

The Structure of Information Sharing and Credit Access: Lessons for Policy

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GLOSSARY OF COMMONLY USED TERMS

Negative data:

Adverse payment data on a consumer. It consists of late payments (usually more than 60 days or more commonly 90 days past due), liens, collections and bankruptcies.

Positive data:

Information on the timeliness of payments, including whether payment was on time or was moderately late. The payment information may contain the payment date relative to the due date. Positive information often includes data on account type, lender, date opened, inquiries, debt, and can also include credit utilization rates, credit limits and account balances. It stands in contrast to negative-only reporting.

Full-file reporting:

The reporting of both positive and negative data. On-time payments and late payments are reported. Delinquencies are reported at 30 days (sometimes 15 days) following the due date. Other positive information on an account, such as credit utilization, is also reported.

Negative-only reporting:

The reporting of only negative data.

Segmented reporting:

A system of reporting information, whether full-file or negative only, in which only data from one sector or a limited number of sectors, e.g., retail or banking, are contained in reports.

Comprehensive reporting:

A system of in which payment and account information, whether full-file or negative-only, are not restricted by sector, that is, the system contains information from multiple sectors. Such a system is in contrast to segmented reporting, in which information in files is restricted to one sector such as banking or retail.

Data furnisher:

The supplier of the data, most commonly the supplier of the service to whom a consumer has a payment obligation.

Data user:

The end user of the data, usually but not necessarily a financial firm. In finance, the information is used either manually or in automated computer models to allocate and monitor loans. Other users include central banks, landlords, cell phone providers, and employers.

Summary

Much empirical work has been conducted on the economic impact of information sharing in consumer credit markets. The broad and consistent conclusions of this work across many studies are that: (1) greater access to credit, in the form of a greater acceptance rate for a given default level; (2) fairer access to credit, in the form of a greater proportion of those traditionally underserved (ethnic minorities, women, and lower-income group) being accepted; and (3) improved lending performance, in the sense of lower default rates, are associated with credit reporting systems that are more comprehensive and less segmented, are more full-file and less negative only, and cover larger shares of the population. These outcomes, moreover, have been found in a number of settings, clearly demonstrating the robust nature of the results. Specifically, the findings are:

Greater coverage of a population, and thereby implicitly, greater participation by full-file data furnishers in a private consumer credit reporting system is associated with:

- » **Increased access to credit**
- » **A more equitable allocation of credit**
- » **Fewer mistakes by lenders and fewer defaults by borrowers**
- » **Greater private sector lending**

The more full-file (positive and negative) information a credit reporting system collects, as opposed to negative only information, is associated with:

- » **Increased access to credit**
- » **A more equitable allocation of credit**
- » **Fewer mistakes by lenders and fewer defaults by borrowers**

A more comprehensive and a less segmented consumer credit reporting system is associated with:

- » **Increased access to credit**
- » **A more equitable allocation of credit**
- » **Fewer mistakes by lenders and fewer defaults by borrowers**





1. Introduction

During the past 30 years, credit bureaus have assumed a core role in the financial infrastructure of economies around the globe. Credit bureaus help to solve a problem that is inherent in lending: imprecise knowledge of a borrower's likelihood of repaying. The lender must infer the risk profile of the borrower so that some low-risk borrowers are not mistaken as high-risk, and some high-risk borrowers are not mistaken as low-risk. The mistakes lead low-risk borrowers to face high interest rates that act as subsidies for high-risk borrowers. These rates price many low-risk borrowers out of the market. On the other hand, high-risk borrowers receive subsidies and are thereby drawn into the market. Average prices go up to reflect the disproportionate presence of high-risk borrowers, and delinquency rates are higher. In response, lenders ration loans. That is, given two individuals with identical risk profiles and preferences, one will receive a loan and another will not. In presenting information about potential borrowers to a lender, credit-reporting agencies (CRAs) reduce these asymmetries, allowing for:

- (i) greater lending through reduced rationing; and,
- (ii) lower rates of delinquency and default.

