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MEETING REPORT ANNEX B

Information Sharing and Economic Outcomes (PERC White Paper)

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INFORMATION SHARING AND ECONOMIC OUTCOMES: LESSONS FROM THE LITERATURE

by

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Executive 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 findings moreover have been measures in a number of settings, and in the aggregate provide a clear sense of the magnitude of the benefits.

Key Findings:

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

- Simulations using Colombian credit files indicate a dramatic rise in those that could be accepted for credit when the full-file participation went from 0% of data furnishers to 100%.

A more equitable allocation of credit

- *From the Colombian simulations, women and younger borrowers benefit the most from increases in the proportion of full-file information.*

Fewer mistakes by lenders and fewer defaults by borrowers

- From the Colombian simulations, default rates more than double when full-file participation ceases.

Greater private sector lending

- Cross-national comparisons found that 100% participation by data furnishers in full-file reporting increases private sector lending by at least 47.5% of GDP over the baseline of no data furnishers participating in the full-file system.

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

- Simulations using a 3% target default rate and US credit file data found that credit acceptance rose by 20% with a shift from negative-only to full file information. Similar simulations using Brazilian credit files found a 50% rise.

A more equitable allocation of credit

- US simulations of shifts from negative-only reporting to full-file reporting shows that ethnic minorities, the young, the elderly, and those with lower incomes disproportionately benefit.

Fewer mistakes by lenders and fewer defaults by borrowers

- Simulations using Argentinean, Brazilian, Colombian and US credit files default rates would rise between 33% and 183% in a switch from the full-file base case to a negative-only system, assuming a 40% acceptance rate.

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

Increased access to credit

- Simulations using US and Canadian credit files (simulating Japan's credit system) each show increases of over 10% in acceptance when switching from segmented data to comprehensive data, assuming a 3% default rate.

A more equitable allocation of credit

- The addition of non-financial data (utility and telecom payment data) to US credit files disproportionately benefited ethnic minorities, the young, the elderly, and lower incomer consumers.

Fewer mistakes by lenders and fewer defaults by borrowers

- Four simulations, using Canadian and US credit files show a 35% to 61% increase in default rates, assuming a 60% acceptance rate, when switching from a more comprehensive data to less comprehensive data in credit files.

The implications of these effects for an economy are significant. Specifically, broader based lending and wider access to capital has been shown in some recent studies to improve economic growth, growth in the capital stock and productivity. Finally, there is also preliminary evidence that wider access to capital can lower income inequality and poverty.

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, was indeterminately late, or was delinquent. Payment information contains 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 limit. and account balance. It stands in contrast to negative-only reporting.

Full-file reporting: The reporting of both positive payment information and negative information such as delinquencies, collection, bankruptcies, and liens. On time 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 information, such as delinquencies, defaults, collection, bankruptcies, and liens. Indeterminate information such as applications (but not approvals or rejections) may be included.

Segmented reporting: A system of reporting information, whether full-file or negative only, in which only data from one sector, 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. The supplier is often a financial service provider, but may be a nonfinancial entity. Nonservice providers who report include collection agencies. The collector/supplier of public record information may be a data furnisher if separate from the repository.

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.

1. INTRODUCTION

During the past 30 years, credit bureaus have assumed a core role in the financial infrastructure of economies around the globe. Few disagree that consumer credit and other information allow lenders to make smarter decisions, but this consensus sidesteps additional important questions, including:

- What 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?
- What, if any, are the trade-offs in different structures?

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

1.1. Information Sharing and Lending

Credit bureaus help to solve a problem that is inherent in lending: imprecise knowledge of a borrower's likelihood of repaying. The lender must instead infer the risk profile of the borrower. Incorrect assessments result in two symmetrical problems. Low-risk borrowers are mistaken as high-risk, and high-risk borrowers are mistaken as low-risk. Consequently, low-risk borrowers 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:

a. interest rates to be fine-tuned or to reflect the risk of the individual borrower, such as lower rates for lower-risk borrowers;
b. lower average interest rates;
c. greater lending through reduced rationing; and,
d. lower rates of delinquency and default.

However, research demonstrates that the extent to which these results are achieved depends on the structure of credit reporting, bureau ownership and the type of information reported.

