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Cooperatives as Information Machines: German Rural Credit Cooperatives, 1883–1914

TIMOTHY W. GUINNANE

Credit cooperatives were widespread in nineteenth-century Germany, which is surprising given that country's highly developed banking system. One general explanation for the success of credit cooperatives emphasizes their ability to capitalize on superior information and to impose inexpensive but effective sanctions on defaulters. These features supposedly permit cooperatives to lend to individuals whom banks would spurn, and to tailor loan terms more closely to borrowers' needs. I use the business records of several German credit cooperatives to test this claim. The results show that real efficiency advantages are at least part of the explanation for their success.

Credit cooperatives were first introduced in Germany during the 1850s. By 1914 they were, collectively, a major financial force: the 19,000 credit cooperatives existing in that year had issued some 7 percent of all German banking liabilities. Most credit cooperatives were smaller than banks, had fewer paid staff, and dealt with a clientele most banks would not accept as customers. Bankruptcy among credit cooperatives was rare.¹ Their success speaks to current discussions of the economics of information in financial markets and to policy proposals concerning the establishment of microcredit institutions for poor people today. This study uses the example of the German cooperatives to test one hypothesis often advanced by advo-

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¹ Bank liabilities (excluding note issue) totaled 65.6 billion marks. This figure includes the Great Banks, public savings banks (*Sparkassen*), and the several state-sponsored land banks (Deutsche Bundesbank, *Deutsches Geld-und Bankwesen*, DI Tables 1.01–2.01). In 1913 only 12 credit cooperatives in Germany declared bankruptcy. Because of reporting limitations the bankruptcy data omit Bavaria, Saxony, Württemberg, and some smaller areas, but the point would be robust to inclusion of these areas. The source is *Mitteilungen zur deutschen Genossenschaftsstatistik* 1914, p. 83.

cates of microcredit institutions: that cooperatives succeeded because they overcame problems caused by asymmetric information and enforcement problems in credit markets. The German credit cooperatives' advocates argued that the institutions prospered because they had an efficiency advantage over banks. This advantage rested, advocates argued, on a combination of better information about borrowers and the ability to use sanctions not available to banks. Critics of the cooperatives—and there were many, both in Germany and elsewhere—traced their growth to other factors, all of which have the common feature of implying that the cooperative structure had no particular efficiency advantage.²

This article uses the manuscript business records of several German credit cooperatives in the period 1880–1914 to test the efficiency view. For our purposes the alternative hypothesis is simply one that denies an efficiency advantage. I focus on rural credit cooperatives, in part because of source limitations and in part because they present the sharpest contrast to a conventional bank. My test has three related steps. First, I ask whether the cooperatives were dependent on free managerial labor. The answer to this question is no. Second, I ask whether cooperatives used the loan terms that commercial banks employed to contend with their imperfect information on borrowers. I find that cooperatives dispensed with these terms, suggesting that they had better information and enforcement capabilities than other lenders. This second step establishes that cooperatives were different from banks in ways consistent with the efficiency explanation. Third, I examine the characteristics of borrowers and loan terms to see whether the cooperatives discriminated across borrowers in ways consistent with variations in the cooperatives' information and enforcement abilities. I conclude from this evidence that information and enforcement advantages were an important aspect of the cooperatives' success.

Although I focus on nineteenth-century German cooperatives, the issue has much broader significance. Several European countries had microcredit institutions in the nineteenth century. Sometimes these institutions were organized as cooperatives, but not always. In several instances the German credit cooperatives were taken as inspiration for transplanting the institution elsewhere. Cooperatives remain important financial intermediaries in many countries today. Microlenders that use related contractual arrangements, such as the Grameen Bank, are widespread in developing countries. Despite the popularity of these institutions there is little agreement on why they work and so, little basis for knowing when and where they will work. Economists

² Another claim is plainly false and will not be taken seriously here. Elsewhere in Europe at the time, and in some developing countries today, credit cooperatives receive hefty state subsidies that make comparisons with private institutions meaningless. German credit cooperatives in our period received only modest state subsidies. Busche (*Oeffentliche Förderung*) discusses the issue in detail.

have suggested several models, but empirical evidence of the sort presented in this study is scarce.³

HISTORICAL AND ORGANIZATIONAL BACKGROUND

Rural credit was seen by many as a significant problem in Germany during the second half of the nineteenth century.⁴ Land reform and emancipation had created a free but undercapitalized peasantry, and the agricultural price declines of the 1880s and later left some holdings overburdened with mortgage debt. Several German states had allowed cities and provinces to create specialist banks called *Sparkassen*, or savings banks, as well as several types of land banks and other lending institutions. Yet critics claimed that neither these institutions nor Germany's famous universal banks were prepared to offer reasonable loan terms to small farmers and to laborers. Prior to the introduction of credit cooperatives, smallholders and the landless in Germany depended for credit on shopkeepers, agricultural dealers, and other informal lenders.⁵ Credit conditions in Germany sound similar to those found in many developing countries today. Credit was expensive and some accounts describe interlinked markets, credit relations that are part of some other transaction. Totalling explicit and implicit costs, sober observers claimed that annual interest rates in excess of 30 percent were not uncommon.⁶

Responding to these conditions, Hermann Schulze-Delitzsch founded several cooperative credit associations during the 1840s and 1850s. By 1861 there were 364 Schulze-Delitzsch credit cooperatives with nearly 49,000

³ For discussion of other historical microcredit institutions see, for example, Guinnane, "Failed Institutional Transplant"; Galassi, "Screening"; Guinnane and Henriksen, "Why Danish Credit Cooperatives"; and Hollis and Sweetman, "Microcredit." Examples of widely cited but essentially theoretical works include Braverman and Guasch, "Institutional Analysis"; Stiglitz, "Peer Monitoring"; and Varian, "Monitoring." As the Irish and Danish examples show, credit cooperatives were not universally successful in nineteenth-century Europe. For an excellent overview of microcredit in developing countries today see Morduch, "Microfinance." Ghatak and Guinnane ("Economics") discuss the economic theory of the group lending that is central to many microlending programs today. The special issue of the *Journal of Development Economics* in which that paper is published contains several empirical papers on microcredit today.

⁴ The best single account of the cooperatives is Kluge, *Geschichte*, which unfortunately has not been translated into English. More institutional and historical detail can be found in Guinnane, "Regional Organizations."

⁵ Faust, *Geschichte*, pp. 328–32; and Verein für Socialpolitik, *Bäuerliche Zustände und Wucher*.

