# Financial Position and Credit Considerations of Diverse Agricultural Producers

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## Introduction

Farm Credit System debt represented $131 billion of the $305 billion, or 43%, of sector debt reported in the USDA sector accounts in 2013 (USDA, ERS, 2014d). The Farm Credit System must balance the importance of fostering a secure and sound banking system and providing access to credit for a diverse farming sector. Diversity in agriculture takes many forms, most notably farm size. However, farms also vary in terms of what they produce and how they market their output, for example, through local markets. Another source of diversity in farming is demographic diversity of those who own and operate farms. While demographic characteristics of those engaged in farming change slowly with time, there is evidence that agriculture is becoming less homogenous, though still largely a profession dominated largely by older white males. It is not clear what role access to credit, or the lack of access, is playing in facilitating the move to a more diverse agricultural sector, but it is surely a critical factor as often expressed by farmer groups.

An overall goal of this paper is to present a clearer understanding of the financial positions, and, hence, credit needs and financial strength of the diverse groups which comprise the agricultural sector. Such an understanding should allow the Farm Credit System to better understand how to meet the credit needs of diverse groups, while at the same time ensuring the soundness of the system by lending to producers with potential to be successful in agriculture.

Of particular interest, in this paper will be groups with special policy interest as reflected in the recent Agricultural Act (AA) of 2014. The 2014 AA continued and expanded many of the programs established in the 2008 legislation which targeted some provisions of farm commodity and conservation programs to individuals based on the demographic characteristics of operators. This policy approach differs from historical and still dominant farm policies which focus on commodities and acreage in production. These groups, or some of these groups, are sometimes referred to as "socially disadvantaged" farmers or "nontraditional" farmers, both of which can be vague and problematic, as producers in these categories are likely not to view themselves by those labels any more than other producers. Farmers in this category have not necessarily experienced prejudices, although they have one or more of the personal characteristics which places them in this category.

Still other policy initiatives have focused on loan programs and outreach assistance to diverse farmers. The USDA administers loan programs for beginning farmers (beginning with the 1992 Act) and the so-called "2501" program to provide outreach and technical assistance through the Socially Disadvantaged Farmers and Ranchers Program (beginning with the 2002 Act). The 2008 Act established the Beginning Farmer and Rancher Development Program to competitively

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fund training and outreach programs to beginning farmers; many of the awards have gone to support programs targeting beginning and diverse farmers. Moreover, the Farm Credit Act requires the Farm Credit System to have programs focused on the young, beginning and small farmers.

In this paper, the subset of farmers and the farms they operate will simply be referred to as "targeted". In particular, the focus will be on the financial position of these farmer populations:

- beginning farmers,
- women producers, and
- ethnic and racial minority producers—Hispanic, African American or Black, and Asian.[2]

The paper will begin by highlighting information from the U.S. Department of Agriculture's (USDA) 2012 Census of Agriculture, released in May of 2014. In particular, the population size and farm size (as measured by gross sales) distribution will be described for the targeted producer groups, compare to all U.S. farms. Such a comparison will help in placing the differences among and between the groups in perspective. For example, since farms and ranches in these groups are more likely to be small, how do they compare to small farms in general? The next section will be definitional, considering definitions of the groups of interest, financial indicators considered, and data sources. The paper will conclude with some implications for the way forward.

## The Targeted Producer Groups in Context

After peaking at 6.8 million farms in 1935, the number of U.S. farms declined until the 1970s. The 2012 Census of Agriculture reported 2.1 million farms.[3] The current definition of a farm was adopted in the mid-1970s. It is a very inclusive definition and embraces farms operated by households that are retired or attracted to farming for reasons not primarily related to production, such as the rural lifestyle or investment opportunities. In addition, since the definition is dollar-based but not adjusted for changing price levels, it becomes more inclusive with each passing year as price levels change. The number of total farms and the average acreage per farm has been very stable during recent decades. However, this stability in farm numbers mask significant structural change over the period. The most basic indicator of industry structure is the number and size distribution of firms.

Figure 1 shows the number and percent of farms in different constant dollar sales classes for Census of Agriculture years 1997 through 2012 (Ahearn and Harris, 2014). During the period,

[2] The other standard racial categories are omitted for the detailed analysis because of their very small population and sample sizes, including Native American and Alaskan Natives and Hawaiian and other Pacific Islanders. Note that some farmers report more than one race and those are also not included in analysis.

[3] Note that USDA estimates for the same year can vary slightly because they are reported on multiple survey instruments. For example, the official definition of farm numbers is reported annually (most recently in May 2014) and for 2012 the reported value was 507 more farms than the 2012 Census of Agriculture. An unofficial estimate of farm numbers is also available from the Agricultural Resource Management Survey (ARMS) and differs again from these estimates. The Census is viewed as the most accurate; the latest Census estimate of farm numbers is used to developed the weights used to expand other surveys until the next Census is available. Because of the central role of the Census of Agriculture in the calculation of survey weights, estimates of farm numbers from multiple surveys for any one year are very close.

both the number and the share of farms increased for those farms with less than $10,000 in gross sales, but most of that came from the very smallest farms, called "point farms". Point farms are those with sales less than $1,000 in gross sales, but normally expected to sell at least that amount of agricultural products. Most users of farm structure data are surprised to find that a large and growing share of U.S. farms have no sales, about 25% in a typical year.

The largest class, here identified as those with sales of $1 million or more, also saw increases in their numbers and share, while the next largest class ($500,000 to $1 million) was relatively stable, with only minor declines. The largest declines were in the mid-sizes of $10,000 to $499,999 in sales, which went from 48% of all farms in 1997 to 36% of all farms in 2012.[4] This evidence of a declining middle is a continuation of an ongoing trend. Recently, there has been a renewed emphasis on extension activities directed towards the farms "of the middle", especially with respect to local food farms (Kirschenmann, et al., 2014). The Agriculture of the Middle research and extension collaboration defines the middle as $50,000 to $500,000 in sales, but there is no consensus regarding what constitutes the middle among various data users. For example, in the original ERS typology a midsized group of farms was not defined; with the 2013 revision a midsized group is defined as $350,000 to $999,999 in gross sales (Hoppe and MacDonald, 2013).