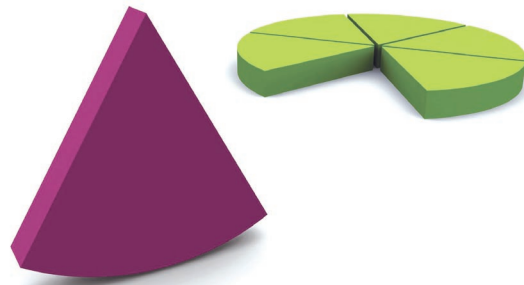
Few disagree that consumer credit and other information allow lenders to make smarter decisions, but this consensus sidesteps additional important questions, including:

What types of information should be reported?

Which sectors should be encouraged to report?

Who should be able to access the information and for what purposes?

What forms of registry ownership work best?



These questions confront policymakers, financial regulators, and others who use credit data, yet they are seldom examined systematically in the context of regulatory reform.



2. Macro Effects on Development and Finance

Three spheres of economic life are strongly shaped, directly and indirectly, by the structure of credit reporting:

- (1) economic growth and stability;
- (2) the price of credit; and
- (3) income distribution, as it relates to both poverty and equality.

These macro effects are achieved most commonly through a sustainable expansion of lending that comes with better risk assessment.

2.1. Greater Economic Growth and Stability

The research on finance and growth is extensive.¹ Multi-country estimates show that economies with larger financial sectors (under various measurements) have higher rates of growth, greater productivity

increases, and faster growing capital stock. In cross-country estimations, Ross Levine estimated that an increase in private-sector lending by 30% of GDP should lead to an increase in GDP growth by one percent per annum, and an increase in productivity and capital stock by 0.75% per annum.² This is a conservative estimate and should also be considered in the context of our findings on the impact of higher participation rates in private full-file credit bureaus on growth in private-sector lending as a share of GDP.

2.2. Lowers Average Interest Rates

Information-sharing can lower average interest rates in several ways. These dynamics have been borne out both theoretically and empirically. First, without information on borrowers' risk profiles, a lender will mistake good risks for bad, and vice versa. The portfolio, therefore, will consist of more risky loans and, over time, as interest rates adjust to reflect loan performance, higher rates. Second, higher rates create incentives to engage in riskier projects, as lower-risk projects will not yield the return to compensate for the costs of the loan. Risky projects come to account for a larger share of the portfolio, thereby driving up the average rate. When information is shared, the ability to screen out riskier borrowers improves the portfolio's performance and allows lenders to offer lower rates to less-risky borrowers who would not have borrowed otherwise.

Figure 1 illustrates this dynamic as it played out in the United States, showing the distribution of credit card interest rates in the United States as information-sharing spread between 1990 and 2002.

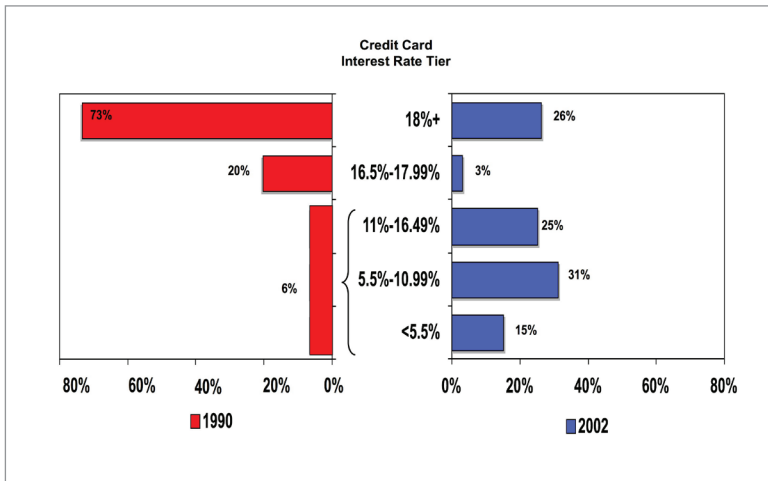


FIGURE 1: Distribution of U.S. Credit Card Interest Rates as Information-Sharing Expanded between 1990 and 2002 ³

Risk-based pricing, determined from consumers' risk profiles using credit reports, altered the price of credit for many Americans, allowing for more nuanced pricing. To the extent there is sufficient competitive pressure, credit pricing will increasingly reflect the default rate. To this extent, then, better risk assessment translates to the desired macroeconomic outcome of lower rates.