⁶ Bell, "Credit Markets" and Besley, "Savings" discuss credit markets in developing countries today. For evidence on high interest rates see the surveys reported in Verein für Socialpolitik, *Wucher*. Banking and credit were contentious political issues at the time. Why should we believe these reports of high interest rates? One reason comes from early cooperative experience. When Schulze-Delitzsch established his first cooperatives in the early 1850s they charged between 12 and 14 percent for loans, far more than the lending rate for banks. Yet demand at this rate greatly exceeded the cooperative's supply of loan capital. For one discussion of this experience see Crüger, *Einführung*, pp. 46–48.

members.⁷ Friedrich W. Raiffeisen's first credit cooperative was founded in 1864, and was modeled along the lines of the Schulze-Delitzsch banks. But Raiffeisen later advocated important organizational departures. Schulze-Delitzsch's cooperatives focused on urban artisans, "handworkers," and small shopkeepers. These cooperatives were rare in rural areas, but often served agriculturalists in the absence of rural cooperatives. Raiffeisen's cooperatives were intended to be, and remained, primarily rural. Wilhelm Haas later started a less doctrinaire branch of the cooperative movement. By the end of the nineteenth century Haas's group included the majority of rural credit cooperatives in Germany.

Prior to the 1889 cooperative law no German cooperative could have limited liability. After 1889 many Schulze-Delitzsch cooperatives switched to a limited-liability form. All Raiffeisen credit cooperatives and most Haas cooperatives retained unlimited liability even after 1889.⁸ As a matter of law and policy, credit cooperatives made loans only to members, but accepted deposits from members and nonmembers alike. The 1889 law required all cooperatives to have share capital, but most rural cooperatives complied by instituting shares of only nominal value. Urban cooperatives, on the other hand, often built up valuable shares and paid nontrivial dividends to members. Most cooperatives had one-time membership fees, but for the rural cooperatives the fee was only a few marks. Taxation of cooperatives varied over time and from place to place, but credit cooperatives were usually exempt from business taxes so long as they dealt only with their members.⁹ Cooperatives had three managerial bodies. The management committee (*Vorstand*) represented the cooperative judicially and made most important decisions: accepting new members, granting loans, and so on. The supervision committee (*Aufsichtsrat*) met less frequently to oversee the management committee. The membership as a whole (*Generalversammlung*) met annually to elect the management committee and board of supervision and to make decisions on basic policies such as interest rates. Each cooperative had a treasurer who was paid for his effort. The credit cooperatives for which I have manuscript business records (the "study cooperatives") all had unlimited liability and restricted their operations to small, rural areas. The study cooperatives were for the most part *credit* cooperatives only. Many rural credit cooperatives also engaged in noncredit business, such as purchase and resale of fertilizers.

The Haas and Raiffeisen organizations developed similar supra-local structures. Because of their small size, individual cooperatives faced severe forms of the liquidity and confidence problems that beset any financial

⁷ Herrick and Ingalls, *Rural Credits*, p. 267.

⁸ Banerjee, Besley, and Guinnane ("Thy Neighbor's Keeper") study the implications of liability structure.

⁹ Schillings, *Steuerbelastung*.

institution. The regional organizations were designed to help cooperatives overcome these problems. Centrals were a form of regional cooperative bank that accepted surplus deposits from and made loans to local cooperatives. Auditing associations provided instruction in cooperative methods, trained treasurers in bookkeeping and performed the audits required by the 1889 law. By joining a Central or an auditing association a cooperative agreed to abide by certain rules. But each credit cooperative retained authority over interest rates, maximum loan sizes, and most other policy matters.¹⁰

Cooperatives, Information, and Enforcement

Some nineteenth-century discussions of cooperatives sound curiously modern in view of the large recent literature on asymmetric information in credit markets. Rural cooperatives intentionally restricted their operations to a small number of people and a small geographic area. The Raiffeisen organization reported in 1913 that 80 percent of its cooperatives were in areas with 3,000 or fewer inhabitants.¹¹ German cooperative leaders argued that in a cooperative limited to a small geographic area, such as a village or several hamlets, actual and potential members enjoyed considerable knowledge of each other's habits, character, and abilities. Members could screen potential borrowers and monitor those who had received loans. Members could also impose economic and extra-economic sanctions on one another at low cost. Peasant nosiness forms the basis of the efficiency hypothesis. One French visitor refers to these small villages as places "where one's eyes are so attentive to what occurs among the neighbors."¹²

In theory the cooperative could exploit this information by screening and monitoring.¹³ The cooperatives did not admit all applicants as members and did not grant loans to all members who applied for credit. Cooperative members could monitor borrowers as part of their own daily activities. Cooperatives had the right to expel members, whether borrowers or not, if they drank or otherwise behaved in ways that made them undesirable as partners in a business enterprise. The cooperatives also had advantages in enforcement of loan terms. Because cooperatives were locally based and refused membership to those resident outside their own area, a member ejected from a cooperative for not repaying his loan was cut off from *any* cooperative credit. Equally costly was the public knowledge of the reason for this dis-

¹⁰ Guinnane, "Regional Organizations," provides more detail.

¹¹ Winkler, "*Die landwirtschaftlichen Kreditgenossenschaften*," p. 65.

¹² Fagneux, "*La caisse de crédit Raiffeisen*," p. 39.

¹³ The literature on the economics of credit markets identifies three distinct information problems (adverse selection, moral hazard, and costly state verification) as well as imperfect enforcement, which is not strictly an information problem. For purposes at hand I am treating the three information problems as one; given my data, no further useful distinctions are possible. Ghatak and Guinnane, "Economics," works out models of the effect of all three information problems and the enforcement issue.

missal in his own village. The cooperative combined individuals who had many relationships with one another. Sanctions could be applied in dimensions unrelated to the cooperative. A borrower who had failed to repay a loan might find himself unable to obtain work or, if an employer, forced to pay his workers in advance. Sanctions could also be noneconomic. These sanctions are especially important because they were inexpensive to apply, an important consideration given the small sizes of the loans granted by cooperatives.

Many of the cooperatives' members were not indebted to the institution. In fact, many members never took a single loan in the 20- to 25-year period for which information is available. Table 1 makes this point for two study cooperatives with the detailed information necessary for this calculation.¹⁴ Half the members of the Diestedde cooperative did not take a loan during their first five years of membership. In Hatzfeld the figure is lower, at one-fifth, but still implies that many members were not borrowers. Given the unlimited-liability structure of most credit cooperatives, membership could entail significant risk. Anyone could make a deposit without joining the cooperative. Why join the cooperative if you do not need credit? I can rule out two possibilities. For cooperatives that combined credit with other activities, some members might have joined for the noncredit side of the institution. But that is not the case here, as neither of these cooperatives engaged in significant noncredit activities. One could also ask whether a person would join the cooperative with the intention of taking a loan at a later date, perhaps to give the cooperative's members time to be reassured that the new member was a worthy loan risk. This explanation is implausible. Most actual and potential members had lived in the same small place all their lives and membership in the cooperative would not yield any more information. Indeed, the cooperative records contain several instances of individuals who joined and were granted a loan *on the same day*.