There are many other indicators of structural change for the agricultural sector and many references documenting these trends.[5] But, how is this relevant for considering the financial position and credit needs of diverse populations in U.S. agriculture? The targeted groups generally have a much smaller farm size distribution than other farms. In particular, the targeted groups have a much smaller share of large farms. There is one notable exception to this generalization. Farms with a principal farm operator who is Asian are more likely to operate large farms. For example, where only 4% of all U.S. farms had sales of $500,000 or more, 9% of Asian-operated farms did. Also, note that Asian farmers generate these sales on small average acreage since they are likely to be engaged in production of high-value agricultural crops. Table 1 presents the distribution of farms by size of farm for the targeted groups and all farms for 2012. With the exception of Asian-operated farms, the remaining groups had from 31 to 47 percent of the farms in the sales class of $1,000 or less.

If the interest is in evaluating financial positions by comparing groups, it is important to compare farms of like size. The generally smaller farm structure for the targeted groups implies different credit needs, owing to their smaller acreage, gross revenues, and production expenses.

Another implication of the generally smaller farm structure of targeted groups is their greater reliance on off-farm income. Once ignored by agricultural economists,[6] it has been recognized as

[4] If changes in price levels were ignored as is done in the publicly available trend data from NASS, it would appear as if there was an increase in the number of farms between $250,000-$499,999, and especially $500,000-$1 million.

[5] For example, for a recent summary of trends and the drivers behind those trends, see Armbruster and Ahearn (2014).

[6] Not recognizing the importance of off-farm income sources to farm families was the major reason the Office of Technology Assessment incorrectly predicted that between 1986 and 2000 the number of small farms would decline by 500,000 (U.S. Congress, 1986).

a critical resource for family living and farm expenses since first measured in USDA's Farm Costs and Returns Survey (the precursor to ARMS) during the farm financial crisis of the 1980s (Ahearn, Johnson, and Strickland, 1986). The advantage of the reliance on off-farm income from a lenders' viewpoint is that off-farm income is generally less variable than farm sources of income (Mishra and Goodwin, 1997). However, not all farm households have reliable sources of off-farm income and many of these are small farms also lacking in farm resources. Meeting their credit needs is a broader policy challenge, including social policies. To better understand the credit needs of the targeted groups from the Farm Credit System perspective, to the extent possible statistics will be presented that distinguish producers who are classified as "point farms" as a separate size category.

**Data Sources, Definitions, and Financial Ratios Considered**

*Data Sources*

The data are from the national farm data bases, i.e., the Census of Agriculture (referred to simply as Census) and the Agricultural Resource Management Survey (ARMS) (USDA, ERS, 2014a). The advantage of the Census is, of course, its coverage, allowing for a reliable estimate of the size and general characteristics of the small groups that bring diversity to the agricultural sector and allowing for a comparison of changes over time. However, the Census does not provide sufficient financial information of U.S. farms. These data are uniquely provided by the ARMS.

Since ARMS is a sample of farms, this proposed research will combine multiple years—2009 to 2012— of ARMS data to ensure that sample sizes for the diverse groups of interest are sufficiently large to allow for a statistically reliable analysis of farm financial positions. The years from 2009 to 2012 have been record or near-record levels for net cash income and value-added of the farm sector, as well as record high asset values, driven by real estate, and increases in debt. However, the higher rate of increase in assets compared to debt over the period meant that sector equity increased and debt-to-asset ratios declined over the period (USDA, ERS, 2014e).

For the sample of ARMS farms, typically about 20,000 per year, a statistical weight is calculated for each observation so that the sample is fully representative at the national (i.e., 48-states), regional, size, and production specialty class. NASS statisticians design the sample each year to allow for precise weights to be calculated, post data collection, while at the same time managing respondent burden over the full farmer population for NASS' multiple surveys, and across years for the probability of selection into the ARMS survey. In consultation with statisticians, ARMS users interested in a subpopulation of farms, such as targeted farms, have found it fruitful to collapse multiple years of data to increase the sample size for these subpopulations and thereby increase the accuracy of estimates. This is especially useful in the case of variables that change slowly over time, such as assets and debt, but is also commonly done for all variables.[7] The sample design of the ARMS is considered as "complex" and not from a random sample of farms

[7] Collapsing years of ARMS data is also commonly done in the case of variables that vary over time, such as gross farm income, but the researcher addresses the issue as is appropriate for the methods. For example, when multivariate analysis, such as regression is used, dummy variables are included to capture the years. In practice this means that the weight of each pooled observation is divided by the number of years pooled, effectively giving equal weight to each year of data.

(Dubman, 2000). This approach is taken to both increase accuracy of estimates and manage respondent burden. Similarly, farms are rotated out of the ARMS sample on a regular basis because ARMS is the most burdensome, i.e., time-consuming, of NASS surveys.

A family farms is one in which at least 50% of the owned assets of the operation are owned by the principal operator and those related to the operator by blood or marriage. Since 1996, the share of farms that are categorized as family farms has varied from 97-98% of all farms and 88% of all production (Hoppe and MacDonald, 2013). In this ARMS-based analysis, only family farms will be considered because it is for this group that detailed demographic and off-farm sources of income are collected.

*Targeted Populations Defined*

Beginning Farmers or Ranchers—A family farm is considered a beginning farm when a farmer or rancher has not operated a farm or ranch for more than 10 years. This 10-year requirement applies to all operators, defined as members of an entity who will materially and substantially participate in the operation of the farm or ranch.[8] Different USDA programs, with differing goals, have additional criteria placed on the definition of a beginning farmer or farm. In using the ARMS to identify beginning farmers, the consecutive work experiences of up to three operators farming their current or other farms was considered.

