Farm Service Agency Direct Farm Loan Volumes and Market Penetration by Farm Size, Socially Disadvantaged, and Beginning Farmer Cohorts, 2000-2003

by
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Abstract

The Farm Service Agency (FSA) direct farm loan programs provide credit to family-sized farms including beginning farmers and socially disadvantaged applicants. Approximately 37 percent of all U.S. farms are estimated to be eligible for FSA direct loans when farm size, credit needs, years of farming experience, and occupation are taken into account. Market penetration ratios for various cohorts of borrowers ranged from 0.75 to 5.13 for fiscal 2000-2003. Results suggest a substantial regional dispersion, which appears driven, in part, by the distribution of farmers eligible for FSA direct loans and the occurrence of natural-disasters.

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Introduction

The direct farm loan programs administered by the Farm Service Agency (FSA) are designed to provide credit to family-sized farms unable to obtain credit from conventional sources at reasonable rates and terms despite having sufficient cash flow to repay and an ability to provide security for the loan. FSA is an agency of the United States Department of Agriculture (USDA). FSA's direct loan program provides short to intermediate term farm operating (OL) loans and long term farm ownership (FO) loans as well as emergency (EM) loans. In addition to serving the general category of family-sized farms, federal legislation compels FSA's FO and OL lending programs to target specific subgroups falling under the family farm umbrella. These groups are socially disadvantaged applicants (SDA) and beginning farmer (BF) applicants.

The FSA defines a socially disadvantaged farmer or rancher as "one of a group whose members have been subjected to racial, ethnic, or gender prejudice because of their identity as members of the group without regard to their individual qualities. For purposes of FSA programs, socially disadvantaged groups are women, African Americans, American Indians, Alaskan Natives, Hispanics, and Asian Americans and Pacific Islanders (USDA/FSA, 2004 a). The definition of a BF varies by loan type. For OL purposes, a BF is a farmer who meets the general eligibility criteria for an OL loan and has ten or less years of farming experience. For FO purposes, a BF is a farmer who meets the general criteria for a FO loan, has three to ten years of farming experience and owns acreage which does not exceed 30 percent of the county average farm size.[3] If the applicant is an entity, all members must be related by blood or marriage, and all stockholders in a corporation must be eligible beginning farmers (USDA/FSA, 2004 b).

Previously Dodson and Koenig (2003) examined reasons for varying levels of market penetration in the overall direct loan market. The present study focuses on the SDA and BF segments and describes the volumes of loans going to various segments of the direct loan market and market penetration in the small farm, SDA and BF markets. Particular attention is paid to the regional variation in loan volumes to various cohort groups such as how loans are distributed among SDA borrowers as a function of five racial/ethnic groups and along gender differences. Similar analysis is provided for beginning farmer and small farmer cohorts. Additionally, market penetration ratios for various cohorts of borrowers are developed and analyzed for geographical variation.

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[2] The authors are: program associate, associate professor, professor, program associate, University of Arkansas, Division of Agriculture, and assistant professor, University of Arkansas at Fort Smith. This research was supported by Cooperative State Research, Extension, and Education Service (CSREES) Award number 2004-39528-14476 between the Farm Service Agency and the Department of Agricultural Economics and Agribusiness at the University of Arkansas, Division of Agriculture, Fayetteville.

[3] Prior to 2004, the acreage limit was 25 percent of the county average farm size (U.S. 7 CFR 1943.4).

Data

The data examined in this study were obtained from various sources and include: FSA loan making, FSA Farm and Home Plans (FHP), the 2002 Census of Agriculture conducted by the National Agricultural Statistics Services (NASS), and the Agricultural Resources Management Survey (ARMS) jointly conducted by NASS and the Economic Research Service (ERS).

FSA's internal Farm Loan Program Making and Loan Servicing database for FY 2000 – 2003 (New Loan database) provides detailed information about every direct loan made by FSA. The database contains information about the borrower (tax identification or social security number, county and state of residence, race, ethnicity, and gender), and the loan (number, type, assistance type, amount, interest rate, origination date, and maturity date).

In the process of applying for a direct loan, applicants must fill out a Farm and Home Plan (FHP). This plan contains a balance sheet, income statement, and demographic information about the applicant. As part of this study, FSA furnished 117,391 FHPs for some of the 45,016 borrowers who originated loans in FY 2000–2003. It was possible to match 19,153 or 42.5 percent of the borrowers with the most recent FHP they completed prior to obtaining an FSA loan. Information extracted from the FHPs of 19,153 borrowers is used to identify small farms receiving FSA loans in this study.

The ARMS is conducted annually by the USDA, which collects detailed information on farming practices and farm financial conditions including credit sources. This survey samples only a small proportion of the overall U.S. farm population. For the analysis in this study using ARMS data from 2000–2003, the average annual sample size was 11,917. However, the sample database includes a set of complex replicate weights (expansion factors) that are designed to expand the sample so that estimates of the overall farm population can be obtained. Thus, by using ARMS data, it is possible to obtain state level expanded (estimated) counts of farms with various characteristics (e.g. race, gender, sales class, etc.).

The 2002 Census of Agriculture by NASS provides counts on the number of farms in a county as well as a number of characteristics about each farm and the farm operators. In particular, these data are used to identify the number of farms in a given county that would be considered eligible for an FSA direct loan. The farms are counted by gender, race, and beginning-farmer status. While some census data are available in the public domain, a special tabulation was required to obtain information on the numbers of FSA-eligible farmers cross-classified by gender, race (ethnicity), and beginning-farmer status. This tabulation was conducted at the NASS data laboratory in Washington D.C. by members of the study team.

FSA Direct Loans to All Borrowers

Loan counts obtained from the New Loan database show that the agency made 60,151 direct loans to 45,016 borrowers from 2000 to 2003. A breakdown of the number of borrowers, loans, and counties covered is presented in table 1. OL loans accounted for 79.03 percent of the loans while FO and EM loans accounted for 10.19 percent and 10.78 percent, respectively.

Table 1. New FSA Direct loans by type of loan, FY 2000–2003

Loan type	Loan count	Borrower count*, **	County count
All types	60,151	45,016	2,592
Operating Loans (OL)	47,540	37,729	2,486
Farm Ownership Loans (FO)	6,127	6,067	1,604
Emergency Loans (EM)	6,484	6,018	1,158

Source: Computed from FSA New Loan Database
*Loan recipients are counted as new borrowers for each of the years they appear in the new loan database. While there are 28,852 unique borrowers within the four-year period, borrowers are counted as new borrowers for each year they obtain a new loan. Therefore, a unique borrower can appear as frequently as four times in the count of new borrowers.
** A borrower who obtains multiple loans within a year is counted once for each type of loan within the year. Therefore, the number of borrowers from each type of loan exceeds the sum for all types of loan. A borrower who obtains loans in different years is counted once for each of the years.

The numbers and types of loans made to farmers differ across counties. Figure 1 presents the number of borrowers for all the three types of loans, OL, FO, and EM combined. The figure shows a substantial geographical dispersion in the intensity of FSA loan use. For example, out of the 3,078 counties reported in the 2002 Census of Agriculture, 484 (15.7 percent) had no borrowers while counties such as Franklin Parish in Louisiana, Lancaster County in Pennsylvania, and Aroostook County in Maine had 242, 259, and 263 borrowers, respectively.

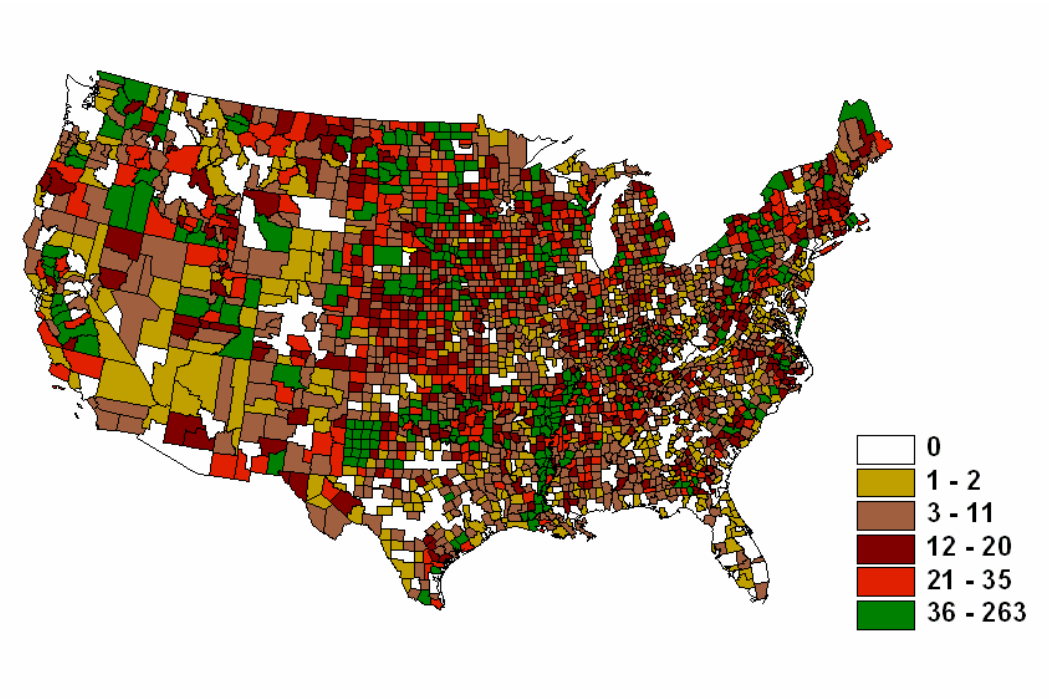

Figure 1. FSA Direct OL, FO, and EM borrowers, FY 2000–2003

Given that OL loans account for about 79 percent of all loans, the distribution of OL borrowers is similar to that of all borrowers combined. Unlike OL borrowers, FO borrowers are much fewer in number and located in fewer counties. Yet, the intensity of use of FSA FO loan borrowers exhibits substantial geographical dispersion with number of borrowers ranging from 0 to 54 within counties. Three of the four counties with the highest number of FO loan borrowers are located in Oklahoma while the counties in the Southeast farm production region (Alabama, Florida, Georgia, and South Carolina) have very few FO loan borrowers.