Two other strictly economic reasons probably account for these non-borrowing members. First, someone whose own income depends on his neighbors' good fortune (such as a shopkeeper or local artisan) might join because having the cooperative prosper would increase demand for his own enterprise. Second, many cooperatives were located in areas remote from alternative savings institutions such as *Sparkassen*. Joining the cooperative conferred the right to participate in monitoring the use of deposits (that is, loan policy) and in setting deposit interest rates. The presence of non-borrowing members in the cooperative was important for the screening, monitoring, and enforcement discussed later. These individuals discouraged collusive arrangements among borrowers and made it easier for the institution to attract deposits from members and nonmembers alike. Depos-

¹⁴ The data used to compile Table 1 are explained in the next section.

TABLE 1
LIFE-TABLE ESTIMATES OF HOW RAPIDLY MEMBERS TOOK THEIR FIRST LOAN

| Membership Characteristic | Number of Members | Proportion Not Having Taken a Loan after Belonging to the Cooperative for | | |
|------------------------------------|-------------------------|--|---------|---------|
| | | 6 Months | 2 Years | 5 Years |
| Diestedde Cooperative | | | | |
| All members | 282 | 0.56 | 0.49 | 0.45 |
| Joined in cooperative's first year | 53 | 0.92 | 0.73 | 0.70 |
| Joined after the first year | 229 | 0.47 | 0.43 | 0.39 |
| Large farmer (<i>Kolon</i>) | 61 | 0.77 | 0.67 | 0.62 |
| Small farmer (<i>Kötter</i>) | 115 | 0.48 | 0.42 | 0.38 |
| Hatzfeld Cooperative | | | | |
| All members | 163 | 0.36 | 0.25 | 0.20 |
| Joined in cooperative's first year | 49 | 0.24 | 0.10 | 0.02 |
| Joined after the first year | 113 | 0.44 | 0.37 | 0.35 |

Notes: Some observations are censored by the end of coverage. All other observations are censored at 60 months.

Sources: *Protokollbuch für den Vorstand*, Diestedde and Hatzfeld..

tors in a financial intermediary normally have to concern themselves with how the management of the institution will treat their funds. By joining the cooperative a depositor could help select the management. The village was filled with Fagneaux's "eyes," people with every incentive to report unwise use of credit.¹⁵

Alternatives to the Credit Cooperative

The credit cooperatives were intended to supplant one type of rural lender, and much discussion of them during the nineteenth century focused on their relation to other lenders and financial intermediaries. There were, in principle, four alternatives to credit cooperatives. The first was the large, formal banks (*Kreditbanken*) that have received so much attention in recent studies of the German banking system. Today the credit cooperatives and these banks compete head-to-head for both deposits and for lending business. In the nineteenth century, on the other hand, the banks posed little competition for credit cooperatives.¹⁶ Most large German banks made no

¹⁵ The German agricultural credit cooperatives' attractiveness as savings institutions was, I have argued elsewhere, one of the keys to their success (Guinnane, "Failed Institutional Transplant"). This comment is not meant to suggest that only nonborrowing members could provide the right incentives for such a credit scheme. Besley and Coate, "Group Lending"; and Ghatak and Guinnane, "Economics" model group-lending schemes (such as Bangladesh's famous Grameen Bank) in which borrowers have incentives to screen and monitor *each other*.

¹⁶ Guinnane ("Development") outlines the German banking system as a whole for the nineteenth century.

effort to collect deposits *per se* until the 1880s and later. And lending to the type of person who would join a credit cooperative held little interest.

Another large institution was a serious competitor for deposits. Nearly all German states had municipal or district savings banks called *Sparkassen* by the mid nineteenth century. Most of these institutions were located in cities. Originally intended to guarantee a safe if small return to the savings of the poor and working classes, these banks enjoyed a deposit guarantee from their sponsoring government. As a matter of policy most *Sparkassen* invested their funds in urban real estate and state paper. They made few small loans. Thus the *Sparkassen* were competitors for credit cooperatives in the market for deposits, but posed little threat in the lending market. The degree of deposit competition depended heavily on the cooperative's location. Many rural cooperatives were a long way from any other financial intermediary, while those in cities would have to pay interest rates high enough to compensate depositors for the lack of a state guarantee.¹⁷

A third alternative to a credit cooperative was a small bank, usually an individual or partnership, called a private bank (*Privatbank*). Regina Neumann gives several definitions of a private bank, but prefers one which stress the banker's unlimited liability, reliance on his own assets (rather than deposits), close working relationship with a small number of firms, and personal (as opposed to bureaucratic) decision making. The role of these banks has often been neglected in favor of fascination with the *Kreditbanken*, but one or more private banks were usually the core of a nascent *Kreditbank*, and as late as the twentieth century the private banks occupied an important, if declining, niche in the German financial system.¹⁸ Unfortunately the little published research on these banks focuses on their role in industry and international commerce, which were certainly not areas in which they competed with credit cooperatives. Scattered references in the cooperative literature suggests that private banks in rural areas competed for the very largest, highest-quality loans a cooperative might be willing to make. In urban areas they were competitors for some lending business, although the infrequent references to private banks suggest that the cooperatives did not view this as a serious problem. Private banks did not collect deposits, so they were not competitors in this dimension, either. Some private bankers *assisted* credit cooperatives by taking excess deposits or extending credit, especially before the cooperative Centrals took over this role in the 1870s.

¹⁷ The Limbach (Schmelz) cooperative discussed later, for example, had trouble attracting deposits in its initial years, largely because of a local *Sparkasse* and other nearby credit cooperatives. Guinnane, "Regional Organizations," pp. 258–59.

¹⁸ Neumann, *Deutsche Privatbankier*. Tilly (*Financial Institutions*) discusses private banks in the Rheinland. Wixforth and Ziegler ("Niche") stress the survival of private banks into the twentieth century.

The most important alternative to credit cooperatives in the credit market were moneylenders, either specialists or individuals who extended credit as part of another activity such as selling cattle or fertilizer. The literature on moneylenders is polemical and relies heavily on anecdotes. Many moneylenders were Jewish, and some criticism of them was doubtless plain anti-Semitism. The closest thing to a survey is the information summarized in two reports by the *Verein für Socialpolitik*.¹⁹ These reports suggested that most moneylenders lived in or near the communities where they practiced their trade, but were usually despised by their neighbors. To the extent this was true, we would expect the moneylender to have slightly poorer information than a cooperative (he lived in the community, but only had one set of eyes and ears) and much worse enforcement capability than a cooperative. The rural cooperative leadership clearly saw the moneylender as their main competitor, in the sense that expansion of the cooperative banking system would free rural people from the need to go to moneylenders.