Women Principal Operators—A family farm is considered to be operated by a woman when the principal operator is a woman. The USDA, NASS data collection convention is to only allow one operator to be identified as "principal." Principal operators are self-identified by the respondent to the ARMS survey. Women also contributed significant management and labor resources on other farms. For example, more than one-third of all U.S. family farms report that the farm is managed by a husband and wife team and when all operators on a farm are considered, not just the principal, more than 30 percent of operators are women (USDA ERS, 2014b and 2014c). However, because of the focus on the demographics of the *principal* operators, these farms will be the population of interest in this paper.

Hispanic Origin Principal Operators—A family farms is considered to be operated by an Hispanic when the principal operator self-identifies as of Hispanic ethnicity. Note that Hispanic origin operators can be of any race.

African American or Black Principal Operators—A family farm is considered to be a Black or African American farm if the principal operator self-identifies as this race.

Asian Principal Operators—A family farm is considered to be operated by an Asian when the principal operator self-identifies as this race.

*Financial Measures*

Financial measures are captured for both the farm operation and the farm household. These can differ for some farms in the case where farms have multiple operators and returns are shared and/or asset and debt ownership are held differently. In the case of multiple operators,

[8] In the Census published data, only the experience of the principal operator is considered, resulting in a higher estimate of beginning farmers.

household-relevant information is collected only for the principal operator. Since most secondary operators are spouses of principal operators, generally, business and household financial positions are the same. There are two exceptions: (1) in the case of farm income, the income of the farm business is strictly a cash income of the operation and in the case of household farm income, depreciation expenses, as reported by the operator, are included as an expense and (2) in the case of household financial measures, nonfarm income, assets and debt are also accounted for.

There are many commonly used measures of financial position. In this paper, farm business positions will be captured using the following:

- Business Net Cash Income, Assets, and Debt
- Profitability: Measured as the Return on Assets, or net farm income plus interest minus a charge for operator management and unpaid labor divided by assets.
- Repayment Capacity: Measured as Debt Repayment Capacity Utilization, or debt divided by debt repayment capacity. Debt repayment capacity is calculated as the maximum loan payment (i.e., farm income for debt coverage/minimum debt coverage ratio) * (1-(1+r)-n)/r, where (1-(1+r)-n)/r = present value of an annuity of $1, at r percent for n periods. Note that the income considered available for repayment includes only farm, and not off-farm, income (Harris, et al., 2009).
- Farm Solvency: Measured as Debt-to-Asset Ratio
- Farm Liquidity: Measured as the Current Ratio, or current assets divided by current debt. Current accounts, in addition to including long term items, includes many short term items that can easily be converted to cash, e.g., prepaid inputs are current assets and accounts payable are current debt.

Farm household positions will be captured using the following:

- Farm income, Off-farm income and total household income
- Farm and Nonfarm net worth

**Financial Position of Target Populations**

As emphasized, farm size is an overriding factor in the financial position and credit needs of farms, aside from the demographic characteristics of operators. However, age, education, and major occupation tend to be related to farm size, in general ways; the 5 targeted groups vary somewhat in terms of these characteristics. For example, not too surprisingly beginning farmers tend to be younger than the other target groups and all U.S. farms, while African American and Black (Black) operators are more likely to be 65 years or older (more than 40 percent are) with fewer farmers beginning farming. A large share of women operators (37 percent) are also 65 years are older. Women farmers include a relatively large share who are surviving spouses, after a lifetime of jointly operating a family farm. However, Hoppe and Korb (2013) report a narrowing of the age gap between men and women since 1982 due to the entry of women into farming as a principal operator at a younger age.

Small shares of women and beginning farmers have not completed high school, and along with Asian farmers, are most likely to have a 4-year college degree or more (at least 30 percent during the study period). Asian farmers are more likely to indicate that farming is their major

occupation, while beginning farmers are the most likely to have a nonfarm major occupation. This is consistent with the need for beginning farmers to generate income for family living expenses or farm development, before the farm begins to generate sufficient income.

Each of the 5 target groups has a much different geographic distribution than the general U.S. farm population and from each other. Compared to the distribution of all farms, the Northeast has a larger share of beginning farms—owing to the stronger local foods supply chain—and the Midwest has a smaller share of beginning farmers—owing to the larger farm sizes and very competitive market for farm land presenting greater challenges to entry. The South has more farms than any region, about 40 percent during the study period, but 94 percent of the Black farmers and 52 percent of the Hispanic farmers were located in the South. Nearly half of the Asian farmers are in the West, compared to only 14 percent of all U.S. farms in the West.

*Beginning Farmers and Ranchers*

The share and absolute number of farms operated by beginning farmers and ranchers (BFR) has been on the decline at least since 1982 (Figure 2).[9] This mirrors the trends in the declining share of operators under 35 years old (and the increasing share of those 65 years and older). However, it should also be noted that a large share of beginning farmers are not young (Ahearn, 2013).

The BFR group is the largest of the targeted groups, representing about 20 percent of all U.S. family farms. (See Table 2.) Only 4 percent of BFR operate farms with $250,000 or more in gross sales and these farms account for more than half of the value of production on BFR farms. These larger BFR have an average farm size of 1,258 acres, 30 percent of which they own. Interestingly, the BFRs that operate the large farms are more likely to be young than the smaller operations. This is not true at the national level as the path to asset accumulation has a distinct life-cycle element. Although nearly half of all BFR farms are in the South, the Southern operations are more likely to be small, compared to the farms operated by beginning farmers in the Midwest. Approximately 12 percent of beginning farmers sell directly to the consumer or to a retail or institutional establishment that does, only slightly higher than the share of all U.S. farms selling directly.

Farms in this group with gross sales under $10,000 lose money on average from farming, but they have low debt and low debt-to-asset ratios. They are clearly depending on their household off-farm incomes for living expenses, which average over $90,000, as they get started in farming. The midsized group with $10,000 to $250,000 in gross sales has very similar financial positions to the smaller farms, but with a small positive income from their farm businesses. Because the DRCU calculated in this paper is focused on the farm business, it does not consider the generally high off-farm incomes of BFRs. Hence, except for the large farms, the DRCU of beginning farms is relatively high.

