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Factors affecting the Distribution of Community Reinvestment Act (CRA) Loans across Household Income Groups

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Objectives

The purpose of the paper is to understand the socio-economic factors affecting the distribution of community reinvestment act loans across three income groups using 2005 county level information for the Mississippi portal region. The specific objectives of the paper is to estimate an seemingly unrelated regression (SUR) to examine the factors affecting the distribution of

- 1) Number of loan across income groups for small business and small farm loans
- 2) Total amount of loan across income groups for small business and small farm loans.

Background

To encourage depository financial institutions to meet the credit needs of moderate and lower income neighborhoods, the U.S. Congress passed the Community Reinvestment Act (CRA) in 1977. The CRA was introduced to serve the credit needs of the communities in which they maintain branches and to prevent "redlining" or the practice of financial institutions excluding moderate and low income neighborhoods from receiving adequate or fair financial services. Further, the CRA was implemented to ensure that banks provided services to the whole community. The CRA attempts to accomplish this by requiring federal regulators to review a bank's lending practice before allowing

it to grow or merge with other financial institutions. Financial institutions not meeting federal guidelines can be prevented from adding new banks or merging with other depository institutions.

According to the Joint Center for Housing Studies of Harvard University, CRA business lending constitutes of loans that are made available to individuals for businesses that are under a million dollars or that are granted to businesses with under a million dollars in gross receipts. CRA business lending also includes loans that are low or moderate income loans. Loans can also be classified as low or moderate income loans if the borrower is in an area where the median household income from 1990 is under 80% of the median household income of the local MSA. After 1995 the CRA was reformed to further encourage banks to serve all income groups in their communities.

Four federal agencies enforce the Community Reinvestment Act (CRA) for different types of banks: the Office of the Comptroller of the Currency (OCC) for national banks; the Board of Governors of the Federal Reserve System (Federal Reserve Board) for state-chartered banks that are members of the Federal Reserve System; the Federal Deposit Insurance Corporation (FDIC) for state-chartered banks and savings banks that are not members of the Federal Reserve Board; and the Office of Thrift Supervision (OTS, formerly the Federal Home Loan Bank Board) for savings associations. CRA allows the agencies to use their supervisory authority to encourage financial institutions to help meet local credit needs, assess an institution's record of serving its entire community,

and use the records to assess an institution's application for approval regarding a deposit facility - a charter, a merger, an acquisition, a branch, an office relocation, or deposit insurance.

Apgar and Duda, focuses on the complications the CRA faces in maintaining fair lending to all borrowers and how the CRA is challenged to change as the economy changes. Paper by Zinman takes a look at the attempts of the U.S. Government to increase or improve the credit market by legislation in the Community Reinvestment Act. Zinman, shows the results that this intervention has on the U.S. credit market and how it impacts small business. It also supports the view that government intervention can improve the efficiency of the credit market. Berney et al explores whether or not small business borrowers have access to more capital when borrowing from larger more established lenders. Benston, reviews the reporting costs of the Community Reinvestment Act, and discusses the values and benefits of the CRA versus the costs and impacts. It also discusses the reasons behind the CRA and attempts to dispel justification for stricter CRA regulations by arguing that the costs associated with implementing these regulations are not equal to their possible benefits. The author argues that the CRA is not good working legislation. Gruben et al., supports the theory that the CRA boosts lending in low-income areas. It also discusses the impact that the CRA has had on reducing the risks associated with low income lending as banks search for low income borrowers that meet low risk lending qualifications. Banks are

encouraged to make loans in low-income areas whether or not redlining was present in the past.

This paper takes a look at the factors affecting the distribution of the CRA classified loans, made available to small businesses and small farm in Mississippi portal consisting of the States of Mississippi, Arkansas, and Louisiana using 2005 data.

Factors Affecting the Distribution of CRA Loans

CRA loans are classified both by the income groups that they are made to and by the loan amounts. There are four income levels and they range from the lowest to the highest as follows: low income, moderate income, and high income. CRA loans are classified as those less than \$100,000, those between \$100,000 and \$250,000, those greater than \$250,000 and less than a million dollars. In this paper multiple factors are examined in relation to CRA Lending. Possible factors that are examined are number of lenders in an area, income levels, economic growth, and amounts of transfer receipts.

The number of lenders in each region was evaluated because the data available on CRA loans is restricted to the loan origination location. In initial review of the data it was noted that areas that had higher populations consistently had more CRA lending. Was this simply because these areas had more banks or because these areas had larger banks or were both these contributing factors.

Income levels are also reviewed in this study. Once again in initial review of CRA data sets areas that had higher populations and higher levels of income had more CRA lending. Was this because borrowers were lower risk or again was this the result of more borrowers seeking loans from larger banks in more populous areas?

Economic growth was also reviewed in this paper. Areas with a recent history of economic growth reported more CRA lending activity. This is looked at more closely in this paper in order to determine what types of CRA lending activity is taking place in which areas. Are more rural banks making fewer loans? Are the loans made by rural banks generally large loans over \$250,000 or are the rural the rural banks making smaller loans. What are the contributing factors?