Sources

The main empirical source for this article consists of the business records of several German cooperatives for the late nineteenth and early twentieth centuries. These records are held by the modern credit cooperatives (which I will call, loosely, Raiffeisenbanks) that were formed out of the merger of several of the nineteenth-century institutions. The *Bundesverband der Deutschen Volksbanken und Raiffeisenbanken*—BVR arranged access to all of the material used here. I have material from six Raiffeisenbanks: one each in Diestedde and Leer (located in Münsterland); one in Hatzfeld (Hesse); several cooperatives located in and around Schmelz, in the Saarland; several cooperatives in and near the town of Maulburg, in southern Baden; and several cooperatives located near Rheinbach, in the Prussian Rheinland. Diestedde and Leer each have a single credit cooperative's records in their possession. The other Raiffeisenbanks have material from several cooperatives. Where necessary for clarity these cooperatives are called by their own name and that of the succeeding Raiffeisenbank; for example, Limbach (Schmelz).

Cooperatives kept minutes of meetings and day-to-day balance books and prepared financial and statistical reports for the auditing association. These records form the bulk of the manuscript material used in this study. There were, however, no legal requirements that cooperatives deposit their records with any public archive. The incomplete survival of cooperative records raises the possibility that the records available do not yield a balanced view

¹⁹ Smith, "Discourse," cautions that elite discussions of usury and village moneylenders reflect views not necessarily held by peasants themselves.

of the cooperatives actually in operation during the nineteenth century. What those biases might be is unclear. Some unsuccessful early cooperatives merged with neighboring institutions. Thus the records currently on hand at surviving Raiffeisenbanks include material pertaining both to their direct ancestor (which at least survived) and to other cooperatives that folded or were taken over by their more successful counterparts. This material is augmented with official reports, the yearbooks of the cooperative association, a very lively cooperative press, and some very detailed quantitative information taken from the reports of the auditing associations.²⁰

THE ROLE OF FREE MANAGERIAL LABOR

One line of argument against the efficiency view of the German cooperatives stresses their ability to harness local enthusiasm in the form of unpaid labor. This hypothesis has several forms and is partially true. The cooperatives were voluntary civic associations. For leading citizens of a village there was some expectation of membership. There is a second, more economic reason for someone to provide free services to a cooperative, which is the externalities argument noted previously in connection with nonborrowing members. But to accept that unpaid labor was critical to the cooperatives' survival and success, we must believe that if they had been required to pay their managers the cooperatives would have been forced to pay depositors less, or charge more for loans, to such a degree as to make them unable to compete for deposits or desirable borrowers. The evidence suggests otherwise. First, I show that even rural cooperatives *did* pay their most important manager, the treasurer, and second, that even if they had paid their other managers, the effect on cooperative interest rates would have been slight.

Schulze-Delitzsch advocated that all cooperative managers be paid and eventually many urban cooperatives had at least one full-time, professional employee. Policy differed in rural cooperatives. In the Raiffeisen group the only paid employee was the treasurer. Some other rural cooperatives paid

²⁰ For example, the Miel cooperative was later absorbed into the Rheinbach Raiffeisenbank. The Miel cooperative was quite badly managed and had to wind up its business, but its records have been preserved because of its absorption into the more successful institution. In the larger project I address this problem in two ways. First, I use published material to compare certain characteristics of the study cooperatives to all cooperatives in that region, and, to the extent possible, to verify conclusions reached using the manuscript information. Second, hundreds of Raiffeisenbanks have commissioned bank histories for their seventy-fifth or hundredth anniversaries. These bank histories are brief and of very uneven quality, but since they often focus on unusual features of their institution's history they yield some feel for broader cooperative behavior. The study cooperatives are all located in the former West Germany. This is not accidental. Cooperatives were, in fact, more common in western Germany during the nineteenth century. More importantly, at the time this study was initiated the *Bundesverband* did not have as members cooperatives located in the former East Germany. The Leer cooperative was in a small village that is now part of Horstmar-Leer; the "Leer" found on modern maps of the region is a different place altogether.

their managers a fee for attending meetings, but how common this practice was I cannot say. The treasurer's position was part-time and often fell to a schoolteacher or some other relatively educated person. His pay was set annually by the cooperative's management committee. In 1914 the Diestedde cooperative paid its treasurer 1,200 marks, and in 1913 the smaller Leer cooperative paid its treasurer 800 marks. These were significant sums for the cooperatives, which often devoted half or more of their net interest income to this purpose. Cooperative manuals sometimes advised against paying the treasurer according to a formula that gave him an incentive to increase the number of transactions, loans, and so on. Anton Quabeck, an influential leader in the Westfalian cooperative association, wrote in his cooperative handbook that if the treasurer's pay was a fixed percentage of the cooperative's income then "he would have an interest in the cooperative earning as much as possible, and could pressure the management committee to this end."²¹

Was the treasurer paid an amount that might approximate the opportunity cost of his time? A schoolteacher in Diestedde or Leer in 1905 earned about 1,750 marks per year from his day job. To obtain some idea of how much the treasurer worked I tabulated every transaction undertaken in the Leer cooperative in 1905. The treasurer had at least one transaction in at least 245 days that year. On Sundays he averaged five transactions. This was in addition to his role as minute-taker at meetings and his duty of keeping the several account books up-to-date. He earned 400 marks from the cooperative in 1905. Assume that every transaction required 30 minutes for the actual transaction and all associated book-keeping. Assume further that the treasurer spent another 90 minutes at each of the monthly management committee meetings and quarterly supervisory committee meetings. Under these assumptions his 400 marks compensated him for 205 hours of work in that year. This calculation requires several assumptions that I cannot verify, so his hourly earnings might have been larger or smaller than the two marks implied by our assumptions. But in a village where a laborer might earn 15 marks per week at most, two marks per hour, plus or minus even a large error, assures us that the treasurer was not donating his services.²²

²¹ Quabeck, *Handbuch*, p.128. Whatever his advice, decisions about treasurer pay produced results that look as though cooperatives were linking the treasurer's salary to their turnover. For example, the Münster auditing association (of which Diestedde and Leer were members) reported treasurer's salaries and basic financial measures for 237 credit cooperatives in 1893. The regression $Pay = 60.34 + 0.002 * Turnover$ has an adjusted *R*-square of 0.61. The implied elasticity is about 0.7 at the means; for every 10 percent increase in cooperative turnover, the treasurer's pay would increase by 7 percent. (The standard errors are 12.87 and 0.0001, respectively; the mean of *Pay* is 241 marks and the mean of *Turnover* is 83,428 marks.) Annual report of the *Verband ländlicher Genossenschaften der Provinz Westfalen* for 1892 and 1893.

²² The prevailing local daily wage for an adult male in the Leer region in 1911 was 2.2 marks (*Statistisches Jahrbuch für den Preussischen Staat*, 1911, p.193). Schoolteachers' pay is approximated by dividing the total income of male teachers by the number of male teachers in the *Kreis*. The source is *Preussische Statistik* Vol. 209/3, tables 7 and 8.