[9] The historical Census of Agriculture data reported in Figure 2 defines beginning farmers based on the number of years they have been farming their current operation. The remaining analysis on beginning farmers uses ARMS data and defines the beginning farmer population based on the number of years farming any operation. The historical Census data reports more beginning farmers than ARMS because some farmers have operated other farms prior to operating their current farm. The minor differences in these estimates are described in Ahearn and Newton, 2009).

*Women Farmers and Ranchers*

Though women principal farm operators are a small share of the farm operator population, they had been a growing share. Hoppe and Korb (2013) report that between 1982 and 2007, women farm operators increased more than 150 percent, while men farm operators declined by 10 percent. During the 1982 to 2007 period, women-operated farms increased in every sales class category, but especially the very smallest and the very largest categories. For example, in 1982 there were only 243 women-operated farms with sales of at least $1 million (in 2007 dollars) and by 2007 their numbers had increased more than 8-times over, to 1,978 operations. However, the 2012 Census of Agriculture showed a slight decline in women-operated farms.

The financial position of women-operated farms is very similar to those operated by beginning farmers, with a few exceptions (Table 3). First, their average farm business income for the largest farms is greater than for beginning farmers, though lower for those in the next smaller size class, and the off-farm income of their households is about $20,000 lower on average than the beginning farmers. Secondly, women-operated farms have higher farm asset values at every size class, giving them stronger solvency positions. They own a much larger share of the land they operated than the average U.S. farmer. For this reason, they use less of their potential debt capacity, as measured by the DRCU.

Women-operated farms have a different commodity portfolio than men-operated farms, affecting their financial needs. For example, women are disproportionately operating horse farms, which generate no or low returns by the nature of the business. They are also disproportionately engaged in poultry production, often under contract, but required like most poultry producers to invest in poultry housing, while only having short-term contracts with the integrators. Like beginning farmers, they are slightly more likely to be engaged in direct marketing than all U.S. farmers.

There is some evidence outside of agricultural lending that women borrowers, in spite of having stronger credit scores, are discriminated against with higher loan interest rates. However, in the agricultural lending area, women have not been found to be discriminated against by lenders, either in court or through analysis of lender loan portfolios (Escalante, Epperson, Raghunathan, 2009). Also noteworthy, there has been a rapid adoption of the Risk Management Agency-supported *Annie's Project* 6-session program agenda for women started at the University of Illinois and now taught in 34 states through the 1862 Land Grants across the country.

*Hispanic Farmers and Ranchers*

Farms operated by Hispanics increased by a remarkable 21 percent between the 2007 and the 2012 Census. Since the release of the 2012 Census numbers, anecdotal new stories have been appearing about the transition many previous Hispanic farm workers have made to owning and operating their own farms (Vega, 2014). Second only to beginning farmers, Hispanic farmers tend to be younger than the typical farmer. Close to half are under 55 years old. However, the gap in age has been closing somewhat over time as the population of senior Hispanic operators grows. In 1982, only 15 percent of Hispanic operators were 65 years old or older; by 2012, that proportion had doubled to 30 percent. And, that life-cycle effect shows in their relatively strong balance sheet, with only Asian operators having a higher asset base.

A larger share of Hispanic-operated farms are small farms with sales under $10,000, compared to the national size distribution (Table 4). Only 6 percent of Hispanic farms have sales of $250,000 or more compared to 10 percent of all farms. Interestingly, however, these largest 6 percent account for nearly 80 percent of all sales from Hispanic-run operations. The average farm business income of the large Hispanic farms is over $300,000 (larger than the national average for farms in that sales class), with a return on assets of 6 percent. Like women farmers, they have relatively low DRCU.

*African American and Black Farmers and Ranchers*

In 1978, there were 37,351 Black-operated farms and more than 3 decades later, in 2012, there were 33,371 farms with Black operators, or 1.5 percent of all farms.[10] However in the intervening years their numbers had plummeted to 18,415 in 1997. At one point in their history (1920), Black farmers represented 15 percent of all farmers in the United States. The number of Black farmers has been increasing slowly during the last 15 years, still more than 40 percent of Black operators are 65 years old or older. Although their history is long and storied and closely intertwined with America's larger racial history, the recent case of Pigford v. Glickman (1999), in which it was alleged that the USDA discriminated against Blacks in their lending practices, is relevant to today's situation. The settlement paid out approximately $1 billion to Black farmers. Although difficult to quantify, this case and the access to farm credit and settlement funds is likely to be one of the factors affecting the increase in Black farms since 1997.

Black farms are also known to often be subject to what is called "fractionated" land, or land with many heirs due to the passing down of land ownership equally without a will. The multiple ownership makes it difficult to make long-term investment and borrowing decisions, and even short-term production decisions. During the study period, Black farms were found to own about 30 percent of the land they operated, compared to over 60 percent for all U.S. farmers.

Black-operated farms have low farm income and profitability and low off-farm income, relative to the other targeted groups (Table 5). They also have low assets and debt, but strong solvency positions. Although their incomes are low, because they don't have much debt, their DRCUs are also low.

Only 17 percent of Black farms grossed over $10,000 in the study period, compared to 44 percent at the national level. However, the small Black-operated farms are more likely than BFRs, women farms, or Hispanic farmers to operate farms producing commodities. For example, 27 percent of Black-operated farms are "point farms", compared to 36 percent of Hispanic-operated farms. More than half of the Black-operated farms have from $1 to $9,999 in sales—significantly more than any other group—and they have a positive cash farm business income. All the other targeted groups in this size class, lose money farming.

The small and productive farms may be able to take advantage of the demand for local foods. Eleven percent are engaged in direct marketing. However, the development of the local food system is lagging in the South compared to other regions, and this is a major factor in explaining small farm profitability (Ahearn and Sterns, 2012). To address this issue, several innovative

[10] A large share of the 2501 outreach program (35 percent in 2012) goes to 1890 Land Grant Institutions to help address the decline in Black farmers.

projects have been established in the South, while many fail others have been successful. One example is the partnership between the 1890 institutions to link Black farmers to Walmart's supply chain and resulting in enhanced farm profits for those farmers participating (Hill, et al., 2014). Other important partners in that effort include the USDA, the private sector, and NGOs.