EM loans show a wide geographical dispersion of borrowers across the U.S. However, unlike OL and FO loans, EM loan distribution is dependent upon the distribution of agricultural related disasters. For example, Terry County in Texas had a total of 164 borrowers for all loans combined, but had 109 EM borrowers—the largest number of EM borrowers of any county in the four-year period. Terry County and the adjoining counties in the Southern High Plains were plagued with drought between 2000 and 2003.[4] The coastal plains of the Appalachians and the Northeast also show high numbers of EM borrowers, probably due to coastal storms. Inland, the delta states of Arkansas, Louisiana, and Mississippi show a large proportion of EM loan borrowers.

The intensity of use of FSA loans has substantial geographical dispersion that varies by type of loan. Dodson and Koenig (2003) observed geographical variations in FSA lending activity for FSA loans made from 1995 to 1999. We continue to observe this trend for FSA loans made

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between FY 2000 and 2003. For OL and FO loans, the geographical dispersion is driven partly by the dispersion of eligible borrowers while the dispersion in EM loan use is driven by natural disasters.

FSA Direct Loans to Family Farm Borrowers

The intended clientele for FSA's direct loan programs are creditworthy family farming operations that are unable to obtain credit from conventional sources. The definition of a family-sized farm used by FSA is a farm that: "(a) is similar to other farm operations in the community, (b) has an operator of the farm who provides all day-to-day management and operational decisions of the farm business, (c) has an operator who contributes a substantial amount of full-time labor to the farming operation, and (d) has credit needs that are consistent with a family sized farming operation" (Dodson and Koenig, 2003 p. 193).

Although a family farm is not precisely defined, total borrower indebtedness caps may help to ensure that family farms are the primary recipients of FSA Direct loans. The indebtedness caps for the FO and OL programs are $200,000 each, while the cap is $500,000 for the EM program.[5] As evident in figure 2, the origination amounts for the majority of direct loans are well under the program caps. As expected, average origination amounts are substantially larger for FO loans than for both OL and EM loans. EM loans average slightly larger amounts than OL loans. Nationwide, from FY 2000 to FY 2003, the average direct OL loan was $55,822, the average direct FO loan was $113,739, and the average EM loan was $60,177. Over the same time period, there were annual averages of 11,855 OL loans, 1,532 FO loans, and 1,621 EM loans made. Regional average principal amounts ranged between $102,875 and $139,905 for FO loans, between $41,736 and $72,262 for OL loans, and between $43,106 and $99,836 for EM loans. The regional data show evidence of mild heterogeneity in loan size. On average, the Pacific and Lake States regions have the largest FO loans, while the Corn Belt and Northern Plains have the smallest FO loans. For OL loans, the Pacific and the Southeast regions average the largest loan sizes. The Appalachian region has the smallest average OL loan size.

[5] A borrower may have multiple loans of the same type (OL, FO, or EM) as long as the sum of the original principal on those loans is less than the indebtedness cap for the particular loan type.

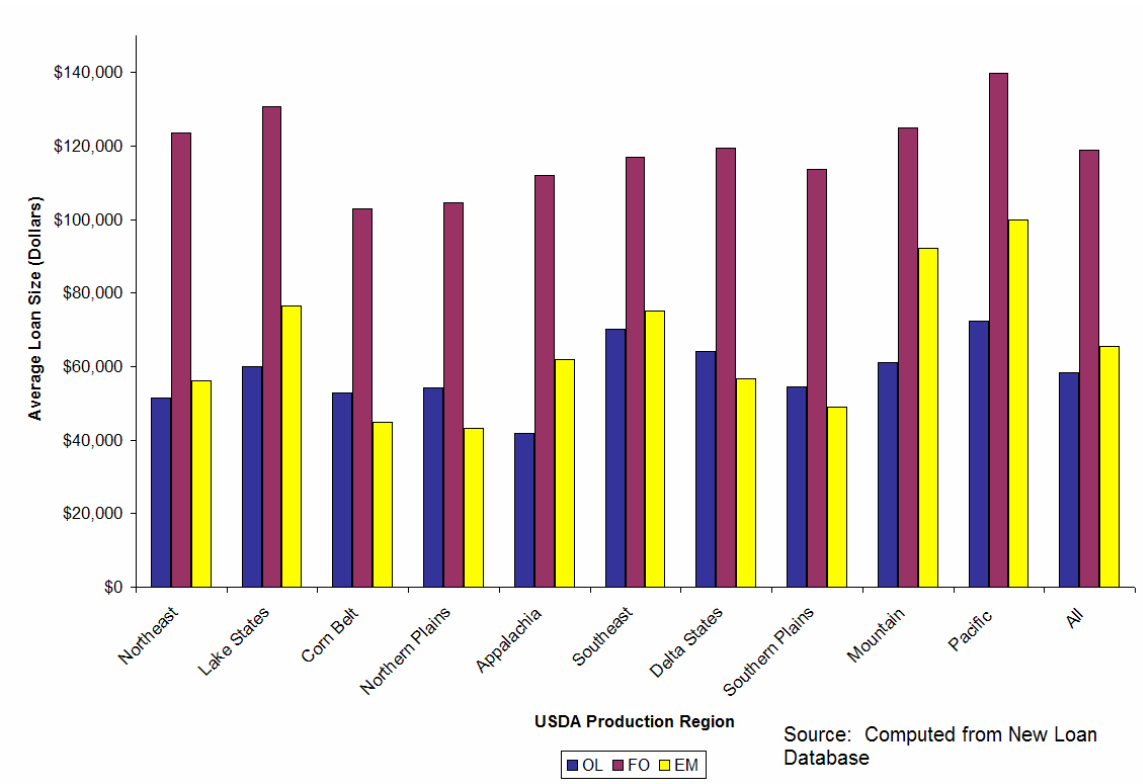


Figure 2. FSA loan size by loan type and USDA production region, FY 2000–2003

FSA Direct Loans to Small Family Farm Borrowers

According to the USDA farm typology definition, a 'small' family farm is a farm with sales less than $250,000 per year. This definition follows from a suggestion by the National Commission on Small Farms (USDA/ERS, 2004). Given the lending caps of FSA's direct farm loan program, small family farms are more likely the primary beneficiaries of the direct loan program.

To estimate the proportion of direct loans made to small farms, it is necessary to use ARMS data. This is required because the New Loan database did not report sales levels for FSA Direct loan borrowers. ARMS data for the four-year period from 2000 to 2003 were used to estimate the number of family farms in the U.S. and the number of those farms originating direct loans in 2000–2003. The ARMS data estimate an average of 2,104,280 farms per year.[6] Of these farms, only 45,226 (2.15 percent) are estimated to have been FSA Direct loan originators and the remaining 2,059,054 are non-FSA Direct loan originators.[7]

[6] The four-year total before excluding an estimated 621 farms with more than one million dollars in a FSA direct loan is 8,417,740. The 621 farms are excluded since they are unlikely FSA farms since individual loan program caps are $500,000 or less. Thus the averages calculated here are based on a four-year total of 8,417,119 farms.
[7] We caution the reader here that there is a large distinction between FSA direct loan originators and farmers with at least one FSA direct loan. An operator originating no FSA direct loans during 2000-2003 but still having one or more active FSA direct loans originated prior to 2000 would not be counted. The reason for this distinction is to focus on more recent FSA loan originations.

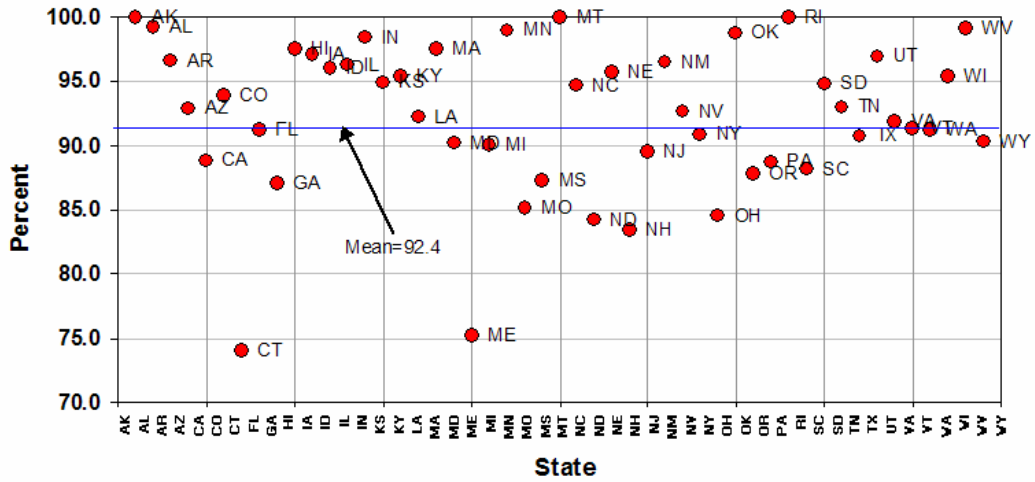
One indication of the extent of FSA loan activities among small farms is the percentage of FSA loans made to small farms. This percent is calculated as the four-year expanded total number of farms in ARMS surveys with sales less than $250,000 and reporting one or more of FSA-sourced loans originated during the calendar year of the survey divided by the four-year expanded total of all farms (regardless of sales) reporting one or more of FSA-sourced loans originated during the calendar year of the survey. Nationwide, nearly 78 percent of FSA Direct loans went to small family farms, with 65 percent of the states devoting at least half of new direct loans to small farmers.[8]

The ARMS data, however, do not give reasonable estimates of small farm counts by state, with nine states showing no FSA small farms at all. The FSA New Loan data set, on the other hand, cannot be used by itself because it does not have the sales variable to delineate the small farms. A better indication of the state-level loan servicing involvement of FSA in small farms is obtained by using the combined FSA New Loan and the Farm and Home Plan data sets. The Farm and Home Plan's gross income variable (crop income plus livestock income plus other farm income) was used as a proxy for sales, thus enabling small farms in the New Loan data set to be counted.