TABLE 2
COUNTERFACTUAL IMPLICATIONS OF PAYING MANAGERS IN THE LEER
COOPERATIVE
(marks)

| Year | Actual | | | | Counterfactual | |
|------|----------------------------------|---------------------------|-------------------------------------|--|--|---|
| | (a) Net Interest Income | (b) Treasurer's Pay | (c) Other Management Costs | (d) Income Net of Costs [(a) - (b) - (c)] | (e) Income Net of Costs [(d) - 165] | (f) Additional Income from Raising Loan Rate One Percent |
| 1892 | 225.12 | 120 | 23.15 | 81.97 | -143.03 | 211.07 |
| 1900 | 656.71 | 300 | 49.10 | 307.61 | 82.61 | 1,357.68 |
| 1913 | 1,406.73 | 800 | 199.45 | 407.28 | 182.28 | 4,226.88 |

Notes: Costs of paid managers is assumed to be 165 marks per year, as follows: managers are paid three marks per meeting. The five members of the supervision committee attend four meetings per year, and the five members of the management committee attend 11 meetings per year. The final column is computed from actual loans outstanding at the end of the year.

Source: Leer *Rechnung und Bilanz*, selected years.

The implications of paying the other managers, the members of the supervision and management committees, requires a counterfactual calculation. Table 2 uses actual data from the Leer cooperative plus some reasonable assumptions to assess the impact of paying managers. I assume that managers would earn three marks per meeting they attended. Again, I cannot say with any confidence whether three marks per hour would approximate the opportunity cost of their time. But I do know that most meetings probably lasted less than an hour and were as much a chance to socialize as pure work. In any case, raising the assumed rate to four marks per meeting would not alter the qualitative conclusion yielded by Table 2. Paid managers would have been a fixed cost, and so would have been a problem in the cooperative's early years, but not in later years. Table 2 shows that the Leer cooperative would have lost 143 marks its first year if it had kept all interest rates and fees the same and paid its managers a total of 165 marks per year. In later years the cooperative could have paid the managers and still run a surplus with the same interest rates. The final column in Table 2 shows that even in the initial years, a modest increase in loan interest rates would have more than covered the counter-factual management costs. How typical was the Leer cooperative in this respect? In 1893 the median pay for a treasurer in the Münster region was 180 marks. The median additional income from raising loan rates by 1 percent was 784 marks, and fewer than 10 percent of the credit cooperatives in this region could not have met the counter-factual 165-mark management fee by this expedient.²³ So the Leer cooperative's situation was typical. There were doubtless credit cooperatives that could

²³ Annual report of the *Verband ländlicher Genossenschaften der Provinz Westfalen* for 1892 and 1893.

not have paid their managers and survived, but the great majority would not have been materially different with paid managers.

LOAN POLICY

Economists and economic historians have argued that some features of financial institutions, such as their organization or their loan policies, reflect their lack of complete information on borrowers. Observers of agricultural credit in nineteenth-century Europe often noted that the loan policies of commercial banks made them institutions unsuited to the credit needs of small farmers and the rural poor. Banks' defenders argued that the policies blamed were sound business practice, especially when dealing with poor people whom the bank did not know well or with whom the bank might have difficulty enforcing loan terms. The banks' critics in the cooperative movement pointed to three policies in particular: reliance on short-term lending, use of cosigners for loans, and the requirement that larger loans be secured by collateral, usually land. Short-term lending permits the lender to monitor the loan's use and the borrower's condition. A borrower may effectively have a loan for three or four years, but by requiring that he renew the loan every three months, the lender can periodically satisfy himself of the borrower's condition and can force the borrower to refrain from illiquid investments. Short-term loans were a point of orthodoxy among nineteenth-century bankers, and were, as Naomi Lamoreaux shows for the United States, an adaptation to a poor information environment.²⁴ Short-term credit entails several costs for borrowers, costs that are particularly severe for agriculturalists. First there is the cost of renewing a loan every three months. The borrower had to pay transportation costs and lose work time in traveling to the bank's offices. These costs were even higher if the loan had a cosigner who also had to visit the bank office to renew the loan. Second, loan renewals discouraged borrower illiquidity but by so doing prevented borrowers from investing in long-term projects that could raise their incomes.

From the lender's viewpoint a cosigner can screen borrowers, function as a delegated monitor once a loan has been made, and in effect pledges his own assets as collateral for the loan should the borrower default. Cosigners of the sort acceptable to a bank involved explicit and implicit costs for a borrower. Any costs to the cosigner associated with the loan (such as travel to a lending office) were ultimately born by the borrower. Some accounts suggest that the borrower had to pay for the cosigner's services with free labor or some other payment, especially if (as was likely) the cosigner was the borrower's social superior. Collateral has similar features. Collateral functions as a screening device and gives a borrower better incentives to

²⁴ Lamoreaux, "Information Problems."

work hard and to use safe production methods. Depending on titling and mortgage law, collateral can make enforcement of loan terms simple and inexpensive. But requiring collateral also has its costs, such as the costs of registering the mortgage. And many of those the cooperative movement was most interested in serving had little or nothing a formal financial institution could accept as security.

The lending policies of rural credit cooperatives show that information and enforcement were *not* serious problems. They made long-term loans; they accepted as cosigners individuals who would not be acceptable to formal lenders; and while collateral was used, its use was comparatively rare. Long-term loans were in fact an important reason for having cooperatives, their leaders thought, and without belaboring the point, I can use quantitative information to show that the cooperatives fulfilled this part of their mission. In its first year of operation (1892) the Leer cooperative made 33 loans, of which only 37 percent had a term of less than one year. By 1909 more than 40 percent of its loans had a term of 20 years or more. This cooperative's "short-term" loans were, in comparison, long-term. Commercial banks typically relied on 90-day loans. Analysis of the Raiffeisen federation's annual reports shows something very similar. The preponderance of loans were made for one year or longer, with nearly half made for ten years or longer. In 1901, for example, 21 percent of all outstanding loans from Raiffeisen credit cooperatives had a term of ten or more years. Another 70 percent had a term of one to ten years.²⁵

Another source shows that this long-term loan policy was in place even earlier. T. Kraus undertook a detailed study of early Raiffeisen cooperatives. His statistical tables list the term-structure of loans made by 98 rural cooperatives in 1870 and 1871. The tables list loans by total value, not by number of loans. The median cooperative in that year made only 10 percent of its loans with a repayment period of less than one year. The median cooperative made 58 percent of its loans with a repayment period of one to five years.²⁶ This loan duration is shorter than we saw previously, for Leer and the Raiffeisen group as a whole, but is much longer than the typical loan made by a bank. Kraus's study predates the development of Centrals. These rural

²⁵ The Deutsche Bank's consolidated balance sheet for 1907, to take one example, shows about 80 percent of its assets in short-term lending (National Monetary Commission, *Banking*). Most bank lending, in fact, was done on current accounts that had no set term. But bankers ordinarily expected such accounts to turn over several times a year. Leer data are from that cooperative's annual *Rechnung und Bilanz*; national Raiffeisen data are from the annual report of the Raiffeisen federation. Some critics of rural cooperatives noted that these long-term loans were subject to three-month recalls and argued that the threat of such recalls deterred borrowers from actually investing the funds in long-term projects. The recalls (and threats of recalls) in the manuscript records do not suggest that action was taken except in cases of clear abuse of loan terms.