*Asian Farmers and Ranchers*[11]

As mentioned previously, Asian farms stand out among the targeted groups as having a larger farm structure and more profitable farming operations than the other targeted groups (Table 6). Their assets average over $1 million, more than the U.S. average, in spite of having smaller farm acreage. But, their debt levels are much higher than the national average, so they have higher debt-to-asset ratios. The high debt levels, especially of the larger Asian farms helps explain why their DRCU is more than 50 percent, in spite of their high farm incomes. In addition, Asian farmers average over $100,000 in off-farm income during the study period, 30 percent higher than the national average. If this source of income were considered, DRCUs for this group would be much lower.

**Conclusions and Implications**

Although farming is diverse in many ways, farming is one of the least diverse occupations in terms of demographics, with the dominant demographic being white males. Eighty percent of principal operators are white males, disproportionately older, and the large majority (84 percent) of these white male operators have been farming for 10 years or more. Beginning farmers are bringing more diversity to the farm sector. Beginning farmers are about 20 percent of the farm population, and with the exception of Black farmers, at least one-third of the principal operators of the targeted groups considered in this paper are beginning farmers. There are likely many factors explaining the somewhat higher diversity among beginning farmers, among those factors are the outreach policy initiatives authorized in the farm bills and administered by the USDA and the efforts of individual lending institutions.

The review of the farm financial positions of different demographic groups of farmers indicates that credit needs vary and some of these groups present lenders with better risks than others. However, it must be recognized that lender risks will continue to vary by the individual farmer, not his or her demographic group. A major characteristic associated with the financial position and credit needs of U.S. farms is their size of operation. U.S. agriculture is characterized as having many farms but with production concentrated on a small segment of the farms. The targeted populations discussed in this paper are generally more likely to be small farms than the U.S. farm population as a whole. Lending to small farms implies more bank overhead costs per dollar of loan amount. On the other hand, less funds are at risk with any one borrower and small farm households are more likely to have stable off-farm sources of income than households operating large farms. The debt repayment capacity utilization of most farms in the targeted

[11] The 2012 Census of Agriculture reported that 13,369 farms had an Asian principal operator. Note that the ARMS averaged estimate for 2009-2012 was 6,979 and was based on a sample of 265 farms. However, data for Asian farmers are reported and believed to be of value because the ARMS distribution of farms by sales class is very close to the Census distribution. However, many of the estimates have high coefficients of variation and are not reported.

population appear to be risky, especially for the small farms, because they traditionally don't include off-farm sources of income. Small farms have proven to have a persistent presence in rural and, increasingly, urban America. This calls for evaluating loan applications with criteria that vary by farm size.

The structural differences by region imply different regional issues and strategies for banks within the FCS. As reported in Ahearn (February 19, 2014), the FCB of TX and the AgFirst, FCB serve a population with a higher share of small farmers, in contrast to AgriBank, FCB and CoBank, ACB. In addition, AgriBank's region has the lowest share of beginning farmers among the regions. A detailed analysis of the dynamic relationship between farm structure and the financial position of targeted populations at the regional level is beyond the scope of this paper, but of relevance to individual Farm Credit System banks.

Many small farms are actually not interested in expanding. This is clear from both previous work on entry and exit of farms over time (e.g., Ahearn and Korb, 2009) and research on small nonfarm business. Studying a sample of small nonfarm businesses, Hurst and Pugsley (2011) found that most small business owners report that they do not want to grow, but instead are motivated by other nonpecuniary benefits of small business ownerships. Small farmers not interested in expanding are not demanding farm real estate loans. Instead, Escalante, Ferrer, and Wang (2013) found that small farms are more likely to need short term production or microloans to meet their financial credit needs. Popular press reports have emphasized the importance of access to credit for beginning farmers. Recently, Kachova and Ahearn (2014) linked individual farms across the Censuses and explored how beginning farmers expanded over more than a decade and found that life-cycle played a major role. Older beginning farmers were much less likely to expand than young beginning farmers. It is not *all* beginning farmers demanding real estate loans, but *young* beginning farmers.

The targeted groups considered in this paper differ in terms of their age structure. Given the importance of life-cycle in the demand for credit, it is worth highlighting. As mentioned, beginning farmers are more likely to be young, and unlike the situation for the sector as a whole, the larger, more successful farms are more likely to be operated by young beginning farmers. This is indicative of the second-career, lifestyle farmers entering farming without an interest in expansion. While the Hispanic farmer population has historically had a younger age profile, that is changing, as Hispanic farmers who entered decades ago have successfully expanded their operations. This trends explains the strong financial position of Hispanic farmers. And, the dynamic is changing for the women farmer group, too, which historically was dominated by older aged farmers, believed to be surviving spouses. For example, as the senior farmer population (65 years and older) has increased for all U.S. farmers and the targeted groups over the past 3 decades, the share of senior women has remained stable. This implies that a new cadre of women farmers are likely to be in need of access to credit, like never before.

All evidence indicates that Asian farmers are typical in terms of their age distribution but atypically successful in terms of their financial position. The opposite is true of Black farmers. The decline in their numbers seems to have stabilized, but an even smaller share of Black farmers are young and their farm incomes are very low. The large group of Black farmers with small commodity sales are finding a way to stay small, but be profitable. The prevalence of fractionated land ownership may prevent these operators from incurring debt and expanding to a

size that generates greater farm income. Perhaps, the continued development of the local food supply chain in the South will result in new opportunities for this targeted group.

The ability of the FCS to meet the credit needs of small farms may be limited by the charter of the banks regarding sources of income, i.e., farm vs. nonfarm, and underwriting requirements. Looking to the future, there are likely to be nonfarm demands for the services of lenders traditionally serving agricultural interests. The Farm Credit System has clearly recognized this need and opportunity through CoBank's leadership with the Rural Infrastructure Opportunity Fund (Executive Office of the President, 2014). Investing in rural America may well be a more effective manner in which to address the financial needs of many small farm households in rural America by spurring economic activity in local communities. A more prosperous rural America means more off-farm opportunities and greater opportunities for small farmers to meet the increasing demands for locally-produced agricultural products.