2.3. Lowers Poverty and Improves the Distribution of Income

There is some preliminary evidence that greater access to credit can reduce poverty and improve the distribution of income. Beck, Demirgüç-Kunt, and Levine examined the impacts of greater private-sector borrowing on

- (1) income inequality as measured by the Gini coefficient (a standard measure of income inequality; higher values mean greater income inequality);
- (2) relative poverty, in terms of the income share of the poorest quintile; and
- (3) absolute poverty, in terms of the share of the population that lives on less than US\$1 per day.⁴



Controlling for factors such as education, inflation, and trade, Beck and colleagues found that greater private-sector lending:

- lowers the growth of the Gini coefficient;
- lowers the growth of the percentage of the population living under \$1 per day; and,
- increases the growth of the lowest (poorest) quintile's income share.



3. Credit Reporting, Its Structure, and Consequences: The Micro-Level

The specificities of structure of credit reporting shapes whether and to what extent the macroeconomic effects noted above are realized. The research suggests that

- (a) full-file, comprehensive credit reporting increases lending to the private sector more than other reporting regimes;
- (b) the presence of private bureaus with comprehensive data is associated with greater lending to the private sector; and
- (c) full-file, comprehensive reporting results in better loan performance than segmented and negative-only reporting. The evidence for these three claims is extensive.

The impacts of credit reporting and its structures have been examined in two ways. The first approach statistically estimates the impact of different systems of credit reporting worldwide, controlling for factors such as wealth and the legal system (particularly rights in collateral, bankruptcy, and property rights). The second approach uses individual credit files from an economy that engages in full-file reporting and simulates a restricted system by removing certain information.⁵ Credit scores (predictions of default/

delinquencies) made using the restricted and full data sets are then compared with actual outcomes in the observation period, the year or years following the timing of the credit scoring. The cost of the information restriction or the benefit of the information inclusion can then be measured in terms of economic trade-offs between extending credit and worsening loan performance. Smaller trade-offs are to the benefit of all.

3.1. Theory and Evidence on How to Structure Credit Payment Data

Here, we elaborate on the dynamics at play in three scenarios:

1. whether the files include timely payments (full-file) or only delinquencies (negative-only);
2. whether the files contain information across all sectors (comprehensive) or are restricted to a single sector in which the consumer has a credit line (segmented); and,
3. whether the credit bureau is owned by public agencies such as the central bank or banking superintendent, or by private owners.

3.1.1. Full-file payment information versus negative-only data

To most accurately judge risk, lenders generally need to know more than the past credit failures of the applicant. Systems that only report serious delinquencies do not capture many moderately late payments (30 to 60 days past due) that are often indicative of a borrower's risk. In addition, positive credit information provides a low-cost way of gathering data on applicants who have paid in a timely fashion, and it provides information on those who may often face discrimination, such as lower-income borrowers, women, racial minorities, and the young. Full-file re-

porting also allows creditors to measure a borrower's capacity to carry a loan by revealing the individual's existing lines of credit, associated balances, and credit limits.

3.1.2. Comprehensive reporting versus segmented reporting

In many ways, the issue of comprehensive reporting versus segmented reporting is akin to that of full-file versus negative-only reporting. More information allows for better predictions. In addition, comprehensive reporting provides a low-cost way of gathering data on those who apply for loans in another sector.

3.1.3. Evidence: The impact on access to credit

Several simulations have used anonymous credit files from several different economies to gauge the impact on credit of wider access to information. This approach uses individual credit files from an economy that engages in full-file reporting. Some elements of the credit file are kept while others are purged, thereby mimicking the information content from more restricted cases. The researchers then apply decision (credit scoring) models to the two (or more) sets of files (the restricted and nonrestricted files). Thus for a simulation of negative-only reporting, positive information is purged. The scores produced are predictions of the likelihood of serious delinquency, bankruptcies, and other outcomes. The predictions are then compared with actual outcomes in the "observation" period, the year or years following the timing of the score. In effect, the simulations measure the capacity of lending systems to accurately identify good and bad risks.

