.

[88] Ibid., sections 4–7.

[89] The NIA referred to a model debt contract as, 'A owes B, among other debts, 1,000 rupees upon a promissory note, which falls due on the first June. He owes B no other debt of the amount. On the first June A pays to B 1,000 rupees. The payment is to be applied to the discharge of the promissory note'; ibid., section 59.

[90] *Madras Provincial Banking Enquiry*, p. 220.

[91] *Madras State Administration Report*, p. 87.

[92] Ibid., p. 87.

[93] *Statistical Atlas*.

[94] *Madras Provincial Banking Enquiry*, p. 184.

in the neighbouring dry districts of Anantapur and Kurnool. *Zamindari* settlements were more common in the wet districts than the dry ones. In Tanjore, for example, *zamindars* owned 30 per cent of total acreage.[95] However, the size of the mortgage market, as illustrated in figure 3, suggests that creditors did not petition courts for land transfers as frequently in the dry districts relative to the wet areas. District surveys further suggest that lenders and borrowers rarely approached courts in the central part of the province. A survey of the Bellary district, for example, maintains that peasants 'can seldom indulge in the delights of civil litigation'.[96] Why were creditors deterred from providing mortgage-backed loans in high-risk markets?

The fact that borrowers rarely defaulted on contracts wilfully weakened the penalties imposed by judges. Climate risk was not insured against and therefore weather shocks and crop failures had significant short-term effects on the repayment capacity of peasants in the dry areas. This was not just a problem for tenants and labourers but also for holders of small land parcels in the dry districts. Smallholders (in this case referring to cultivators owning less than five acres of land) in the dry areas commonly approached famine camps and relied on food welfare entitlements as they were barely able to subsist in drought years.[97] In such cases, *force majeure* clauses in contract laws acknowledged the problem and instructed judges to alter contractual terms to harbour equity and fairness between contracting agents. Section 36 of the ICA voided contracts that were 'contingent on impossible event [*sic*] … whether the impossibility of the event is known or not to the parties to the agreement at the time when it is made'.[98] The ICA further empowered judges to protect agents from coercion and undue influence.[99] Judges invoked these clauses when creditors with disposable income attempted to collect penalties from poor borrowers.

There was precedent for judges to intervene in tenancy and credit disputes to enact 'the principles of natural justice and equity' following harsh conditions imposed by 'acts of God'.[100] In credit disputes, judges enforced moratoriums and reduced rates of interest to allow for easier repayment. In one case, a cultivator borrowed 71 rupees from a local moneylender in 1907. The terms of the contract stipulated that the borrower repaid the loan in 142 monthly instalments. The borrower paid 29 instalments and defaulted on subsequent ones. The contract stipulated a daily penalty for non-payment. The creditors sued to collect 52 rupees of the original principal and 154 rupees for 19 months of defaulted interest which amounted to penal interest of 190 per cent per annum. The lower and high courts reduced the rate of interest to 24 per cent, a commonly charged rate for the recovery of defaulted loans in courts, and stipulated a flexible repayment schedule for the borrower, considering his willingness to repay the loan when he had income available to do so. The judges justified their position by stating that contracts need judicial involvement not only in cases of fraud and misrepresentation but also 'because of the borrower's extreme necessity and helplessness'.[101]

Partly reflecting the inherent problems in fixing liability when defaults happened due to 'acts of God', cases could take a long time to settle. Courts, then, had the added problem of being

[95] *Statistical Atlas*.

[96] *Madras District Gazetteers I: Bellary*, p. 101.

[97] *Report on Agricultural Indebtedness*, pp. 11–12.

[98] India Contract Act, section 36.

[99] See sections 16 and 19 of the India Contract Act.

[100] See the list of referred tenancy cases in the court judgement, Kondnath Chathoth Kunhi Raman Nambiar vs. Cheriyalanthot Aniyath Elambilan Kunhi Kannan Nambiar (1936 71 MLJ 352, Madras, 14 Feb. 1936).