²⁶ Kraus, *Raiffeisen'schen Darlehnskassenvereine*.

cooperatives were willing to make long-term loans even before they had the liquidity services of a regional cooperative bank.

Most cooperative loans were secured by a cosigner. But this arrangement differed considerably from the practice of banks and other formal lenders, in that cooperatives were willing to accept as cosigners people who were poorer and themselves had little in the way of assets that could be seized in case of default. In one case in Oberdrees (Rheinbach), two laborers who were brothers borrowed 50 marks each and co-signed each other's loans. These were small loans, even for a cooperative, but their ability to sign for one another meant the brothers were not beholden to someone else for this service.²⁷ Reliance on cosigners of this sort implies that the cooperatives had good information and enforcement capabilities in two related ways. First, a less wealthy cosigner implied that the cooperative was less concerned about security in the first place. Second, accepting these poorer cosigners implies that the cooperative knew a great deal about the cosigner.

Collateral security, when used, was usually land and buildings. Reliance on collateral for loans varied over time and across cooperatives, but *none* relied on it very heavily. The Hatzfeld cooperative made virtually no loans on collateral security during the period covered. Other study cooperatives did make such loans, but they were never a majority of all loans. In Diestedde, for example, about 60 percent of all loans made during the study period were secured by a cosigner only. The national data for the Raiffeisen federation tell a similar story. In 1901 only 23 percent of all loans outstanding from Raiffeisen cooperatives in Germany were secured by collateral. Loans made on collateral tended to be larger than other loans, but the records contain significant numbers of very large loans made on personal security. The mean size of loans backed by cosigners in Diestedde was 1,526 marks, compared to 2,676 marks for loans on collateral, but there was considerable overlap in the two distributions. Twenty-five percent of cosigner loans in Diestedde were for 1,500 marks or more.

The purpose for which credit is granted can bear directly on the lender's information and enforcement capability. For some purposes the only useful information concerns the borrower himself, while for others the lender needs to investigate the chances that a given project will succeed. Similarly, enforcing loan terms for a project that entails saleable, physical investment is easier than enforcement with projects that are highly specific. Cooperative leaders often implied that they restricted loans to productive purposes. The manuscript records sometimes mention the purpose for which a loan was granted. Unfortunately, this information was not always given, and in many contexts it seems the loan's purpose was mentioned because it was note-

²⁷ *Protokollbuch für den Vorstand*, Oberdrees (Rheinbach), 19 March 1909. These and other archival materials are held at the successor institutions to the study cooperatives.

worthy. In one case, however, the cooperative used a printed form that included a space for loan purpose. The Limbach (Schmelz) cooperative granted 59 loans between December 1906 and October 1914, and in 42 of these cases a clear purpose was given. About 40 percent of these loans (totaling 17 percent of the loan values) were for the purchase of land, livestock, or raw materials. But the rest were not so clearly production loans. One-third of loans (and one-third of loan values) were to pay off old debts. These might have been older production loans that the cooperative refinanced on more attractive terms. But 50 percent of the loan values (28 percent of loans) was to purchase or repair a house. For some borrowers this might amount to a production loan, if the house was also a place of business, as it often was. But these data cast doubt on the claim that cooperative loans were for production only. I lack corresponding data for other cooperatives, but scattered references make clear that cooperatives often granted credit to pay off moneylenders, to repair houses, and so on. The claim that loans were only for productive purposes often carries with it the implication that these loans were most easily monitored. The Limbach evidence suggests that this cooperative disagreed, or that it felt confident in its ability to obtain repayment of loans for a wide variety of purposes that would enhance members' well-being.

I have focused on the rural credit cooperatives, but differences in the loan policy of rural and urban credit cooperatives bear out the efficiency view of rural credit cooperatives. Urban credit cooperatives had a similar structure, but they had much larger memberships and operated in an environment where members might have little contact with each other and have less, if any, of the dense economic and noneconomic relationships that characterized the membership of the rural cooperatives.²⁸ As a result their lending policy more nearly resembled that of banks. Most loans were short-term, and for some cooperatives the most common loan was a discounted bill. This basic difference in environment and lending policy strengthens the notion that rural cooperatives were capitalizing on their information and enforcement abilities.

LOAN CHARACTERISTICS

Thus far I have shown that unpaid managers were not critical to the cooperatives' success, and that their lending policies differed from those of conventional banks. But these findings only show that the cooperatives were different from banks, they do not establish the source of that difference. In this section and the next I focus on the way cooperatives discriminated

²⁸ In 1914, the mean size of a credit cooperative in the Raiffeisen group was 110 members, and for the Haas group 71 members (limited liability cooperatives) or 95 (unlimited liability). The average Schulze-Delitzsch credit cooperative had 743 members (limited liability) or 568 members (unlimited liability). Source is *Mitteilungen zur deutschen Genossenschaftsstatistik* 1918, table 3b, p. 66*.

across borrowers. This ability to discriminate provides an explanation for the cooperative's ability to depart from conventional banking practice as documented in the previous section.

To conduct this analysis I draw on an important feature of the cooperatives' records: they almost always state where members live.²⁹ A member could live either in the village where the cooperative was located, or he could live elsewhere in its operating region, perhaps in another village. I have sufficient data to exploit this information for the Diestedde and Hatzfeld cooperatives. The Diestedde cooperative was formally located in Diestedde and Sünninghausen, two villages about four kilometers apart. Sixty percent of the members lived in Diestedde and another 31 percent in Sünninghausen. The remaining members of the Diestedde cooperative lived in two other tiny villages or in the countryside. The Diestedde cooperative's *Vorstand* alternated its meetings between Diestedde and Sünninghausen. Some 75 percent of the Hatzfeld cooperative's members lived in that village. The underlying presumption is that individuals who live in the main town (or towns) were better-known to other members and their activities could be better supervised. Someone who lived even a short distance out of town—for these cooperatives it could hardly have been more than five or six kilometers—could not be nearly so well known, nor could his use of a loan be so easily monitored. In addition, the economic and extra-economic sanctions discussed previously would have had more force for individuals living in closest proximity to other cooperative members. Someone who lived on the fringe of the Diestedde cooperative's operating area might, if ejected from the Diestedde cooperative, be able to transfer his social and business connections to the other town (although he could not expect to join the other village's cooperative).