2. CREDIT REPORTING, ITS STRUCTURE, AND CONSEQUENCES: THE MICRO-LEVEL

The research suggests that (a) full-file, comprehensive credit reporting increases lending to the private sector more than other reporting regimes; (b) private bureaus with comprehensive data increase 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.

Past research examines these impacts 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.[1] Predictions of default 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 score. 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.

2.1. 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.

2.1.1. 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 reporting 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.

2.1.2. 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.

2.1.3. 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. The first of these, conducted by the pioneers of this method, John Barron and Michael Staten, used U.S. files to simulate the impact of a system in which only negative information is provided and, separately, a system in which only retail payment information (i.e., segmented reporting) is provided (see Table 6 for the latter).[2] 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 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. That is, the files are rank-ordered by score, from highest to lowest. Each file thus has, for example, an observation of whether the consumer was delinquent on a trade line.

This approach produces two methods of evaluating the performance of the different reporting systems. For both methods, borrowers are ordered from least risky, as measured by the model, to most risky. In the first method, a market size (say 40 percent of potential borrowers) is targeted, by selecting the top 40 percent of borrowers, and associated serious loan delinquency (default) rates during the observation period are measured. In the second, an acceptable performance level is selected (for example, a 3 percent delinquency rate), by selecting the least risky borrowers until the aggregate default rate equals the default target, and the associated acceptance level is measured. In effect, the simulations measure the capacity of lending systems to accurately identify good and bad risks.

The authors compared the findings of a simulated negative-only reporting system with a full-file, comprehensive system. Table 1 describes their results.

Table 1: Acceptance Rates for a Targeted Performance Level using Full-File versus Negative-Only Reporting

Target default rate (%)	Full-file, comprehensive reporting (%)	Negative-only reporting (%)
3%	74.8%	39.8%
4	83.2	73.7
5	88.9	84.6
6	93.1	90.8
7	95.5	95.0

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

Acceptance rates between the two systems converge as the default target nears the societal default rate, the aggregate rate for the entire pool of borrowers. For lenders, however, the key piece of information is that for lower default targets, full-file, comprehensive reporting expands the consumer acceptance rate. At a 3 percent default target, that is, if a lender aims to have a non-performance level that is no more than 3%, 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. The difference in the number of borrowers is equal to 35 percent of the applicant pool. The reason is that with more information, fewer good risks are likely to be mistake to be bad ones, the most common error that takes places in lending. The spread in acceptance rates narrows as the default rate rises.

The gap shows that with less information, more good risks are thought to be bad ones. At lower default targets, fewer cases are judged as good risk (although for this acceptance level, mistakes will be greater in a negative-only reporting than in the full-file reporting, as shown below).

Several studies have verified this shift in the trade-off, including those that use data from Latin American countries. Three studies are notable. The first, by PERC's Information Policy Institute, uses U.S. data with commercially deployed scoring models and includes one negative-only simulation, in which payment data less than 90 days past due were excluded. The second and third use Latin American files—one by Majnoni, Miller, Mylenko, and Powell using Brazilian and Argentinean files, and the other, again by the Information Policy Institute, using Colombian files. Table 2 shows the results of the first study by the Information Policy Institute using U.S. data.[3]

Table 2: Acceptance Rates by Targeted Performance Level with Full-File versus Negative-Only Reporting (U.S. Commercial Scoring Models)		
Target default rate (%)	Full-file, comprehensive reporting (%)	Negative-only reporting (%)
2%	41.9%	28.5%
3	49.2	40.0
4	55.6	47.2
5	60.4	55.5
6	63.7	60.4
7	66.4	64.1
Source: Michael Turner et al., *The Fair Credit Reporting Act: Access, Efficiency, and Opportunity* (Washington, DC: The National Chamber Foundation, June 2003).		

At a 3 percent targeted default rate, nearly 10 percent more of the pool of borrowers can be accepted when full-file information is used than when using negative-only reporting. Of the various simulations, the results in Table 2 are most modest. Yet, even here we find that lending increases by more than 22 percent.

Simulations using Latin American data, while using varying levels of non-negative information, confirm the value of positive categories of data. Majnoni et al.'s examination of public registry files from Argentina, Mexico, and Brazil for both supervision and credit decisions simulates negative-only and full-file or fuller file information.[4] Majnoni et al. also find that positive information considerably increases access to credit, given a performance target. Tables 3 and 4 show the results of the simulations.