Results from the combined New Loan and Farm and Home Plan database are presented in figure 3.[9] The figure shows that by state, the percent share of small farm borrowers to the total FSA borrowers who received new loans in FY 2000–2003 ranges from 74.1 percent (Connecticut) to 100 percent (Alaska, Montana, and Rhode Island). Overall, 92.4 percent (indicated by the horizontal line) of the FSA borrowers were small farms. This compares favorably with the 88.2 percent proportion of small farms to the total FSA-eligible farm population estimated from the 2002 Census of Agriculture.

[8] Of the remaining 22 percent of FSA direct loans, an estimated 13.7 percent went to farms with $250,000 to $499,999 of sales, 6 percent went to farms with $500,000 to $999,999 of sales, and only 2.4 percent went to farms with $1,000,000 or more in sales.

[9] This figure is based on the 42.5 percent of new borrowers whose loan information was matched to their Farm and Home Plans.



Source: Computed from Combined FSA New Loan Database - Farm and Home Plan Database

Figure 3. Percent share of small farms to total FSA borrowers, FY 2000–2003

FSA Direct Loans to SDA Borrowers

Under the Agricultural Credit Act of 1987 (P.L. 100-233), FSA began officially targeting Socially Disadvantaged Applicants (SDAs) applying for direct FO loans. The Food, Agriculture, Conservation, and Trade Act of 1990 (P.L. 101-624) and the Agricultural Credit Act of 1992 (P.L. 102-554) expanded SDA targeting to include OL loans and women. Currently, the law requires FSA to "reserve or target a portion of its direct and guaranteed operating and farm ownership loan funds for use exclusively by socially disadvantaged applicants. SDAs are classified in one or more of the following categories: women, African Americans, Native Americans, Alaskan Natives, Hispanics, Asians, and Pacific Islanders. In the farm ownership loan program, the percentage of loan funds targeted for SDAs is based upon the state percentage of the total rural population made up of SDA groups, and the statewide percentage of total farmers who are female. In the operating loan program, the target is determined by the statewide percentage of total farmers from the SDA minority group, and the statewide percentage of total farmers who are female" (USDA/FSA, 2004 a). EM loans are not specifically targeted to SDAs.

Table 2 provides a count of the number of loans and borrowers to different cohorts including SDAs and the number of counties represented by these borrowers. African Americans make up the largest racial group followed by American Indian or Alaskan Native and Hispanics. Asians and Pacific Islanders make up substantially smaller proportions. The combined racial group has more loans and borrowers than the SDA group comprised of females.

Table 2. Counts of FSA loans, borrowers, and counties by loan cohorts FY 2000–2003

Cohort	**Number of loans**	**Number of borrowers**	**Number of counties**
All FSA borrowers	60,151	45,016	2,592
OL borrowers	47,540	37,729	2,486
FO borrowers	6,127	6,067	1,604
EM borrowers	6,484	6,018	1,158
Female or SDA gender	3,669	2,642	992
Beginning farmer	23,984	17,733	2,092
American Indian or Alaskan Native	1,468	1,044	259
Asian	324	251	78
Black or African American	2,180	1,417	365
Hispanic or Latino	1,440	1,108	247
Native Hawaiian or Other Pacific Islanders	91	74	34

Source: Computed from FSA New Loan Database

In this study, SDAs are counted based on assistance types (which are indicated for each loan), indicated race/ethnicity, and gender from the FSA New Loan Database (FY 2000–2003). A borrower is counted as female or SDA gender if the indicated gender is female or if the indicated loan assistance type is SDA gender. Counting female loans by indicated gender alone resulted in 3,622 loans to women. Combining assistance type and indicated gender increased the number of loans to 3,669 or an additional 47 loans. Some of the 47 additional loans came from entries with missing gender and a few from males coded as receiving gender loans. Beginning farmers are counted as borrowers who received an FSA loan with beginning farmer assistance type. The race and ethnic category counts are based on the indicated race or ethnicity. If a borrower indicated more than one race, she/he is counted once in each of the races or ethnicity.

Table 3 presents a count of loans based strictly on assistance types. For OL loans, SDA is comprised of OL BF SDA and OL SDA assistance types. For FO loans, SDA includes FO BF SDA ethnic, FO BF SDA gender, FO SDA ethnic, and FO SDA gender. Clearly the most frequent loans were regular OL loans with 40 percent of all the direct loans made. The next most frequent loan type was OL BF with 28 percent of direct loans originated. FO loans comprise about 9 percent of loans made.

Table 3. Grouping of loans based on assistance type, FY 2000–2003

Aggregate assistance type	Number of loans	As a percentage of all loans
OL regular	24,266	40.34
OL BF	16,762	27.87
OL BF SDA	3,042	5.06
OL SDA	3,470	5.77
FO regular	1,538	2.56
FO BF	3,491	5.80
FO BF SDA ethnic	356	0.59
FO BF SDA gender	297	0.49
FO SDA ethnic	267	0.44
FO SDA gender	178	0.30
EM	6,484	10.78

Source: Computed from FSA New Loan Database

Table 4 presents the counts of loans, grouped by loan assistance type, to selected SDAs. The numbers in brackets represent the top number as a percentage of all loans to the cohort. A total of 7,610 SDA loans were made to 4,040 unique borrowers from 2000 to 2003. The majority of the SDA loans (85.57 percent of loans received by women and ethnic minorities) were made under the OL SDA and OL BF SDA categories.[10] Women and the different ethnic and racial groups receive the majority of their loans from the SDA loan assistance types. For example, OL BF SDA and OL SDA loans account for about 64 percent of all FSA loans to women. However, some SDA eligible borrowers receive non-SDA loans. For example, nearly 16 percent of loans to females had a non-SDA assistance type. An SDA eligible borrower may receive a non-SDA loan due to availability of funds for various loan assistance types.

[10] A borrower is SDA eligible if they are female or a non-white race or both.

Table 4. Counts of loans by loan type for different loan cohorts FY 2000–2003

Cohort	OL regular	OL BF	OL BF SDA	OL SDA	FO regular	FO BF	FO BF SDA ethnic	FO BF SDA gender	FO SDA ethnic	FO SDA gender	EM	Tota
Female or SDA gender	281	250	1,257	1,057	12	35	28	297	22	178	252	3,66
	(7.66)	(6.81)	(34.26)	(28.81)	(0.33)	(0.95)	(0.76)	(8.09)	(0.60)	(4.85)	(6.87)	(100
Female	281	250	1,257	1,057	12	35	28	272	22	156	252	3,62
	(7.76)	(6.90)	(34.70)	(29.18)	(0.33)	(0.97)	(0.77)	(7.51)	(0.61)	(4.31)	(6.96)	(100
Beginning farmer	0	16,762	3,042	0	0	3,491	356	297	0	0	0	23,94
	(0.00)	(69.99)	(12.70)	(0.00)	(0.00)	(14.58)	(1.49)	(1.24)	(0.00)	(0.00)	(0.00)	(100
American Indian or	101	56	411	542	9	13	127	26	81	10	92	1,46
Alaskan Native	(6.88)	(3.81)	(28.00)	(36.92)	(0.61)	(0.89)	(8.65)	(1.77)	(5.52)	(0.68)	(6.27)	(100
Asian	10	4	68	160	1	0	25	4	16	4	32	324
	(3.09)	(1.23)	(20.99)	(49.38)	(0.31)	(0.00)	(7.72)	(1.23)	(4.94)	(1.23)	(9.88)	(100
Black or African	25	23	803	917	1	0	49	3	72	6	281	2,18
American	(1.15)	(1.06)	(36.83)	(42.06)	(0.05)	(0.00)	(2.25)	(0.14)	(3.30)	(0.28)	(12.89)	(100
Hispanic or Latino	73	32	460	519	2	12	83	9	46	4	200	1,44
	(5.07)	(2.22)	(31.94)	(36.04)	(0.14)	(0.83)	(5.76)	(0.63)	(3.19)	(0.28)	(13.89)	(100
Hawaiian	12	3	26	34	0	4	4	1	1	0	6	91
	(13.19)	(3.30)	(28.57)	(37.36)	(0.00)	(4.40)	(4.40)	(1.10)	(1.10)	(0.00)	(6.59)	(100
All	24,266	16,762	3,042	3,470	1,538	3,491	356	297	267	178	6,484	60,15
	(40.34)	(27.87)	(5.06)	(5.77)	(2.56)	(5.80)	(0.59)	(0.49)	(0.44)	(0.30)	(10.78)	(100

Source: Computed from FSA New Loan Database

Note: The numbers in parentheses are percent share by loan type for each cohort so that the row percentages sum to 100 percent.

Figure 4 displays the average loan size (as measured by principal outstanding at origination) by OL and FO loans to SDA and non-SDA borrowers. Average SDA OL loan size is substantially smaller than non-SDA OL loan size in every region. On a national level, the average non-SDA OL loan is $57,271 and the average SDA OL is $46,692. In general, the average FO loan size for SDA borrowers is similar to that of non-SDA borrowers. In the Delta States, Northern Plains, and Mountain regions non-SDA FO loan size is slightly larger than that of SDA FO loan size, while the reverse is true in the Southern Plains and the Pacific regions. Nationally, the average non-SDA FO is $113,221 and the average SDA FO is $116,110.