What would be the characteristics of a loan whose borrower was well-known to the cooperative? Two implications are directly testable. First, I would expect that—conditioning on other things such as loan size—borrowers who are more familiar to the cooperative would be less likely to pledge collateral, both because of their own traits and because an individual who is well-known to the cooperative would have an easier time finding an acceptable cosigner. In fact, “well-known” for these purposes applies equally to the borrower and to those whom *he* knows as possible cosigners. The same goes for enforcement. Second, I would expect that only borrowers familiar to the cooperative would seek the very small loans

²⁹ The source underlying the following tests is the *Protokollbuch für den Vorstand*, which contains minutes of the management committee's meetings. The events in the dataset here are loan approvals, not loan disbursements. The actual loan records are not always available, but checks suggest that few loans were approved but then not taken up by a borrower. The source also notes cases where a loan application was denied, but in those cases the notation is usually very brief and lacks important information such as the amount of credit requested.

cooperators saw as the entire point of the institution. Only a larger loan could be worthwhile if there were substantial fixed cost to providing information to the cooperative.

Table 3 reports binary probit regressions that test the first hypothesis for Diestedde. The dependent variable equals one if the loan was secured by something other than a cosigner. I find that larger loans were more likely to require collateral, which is not surprising. The cooperative also came to rely more heavily on collateral security as time progressed. This change reflects both relaxing of attitudes by cooperative federations and increased familiarity with the legal requirements of mortgage registration. Holding loan size constant, neither occupation nor being an original member of the cooperative affected security.³⁰ This result is consistent with our earlier observation that length of membership in the cooperative was not very informative, in as much as the cooperative's members had lived in close proximity all their lives. What *did* affect security was where a member lived. Those living outside the two main towns were more likely to have to pledge collateral. This result does not reflect the greater likelihood of landholdings for those who live outside the town, because I have controlled for landholder status. The same seems to apply to Sünninghausen—which is less consistent with our hypothesis—although the coefficient's magnitude is much smaller. Re-estimating the equation for farmers only, as in the second set of columns in Table 3, shows that the Sünninghausen result reflects the sensitivity of this variable to the definition of the occupational categories. Experimentation with alternative classification of nonfarming members shows that the basic result is robust.

Evaluating the probabilities implied by the regressions in Table 3 shows the magnitude of these place-of-residence effects. Consider a 2,000-mark loan made to a large farmer (*Kolon*). If he lived in Diestedde, the estimated probability of having mortgage security for the loan is 67 percent; in Sünninghausen, 74 percent; and elsewhere, 85 percent. For smaller loans the effect is somewhat more pronounced. A smallholder (*Kötter*) borrowing 500 marks would pledge security with 43 percent probability if he lived in Diestedde, 50 percent if he lived in Sünninghausen, and 65 percent if he lived outside of either town. That is, the place-of-residence effects are about as large as the occupation effects. This is large indeed. The difference between a *Kolon* and a *Kötter*, after all, is that the former has much more wealth.³¹

One might worry about a possible bias in this test, stemming from our rough control for farm size. The data do not contain precise information on farm size. I have only the crude distinction between *Kolon* and *Kötter* for

³⁰ The *Kolon* and *Kötter* variables are being used to distinguish between two classes of farms.

³¹ Evaluations are for the second regression; the differences cited in the text are similar for the first regression. Evaluations assume an original member taking a loan during the cooperative's fifth year of operation.

TABLE 3
BINARY PROBIT ESTIMATES: DETERMINANTS OF LOAN SECURITY IN DIESTEDDE
COOPERATIVE

(Dependent variable = 1 if security is not just a cosigner)

| | All Occupations | | Farmers Only | |
|--|-----------------|---------|--------------|---------|
| | Estimate | t-ratio | Estimate | t-ratio |
| Loan size (marks) | 0.000825 | 2.576 | 0.000063 | 2.300 |
| Number of years since cooperative formed | 0.014814 | 1.863 | 0.006039 | 0.670 |
| Member's first loan | -0.132243 | -0.937 | -0.195346 | -1.152 |
| Member lives in Sünninghausen | 0.337283 | 2.208 | 0.196951 | 0.973 |
| Member lives outside Diestedde | 0.602181 | 2.354 | 0.580112 | 2.163 |
| Member joined in year cooperative formed | 0.085625 | 0.440 | 0.200442 | 0.936 |
| Member is large farmer (<i>Kolon</i>) | -0.341470 | -1.189 | -0.315594 | -1.595 |
| Member is smallholder (<i>Kötter</i>) | 0.001288 | 0.005 | — | — |
| Member is artisan | 0.000257 | 0.001 | — | — |
| Constant | -0.746030 | -2.276 | -0.532647 | -2.327 |
| Log likelihood | -250.016 | | -169.524 | |
| N | 394 | | 266 | |

Notes: The omitted occupation group is workers and others in the first regression, *Kötter* in the second.
Source: *Protokollbuch für den Vorstand*, Diestedde.

Diestedde, and nothing at all for Hatzfeld. If people holding the largest farms within a farm-size class were more likely to live outside the main village, omitting this information risks confusing the effect of farm size (or wealth) with the effect of location of residence. Given the data, there is no way to resolve this issue empirically. But serious bias seems unlikely for the following reason. The regression includes the loan's size. Thus I am estimating the chance of the cooperative asking for collateral security for loans of a given size. For the result in the Table 3 to be spurious, it would have to be the case that (a) the holders of larger farms within a farm-size class were more likely to live outside the town and (b) for a given loan size the cooperative was more likely to ask for collateral from someone who held a larger farm. The latter is implausible.

Loan Sizes

A second test of how the cooperative discriminates across borrowers proceeds from the assumption that the information requirements of a loan are at least partly a fixed cost.³² Thus small loans would be less likely to be granted to people not well known to the cooperative. Table 4 exploits this idea to test the implications of place-of-residence for loan size. The estimation equation underlying the regressions in Table 4 cannot be assigned a structural interpretation. I do not know how many loans did not take place

³² Actually, all that is necessary here is that the costs are not strictly proportional to the loan's size, so that the costs per unit loan decline with loan size.

TABLE 4
QUANTILE (MEDIAN) REGRESSIONS OF LOAN SIZE, DIESTEDDE AND HATZFELD
COOPERATIVES

| | Diestedde | | Hatzfeld | |
|--|-----------|---------|----------|---------|
| | Estimate | t-ratio | Estimate | t-ratio |
| Number of years since cooperative formed | 45.53 | 4.899 | 16.67 | 2.768 |
| Member's first loan | 559.82 | 3.531 | 26.67 | 1.311 |
| Member lives in Sünninghausen | -343.75 | -2.132 | n/a | n/a |
| Member lives outside main town | 1,409.82 | 2.513 | 66.67 | 2.546 |
| Member joined in year cooperative formed | 220.53 | 1.284 | 26.67 | 1.550 |
| Member is large farmer (<i>Kolon</i>) | 841.07 | 2.214 | — | — |
| Member is smallholder (<i>Kötter</i>) | 150.00 | 0.563 | — | — |
| Member is artisan | 568.75 | 1.974 | — | — |
| Constant | -207.14 | -0.622 | 40.0 | 1.268 |
| Median of dependent variable | 1,000 | | 140 | |
| N | 394 | | 310 | |

Notes: The omitted occupation group is workers and others. The Hatzfeld records do not contain information on occupation. Standard errors are estimated by bootstrap.