The results of these simulations consistently indicate a sizable reduction in the ability of lending systems to identify the good risks from bad risks with shifts

from a comprehensive full-file data to negatively only or segmented data. For instance, Barron and Staten, using US data, compared the findings of a simulated negative-only reporting system with a full-file, comprehensive system. In their simulations, they found that for a three percent default target, that is, if a lender aims to have a non-performance level that is no more than three percent, a negative-only reporting system would accept 39.8% of the applicant pool, whereas a full-file system would accept 74.8% of the applicant pool. Similar simulations conducted in a number of countries with comparable results verify the robustness of such findings.

And similar results occur in comparisons of segmented and comprehensive reporting. For instance, the Information Policy Institute, an applied studies center at PERC, examined Japanese credit reporting using Canadian files to simulate segmented Japanese reporting practices. For a 3% default target, the acceptance rate for the

Two studies have examined how different systems of reporting affect the distribution of credit by various demographic characteristics. The first uses U.S. credit files and the second Colombian files. Three results are notable. Ethnic minorities, the young, and low-income groups in the United States experience greater increases in acceptance rates with full-file information than do their counterparts. The increase in acceptance rates for Caucasians was 21.8% while for minorities it was 35.5%. Similar differences were found for younger age groups and low-income groups vis-à-vis older segments and richer segments. The Information Policy Institute's study of Latin America found an increase in the share of women among the pool of borrowers when switching to a full-file system; women went from accounting for 33% of the borrower pool under a negative-only system to accounting for 47% of borrowers in a full-file system.

These findings strongly suggest that individuals in underserved social segments are the most likely to benefit from expanded information sharing.

3.1.4. Impact of Non-Financial “Alternative” Data

There are potentially enormous benefits to adding non-financial payment data, such as utility and telecom payments, to consumer credit files. These non-financial services are broadly utilized in many countries, across socioeconomic groups and among many individuals that may not have participated in the formal credit markets and, thus, have little or no traditional credit history on file. The use of these sorts of data has the potential to make available affordable credit from mainstream financial markets to historically underserved consumers and entrepreneurs.

A PERC study measured the impact on access to credit with the inclusion of energy utility and telecom payment data in U.S. consumer credit files. (Some 35 to 54 million US consumer lack credit files or have too little information to assess risk and thereby remain outside the credit mainstream.) PERC’s simulations found that when energy utility and telecom payment are included in credit files, there were greater rises in those that become credit eligible (assuming a three percent target default rate) among ethnic minorities, lower income households, younger individuals, and older individuals. That is, those least likely to be in the credit mainstream, not having had multiple credit accounts in the past, are those most likely to benefit from the inclusion of non-financial data in credit files.

3.1.5. Evidence: The Impact on Loan Performance

The counterpart to greater acceptance rates at a given default rate is lower default rates at a given acceptance rate. The four negative-only to full-file simulations restricted to financial accounts (i.e., all but the Colombia simulations) show the default rate increasing by as little as 0.3 percentage points (or a 10% increase), which is still a considerable degradation of portfolio performance, to as much as 1.84 percentage points (a 170% increase) in cases restricted to financial accounts only. Majnoni and colleagues’ simulation using Brazilian files reveals that even at an extremely high acceptance target of 80%, the default rate increases by 0.86 percentage points (or 30%). At a 60% acceptance target, the default rate nearly doubles (an 83% increase) under negative-only reporting compared with full-file reporting. These effects are significant for a lender and, moreover, as aggregated they can have a significant effect on an economy’s financial stability and growth. (For more information see Section 3.) Comparisons using segmented and comprehensive files show similar shifts in performance as were evident in the shift from full-file to negative-only.