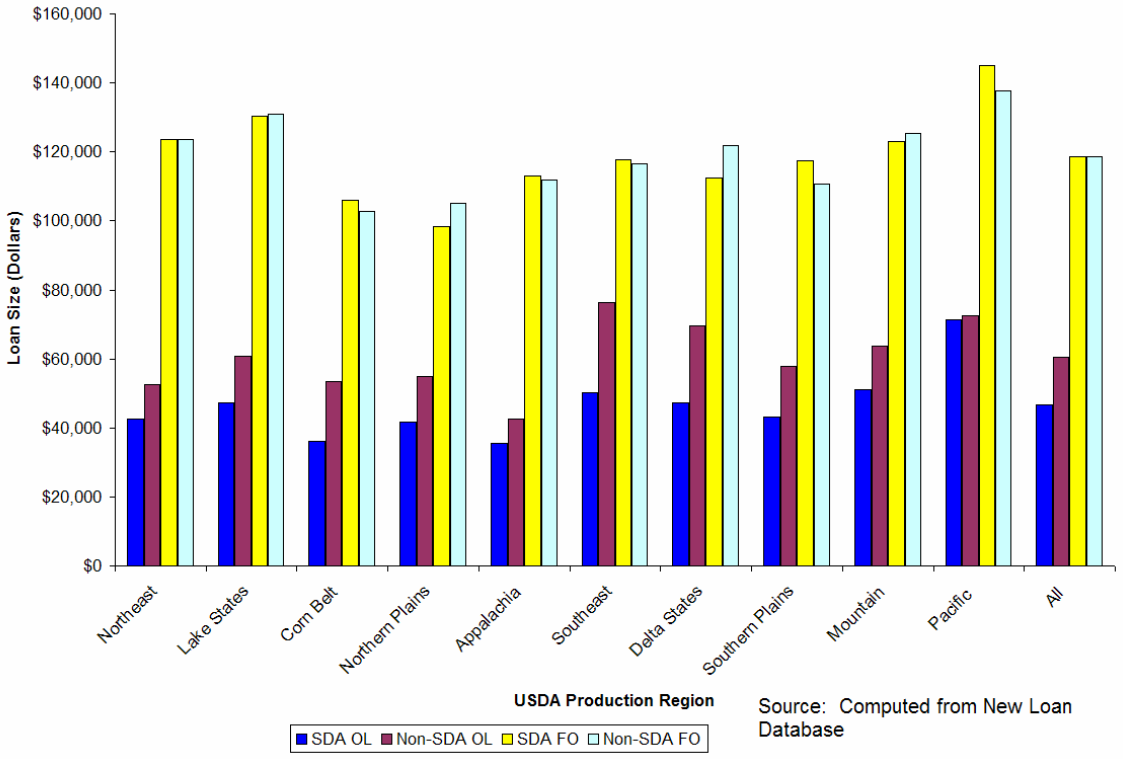
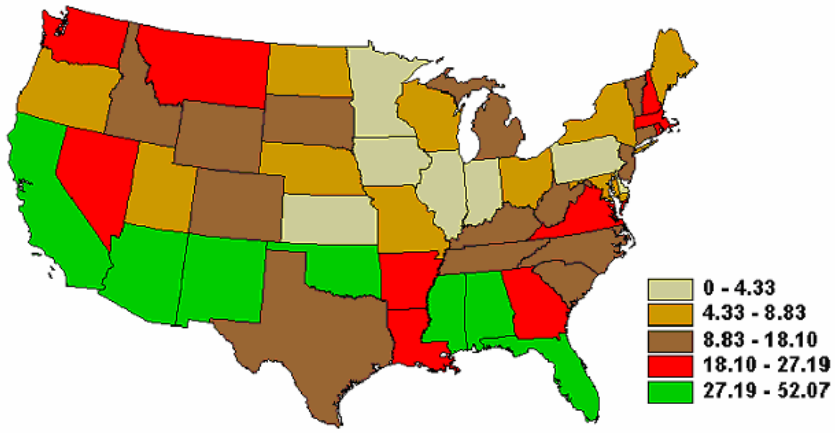


Figure 4. Average FSA loan size by loan type and USDA production region for SDA and Non-SDA borrowers, FY 2000–2003 four year average

SDA borrowers tend to be geographically concentrated. American Indian/Alaskan Native borrowers are concentrated in Oklahoma, New Mexico and the reservation areas of North and South Dakota. African American/Black borrowers are concentrated along the Mississippi River delta and the Coastal Plains as well as in Oklahoma. Asian borrowers are clustered in California while Native Hawaiian/other Pacific Islanders are low in numbers relative to the other racial/ethnic groups and are spread uniformly across the country. Hispanic/Latino borrowers are concentrated in the Southwest, California, and Washington. There is also a concentration of Hispanic borrowers in Puerto Rico. Women borrowers are geographically dispersed, with a general increase in density east of

the Rockies and specific concentrations in and around Oklahoma, Arkansas, Tennessee, Kentucky, Massachusetts, and Rhode Island.[11]

Figure 5 shows the percent of OL and FO loans made to SDA borrowers during FY 2000–2003. States in the southern and southwestern portions of the country, along with California, devote a larger proportion of their loans to SDA borrowers than do the states in the rest of the country in general. There are especially low percentages of SDA loans in the Northern Plains, Corn Belt, and Lake States regions. In terms of proportions of loans made to SDA borrowers, 22 states exhibit SDA percentages of 15 percent or greater, and most of these states are concentrated in the southern portion of the country. The southern portion also has most of the SDA farmers except for women.



Source: Computed from FSA New Loan Database

Figure 5. Percentage of FSA OL and FO loans made to SDA borrowers, FY 2000–2003

FSA Direct Loans to Beginning Farmer Borrowers

The Agricultural Credit Act of 1992 (P.L. 102-554) initiated FSA targeting of direct loan assistance to beginning farmers. Currently, the law requires FSA to "reserve or target loan funds for exclusive use by beginning farmers as follows: Direct Operating, 35 percent; Guaranteed Operating, 40 percent; Direct Farm Ownership, 70 percent; Guaranteed Farm Ownership, 25 percent. In the direct programs, funds are targeted for beginning farmers until September 1 of each fiscal year" (USDA/FSA, 2004 a). EM loans are not specifically targeted to beginning farmers.

[11] See GIS maps showing the distribution of women, beginning farmers, and ethnic minorities in Nwoha et al. 2005.

For FY 2000–2003 a total of 19,804 BF OL loans were originated with a total principal of $1,030,904,649. This averaged 4,951 loans per year with FY 2002 having the highest with 5,103 loans and FY 2000 having the lowest with 4,769 loans. The average BF OL loan size was $52,055 over the four years. By comparison, there were only 4,144 BF FO loans over the same four years for a total principal of $475,355,940. FY 2000 had the highest number with 1,262 loans whereas FY 2001 had the lowest number of loans with 903. The average BF FO loan size for the nation was $114,709 over the four years.

Figure 6 illustrates the average loan size by loan type to BF and non-BF borrowers by region. In general, the average BF OL loan size tends to be smaller than the average non-BF OL loan size. At a national level the BF OL loan size averaged $52,055 compared with $58,511 for non-BF OL loan size. The differences in average loan size between BF OL and non-BF OL range from a low of $252 for the Southeast region to a high of $23,008 for the Pacific region. Average BF FO loan size is generally larger than average non-BF FO loan size with the exception of the Corn Belt, Lake States, and Southern Plains regions. The differences between regions might be attributed to the differences in allocation of funds among states.

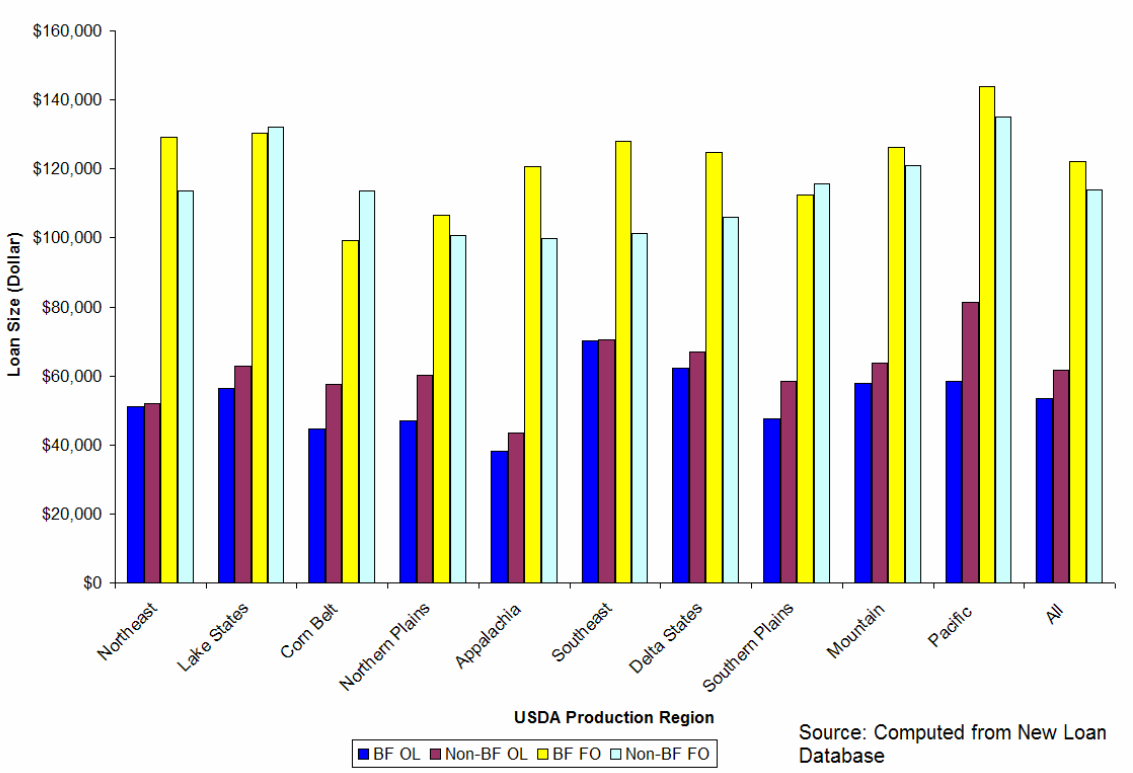


Figure 6. Average FSA loan size by type and USDA production region for beginning and non-beginning farmers, FY 2000–2003 four year average

Figure 7 shows the geographical dispersion of FSA BF borrowers.[12] Each dot on a map represents one BF borrower who received a new direct loan during the FY 2000–2003 period.[13] As the figure indicates, BF borrowers are spread throughout the country, but there are areas of high geographic concentration. In general, areas east of the Rocky Mountains have more BF borrowers than areas to the west of the Rocky Mountains. The Northern Plains, Delta States, and Lake States show especially high concentrations of BFs.