Source: *Protokollbuch für den Vorstand*, Diestedde and Hatzfeld.

because the fixed cost made the cooperative's terms unattractive to the borrower. I report only quantile (median) regressions; ordinary least-squares estimates gave qualitatively similar results but are sensitive to the inclusion or exclusions of a small number of outliers.

For both Diestedde and Hatzfeld, loans were larger if they were the member's first loan (which, for many, was their *only* loan), if they were granted later in the cooperative's existence, or if the borrower was a *Kolon* or artisan. What is particularly striking is that loans were much larger for members who did not live in the main town. The effect is very large for both Diestedde and Hatzfeld.³³ The small loans for which the cooperatives were intended were more common for those who lived in town. Given that I have controlled for occupation in Diestedde, this result should not reflect occupationally based differences in credit needs for those who live in town versus those who live outside.³⁴ Clearly there was some fixed cost of borrowing, a cost that deterred small borrowers from relatively remote areas.

One might register two objections to the conclusions I have drawn from the regression reported in Table 4. First, *any* fixed cost of borrowing could produce my result. I have stressed the fixed cost of information, but one might also worry about transportation and other fixed costs of applying for a loan. I cannot rule out this second interpretation, but potential applicants

³³ In this case, the Sünninghausen dummy is *not* sensitive to redefinition of the occupational categories.

³⁴ The data used in these regressions exclude loans made on *laufende Rechnung*, a form of overdraft used by some town-dwelling shopkeepers, artisans, and others. Precise balances for these loans are not usually available, but when available they are quite large; the limits are often 8,000 or 10,000 marks. That is, the data do not include some very large loans granted to individuals who lived in the towns and are thus biased against the conclusion drawn in the text.

traveled to town regularly for other purposes, and we know that the management committee ordinarily met outside of work hours. Second, the lack of precise farm-size data could in this case generate a bias in favor of the finding in Table 4. Suppose, for example, that *Kolon* with relatively small farms were most likely to live in town, and that within a farm-size class, the size of a loan request was positively correlated with farm size. Under this assumption the result in Table 4 would not necessarily reflect anything about fixed costs. I cannot rule out this possibility, but it seems implausible, and in any case the congruence of the findings for this text and the earlier collateral test (reported in Table 3) lends confidence that the findings are not driven by unobserved differences in farm sizes.

Taken together the evidence presented here lends strong support to the view that German credit cooperatives succeeded in large part because of their ability to capitalize on the information and enforcement capabilities implicit in their small size and local organization. The cooperatives dispensed with many of the contractual terms that other lenders used to compensate for their less-than-adequate information and enforcement capabilities. This cooperative policy reflects, at least in part, the institution's ability to use its local information to sort out risks and to keep an eye on borrowers once loans were taken. Cooperative lending policy was different because cooperatives had access to lending methods not available to other lenders.

CONCLUSION

This article uses empirical evidence on nineteenth-century German credit cooperatives to test one of the most popular reasons given for the success of these small, informal institutions in a variety of circumstances, today and in the past. I find clear evidence that the cooperatives in question had access to low-cost information on potential borrowers and were able to impose inexpensive sanctions on borrowers who did not repay. Together these information and enforcement capabilities enabled them to lend to a class of borrowers that ordinary banks did not want as customers, and to do so without imposing expensive loan terms.

I have not discussed another implication of the efficiency view, although it warrants mention in conclusion. As Lamoreaux emphasizes, Douglas Diamond's model of the financial intermediary as a delegated monitor implies that the bank faces two sets of information problems: depositors are not fully informed about bank behavior, and the bank cannot be fully informed about its actual and potential borrowers.³⁵ The intermediary may have to adopt a deposit contract that helps imperfectly informed depositors police the intermediary's management behavior. Charles Calomiris and Charles

³⁵ Lamoreaux "Information Problems," p. 61; and Diamond, "Financial Intermediation."

Kahn, for example, argue that one reason banks issue short-term debt is that this liability structure allows bank managers to commit credibly to not taking advantage of their superior information on their loan portfolio. This argument is closely related to discussions of the origins of bank panics in the United States in the nineteenth century. As Calomiris and Gary Gorton have shown, banking panics reflected a problem of asymmetric information: when a shock hit the financial system depositors could not know how it would affect their bank without trying to liquidate their deposit.³⁶ The policy and history of the German cooperatives suggests that this information problem was also minimal. Most cooperative deposit accounts required a three- or six-month notice for withdrawal. According to the Calomiris-Kahn argument, then, the managers of these institutions did not have the same problems in committing to not abusing their position as better-informed insiders. The cooperative literature only mentions a few cases of something that might be termed a “panic” in a credit cooperative. Argument from silence is ordinarily dangerous, but the bitter disputes among various cooperative groups meant that most problems were quickly publicized.³⁷ The cooperatives’ policy and experience with depositors suggests that asymmetric information of this form was also a smaller problem than in conventional banking relationships.

This experience of the German credit cooperatives supports the view, widespread today, that microcredit institutions that are carefully designed to take advantage of local community ties can provide loans on terms that are impossible for conventional banks. These credit cooperatives are an example of an economic institution piggy-backing on the long-standing, dense social relationships that social scientists such as Robert Putnam have termed “social capital.”³⁸ With little state assistance Germany’s credit cooperatives grew from tiny, informal institutions in the nineteenth century into a major component of the German banking system today. In the process they provided credit to many who would otherwise have had lower incomes and been unable to adopt the new methods and materials required to use best-practice techniques in their branch of agriculture, commerce, or small-scale industrial production. The overall effects of the cooperatives are less clear. By retaining deposits locally they hindered regional integration of German capital markets, and by encouraging reinvestment in agriculture they may have promoted a sub-optimal allocation of capital across sectors. Their real impact on the German economy remains to be studied. I have shown, however, that at least in this environment the cooperatives functioned as infor-

³⁶ Calomiris and Kahn, “Role”; and Calomiris and Gorton, “Origins.”

³⁷ In Guinnane, “Regional Organizations,” I argue that the auditing associations existed in part to prevent problems that would be publicized in this way. That paper discusses several cases where problems in one cooperative were publicized as evidence of fatal weakness in all cooperatives of that type.

³⁸ Putnam, *Making Democracy Work*.

mation machines that allowed them to lend to people who would otherwise either pay much more for credit or else go without it altogether.

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