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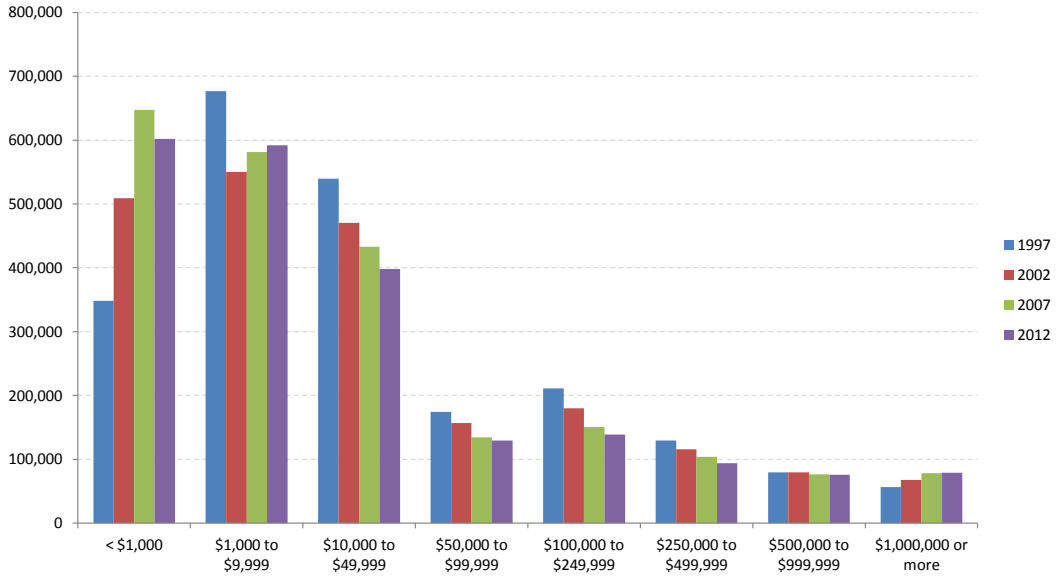
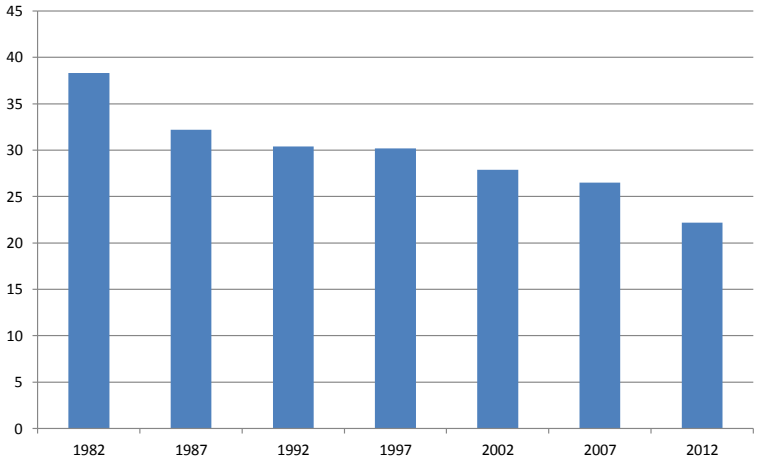
# Figure 1. Number of farms, 1997-2012

(Constant 2012 Dollars)




Source: Ahearn and Harris, 2014, calculations based on USDA, NASS, Census of Agriculture, various years. Sales adjusted by the Producer Price Index for farm products.

Figure 2. Percent of farms with principal operators with less than 10 years operating *this* operation, 1982-2012




Source: NASS, USDA, Censuses of Agriculture

**Table 1. Number of farms and size distribution of farms with a diverse principal operator, 2012**

| Gross Sales | All farms | Beginning <10 years farming | Women Principal Operator | Hispanic Origin Principal Operator | Black or African American | American Indian or Alaska Native | Asian | Hawaiian or Other Pacific | More than 1 race |
|---|---|---|---|---|---|---|---|---|---|
| **Less than $1,000** | 29% | 33% | 44% | 34% | 38% | 47% | 16% | 31% | 32% |
| **$1,000-$2,499** | 9% | 12% | 11% | 12% | 13% | 11% | 8% | 11% | 11% |
| **$2,500-$4,999** | 9% | 11% | 10% | 11% | 15% | 10% | 9% | 10% | 11% |
| **$5,000-$9,999** | 10% | 11% | 10% | 11% | 13% | 10% | 10% | 11% | 12% |
| **$10,000-$24,999** | 12% | 11% | 10% | 11% | 11% | 10% | 14% | 14% | 13% |
| **$25,000-$49,999** | 7% | 6% | 5% | 6% | 5% | 5% | 9% | 8% | 7% |
| **$50,000-$99,999** | 6% | 5% | 3% | 4% | 2% | 3% | 8% | 6% | 5% |
| **$100,000-$249,999** | 7% | 4% | 3% | 4% | 2% | 2% | 8% | 4% | 4% |
| **$250,000-499,999** | 4% | 2% | 1% | 2% | 1% | 1% | 5% | 2% | 2% |
| **$500,000-$999,999** | 4% | 1% | 1% | 2% | 1% | 1% | 5% | 2% | 2% |
| **$1,000,000 or more** | 4% | 2% | 1% | 2% | 0% | 1% | 9% | 2% | 2% |
| **Total farms** | 2,109,303 | 382,396 | 288,264 | 67,000 | 33,371 | 37,851 | 13,669 | 1,468 | 10,292 |
| **Average acres** | 434 | 247* | 217 | 374 | 125 | 1,021 | 135 | 241 | 333 |
| **Average sales value** | $187,097 | $83,924* | $44,742 | $202,466 | $36,052 | $57,801 | $333,362 | $109,249 | $75,795 |

Source: USDA, NASS, 2014. Note: Some farms are in more than one category.

*Data are not available from 2012 Census; data reported here are estimates from 2007 Census.