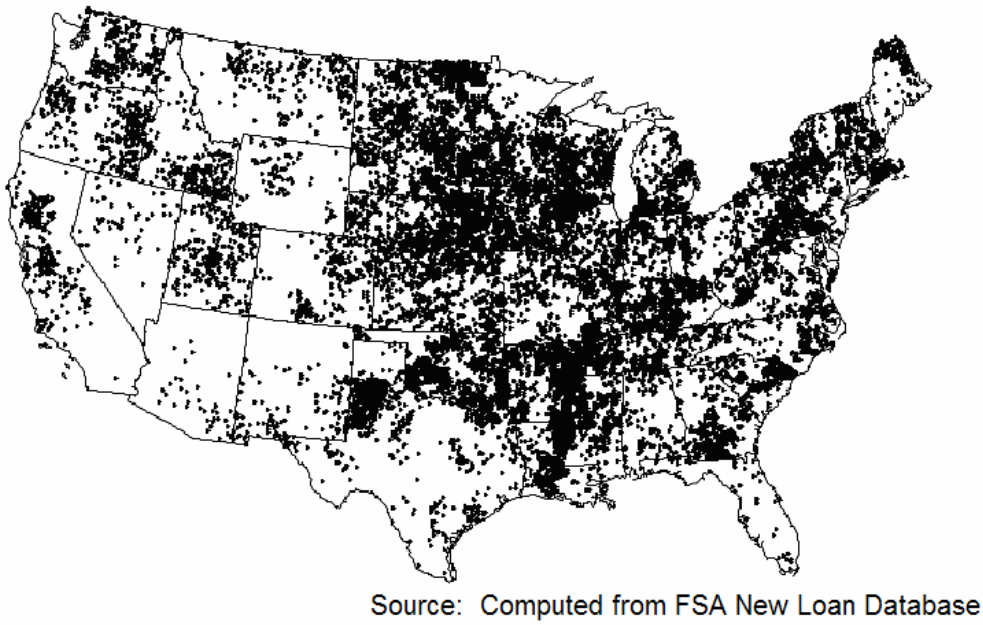


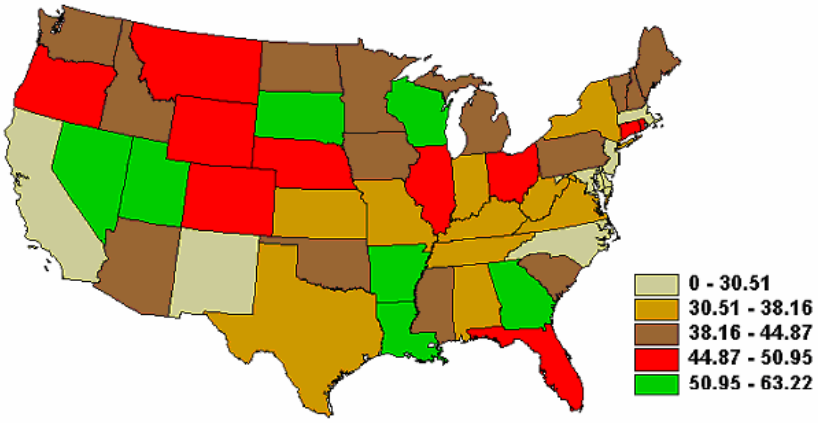
Figure 7. FSA Direct beginning-farmer borrowers, FY 2000–2003

Figure 8 shows the percentage of FSA Direct loans devoted to beginning farmers. Over the four year span, 30 states made more than 40 percent of their direct loans to BF borrowers and eleven states made over half of their direct loans to BF borrowers. Delaware, Maryland, New Jersey, North Carolina, California, New Mexico, Massachusetts, Kentucky, Texas, and Indiana made the smallest percentage of loans to BF borrowers while Nevada, Louisiana, Arkansas, Georgia, Utah, Wisconsin, South Dakota, and Oregon made the largest percentage of loans to BF borrowers.

[12] A borrower is identified as a beginning farmer in the analysis below if the assistance code for the loan has a beginning farmer designation. Thus, if a borrower met the beginning farmer criteria but did not get a loan with a beginning farmer assistance code, the borrower would not be identified in our analysis as a beginning farmer. Conversely, if a borrower does have a beginning farmer assistance code but does not meet the FSA criteria, our analysis would still identify that borrower as a beginning farmer.

[13] If a particular individual received a loan in multiple years, they would show up as a dot for each year. In addition, if a borrower had more than one loan type in a given year (e.g. OL and FO) they would show up as a dot for each loan type they received.

The dollar volume of loans made also mirrors the number of loans made. For the U.S. as a whole, 38 percent of the OL volume (as measured by principal obligated) went to BF borrowers whereas 69 percent of the FO volume went to BF borrowers. Note that a much smaller portion of OL loans go to BF farmers than FO loans, which is consistent with the targeting of program funds at 35 and 70 percent, respectively.



Source: Computed from FSA New Loan Database

Figure 8. Percentage of FSA Direct OL and FO loans made to beginning-farmer borrowers, FY 2000–2003

Considering the 60,151 loans made over the four year period and counting by loan numbers, 39.8 percent of all direct loans (OL, FO, EM), 41.7 percent of direct OL loans, and 67.7 percent of FO loans, went to BF borrowers. With the exception of Delaware, Alaska, California, and Maine, every state made over half of their FSA FO loans to beginning farmers. This is not surprising since 70 percent of the FO funds are targeted to BF operators.

FSA Direct Loan Market Penetration

One measure of the effectiveness of the direct farm loan program is a penetration ratio which we define as the proportion of the FSA loan-eligible farm population that receives direct loans in a given time-span. The penetration analysis in this study focuses on FSA borrowers who receive new loans instead of any farmer having an FSA Direct loan at a given point in time. It is the characteristics of current originators that more accurately describe the current penetration of the market as opposed to counting all borrowers with active loans. In particular, FO loans can last a long time and may not be very reflective of the current emphasis and activities of FSA, but counting only recent borrowers vastly

understates the number of farm operators who hold direct loans at any given point in time.

The market penetration ratio (in percentage terms) for a given loan type (OL, FO, or EM) and unit (state or county) is computed as:

$$(1) \qquad Mkt.Pen._{Type,Unit} = \frac{\sum_{Year=2000}^{2003} Number\ of\ Unique\ Borrowers_{Year,Type,Unit}}{Number\ of\ Eligible\ Farm\ Operators_{Type,Unit}} * 100$$

where the numerator is calculated from the FSA New Loan database (FY 2000–2003) and the denominator comes from the 2002 Census of Agriculture database. The numerator is the sum of all unique FSA Direct borrowers receiving a particular type of new loan (OL, FO, EM, or some combination of the loan types) between FY 2000 and FY 2003. Unit describes the potential borrower population (all borrowers in a county, state, or nation; SDA borrowers in county, state, or nation; BF borrowers in a county, state, or nation; etc.). For each loan type, youth loans and duplicate borrowers are excluded. Thus, a single borrower receiving two OL loans and one FO loan within the four years is counted as one borrower for the purposes of OL penetration, one borrower for the purposes of FO penetration, and one borrower for the purposes of combined penetration.[14]

The denominator is the sum of all potential FSA loan-eligible applicants in a state (or county) for the year 2002 from the 2002 Census of Agriculture. Thus, the penetration rate can be viewed as the percentage of eligible farms FSA reaches with new direct loan assistance between 2000 and 2003.

To estimate the penetration ratios outlined above, it is necessary to define the cohort of eligible borrowers. Since FSA does not have precise rules for determining eligibility for direct loan assistance, an empirical approach using the 2002 Census of Agriculture data is employed to estimate the number of borrowers eligible at the county level.[15]

Farms are designated into the eligible and non-eligible groups using a number of criteria. First, all farms in the FSA eligible pool must be a family organization.[16] Then the pool of FSA eligible farms was built by including family organizations with more than $500 in interest expenses on farm-related debt and annual sales in excess of $5,000. In addition, if a principal operator was under age fifty and had fewer than ten years farming

[14] The four-year period increases the number of data points used in the calculation. This approach is similar to Dodson and Koenig (2003) who used five years of county data in the numerator to increase the number of data points since many counties in their dataset had little FSA lending activity during a given year. While there are 45,016 unique borrowers within years, some of these borrowers are not unique across years. Across years, there are 28,852 unique borrowers indicating that some borrowers obtained loans in more than one year.

[15] Using ARMS data at the county level is untenable given the small number of observations in ARMS relative to number of counties in the U.S.

[16] In the Census the organization had to be family or individual operation, or a partnership, or a family-held corporation.

experience, they were added to the FSA eligible pool if not already in the pool. Principal operators who indicated farming as their primary occupation and who worked fewer than 200 days off-farm were added to the pool if not already in the pool. Finally there was one more exclusion criterion. If gross sales were at least $5,000 and less than $10,000 and the principal operator worked 200 or more days a year off-farm, the farm was deleted from the pool unless he/she was under age 50 and had been in farming for less than ten years.