Transfer receipts were also reviewed to determine if possible areas that had a higher rate of CRA lending activity were also areas that received more government transfer receipts. Economists have examined the Community Reinvestment Act with regard to issues related to banking and treasury, policies, politics and economic related analysis. However, the question still remains "Is redlining still present or is lending simply a case of supply and demand?" Are banks providing services where they are needed in order to improve profitability or are they avoiding low-income areas because they are perceived to pose too much risk? Are the results of earlier studies an indication that more banks are

located where there is more economic growth and that is the reason that more loans are coming from these more economically advanced areas?

Econometric Methods and Data

Seemingly unrelated regression, is a generalization of ordinary least squares for multi-equation systems. Like ordinary least squares, the seemingly unrelated regression method assumes that all regressors are independent variables but uses the correlations among the errors in different equations to improve the regression estimates. The seemingly unrelated regression method requires an initial ordinary least squares regression to compute residuals. The ordinary least squares residuals are used to estimate the cross-equation covariance matrix.

The seemingly unrelated regression for the three income levels: low income (<\$100,000), moderate income (\$100,000 - \$250,000), and high income (\$250,000 - < million dollars) can be represented by the econometric model as:

$$\begin{aligned}
 y_{1,i} &= f(x_{1,i}, \dots, x_{5,i}) + \varepsilon_{1,i} \\
 (1) \quad y_{2,i} &= f(x_{1,i}, \dots, x_{5,i}) + \varepsilon_{2,i} \\
 y_{3,i} &= f(x_{1,i}, \dots, x_{5,i}) + \varepsilon_{3,i}
 \end{aligned}$$

where \mathbf{y} is the vector of endogenous variable, i.e., the amount of loan and the number of loans approved for the three income groups, \mathbf{x} a vector of exogenous variables that includes number of lenders, per capita net earnings as a proxy for growth, per capita dividend, interest and rents as a proxy for economic growth, per capita transfer receipts as a proxy for government programs and average wages per job as a proxy for income levels i are the

number of Mississippi portal counties. Equation (1) is examined for the properties of heteroskedasticity.

Data for this study come from the CRA record and the remaining variables are obtained from *Department of Commerce, Bureau of Economic Analysis*. Table 1 provides the summary statistics for the variables. The number of small business and small farm loans made available to low income group (less than \$100,000) was higher than the moderate income (\$100,000 - \$250,000), and high income (\$250,000 - < million dollars) groups. The total amount of small business and small farm loans made available to low income group (less than \$100,000) was higher than moderate income (\$100,000 - \$250,000) but less than the high income (\$250,000 - < million dollars) income groups. However, if we compare the amount per loan, the moderate income (\$100,000 - \$250,000), and high income (\$250,000 - < million dollars) groups received amount per loan compared to low income group.

Results and Discussion

To examine the factors affecting the distribution of small business and small farm loans across the three income groups equation (1) was estimated. The dependent variable in equation (1) includes a) Number of loan across income groups for small business and small farm loans; and b) Total amount of loan across income groups for small business and small farm loans. Results of the system of equation for the two models are presented in table 2.

First we will look at the number of loans in each category in comparison with the number of lenders. The most CRA lending activity took place with loans of less than \$100,000. There was an average of 16,163 loans less than \$100,000. This however was also the type of loans where the most lenders were involved with 214 lenders showing up as the coefficient. The number of loans decreased in the other two categories with 1,087 loans between \$100,000 and \$250,000 and 980 loans being above \$250,000. The number of lenders ranged from 11.9 for loans between \$100,000 and \$250,000 and 12.6 for the loans above 250,000. An explanation of this result can be the lack of low risk borrowers that meet the qualifications for CRA lending. This can also be attributed to the hesitation of banks to accept the risk of CRA qualified borrowers for loans of larger amounts.

To explore this further we can take a look at the income levels and how they correspond to the number of loans in each category and the economic growth indicators. Please refer to Table 2 above and you can see that the per capital net earnings for the borrowers of loans less than \$100,000 are much less than that of the borrowers of loans over \$250,00. What this shows is that typically more CRA loans are for smaller loans to individuals with lower incomes and than they are for individuals with higher incomes seeking loans over \$250,000. An explanation of this again could be the failure of CRA candidates seeking larger loans are failing to qualify for larger loans because of the risks they pose to banks.

Another observation can be made by looking at Table 2 at the Economic Growth indicators and the wages. The category where the economic indicators and the wages are highest is the category for loans less than \$100,000. The categories for loans between \$100,000 and \$250,000 and loans over \$250,000 have wages and economic growth indicators that are much lower. This shows that in areas where borrowers would be qualifying for CRA loans because of location are typically borrowing more. This is probably because they present a lower risk because of typical lending qualifications such as their own personal or business income or assets. It is probable that the smaller loans are to smaller businesses, but are in areas that are more prosperous.