3.1.6. Concerns of Consumer Overextension

A concern that some may have regarding the improvement and increase in information in consumer credit files is that precisely since access to credit and financial services will be expanded there may be a problem with consumers overextending themselves. There are a number of reasons why we believe this should not be a major concern. First, the expansion of information in credit files should not lead to simply to easier credit for consumers but to better credit

decisions by lenders. It is the lenders' increased ability to efficiently identify good risks from bad risks that increases the availability of credit. This is something very different from, say, a relaxation in lending rules increasing access to credit.

Second, evidence from the U.S. market indicates that there is no rush to obtain credit when consumers gain access to the credit system via new data entering their credit files or becoming scoreable with new data.⁶

Third, while in many cases consumers without sufficient information in their credit files have little access to *mainstream* credit they usually have access to high cost credit, predatory lenders, informal financial services, and the like. And so, it is not that they are suddenly introduced to the concept of credit as much as they are able to utilize affordable credit. Many may simply migrate from the higher cost services to mainstream lenders.

And fourth, Karlen and Zinman explored the impact of simply relaxing lending criteria to randomly selected consumers in South Africa, and then tracked outcomes, such as loan performance, credit scores, job retention, income and food consumption.⁷ They found positive impacts across the range of outcomes and generally conclude that their findings are consistent with credit expansion being welfare improving and they suggest their results “corroborate the presence of binding liquidity constraints”. Thus, even from the expansion of *expensive* mainstream consumer credit in a crude manner of accepting those who would have otherwise been denied credit, the authors find no evidence of negative net impacts, *at least, in such a liquidity-constrained environment*.

3.2. The Issue of Ownership Structure: Public v. Private, and Type of Private Bureau

The third aspect of a credit reporting system—in addition to full-file to negative-only and comprehensive vs. segmented reporting—has only recently begun to gain attention. Although there is no theoretical reason why a public bureau cannot behave like a private one, there are practical reasons. Public bureaus have been set up largely and primarily for supervisory purposes, to monitor the safety and soundness of the financial sector and determine whether reserves are sufficient. Unlike private bureaus, they are not established primarily to facilitate greater and *sustainable* lending. Private bureaus, by contrast, are set up to ease lending. That is, the reasoning behind the data collection by private bureaus lies primarily in reducing information asymmetries and to improve risk assessment in lending. By this account, private bureaus are complements to public bureaus.

Three separate studies have estimated the impact. First, Djankov, McLiesh, and Shleifer examined private credit and credit reporting in 129 countries.⁸ In estimations that examined all countries, private bureaus increased lending by 21% (vs. seven percent for public bureaus, although the latter was not a statistically significant increase). In estimations that restricted the data to poorer economies, private bureaus increased lending by 14.5% compared with 10.3% for public bureaus. Second, The Information Policy Institute found that 100% coverage of credit-eligible adults by a full-file private bureau can be expected to increase private-sector lending by more than 45% of GDP (all else being equal).⁹ In other words, after removing these observations, lending increased by more than 45% percent of GDP with a shift to 100% coverage from no coverage. Third, the Inter-American Development Bank (IADB) measured

the impact of information-sharing and ownership on loan performance using data from 170 banks across Latin America.¹⁰ It found that banks that loaned primarily to consumers and small businesses and that used private bureau data had nonperformance rates that were 7.75 percentage points lower than banks that did not. The authors found no such effect of any magnitude for the impact of public bureaus.

3.3. Implications of Micro-Logics

As shown above, a wide body of empirical research using different methodologies suggests that full-file, comprehensive credit reporting systems are more successful at expanding access to credit and improving loan performance than their counterparts. Crucially, they also appear to assist in expanding credit access in ways that more widely benefit underserved consumers—women, ethnic and racial minorities, the young, and low-income groups. As such, they offer the promise of more even development.



4. Conclusion

Findings are consistent across a wide body of research examining information-sharing and related finance and growth, as well as finance and equality. Information-sharing expands access to credit overall and disproportionately expands access among the underserved. Information-sharing improves loan performance by reducing delinquency rates for any given target. Both are achieved by accurately identifying good credit risks that otherwise would have been misidentified as bad risks and, therefore, would have been denied credit. At the same time, bad risks, given credit because they were thought to be good risks, now have credit denied to them or are no longer subsidized by lower-risk individuals. In the aggregate, lending is increased, leading to greater economic growth, rising productivity and greater capital stocks. Average interest rates decrease. Poverty and income inequality are alleviated. This is especially true of full-file, comprehensive reporting to private bureaus.