**Table 2. Characteristics of beginning family farms, 2009–2012, by gross farm sales**

| Item | Gross farm sales | | | | Total |
|---|---|---|---|---|---|
| | Point farms | $1 to $9,999 | $10,000 to $250,000 | $250,000 or more | |
| Number of family farms | 143,132 | 146,910 | 102,830 | 15,711 | 408,583 |
| Percent of family farms | 35 | 36 | 25 | 4 | 100 |
| Percent of total value of production | 0 | 3 | 44 | 53 | 100 |
| Farm size (operated acres) | 50 | 71 | 334 | 1,258 | 175 |
| Age of principal operator | | | | | |
| Less than 35 years old | 9 | 11 | 28 | 50 | 16 |
| 35-54 years old | 53 | 53 | 44 | 36 | 50 |
| 55-64 years old | 25 | 24 | 20 | 11 | 23 |
| 65 years old or more | 13 | 13 | 9 | na | 11 |
| **Farm business finances** | | | | | |
| Farm cash business income, average | -9,402 | -6,806 | 10,755 | 194,518 | 4,445 |
| Farm assets, mean | 343,750 | 316,608 | 681,357 | 1,723,667 | 472,018 |
| Farm debt, mean | 34,250 | 34,091 | 84,643 | 309,028 | 57,441 |
| Profitability, return on assets, % | -3 | -4 | -2 | 7 | -2 |
| Debt repayment capacity utilization, % | 99 | 99 | 62 | 32 | 60 |
| Farm Solvency, debt to asset ratio | | | | | |
| 0.30 or less | 85 | 85 | 82 | 67 | 83 |
| > 0.31 | 15 | 15 | 18 | 33 | 17 |
| Farm Liquidity, current ratio | | | | | |
| 1.50 or less | 36 | 38 | 31 | 28 | 35 |
| > 1.50 | 64 | 62 | 69 | 72 | 65 |
| **Farm household finances** | | | | | |
| Farm income, average | -9,729 | -8,250 | 3,056 | 134,721 | -425 |
| Off-farm income, average | 93,760 | 99,145 | 91,978 | 61,811 | 94,020 |
| Total income, average | 84,031 | 90,895 | 95,034 | 196,531 | 93,594 |
| Total income, median | 62,021 | 67,771 | 70,702 | 138,126 | 66,700 |
| Net worth, mean | 557,942 | 534,112 | 905,786 | 1,428,445 | 670,390 |
| Net worth, median | 352,673 | 389,336 | 585,916 | 897,854 | 422,785 |

Source: 2009–2012 USDA Agricultural Resource Management Survey. Based on 4,625 observations.
**na** indicates value is not available due to no observations, an undefined statistic, or reliability concerns.

**Table 3. Characteristics of family farms with women principal operators, 2009–2012, by gross farm sales**

| Item | Gross farm sales | | | | Total |
|---|---|---|---|---|---|
| | Point farms | $1 to $9,999 | $10,000 to $250,000 | $250,000 or more | |
| Number of family farms | 86,649 | 77,609 | 59,062 | 4,906 | 228,226 |
| Percent of family farms | 38 | 34 | 26 | 2 | 100 |
| Percent of total value of production | 0 | 3 | 46 | 50 | 100 |
| Farm size (operated acres) | 62 | 92 | 465 | 1,342 | 204 |
| Age of principal operator | | | | | |
| Less than 35 years old | na | na | na | na | 3 |
| 35-54 years old | 39 | 30 | 27 | 32 | 33 |
| 55-64 years old | 31 | 24 | 26 | 33 | 27 |
| 65 years old or more | 27 | 43 | 44 | 26 | 37 |
| **Farm business finances** | | | | | |
| Farm cash business income, average | -9,822 | -6,523 | 8,192 | 245,623 | 1,453 |
| Farm assets, mean | 414,330 | 411,573 | 994,279 | 3,019,653 | 619,476 |
| Farm debt, mean | 27,228 | 18,245 | 38,032 | 281,444 | 32,433 |
| Profitability, return on assets, % | -3 | -3 | -1 | 7 | -1 |
| Debt repayment capacity utilization, % | 66 | 48 | 31 | 20 | 36 |
| Farm Solvency, debt to asset ratio | | | | | |
| 0.30 or less | 90 | 93 | 94 | 86 | 92 |
| > 0.31 | 10 | 7 | 6 | 14 | 8 |
| Farm Liquidity, current ratio | | | | | |
| 1.50 or less | 30 | 32 | 27 | 17 | 30 |
| > 1.50 | 70 | 68 | 73 | 83 | 70 |
| **Farm household finances** | | | | | |
| Farm income, average | -10,232 | -7,112 | 3,899 | 150,258 | -2,065 |
| Off-farm income, average | 72,923 | 69,817 | 69,787 | 73,038 | 71,058 |
| Total income, average | 62,691 | 62,705 | 73,686 | 223,296 | 68,993 |
| Total income, median | 46,066 | 43,534 | 48,725 | 166,535 | 46,698 |
| Net worth, mean | 600,025 | 619,193 | 1,260,698 | 2,895,631 | 826,860 |
| Net worth, median | 395,321 | 443,450 | 910,254 | 1,882,050 | 524,485 |

Source: 2009–2012 USDA Agricultural Resource Management Survey. Based on 2,858 observations.
**na** indicates value is not available due to no observations, an undefined statistic, or reliability concerns.