Table 3: Acceptance Rates by Targeted Performance Level with Full-File versus Negative-Only Reporting (Argentinean Loans in Excess of US$21,000)		
Target default rate (%)	Full-file model (%)	Negative-only model (%)
3%	60.22%	49.50%
5	76.37	75.76
7	86.02	84.26
9	92.76	91.95
10	95.24	94.71
11	97.50	97.10
12	99.59	99.55
Source: Giovanni Majnoni, Margaret Miller, Nataliya Mylenko and Andrew Powell, "Improving Credit Information, Bank Regulation and Supervision." World Bank Policy Research Working Paper Series, No. 3443 (Washington, DC: World Bank, November 2004).		

Table 4: Acceptance Rates by Targeted Performance Level with Full-File versus Negative-Only Reporting (Brazilian Loans in Excess of US$300,000)		
Target default rate (%)	Full-file model (%)	Negative-only model (%)
2%	65.08%	49.20%
3	82.27	55.84
4	91.53	84.81
5	96.23	94.36
Source: Giovanni Majnoni, Margaret Miller, Nataliya Mylenko and Andrew Powell, "Improving Credit Information, Bank Regulation and Supervision." World Bank Policy Research Working Paper Series, No. 3443 (Washington, DC: World Bank, November 2004).		

At the 3 percent default target, using the full-file information increases the acceptance rate in Argentinean cases by approximately 10 percent of the pool of potential applicants over the negative-only scenario. For the Brazilian model, an additional 26 percent of the borrower pool is accepted.

The Colombian simulations, again by the Information Policy Institute, contain a considerable degree of nonfinancial payment information such as rental and utility payment data. As such, the default rates (defined as more than 90 days past due) comprise many nonfinancial accounts. The results of that simulation are found in the Table 5. The differences are greater than the other models because of the nonfinancial data, but the logic and nature of the findings remain.

Table 5: Acceptance Rates by Target Default Rate— Full-File versus Negative-Only (Columbian Data)		
Target default rate	Full-file, comprehensive reporting	Negative-only reporting
3%	10.00%	2.56%
5	41.35	5.15
7	58.82	13.60
10	73.06	54.97
12	77.80	72.26
Source: Michael Turner and Robin Varghese, *The Economic Impacts of Payment Reporting in Latin America* (Chapel Hill, NC: Political and Economic Research Council, May 2007), Table 5.		

Similar results occur in comparisons of segmented and comprehensive reporting. Barron and Staten found considerable increases in acceptance rates when switching from retail-only information to full-file using U.S. data, as Table 6 shows.[5]

Table 6: Effects of Sector Segmentation in U.S. Markets

Target default rate	Comprehensive model	Retail-only model	Percentage change in acceptance in switch to full-file
3%	83.4%	75.4%	+10.61%
4	90.6	80.6	+12.41
5	96.3	94.1	+2.34

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

The Information Policy Institute examined Japanese credit reporting using Canadian files to simulate Japanese reporting practices and a commercial grade generic scoring model in order to compare them to a full-file scenario. (Canadian credit markets, specifically their levels of indebtedness and default rates, resemble Japan's.) The results are similar to the U.S. model (see Table 7).[6] Default rates in Japan are dramatically lower, on average, than those in other advanced economies, mainly because of credit rationing. Retail credit markets in Japan are severely underdeveloped and relatively unprofitable. In addition, a large black market for credit exists, owing to the substantial unmet demand for credit in Japan. The Information Policy Institute's study attributed the underdeveloped retail banking sector in large part to Japan's segmented, generally negative-only credit reporting system.

Table 7: Effects of Sector Segmentation using Japanese Data

Target default rate	Full-file model	Non-bank-only model	Percentage change in acceptance in switch to full-file
0.5%	47.81%	31.32%	+52.65%
1	70.90	62.70	+13.08
2	86.34	79.34	+8.82
3	92.38	83.29	+10.91

Source: Michael Turner, Robin Varghese, and Patrick Walker, *On The Impact of Credit Payment Reporting on the Finance Sector and Overall Economic Performance in Japan* (Chapel Hill, NC: Information Policy Institute, March 2007), Table 5.