[101] Avathani Muthukrishnier vs. Sankaralingam Pillai (1912 24 MLJ 135, Madras, 10 Sept. 1912).

expensive, in time and money, when compared to the size of loans. In 1922, the *munsiff* courts, the lowest courts in the province, reported a backlog of 52,559 cases of which 11,990 were pending for over one year. Cases appealed in the Madras High Court in 1923 lay idle for 24 months.[102] *Statistics of Civil Courts* shows that between 1924 and 1939, the average duration of disputes was 516 days in the District Courts and 768 days in the High Court.[103]

According to estimates of legal costs in the Banking Enquiry, delays in court judgements added to the fees incurred by litigants. The model included an estimate of the bills raised by courts and the fees that clients paid to lawyers. It estimated that civil disputes in a lower court cost litigants approximately 339 rupees in the late 1920s. Litigating in the High Court in the same period cost approximately 400 rupees, leading to an estimated cost of 739 rupees if agents litigated in both courts.[104] Loans declared on signed promissory notes were charged a flat court fee which was lower than the costs of court disputes on mortgage loans. Litigants incurred a flat cost of 270 rupees inclusive of decree execution and lawyer fees if they presented judges with signed promissory notes.[105] Enforcing mortgage contracts in civil courts was 30 per cent more expensive than enforcing promissory notes in the same forum. Mortgage disputes in the High Court cost lenders and borrowers 1.5 times more than promissory note disputes in the same forum. The costs of enforcing promissory notes and mortgage contracts were five and seven times higher than the province's average debt per acre of 58 rupees.

Tenants and smallholders in dry districts were less likely to negotiate contracts in courts as enforcement costs were too high. The average size of loans for the poor in these districts was significantly lower than the size of loans in the richer, more irrigated areas. To avoid the high costs, creditors in the dry districts steered away from enforcing mortgages and promissory notes when lending to the poor.

Loan extensions were less likely and credit terms were harsher for poor peasants in the dry districts. This was evident in the methods adopted by creditors to recover loans from the poor in famine-prone areas. Following a bad year, the district government established a committee to oversee famine relief in Bellary in the late 1930s. Commenting on one group of moneylenders and their methods to recover loans, one member of the District Famine Relief Committee reported, 'They have lent money to people and collect it probably using much more coercion than the courts would allow'.[106] District officials found creditors using unscrupulous ways of retrieving unpaid loans from smallholders, including 'hovering about [famine] camps' to seize the welfare entitlements of peasants in bad years.[107] Famine reports advised government officials to enforce moratoriums on unpaid credit as a method of alleviating peasant distress in dry districts.[108] In better years, poor borrowers parted with crops or, in some cases, jewellery and furniture to repay loans in the dry areas. Creditors used these informal methods to both recover loans and enforce penalty interest charges on defaulters in the absence of court supervision.

[102] Foulkes, *Local autonomy*, pp. 117–18.

[103] The maximum duration was 779 days for district courts in 1925 and 1,222 days for the High Court in 1938; *Statistics of Civil Courts*.

[104] The model costs do not account for additional expenses, including transport costs and the costs of litigating in rural tribunals. The cost of title transfer and land registration also generated a set of expenses. The government estimated the cost of land registration at 26 rupees and six annas in the late 1920s; *Madras Provincial Banking Enquiry*, p. 183.

[105] Ibid., p. 183.

[106] *Report of the Madras Famine Code Revision Committee*, pp. 226–7.

[107] Ibid., p. 224.

[108] *Famine Commission Inquiry.*

TABLE 4 Price of credit from two lenders in Chingleput, 1935

Lender	Lending exposure (rupees)	Contracted loans (%)	Contracted interest (annual)	Settled interest (annual)
Lender A	100 000	66	18–24	10.5–12
Lender B	40 000–45 000	100	18–24	10

Notes: Data extrapolated from text in the source. Contracted loans refer to the ratio of pro-note loans to total. Contracted interest refers to the penal rate charged by the moneylender as compensation for the costs of enforcing contracts in court. Settled interest refers to prices charged when borrowers repaid loans out of court. Lenders were anonymized in the source.
Source: Report on Agricultural Indebtedness, pp. 15–16.

The size of loans to the rich in dry districts and to a wide spectrum of borrowers in the wet districts exceeded the costs of court enforcement. In these cases, creditors operated a multi-layered enforcement structure. First- and second-time defaults changed the contractual nature of loans. Following a first round of default, lenders upgraded unsecured loans to loans secured by promissory notes. Short periods of repayment were fixed on pro-notes. Interest rates compounded following rounds of default. The law stipulated a maximum three-year limitation on each pro-note, which necessitated a fresh renewal of a previous note following its expiry. With each renewal, lenders added the compounded interest from previous defaults into the principal amount. This process continued until creditors upgraded the initial promissory note into a mortgage-backed loan.[109]