The goal of the above criteria was to exclude hobby farms and farms with low debt since farmers in either of these groups are not likely to be in the market for FSA Direct loans.[17] One could, in fact, argue for much higher minimum gross sales since $5000 in gross sales almost automatically implies the farm family has an alternative primary source of income. Farmers under 50 with ten or fewer years of experience are added to the pool even if their sales and debt levels are low because these can be legitimate characteristics of beginning farmers. Also, farm operators who indicated farming as their primary occupation are potential FSA clients. We exclude those claiming farming as a primary occupation but with more than 200 days of off-farm work since this situation strongly indicates that they are supporting themselves by off-farm work income.

This procedure categorizes 787,816 of 2,124,452 (37 percent) farmers in the U.S. as FSA eligible. This estimate is undoubtedly high since it does not consider the credit-elsewhere criteria. There are no data available to the researchers to show that a farmer met all the requirements for a loan elsewhere. Moreover, 378,595 or 48 percent of FSA eligible farmers qualified on the basis of being a beginning farmer; a beginning farmer is categorized as FSA eligible irrespective of other possible restrictions except family organization.

The distribution of FSA eligible borrowers is not uniform throughout the country. Figure 9 presents the proportion of FSA eligible farms as a percentage of total farms within cohorts by U.S. production regions. Considering every farm in the U.S., the proportion of FSA eligible farms ranges from 29 percent for the Southeast region to 51 percent for the Northern Plains. For all the SDAs combined, the proportion of FSA eligible farms ranges from 27 percent in the Delta States to 38 percent in the Mountain region. Among the different racial groups, African American has the lowest proportion of FSA eligible farms for all regions. In fact, there are no eligible black farms in many states including Alaska, Connecticut, Hawaii, Idaho, Maine, North Dakota, Rhode Island, Utah, and Vermont. Hispanics/Latinos have the largest proportion of FSA eligible farms in the Southeast, Delta States, and Pacific regions. In certain states, the proportion of FSA eligible Hispanic farms is very high. For instance in New Hampshire, greater than 90 percent of Hispanic farms are FSA eligible. Proportions of 50 percent or more FSA eligible

[17] The 'Hobby Farm' criteria and nomenclature and the exclusion of low-debt farms are similar to that used by Dodson and Koenig (2003). Dodson and Koenig excluded farms as being FSA loan eligible if they reported no interest payments on farm debt for the 1997 agricultural census. Our definition allows some debt because a farmer with a small loan such as an outstanding line of store credit or a small variable input loan might be considered "debt-free" in the same sense that people who pay off all credit card balances monthly are considered "debt-free".

Hispanic farms are observed in states such as South Dakota (68), Wisconsin (63), North Dakota (60), Iowa (58) and six other states. The proportion of FSA eligible female farms is smaller than the proportion of All FSA eligible farms in all regions except in the Southeast region. The Northern Plains exhibit the largest disparity between FSA eligible female farms and the All FSA eligible farms. Given the differences in the proportion of FSA eligible farms for different cohorts, we would expect some diversity in the number of loans based on the number of eligible borrowers and not due to program bias.

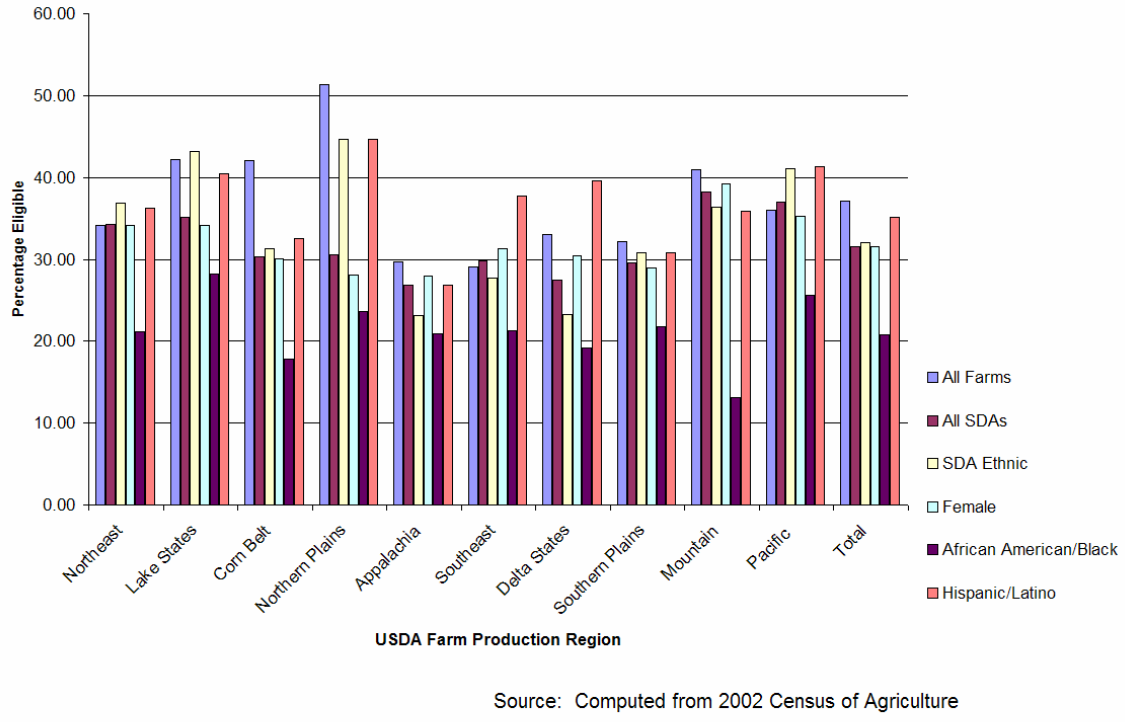


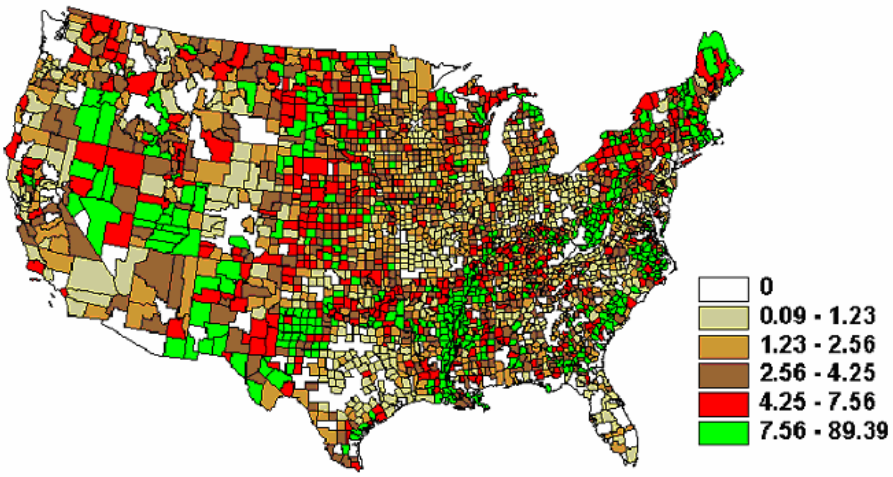
Figure 9. FSA-eligible farms as a percentage of total farms by cohort, 2002

FSA Penetration in Family Farm Markets

There were 28,852 unique borrowers for all FSA Direct loans from FY 2000 – 2003 for the entire U.S. The estimated number of FSA eligible farm operators from the 2002 Census of Agriculture was 787,816. The 50-state penetration rate is 3.66 percent. At the state level, penetration ratios ranged from 0.44 percent for Delaware to 21.48 percent for Rhode Island. State-level variations in penetration are likely due to differences in: (1) proportion of FSA eligible farms, (2) types of agricultural enterprises, (3) health of the agricultural economy, (4) composition of farms (i.e. states that typically have a greater proportion of 'large' farm enterprises would not be as heavily served by FSA programs

and thus will have a lower market penetration), (5) occurrences of natural disasters, and (6) allocations of FSA Direct loan obligation authority and lending practices.

The disparity in penetration ratios is even more pronounced at the county level as shown in figure 10. County level penetration ranged from 0 to 89 percent. Many counties (484 out of 3,076 U.S. counties) had zero penetrations because there were no FSA Direct loan recipients from these counties from FY 2000 to 2003. Among the counties with FSA Direct loan recipients, Sonoma County in California had the least penetration of 0.09 percent while Bristol County in Massachusetts had the highest penetration of 89 percent. There are various pockets of concentration across the country. For example, the Northeast, Delta States, Texas Panhandle, Northern Plains, Coastal Plains and some counties in the Mountain states have high penetration rates.



Source: Computed from FSA New Loan Database and 2002 Census of Agriculture

Figure 10. All FSA Direct loans market penetration percentage by county, FY 2000–2003

OL loans have much higher penetration rates than FO or EM loans do. During the four-year period from FY 2000 to 2003, FSA made an average of 11,885 OL loans per year. This compares with 1,532 FO loans and 1,621 EM loans. Thus FSA makes about 7.8 times as many OL loans as they do FO loans, and 7.3 times as many OL loans as they do EM loans in any given year. Given that the same denominator is used for all three types of loans, (OL, FO, EM), the comparative magnitude of the calculated penetration ratios is as expected. While the range of calculated penetration ratios for OL borrowers is quite similar to the overall distribution, the FO and EM distributions show much greater variation across the country. Penetration rates for FO loans in the Northern Plains and

the Midwest are generally higher than elsewhere in the country. The penetration rates of EM loans are highly dependent on the location of natural disaster declarations, but the EM loan penetration rates are higher in the Delta States, the Coastal Plains, areas of the Northern and Southern Plains, and the Northeast regions.

The state level penetration rates for OL and FO loans have a correlation coefficient of 0.61, which indicates a high degree of correlation between the two loan types. This indicates that states exhibiting a higher penetration rate for the OL loan program are likely to exhibit a higher penetration rate for the FO loan program (and vice versa). FO and EM loan penetration correlation coefficient is 0.57 while that of OL and EM loan is 0.56. These figures indicate that if a state penetrates higher in the FO or OL loan markets, it is likely to penetrate higher into the EM market, but this relationship is slightly less pronounced than that of the relationship between OL and FO loans. This is undoubtedly due to the fact that EM loans are dependent on disaster declarations, which are not only localized within and across states, but irregular and unforeseen as well.