Each of these studies affirms that more information enables lenders to make more accurate decisions.

Two additional 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. Table 8 presents the results of the first study, by the Information Policy Institute.[7] (The negative-only acceptance rate is indexed to 100 for each segment. Acceptance rates for the full-file scenario are expressed in terms of this index.)

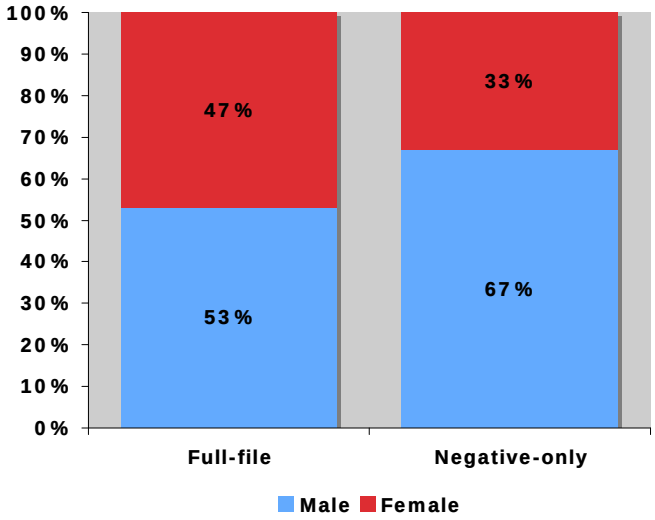
Table 8: Effects on Acceptance Rates for a 3 Percent Targeted Default Rate between Full-File Reporting and Negative-only Reporting, by Demographic Characteristics

	Negative-only (index = 100)	Full-file (change in terms of the negative-only index of 100)
Race-Ethnicity		
Caucasian, Non-Hispanic	100	121.8
African American	100	127.9
Latinos	100	136.8
All Minority	100	135.5
Age		
<36	100	147.1
36-45	100	121.8
46-55	100	121.2
56-65	100	119.8
66-75	100	117.9
76+	100	119.9
Household Income		
< 15,000	100	135.9
15,000-29,000	100	129.7
30,000-49,000	100	124.2
50,000-99,000	100	120.6
>100,000	100	117.8

Source: Michael Turner et al., *The Fair Credit Reporting Act: Access, Efficiency, and Opportunity* (Washington, DC: The National Chamber Foundation, June 2003).

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 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, as shown Figure 1.[8]

Figure 1: Acceptance Rates in Columbia by Gender Under Full-File and Negative-



only as a Share of Total Borrowers

Source: Michael Turner and Robin Varghese, *The Economic Impacts of Payment Reporting in Latin America* (Chapel Hill, NC: Political and Economic Research Council, May 2007**)**

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

2.1.4. 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 have the potential to make available affordable credit from mainstream financial markets to historically underserved consumers and entrepreneurs. Even in relatively advanced markets a sizable portion of the population may be overlooked without the use of this information.

In the US, non-financial payment data is rarely reported to the credit bureaus and as a result tens of millions of adults have no payment histories in their credit file or have no credit file at all. And tens of millions more have too few payment histories to be scored by some credit scores or are negatively impacted by having so few tradelines if they are scored. In short, the consumers are hurt due to the bureaus having no or little information on them from which lenders can assess risk and capacity. Disproportionately, the lack of

information impacts the traditionally underserved groups, those most likely to be outside the financial mainstream, in the US these are primarily ethnic minorities, lower income individuals, and the young.

PERC conducted a study to measure the impact on access to credit with the inclusion of energy utility and telecom payment data in US consumer credit files. At the time of the study, only around 4% of such files in the TransUnion database contained a utility or telecom payment history.

As can be seen in Table 9, when energy utility and telecom payment are included in credit files, we see much greater rises in those that become credit eligible (assuming a 3% target default rate) among ethnic minorities, lower income households, younger individuals, and older individuals.