Creditors in low-risk environments increased interest rates to account for the costs of enforcing contracts in courts, up to the accepted limit of 24 per cent per annum. The account books of two moneylenders in the well-irrigated Chingleput district note the effect of varied contract enforcement costs on the price of credit.[110] A government report in 1935 summarized the amount of lending, type of credit instrument used, and price of loans from the two lenders. Both creditors provided loans to cultivators in the same village. One had an exposure of over 100 000 rupees and the other of between 40 000 and 45 000 rupees. Both lenders executed promissory notes with defaulting borrowers. The interest rates mentioned on signed pro-notes exceeded the rates charged on credit repaid. As such, both creditors charged different interest rates for out-of-court settlements and court disputes. Lenders charged lower interest rates on loans repaid out of court. When informal arbitration failed, both lenders charged a 'penal interest' on defaulted loans that were recovered in court. According to one moneylender, compounding defaults compelled them to 'to take his clients to court … which means that the penal rate of interest of 24 per cent comes into operation'.[111]

The case study presented in table 4 shows that the moneylenders provided loans for a period of 10 months. Each lender executed pro-notes defining the repayment of loans in monthly instalments. Borrowers defaulted on the majority of the loans provided by both lenders between 1925 and 1935. Filtered down, the monthly interest rate on privately settled loans was between 1 and 1.2 per cent. The monthly rate on court-disputed defaults was between 1.8 and 2.4 per cent, or between 50 and 140 per cent higher than rates on undisputed credit. In other words, as demonstrated in table 5, the varied costs of enforcing different credit contract types explain the variation

[109] *Report on Agricultural Indebtedness*, p. 15.

[110] Chingleput was a primarily rice-growing district. Rice cultivation occupied 81% of total cropped acreage in 1930; *Statistical Atlas*, pp. 483–514.

[111] *Report on Agricultural Indebtedness*, p. 16.

TABLE 5 Multi-layered enforcement in low-risk markets

Credit instrument	Enforcement type	Enforcement cost	Price increase
Unsecured	Informal	Low	Stagnant
Promissory note	Courts	Rising	Mild
Mortgage	Courts	High	High

in the prices of credit at the level of the individual loan. Creditors in low-risk areas increased interest rates with primary and secondary defaults, up to 24 per cent per annum, to account for the costs of enforcing contracts in court and court-ordered transfers of the borrower's assets. This flexibility was not enough to mitigate lending risk or compensate for enforcement costs in the dry districts.

The outcome was the use of formal contracts in low-risk credit markets and informal enforcement methods in high-risk ones. Creditors in wet regions granted loans and loan extensions to smallholders as land transfers were an insurance against the enforcement costs. Poor peasants in dry areas were most affected by risks in the credit market. Their access to credit was limited, and when they could access credit, they faced harsh credit terms. Lenders to the poor in wet districts had pricing flexibility to pay for enforcement costs while lenders to the poor in dry districts resorted to informal recovery methods that weakened the borrower's position.

V

This article has explained why credit was supply-constrained and expensive in colonial India. The dominant historiography has focused on market structure and monopoly power, overlooking risk as a driver of lenders' actions. The supply problem differed geographically. The article has shown that moneylenders rationed credit and imposed harsh enforcement restrictions in dry areas while lending more inclusively and adopting flexible recovery methods in irrigated regions. This finding offers lessons on investment, suggesting that climatic risk and volatile seasonal incomes restricted private investment levels in the dry areas because savings rates were low and access to credit was preferential.

Contemporary institutional means to mitigate risks, such as courts and negotiated instruments, did not solve the problem because there was no easy way to settle credit defaults. The use of contracts was either not appropriate or too expensive in high-risk areas. Enforcement methods, when creditors lent to the poor in these areas, were inflexible and informal. When contracts were used in low-risk transactions, creditors accepted flexible repayment methods, increasing interest rates to compensate for enforcement costs. The transmission of enforcement costs to credit pricing explains high interest-rate levels in low-risk lending environments.

The lessons on risk and enforcement cut across colonial and post-colonial periods. From the mid-twentieth century, provincial and federal governments intervened aggressively to address the dual problem of low supply and high interest rates in credit markets. Governments fixed interest rates, outlawed private moneylenders, and introduced priority sector lending targets for nationalized banks. These policy strategies did not address the underlying problem. Ecological risk, and the challenges of expanding the supply of cheap credit in high-risk markets, persisted.

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