About the APCC

The Asia-Pacific Credit Coalition (APCC) is a non-profit organization dedicated to educating lawmakers, regulators, and other stakeholders in the Asia-Pacific Economic Cooperation (APEC) member economies about the economic and social benefits of full-file, comprehensive credit reporting systems and private credit bureaus. For more information, or to learn how to join APCC or support our efforts, visit our Web site at www.apeccredit.org.

Endnotes

¹ Walter Bagehot believed that England beat out its competitors not because it had more capital but because it could mobilize it better. Also see R. G. King and Ross Levine, "Finance, Entrepreneurship, and Growth: Theory and Evidence," *Journal of Monetary Economics* 32 (1993): 513-542; R. Levine and S. Zervos, "Stock Markets, Banks, and Economic Growth," *American Economic Review* 88 (1998): 537-558; Ross Levine, "Financial Development and Economic Growth: Views and Agenda" *Journal of Economic Literature* 25 (June 1997): 688-726; Jose De Gregorio and Pablo Guidotti, "Financial Development and Economic Growth," *World Development* 23 (3) (March 1995): 433-448; J. Greenwood and B. Jovanovic, "Financial Development, Growth, and the Distribution of Income," *Journal of Political Economy* 98 (1990): 1076-1107; J. H. Boyd and E. C. Prescott, "Financial Intermediary-Coalitions," *Journal of Economics Theory* 38 (1986): 211-232; F. Allen, "The Market for Information and the Origin of Financial Intermediaries," *Journal of Financial Intermediation* 1 (1990): 3-30; R. T. S. Ramakrishnan and A. Thakor, "Information Reliability and a Theory of Financial Intermediation," *Review of Economic Studies* 51 (1985): 415-432.

² Levine, "Financial Development and Economic Growth," p. 706, and King and Levine, "Finance, Entrepreneurship, and Growth," find similar outcomes.

³ Turner et al., *The Fair Credit Reporting Act*, Table 6., p. 30.

⁴ The Gini, which is a ratio that takes values between 0 and 1, or 0 and 100 when indexed, measures income distribution with higher values indicating greater inequality. Thorsten Beck, Asli Demirgüç-Kunt, and Ross Levine, "Finance, Inequality, and the Poor" (National Bureau of Economic Research working paper no. 10979, January 2007). Available at www.econ.brown.edu/fac/Ross_Levine/Publication/Forthcoming/Forth_3RL_Fin%20Inequality%20Poverty.pdf

⁵ John M. Barron and Michael Staten, "The Value of Comprehensive Credit Reports: Lessons from the U.S. Experience," in *Credit Reporting Systems and the International Economy*, ed. Margaret M. Miller, 273-310 (Cambridge, MA: MIT Press, 2003).

⁶ See rate of opening new accounts in Michael Turner, Alyssa Lee et al., *Give Credit Where Credit is Due* (Washington, DC: The Brookings Institution, December 2006).

⁷ Dean Karlan and Jonathan Zinman, "Expanding Credit Access: Using Randomized Supply Decisions to Estimate the Impacts." Working Paper, MIT Poverty Action Lab. January 2008. Available at <http://www.povertyactionlab.com/papers/>

⁸ Simeon Djankov, Caralee McLiesh, Andrei Shleifer, "Private Credit in 129 Countries" (National Bureau of Economic Research working paper no. 11078, January 2005). Available at <http://papers.nber.org/papers/w11078>.

⁹ From Turner and Varghese, *The Economic Impacts*, Table 3, p. 18.

¹⁰ Inter-American Development Bank, *IPES 2005: Unlocking Credit: The Quest for Deep and Stable Bank Lending* (Washington, DC: IADB, 2004), p. 178. Available at www.iadb.org/res/ipes/2005/index.cfm.

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RESULTS AND SOLUTIONS



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