Table 9: Effects on Acceptance Rates for a 3 Percent Targeted Default Rate With Inclusion of Utility and Telecom Payment Data

	With Utility Payment Data (without = 100)	With Telecom Payment Data (without = 100)
Ethnicity		
Asian	1.14	1.08
Black	1.21	1.11
Hispanic	1.22	1.17
Other	1.11	1.11
White	1.08	1.08
Age		
18-25	1.14	1.10
26-35	1.06	1.06
36-45	1.05	1.06
46-55	1.06	1.06
56-65	1.06	1.06
>65	1.14	1.13
HH Income (000)		
<20	1.26	1.22
20-29	1.15	1.14
30-49	1.10	1.08
50-99	1.06	1.05
>99	1.03	1.03

Source: Michael Turner, Alyssa Lee et al., *Give Credit Where Credit is Due* (Washington, DC: The Brookings Institution, December 2006).

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. Including such data, thus, would tend to lead to a more equitable distribution of credit as well as a generally improved macroeconomic performance, the

pie will be both bigger and more evenly divided. This twin benefit of improved equity *and* efficiency is often a difficult to achieve.

2.1.5. 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. Table 10 reports the changes in the default rate for nine simulations.[9]

Table 10: Percentage Point Change in the Default Rate in Reporting Regime Switch (percentage change shown in parentheses)

	Full-file to Negative Only					Comprehensive to Segmented Reporting		Removal of Utility Data	Removal of Telecom Data
Acceptance Rate	Barron and Staten, using U.S. files	Turner et al., using U.S. files	Turner and Varghese, using Colombian files	Majnoni et al. using Argentinean files	Majnoni et al., using Brazilian Files	Barron and Staten, using U.S. files	Turner, using Canadian files	Turner, Lee et al., using U.S. files	Turner, Lee et al., using U.S. files
20%			4.94 (140%)						
30%		0.8 (62%)	4.94 (120%)					0.2 (22%)	0.2 (18%)
40%	1.84 (170%)	0.6 (33%)	8.96 (183%)	0.92 (60%)	1.48 (114%)	0.57 (108%)	0.18 (43%)	0.3 (25%)	0.5 (29%)
50%		0.3 (10%)	8.54 (146%)				0.19 (36%)	0.5 (28%)	1.3 (39%)
60%	1.45 (76%)	0.4 (8%)	8.1 (113%)	0.83 (28%)	1.53 (83%)	0.72 (61%)	0.24 (35%)	1.2 (40%)	2.7 (36%)
70%		0 (0%)					0.26 (27%)	2.7 (50%)	3.8 (31%)
75%	1.03 (34%)					0.84 (39%)			
80%				0.96 (19%)	0.86 (30%)		0.68 (47%)	4.3 (45%)	5 (31%)
90%							2.83 (114%)	3.9 (28%)	3.4 (19%)

As noted above, Colombian simulations included delinquencies on nonfinancial trade lines such as rent and utilities and are not, therefore, strictly comparable, although the direction of changes shown in Table 10 is. The other four negative-only to full-file simulations show the default rate increasing by as little as 0.3 percentage points (or a 10

percent increase), which is still a considerable degradation of portfolio performance, to as much as 1.84 percentage points (a 170 percent 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 percent, the default rate increases by 0.86 percentage points (or 30 percent). At a 60 percent acceptance target, the default rate nearly doubles (an 83 percent 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. The more modest shifts show an in increase in the default rate of 30 to 40 percent, a considerable deterioration in performance.

2.1.6. 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. That is, consumers who have little credit experience will be brought in to the credit mainstream and not be ready for the responsibility.

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 US 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[10].

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. And so 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. 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 in such a liquidity-constrained environment.

2.1.7. Summary

The reasons for these results underscore the logic of credit reporting With less information, two factors reduce lending and worsen performance. The first concerns acceptance, that is, the size of the market for lending. In the absence of sufficient information to assess risk, lenders will ration, or not extend, loans to some worthy consumers while lending to others with the same risk profile. Second, without the ability to more accurately assess who is a good risk and who is not, lenders will find themselves with smaller pools for a given default target, as more risky borrowers are included in the pool. Loss of the ability to assess risk accurately, which leads to rising default rates and worsening acceptance rates, occurs because less information leads to more mistakes. And finally, concerns that broader access to mainstream credit market and increased consumer lending, in general, would lead to negative outcomes seem not well founded, particularly in cases in which the broader access is a function of improved risk assessment.

2.2. 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. In the past, analysts and others believed that whether a credit bureau was publicly or privately owned was immaterial to the performance of the financial sector. Recent research has suggested otherwise.