**Table 4. Characteristics of family farms with an Hispanic principal operator, average for 2009–2012, by gross farm sales**

| Item | Gross farm sales | | | | All |
|---|---|---|---|---|---|
| | Point farms | $1 to $9,999 | $10,000 to $250,000 | $250,000 or more | |
| Number of family farms | 24,691 | 22,952 | 16,516 | 4,349 | 68,507 |
| Percent of family farms | 36 | 34 | 24 | 6 | 100 |
| Percent of total value of production | 0 | 2 | 20 | 78 | 100 |
| Farm size (operated acres) | 50 | 79 | 589 | 1,629 | 290 |
| Age of principal operator | | | | | |
| Less than 35 years old | na | na | na | na | 5 |
| 35-54 years old | 47 | 37 | 42 | 39 | 42 |
| 55-64 years old | 24 | 32 | 27 | 38 | 28 |
| 65 years old or more | 25 | 25 | 25 | 14 | 25 |
| **Farm business finances** | | | | | |
| Farm cash business income, average | -10,109 | -6,919 | 7,873 | 314,058 | 15,872 |
| Farm assets, mean | 369,725 | 374,914 | 1,042,319 | 3,695,083 | 744,695 |
| Farm debt, mean | 21,780 | 21,238 | 66,678 | 336,404 | 52,394 |
| Profitability, return on assets, % | -4 | -4 | -2 | 5 | <1 |
| Debt repayment capacity utilization | 79 | 61 | 46 | 21 | 33 |
| Farm Solvency, debt to asset ratio, % | | | | | |
| 0.30 or less | 90 | 90 | 87 | 83 | 89 |
| > 0.31 | 10 | 10 | 13 | 17 | 11 |
| Farm Liquidity, current ratio, % | | | | | |
| 1.50 or less | 45 | 30 | 27 | 26 | 34 |
| > 1.50 | 55 | 70 | 73 | 74 | 66 |
| **Farm household finances** | | | | | |
| Farm income, average | -10,436 | -8,377 | 3,437 | 225,972 | 8,605 |
| Off-farm income, average | 81,507 | 75,125 | 75,180 | 89,721 | 78,365 |
| Total income, average | 71,071 | 66,748 | 78,617 | 315,694 | 86,970 |
| Total income, median | 36,340 | 47,450 | 49,075 | 199,429 | 43,893 |
| Net worth, mean | 523,371 | 554,431 | 1,205,568 | 3,019,371 | 856,679 |
| Net worth, median | 288,150 | 391,920 | 695,715 | 1,953,422 | 441,172 |

Source: 2009–2012 USDA Agricultural Resource Management Survey. Based on 1,041 observations.
**na** indicates value is not available due to no observations, an undefined statistic, or reliability concerns.

**Table 5. Characteristics of farms operated by Black or African American principal operators, 2009–2012, by gross farm sales**

| Item | Gross farm sales | | | | Total |
|---|---|---|---|---|---|
| | Point farms | $1 to $9,999 | $10,000 to $100,000 | $100,000 or more | |
| Number of family farms | 8,326 | 17,509 | 4,302 | 847 | 30,983 |
| Percent of family farms | 27 | 57 | 14 | 3 | 100 |
| Percent of total value of production | 0 | 10 | 21 | 69 | 100 |
| Farm size (operated acres) | 40 | 72 | 143 | na | 181 |
| **Farm business finances** | | | | | |
| Farm cash business income, average | -7,373 | 4,064 | 1,991 | 143,065 | -89 |
| Farm assets, mean | 283,298 | 266,700 | 472,468 | 986,142 | 319,404 |
| Farm debt, mean | 3,097 | 8,386 | 18,427 | 173,389 | 12,871 |
| Profitability, return on assets, % | -4 | -5 | -3 | 12 | -3 |
| Debt repayment capacity utilization | 13 | 34 | 28 | 25 | 27 |
| Farm Solvency, debt to asset ratio | | | | | |
| 0.30 or less | na | na | na | na | 95 |
| > 0.31 | na | na | na | na | 5 |
| Farm Liquidity, current ratio | | | | | |
| 1.50 or less | na | na | na | na | 27 |
| > 1.50 | na | na | na | na | 73 |
| **Farm household finances** | | | | | |
| Farm income, average | -7,463 | -4,567 | -1,552 | 122,105 | -1,463 |
| Off-farm income, average | 82,970 | 47,381 | 49,003 | 41,071 | 56,997 |
| Total income, average | 75,507 | 42,814 | 47,450 | 163,176 | 55,534 |
| Total income, median | 48,944 | 35,100 | 35,490 | 108,680 | 40,140 |
| Net worth, mean | 454,338 | 370,758 | 644,055 | 845,597 | 444,148 |
| Net worth, median | 310,689 | 308,872 | 394,575 | 596,486 | 318,345 |

Source: 2009–2012 USDA Agricultural Resource Management Survey. Based on 329 observations.
**na** indicates value is not available due to no observations, an undefined statistic, or reliability concerns.

**Table 6 . Characteristics of family farms with an Asian principal operator, 2009–2012, by gross farm sales**

| Item | Gross farm sales | | Total |
|---|---|---|---|
| | < $100,000 | $100,000 or more | |
| Number of family farms | 5,009 | 1,970 | 6,979 |
| Percent of family farms | 72 | 28 | 100 |
| Percent of total value of production | 11 | 89 | 100 |
| Farm size (operated acres) | 27 | 339 | 115 |
| **Farm business finances** | | | |
| Farm cash business income, average | -3,009 | 104,319 | 27,285 |
| Farm assets, mean | 430,464 | 2,693,406 | 1,069,197 |
| Farm debt, mean | 36,464 | 540,107 | 178,621 |
| Profitability, return on assets, % | -5 | 1 | -1 |
| Debt repayment capacity utilization, % | 57 | 51 | 52 |
| Farm Solvency, debt to asset ratio | | | |
| 0.30 or less | na | 68 | 84 |
| > 0.31 | na | 32 | 16 |
| Farm Liquidity, current ratio | | | |
| 1.50 or less | 47 | 44 | 46 |
| > 1.50 | 53 | 56 | 54 |
| **Farm household finances** | | | |
| Farm income, average | -4,770 | 28,325 | 4,571 |
| Off-farm income, average | 114,756 | 65,112 | 100,743 |
| Total income, average | 109,986 | 93,437 | 105,315 |
| Total income, median | 48,233 | 111,645 | 58,275 |
| Net worth, mean | 639,757 | 2,070,255 | 1,043,526 |
| Net worth, median | 423,050 | 1,143,871 | 505,481 |

Source: 2009–2012 USDA Agricultural Resource Management Survey. Based on 265 observations.
**na** indicates value is not available due to no observations, an undefined statistic, or reliability concerns.