FSA Penetration in Small Family Farm Markets

FSA policy is concerned with helping smaller family farms. To measure how effectively this market is penetrated it would be useful to compute a penetration ratio for the small farm segment of the farm population. Unfortunately, data to do this in a straightforward manner are not available. Sales figures for direct loan borrowers were not available from the FSA databases. Therefore, the numerator of the market penetration number is estimated using ARMS data. Small farms receiving FSA Direct loan assistance are those farms with sales of less than $250,000 reporting FSA as the source for one or more originated loans during the calendar year of the survey. Within the four-year period, ARMS estimated a total of 35,557 of these small farms. When the full set of basic method criteria are applied to 2002 Census of Agriculture data with the additional criterion that sales are below $250,000, an estimated 694,859 farms are FSA eligible for the 50 states. However, the numerator from ARMS does not include Alaska and Hawaii. These states are therefore removed from the denominator. So, the denominator used for the small family farm market penetration calculation is the 48-state adjusted 693,388 FSA eligible farms from the 2002 Census of Agriculture, giving a penetration ratio of 5.13 percent for small family farms. The ARMS data are too thin at the state level to provide any meaningful state level penetration calculations.

FSA Penetration in SDA Farm Markets

Over the four-year period from FY 2000 to FY 2003 in the 50-state region, there were 3,489 unique SDA OL borrowers and 1,065 unique SDA FO borrowers and a total of 4,040 SDA borrowers (OL and FO combined and adjusted for double counting).[18]

[18] A borrower is classified as an SDA borrower if the loan has an assistance code indicating an SDA loan. Thus, if a woman gets an OL loan with a non-SDA assistance code, she would not be counted in these totals as an SDA borrower. Conversely, any borrower having an SDA code is counted as an SDA borrower regardless of their reported demographics. While we collected demographic data, they were not complete

Therefore, the numerator in our SDA OL and FO combined penetration calculation is 4,040. The denominator for the SDA penetration calculations is 101,195 FSA loan-eligible SDAs obtained from the 2002 Census of Agriculture. The calculated ratio based on these numbers is 3.99 percent. Counting SDAs solely on the basis of assistance types likely underestimates FSA penetration into SDA markets. For instance there are women and minorities who received EM loans or non-SDA loans. They are omitted in any SDA assistance code-based classification. To estimate the magnitude of undercounting resulting from the use of assistance codes, we counted all SDA qualified applicants who received an FSA Direct loan including EM loans from FY 2000 to 2003. There are 4,676 identified as SDA borrowers when SDA assistance code, gender, and race/ethnicity are used to classify a borrower as SDA. This results in a penetration ratio of 4.62 percent.

Figure 11 illustrates the market penetration of FSA into the SDA market as a whole based solely on assistance code over the FY 2000–2003 period. Penetration rates are generally high in states where SDA borrowers are clustered. It may be that higher concentrations of SDAs lead to greater sensitivity of both FSA and potentially eligible applicants to making/applying for direct loans. Two states, Rhode Island and Alaska, exhibit penetration rates of 23.19 and 17.65 percent, respectively. The high rates may be a result of the fact that the states have relatively few SDA farms. Rhode Island made direct OL and FO loans to 16 SDA borrowers over the study period while having an estimated eligible base of 69. Alaska made direct OL and FO loans to nine SDA borrowers with an estimated eligible base of 51. Aside from the above two states, SDA penetration is highest in Massachusetts, Louisiana, Hawaii, Oklahoma, North Dakota, West Virginia, Arkansas, Nevada, Mississippi, and South Dakota. With the exception of Nevada, these states also exhibit a high concentration of SDA borrowers. Penetration is smallest in Delaware, Maryland, Florida, Ohio, Indiana, New Jersey, Oregon, and Colorado.

The nationwide average penetration into the SDA OL market is 3.38 percent. SDA OL penetrations follow the same pattern as do the overall SDA penetrations. Out of all loans made to SDA borrowers, OL loans make up 86 percent of the total. FSA Direct loans into the SDA FO market ranged from a high of 11.76 percent for Alaska to a low of zero percent for Connecticut while the U.S. average is 1.02 percent. The pattern of the FO distribution is similar to the SDA OL distribution. SDA borrowers tend to be clustered in specific geographical regions. This is primarily due to historical population settlement factors. Thus, the SDA market is very thin in some states.

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nor will they ever be complete due to missing data in FSA records. However, all loans have an assistance code. The maps presented for SDA penetration are computed from assistance code-based counts.

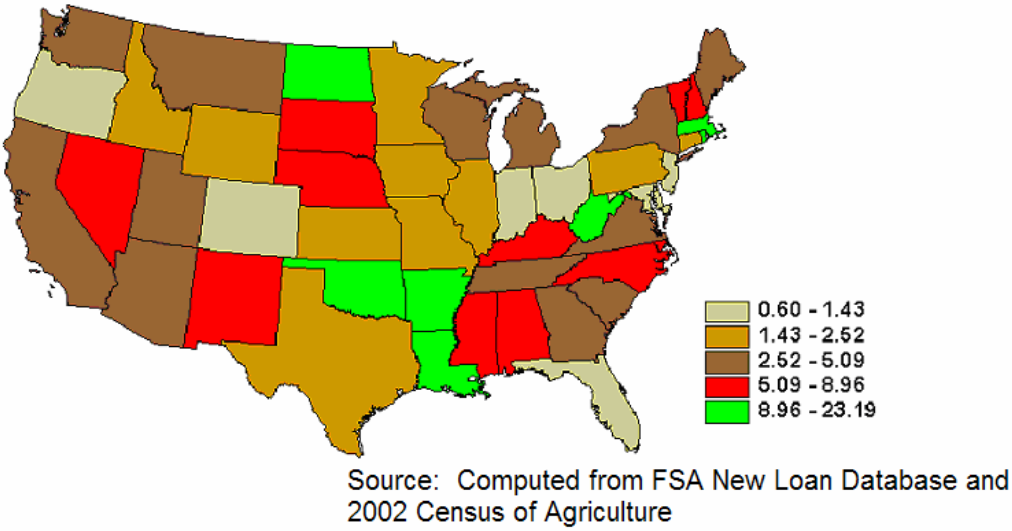

Figure 11. FSA Direct SDA FO and OL combined market penetration percentage, FY 2000–2003

Female borrowers are an important segment of SDA borrowers. FSA made fewer loans to women than the racial/ethnic SDA population resulting in a lower market penetration rate for women since more women are estimated as FSA eligible than are racial/ethnic operators. About 32 percent of women operators (73,435 of 232,668) are estimated as FSA eligible. Similarly, about 32 percent of all SDAs are FSA eligible (table 5). For FY 2000–2003, 1,922 women originated 3,669 FSA Direct OL, FO, and EM loans resulting in a penetration ratio of 2.62 percent. Thus, the comparable estimate of 4.62 percent for all SDA implies that FSA penetration is higher for SDA ethnic market than for SDA gender market.

Table 5 lists the average annual number of farms by race and eligibility type estimated from the 2002 Census of Agriculture. As table 5 shows, between 21 and 43 percent of the total number of farms in any given SDA class and 32 percent of all SDA classes combined are classified as eligible. Recall that 37 percent of all 2,128,982 farms are classified as FSA eligible. Thus, the eligibility percentages for SDAs are slightly lower than the eligibility percentage of the general population. This is due to the fact that relatively more SDA-type farms, especially African American farms, are classed as hobby or low debt than their non-SDA peers.

Table 5. Estimated number of FSA-eligible farms by race and gender

Race	FSA eligible	Non-FSA eligible	All	Percent eligible
Black or African American	6,281	24,008	30,289	21
American Indian or Alaskan Native	7,815	12,967	20,782	38
Hispanic or Latino	17,424	32,108	49,532	35
Hawaiian Native	298	516	814	37
Asian	2,905	3,901	6,806	43
Women	73,435	159,233	232,668	32
SDA ethnic	31,274	66,385	97,659	32
SDA	101,195	219,093	320,288	32

Source: Computed from the 2002 Census of Agriculture

FSA Penetration in Beginning Farmer Markets

The criteria for beginning farmer eligibility differ between OL and FO loans. For OL loans, a farmer is eligible for BF assistance if he or she has operated a farm or ranch for ten years or less (USDA/FSA, 2004 c). For FO loans, a farmer is eligible for BF assistance if he or she has operated a farm or ranch between three and ten years and "does not own a farm greater than 30 percent of the average farm size in the county" (USDA/FSA, 2004 c). In order to characterize market penetration, two sets of BF eligible borrowers are estimated from the 2002 Census of Agriculture data. The first set pertains to OL eligible farms and consists of FSA eligible farms with ten years or less of farming experience. The second set corresponds to FO eligible farms and consists of FSA eligible farms with three to ten years of experience and owning acreage less than or equal to 30 percent of the county average farm size (as computed from the 2002 Census of Agriculture).

Figure 12 portrays the annual market penetration rates of FSA into the BF market as a whole (both OL and FO) over the four-year time frame of the study. The 'market' used for the denominator of the penetration rates for this map is BF OL eligible farms. This is a less restrictive definition of beginning farmer, and it is appropriate as a denominator since the numerator is a combination of BF OL and BF FO borrowers.[19] The estimated penetration ratios ranged from 0.48 to 20.13 percent. Excluding Rhode Island with a penetration ratio of 20.13 percent reduces the upper limit of the range to 10.00 percent. Even considering the reduced range, there is still a wide variability in market penetration.

[19] "Combination" means that if an individual had both an OL and an FO loan within the four years, then they were only counted once in this map. So, it would not be correct to call it the "sum" of OL and FO loans.