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. That is, the accounts of loan performance kept by public bureaus are collected as a way for the state 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.

Djankov, McLiesh, and Shleifer examined private credit and credit reporting in 129 countries.[11] In the authors' estimates, private bureaus increased lending far more greatly than public bureaus, which in the estimates had an ambiguous impact. In estimations that

examined all countries, private bureaus increased lending by 21 percent (vs. 7 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 percent compared with 10.3 percent for public bureaus. Both coefficients are statistically significant.

The Information Policy Institute found that 100 percent coverage of credit-eligible adults by a full-file private bureau can be expected to increase private-sector lending by more than 60 percent of GDP (all else being equal).[12] In our estimates, removing observations with very high levels of private-sector lending, notably the United States and the United Kingdom, resulted in a coefficient of 0.475, which was still significant at the 1 percent level. In other words, after removing these observations, lending increased by 47.5 percent of GDP with a shift to 100 percent coverage from no coverage. (Coefficients on the other variables remained roughly the same.)

A third study by the Inter-American Development Bank (IADB) measured the impact of information-sharing on loan performance.[13] The IADB examined data from 170 banks in Bolivia, Brazil, Chile, Colombia, Costa Rica, El Salvador, and Peru to measure the impact of private and public bureaus on loan performance. 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.

2.3. 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.

3. 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.

3.1. Greater Economic Growth and Stability

The research on finance and growth is extensive.[14] 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

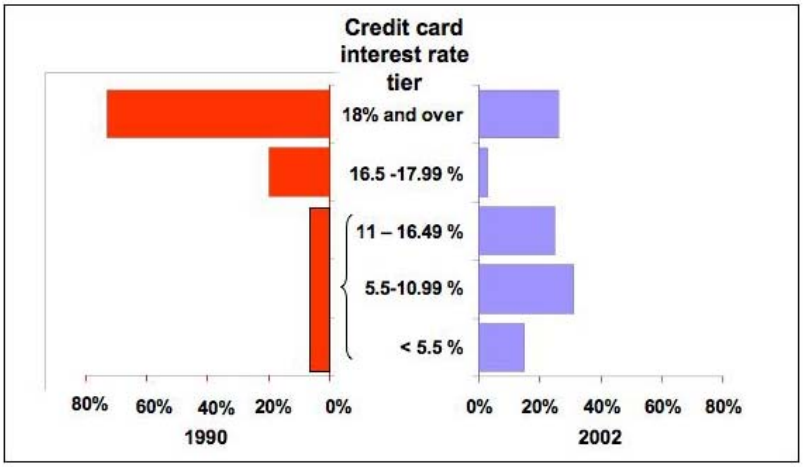
30 percent of GDP should lead to an increase in GDP growth by 1 percent per annum, and an increases in productivity and capital stock by 0.75 percent per annum.[15] This is a conservative estimate and should also be considered in the context of our findings on the impact of higher participation rates in private full-file credit bureaus on growth in private-sector lending as a share of GDP.

3.2. 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, lenders are better able to discern an individual's risk profile. The ability to screen out riskier borrowers can improve the portfolio's performance and allow lenders to offer lower rates to less-risky borrowers who would not have borrowed otherwise. Moreover, with more accurate information, lenders are able to price loans tailored to an individual's risk profile and less at the portfolio average.

Figures 2–3 illustrate this dynamic as it played out in the United States. Figure 2 illustrates the distribution of credit card interest rates in the United States as information-sharing spread between 1990 and 2002. Figure 3 depicts the spread between prevailing 30-year mortgage rates and the prevailing rate on U.S. Treasury bills. (To the extent that the spread is accounted for in part by a risk premium, changes in the spread imply changes in the riskiness of the loan.)

Figure 2: Distribution of U.S. Credit Card Interest Rates as Information-Sharing Expanded between 1990 and 2002[16]



Risk-based pricing, determined from consumers' risk profiles using credit reports, altered the price of credit for many Americans, allowing for more nuanced pricing. More important, it extended cheaper credit to millions while extending more credit overall. Similarly, the declining spread in mortgage rates in Figure 3 suggests a considerable decline in the risk premium. In the United States, it worked to extend homeownership to millions.