In contrast the results for total small business loan amounts present in table 2 are slightly different. Results for table 2 show a positive relationship between number of lenders and the total small business loan amount. However, comparing the coefficient estimates across the three income groups indicate a larger effect for low and high income groups compared to median income group. Similar trend was indicated by the per capita Dividend, Interest and Rents and per capital transfer receipts variables in explaining the total small business loan amounts. With respect to small farm loans, the only variable significant was the number of lenders and based on the coefficient they are indifferent across the three income groups.

In conclusion it appears that CRA lending is providing lending opportunities in the form of small loans under \$100,000 and by allowing for

businesses in more economically disadvantaged areas the opportunity to borrow large sums of money for business purposes. This could be helpful to the areas by stimulating economic growth in those areas. The economic growth benefits could consist of interest the bank generates on the loan and the possible reinvestment in the community the small business that initially borrowed the money makes through wages paid or products purchased in the area. This however would only take place if the money borrowed is spent in the same community.

The question that still remains and calls for more review is that would the borrowers still be able borrow the same funds from the same lenders if the CRA regulations were not in place?

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Table 1. Summary Statistics of Variables

Variables	N	Small Business Loans		Small Farm Loans	
		MEAN	STD	MEAN	STD
Number of loans less 100,000	165	2,894	5,866	131	137
Number of loans less 100,000 - 250,000	165	142	346	20	25
Number of loans less 250,000 - Mil	165	118	335	10	14
Amount of loans less 100,000	165	39,866	84,275	3,420	4,041
Amount of loans less 100,000 - 250,000	165	24,294	60,559	3,334	4,322
Amount of loans less 250,000 - Mil	165	60,423	176,298	3,403	4,902
Number of Lenders	165	60	24.5	20	7.8
per capita Net earnings	165	1,785	3,119	1,780	3,128
Per capita Dividend, Interest and Rents	165	14,346	3,947	14,351	3,958
Per capital Transfer receipts	165	6,608	1,688	6,602	1,691
Average wages per job	165	27,665	4,801	27,700	4,796

Table 2. Iterative Seemingly Unrelated Regression results of Number of Loans for Small Business and Farm Loans

Type	Number of Loans		Intercept	Number of Lenders	Per capita Net earnings	Per capita Dividend, Interest and Rents	Per capital Transfer receipts	Average wages per job
Small Business	Amount of loans less 100,00	Coefficient	-16163.8	214.0401	-0.01382	0.256252	0.699253	0.049998
		T-value	-6.82	17.16	-0.15	2.21	3.08	0.88
	Amount of loans less 100,000 - 250,000	Coefficient	-1087.7	11.97023	0.002563	0.016083	0.053936	0.003331
		T-value	-7.34	15.35	0.44	2.21	3.81	0.93
	Amount of loans less 250,000 - Mil	Coefficient	-980.062	12.64255	-0.00867	0.018624	0.042793	0.005452
		T-value	-6.88	16.88	-1.54	2.67	3.14	1.59
Small Farm	Amount of loans less 100,00	Coefficient	-109.106	10.09364	-0.00438	0.005906	0.004634	0.002311
		T-value	-1.07	7.51	-1.25	1.15	0.47	0.91
	Amount of loans less 100,000 - 250,000	Coefficient	-9.37507	1.695918	-0.00099	0.001131	0.000938	0.000073
		T-value	-0.47	6.54	-1.45	1.14	0.49	0.15
	Amount of loans less 250,000 - Mil	Coefficient	-20.4803	0.824847	-0.00044	0.0012	0.001325	0.000341
		T-value	-1.84	5.63	-1.16	2.15	1.23	1.23

Table 3. Iterative Seemingly Unrelated Regression results of Total Amount of Loans for Small Business and Farm Loans

Type	Loan AMOUNT		Intercept	Number of Lenders	Per capita Net earnings	Per capita Dividend, Interest and Rents	Per capital Transfer receipts	Average wages per job
Small Business	Amount of loans less 100,00	Coefficient	-243233	3043.817	-0.04186	4.42529	10.5132	0.881387
		T-value	-7.06	16.81	-0.03	2.62	3.19	1.06
	Amount of loans less 100,000 - 250,000	Coefficient	-190403	2104.407	0.341655	2.750043	9.48056	0.594552
		T-value	-7.33	15.4	0.33	2.16	3.82	0.95
	Amount of loans less 250,000 - Mil	Coefficient	-507086	6716.369	-5.53945	9.411254	21.53408	3.12342
		T-value	-6.72	16.92	-1.85	2.54	2.98	1.72
Small Farm	Amount of loans less 100,00	Coefficient	-2711.77	280.1767	-0.14029	0.188715	0.100953	0.059188
		T-value	-0.88	6.92	-1.32	1.22	0.34	0.77
	Amount of loans less 100,000 - 250,000	Coefficient	-1358.81	280.0191	-0.18145	0.184175	0.122094	0.023934
		T-value	-0.4	6.28	-1.56	1.08	0.37	0.28
	Amount of loans less 250,000 - Mil	Coefficient	-7498.58	286.5903	-0.14117	0.433329	0.469248	0.123827
		T-value	-1.94	5.63	-1.06	2.23	1.26	1.29