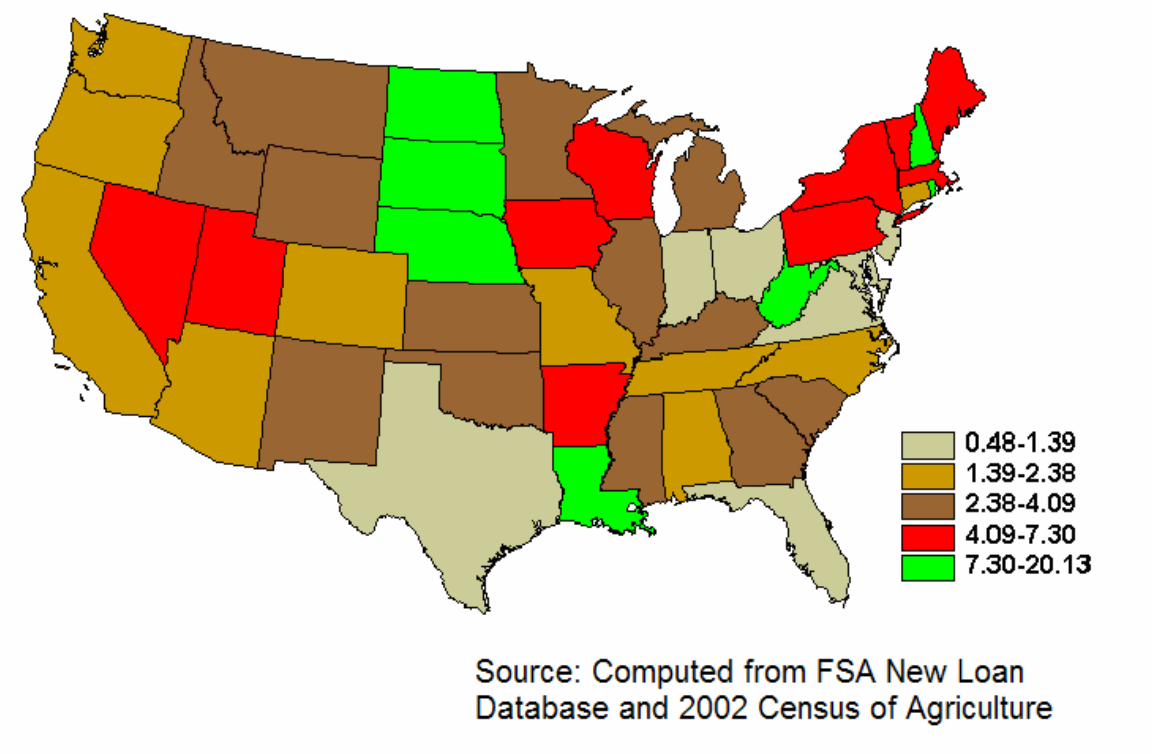

Figure 12. FSA Direct beginning farmer FO and OL combined market penetration percentage, FY 2000–2003

Penetration is highest for Rhode Island, the Dakotas, Nebraska, Alaska, Louisiana, and New Hampshire. The Del-Mar-Va region, Texas, Florida, New Jersey, Ohio, and Indiana all exhibit low penetration numbers. The low penetration rates in California, Texas, and Florida probably reflect the large scale agriculture characteristic of those states. The large scale implies that the limits on the loan sizes ($200,000) may not be sufficient to allow a large number of beginning farmers to purchase a commercially viable farm with such limited resources.

Considering the separate average annual penetration rates for the BF OL and BF FO markets, regional penetration patterns remain largely the same as the BF OL and BF FO pattern. The Northern Plains and most of the Lake States regions demonstrate increased penetration into the BF FO market relative to the BF OL market. In general, the disparity of penetration rates across states is generally less for FO loans than OL loans at the lower penetration levels. Forty states have a penetration rate less than or equal to 3.45 percent for FO whereas in the OL market the fortieth state penetration rate is 5.60 percent. However, penetration rates increase much more for the ten states with the highest FO loan market penetration than they do for the ten states with the highest OL loan market penetration. Further analysis is necessary to determine the reasons for this variability. A disparity in land cost across regions could be a factor. For example, land value in Montana ($390 per acre for land and buildings in 2003) is low compared with land value in Connecticut ($9,500 per acre for land and buildings in 2003) (USDA/NASS, 2004).

But the mix of operating and land costs for various crops might also be a factor resulting in larger heterogeneity.

Summary and Conclusions

The Farm Service Agency's direct farm loan programs are designed to provide credit to farm borrowers unable to obtain credit from conventional sources at reasonable rates and terms. By setting eligibility guidelines at levels that screen out corporate and hobby type farms, federal legislation attempts to channel FSA program funds for use by family farms. In addition, a portion of direct loan allocations are specifically reserved for socially disadvantaged and beginning farmer applicants.

By most measures, FSA targeting of family farms appears successful. A majority (78–92 percent) of new FSA direct loan assistance in FY 2000–2003 was received by small family farms where "small" refers to farms with less than $250,000 in sales. Loan lending caps and the FSA criteria for family farms are assumed to be the primary mechanisms that exclude larger, financially stressed borrowers.

Table 6 provides a summary of the calculated market penetration percentages for various FSA Direct loan markets. The table indicates that the penetration percentage for any of the cohorts ranges between 3.16 and 5.13 percent. Beginning farmers seem to have benefited from targeting, especially in FO loans, while SDAs seem to have benefited most from OL loans. The fact that the SDA rate of 4.62 is greater than the overall 3.66 rate suggests targeting has directed more loans to SDA borrowers than would otherwise happen. But more SDA borrowers may have qualified based on FSA eligibility criteria and would therefore receive more loans without targeting. Overall, penetration into FO markets is smaller than OL markets probably due to the lower proportion of FO loans made.

Table 6. Calculated penetration percentages by cohort

Category	OL	FO	OL and FO combined	OL, FO, and EM combined
Small family farm	na	na	na	5.13*
Beginning farm**	2.49	2.04	3.16	na
Socially disadvantaged applicants	3.38**	1.02**	3.99**	4.62***
All family farms	2.93	0.76	3.37	3.66

Sources: 2002 Census of Agriculture, New Loan Database, and ARMS data.
* Numerator is estimated from ARMS data and therefore includes all FSA borrowers.
** Numerator is based on loan assistance type.
*** Numerator includes loans by SDA assistance type and non-SDA loans to women and ethnic/racial minorities.

It is clear that market penetration varies considerably across the states. Dodson and Koenig (2003) attribute this to varying levels of financial stress, accessibility to FSA

service centers, state loan allocations, and the presence of beginning and women farmers. Thus, it makes sense that varying penetration rates would be observed across states because the above factors are not distributed uniformly across states.

The actual penetration rates themselves appear at first glance to be small. However it must be remembered that these are rates of new loan originators. When these figures are adjusted to account for current holders of FSA debt, the level of market penetration appears much stronger. That is, when ARMS data were used to estimate the number of farmers holding some form of FSA Direct loans, we found the number of new originators plus old originators is about five times the number of only new originators. Thus if penetration is viewed as percent of the market holding some form of FSA Direct loans, the ratios would increase by roughly a factor of five.

It is our opinion that the actual penetration rates are much higher than estimated above. The definition of the denominator is very inclusive. Farms with sales over $5,000 are included as well as any farmer under age fifty with less than ten years of experience.[20] These two criteria are minimal. If these criteria were tightened up such as making the minimal gross cash sales $25,000 or $50,000, the numbers of FSA eligible farmers would plummet. As the ARMS data show, the average new FSA borrower had gross cash farm income of about $196,000. Decreasing the number of FSA eligible farms would correspondingly increase the penetration ratios since the numerators would remain unchanged. Although our definition is consistent with the literature (Dodson and Koenig, 2000) and there is no "true" definition, the resulting estimates are almost certainly far too low. The best use of the rates is for comparisons with different regions, loan types, and borrower sub-groupings—but *not* as reliable indicators of FSA reaching all those in need of their direct loan programs.

The amount of money allocated to FSA lending is a major limiting factor in market penetration levels. Historically, the entire amount allocated to FSA is almost always obligated by the end of the fiscal year. In fact, 95 to 100 percent of the allocated amount was obligated by the end of each fiscal year for 2001 – 2004. Therefore, for FSA to make more loans than it is currently making, it would need more allocations or to reduce the principal obligated to borrowers on average so more funds are available to serve additional borrowers.

FSA targeting of SDA borrowers has almost surely resulted in this group as a whole obtaining more credit than they would otherwise likely have obtained from FSA without targeting. National penetration of all direct loans (OL, FO, and EM loans) into the family farm market is 3.66 percent while the same figure for the SDA market is 4.62 percent. Despite the seemingly low penetration figures, 13.66 percent of FSA OL and FO borrowers are SDAs. SDA borrowers represent 13.45 percent of the total OL borrowers and 17.85 percent of the total FO borrowers. Recall that 35 percent and 70 percent of OL and FO allocations are targeted to beginning farmers, thus restricting the allocations available to non-BF including those SDAs who also are not beginning farmers.

[20] This also assumes non-corporate ownership but this removes relatively few farms.

FSA targeting of beginning farmers has resulted in this group receiving 42 percent of the OL loans, 38 percent of the OL principal, 68 percent of the FO loans, and 69 percent of the FO principal. This is consistent with legal mandates that require 35 percent of initial OL allocations and 70 percent of initial FO allocations to beginning farmers. Nationally, the penetration into the BF OL and FO markets combined is 3.16 percent while the corresponding figure for the overall family farm market is 3.37 percent. In terms of percentage of FSA loans made to BFs, three quarters of the states in the lower 48 make more than 35 percent of their OL and FO loans to BF borrowers. The percentage of loans made to BFs is especially high in the FO market, with an average of 68 percent of all FO loans originated to beginning farmers. Forty-six of the 50 states made 50 percent or more of their FO loans to BF borrowers. So, we conclude that targeting has benefited beginning farmers.

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