Figure 3: Spread between the 30-Year Fixed Effective Mortgage Rate and 10-Year U.S. Treasury Bill Interest Rate[17]

QuickTime™ and a
TIFF (Uncompressed) decompressor
are needed to see this picture.

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.

3.3. Lowers Poverty and Improves 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.[18] 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;
- increases the growth of the lowest (poorest) quintile's income share.

To shed light on these findings, Beck, Demirgüç-Kunt, and Levine compare Brazil and Canada. Brazil had a private-sector lending level of 33 percent of GDP for the observation period while Canada's rate was 63 percent. As the authors explain:

> Had Brazil had the same level of Private Credit [measured as the logarithm of private sector claims in banks] as Canada over the period 1961 to 2000, the income share of the lowest income quintile would have fallen only by 0.1 percent every year rather than the actual 0.6%, which would have resulted in an income share of 3 percent for the lowest income quintile rather than the actual 2.4 percent in 2000.[19]

That is, the income share of the bottom quintile may have been 25 percent greater with such increased levels of private credit. If overall economic growth were positively affected by increased private credit, then the actual income for this quintile would have been more than 25 percent greater.

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.

ENDNOTES

[1] 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).
[2] Ibid., p. 298.
[3] Michael Turner, *The Fair Credit Reporting Act: Access, Efficiency, and Opportunity*. (Washington, DC: The National Chamber Foundation, June 2003), Table 11, p. 50. Scenario C results. Available also online at http://infopolicy.org/pdf/fcra_report.pdf.
[4] Giovanni Majnoni, Margaret Miller, Nataliya Mylenko and Andrew Powell, "Improving Credit Information, Bank Regulation and Supervision" (World Bank Policy Research Working Paper Series, no. 3443, November 2004). Available at http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2004/12/17/000160016_20041217171024/Rendered/PDF/WPS3443.pdf.
[5] Barron and Staten, "The Value of Comprehensive Credit Reports," Table 8.6, p. 303.
[6] Michael Turner, Robin Varghese, and Patrick Walker, *On The Impact of Credit Payment Reporting on the Finance Sector and Overall Economic Performance in Japan* (Chapel Hill, NC: Information Policy Institute, March 2007), Table 5, p. 43.
[7] Turner et al., *The Fair Credit Reporting Act.*
[8] Michael Turner and Robin Varghese, *The Economic Impacts of Payment Reporting in Latin America.* (Chapel Hill, NC: Political and Economic Research Council, May 2007), Figure 3, p. 34.
[9] Barron and Staten, "The Value of Comprehensive Credit Reports," Table 8.2, p. 297, and Table 8.5, p. 302. Turner et al., *The Fair Credit Reporting Act*, Table 10, p. 49; Turner and Varghese, *The Economic Impacts*, Table 6, p. 31.; Majnoni et al., "Improving Credit Information," Table 4, Panel A.; and Turner et al., *On The Impact of Credit Payment Reporting*, Table 6, p. 44. Michael Turner, Alyssa Lee et al., Give Credit Where Credit is Due (Washington, DC: The Brookings Institution, December 2006).
[10] 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).
[11] 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.
[12] From Turner and Varghese, *The Economic Impacts*, Table 3, p. 18. In the estimations, two outliers that had experienced recent financial crises, Argentina and Uruguay, were excluded. Statistics on private-sector borrowing are drawn from International Monetary Fund, *International Financial Statistics Database*, "Claims on the Private Sector." Line 52D for 2004. Statistics on coverage rates, credit information indices, and legal rights are drawn from the World Bank, *Doing Business Database*. www.doingbusiness.org/ExploreTopics/GettingCredit. Information is for 2005.
[13] 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.
[14] 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.

[15] Levine, "Financial Development and Economic Growth," p. 706, and King and Levine, "Finance, Entrepreneurship, and Growth," find similar outcomes.
[16] Turner et al., *The Fair Credit Reporting Act*, Table 6., p. 30.
[17] U.S. Department of Housing and Urban development, *We Open Doors for America's Families: Freddie Mac's Annual Housing Activities Report for 2002* (Washington, DC: HUD, March 17, 2003), Exhibit 12, p. 21.
[18] 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%20Inequalily%20Poverty.pdf
[19] Beck et al., "Finance, Inequality, and the Poor," pp. 18-19.