

Finance Implications of Intergenerational Transfer of US Farms

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Ani Katchova is an Associate Professor in the Department of Agricultural Economics at the University of Kentucky. Disclaimer: This paper was produced without direct access to confidential USDA's ARMS, Census of Agriculture, or June Area Survey microdata. Previously published summary statistics from the ERS and NASS websites, ERS and NASS publications and reports, and tables and results from Katchova's publications, working papers, and presentations were combined and analyzed to produce the results and conclusions for this paper.

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Summary

The goal of this research is to identify the mechanics and dynamics of farm transitions and land ownership in U.S. agriculture. Specifically, transition matrices of farms entering and exiting agriculture are calculated, showing an average annual entry rate of 5.5% and exit rate of 5.7%, which vary based on farmer's age. Next, land ownership changes are identified based on farmer's lifecycle, not using a cross-sectional approach as is typical in the literature, but using a time-series approach tracking the same farms over time and identifying changes in land ownership. Young and beginning farmers are found to be smaller in farm size (owned, rented, and operated acres), but they grow faster than the rest of the farms, with annual growth rates of 2.9% for beginning farmers and 5.6% for young farmers as compared to 0.6% for all farms during the 1997-2007 period. Lastly, projections of the trends over the last decade going forward are used to obtain the expected capital needed to fund farmland purchases to start a farm business and to subsequently expand the farm operation, with an average capital of \$553,900 needed to start a farm business as a beginning farmer and \$379,900 as a young farmer. These projections indicate the capital and financing needs for young and beginning farmers transitioning into agriculture.

Introduction

There are significant challenges for young and beginning farmers to start their businesses and develop successful and profitable operations. U.S. policymakers are eager to understand the needs of these young and beginning farmers and develop programs to help them. There is a need to better understand the capital needs for young farmers to acquire farm real estate by all involved – farm lenders, other agribusinesses and policymakers.

Researchers have identified several challenges and successes of existing beginning farmer programs around the U.S. (Meyer et al., 2011; Sureshwaran and Richie, 2011; Thilmany and Sureshwaran, 2011; Ahearn, 2011; Ahearn and Newton, 2011; Meyer, Katchova, and Hunter, 2011). Beginning farmers tend to be very diverse in terms of their demographic characteristics, knowledge and skill sets. To reach out to diverse audience of beginning farmers, we need to benchmark characteristics as an assessment tool to classify young and beginning farmers based on their characteristics and needs. We have previously developed benchmark characteristics for the financial condition, marketing and production practices of beginning farmers (Katchova, 2010, and Kropp and Katchova, 2011). Identifying the critical areas of financial performance and needs for each beginning farmer based on their financial, marketing, and enterprise mix is important in developing the right financing needed for their capital purchases and farm expansions. In addition, Harl (2011) has provided a guide for farmers and ranchers who want to efficiently transfer their estates to the next generation.

ERS-USDA statistics show that 90% of beginning farmers are legally organized as sole proprietorships, and as such the daily business administration of the farming operation is done by the owner. As new business owners, young and beginning farmers need to have an understanding

of not only the production challenges they are facing in their operation, but also of the financial challenges. If the farm operation is not able to succeed financially, then the intergenerational transfer and the farm business will ultimately fail. When beginning farmers understand and apply the basic management tools of farm planning, record keeping, and financial management, it encourages them to look at the operation as a business venture and encourages them to make sound long-term financial decisions for the farm operation.

According to statistics from the U.S. Census of Agriculture, the population of U.S. farmers has been aging. The average age of a principal operator has increased by close to one year from one Census to the next, from 50.3 in 1978 to 54 in 1997, 55.3 in 2002, and 57.1 in 2007.

The fastest growing group of farmers is the group of 65 years or older, even though the majority of farmers are still between 35 and 64 years old, and there are very few young farmers under the age of 35. There are more than 2 million principal operators and farms in the U.S. but in addition to them, there are about 1.1 million additional operators on these farms listed as second and third operators. They are generally younger than the principal operators but they have also shown increases in average age between 2002 and 2007, again with the fastest growth of those being 65 years or older.

The primary focus is on beginning and young farmers who are starting their farm operations and their capital needs to acquire land both to start their businesses and grow over time. Several funding programs have been established to provide loans and grants for young and beginning farmers. Loans, grants, and financial management are provided by the USDA's Farm Service Agency, other federal funding options, the Farm Credit System, public and private organizations, programs offered by individual states, and private lenders. As an example, the Farm Credit System has a Congressional mandate to support young, beginning, and small farmers. Every Farm Credit institution has developed an enhancement program which is typically tailored to local needs by providing funding, resources, training, and special incentives to assist young farmers in the transition process.

Previous research has concentrated on snapshots of statistics in each time period, such as the proportion of farmers falling into each age group and the land owned and rented for farms in a given year. Using cross-sectional data, we know the proportion of beginning farmers versus retiring farmers and their current financial situation and asset holdings. The goal of this research is to study in more detail the dynamics and mechanics of farm transitions.

The contribution of this research is three fold. On the data side, this study uses the approach of linked-farms that are tracked over time using the Census of Agriculture data. On the methodology side, this research uses new methodologies that examine dynamics and changes in farm operations in terms of land ownership, leasing, and farm size. On the policy side, this research helps to better identify and quantify farm transitions and land ownership dynamics so that capital positions and financing needs can be determined.

Data sources

This paper compiles results and statistics from studies using the Agricultural Resource Management Survey (ARMS), the Census of Agriculture, and the June Area Survey. ARMS is conducted annually by the U.S. Department of Agriculture and is one of the most comprehensive surveys providing a representation of all U.S. farms. The Census of Agriculture is conducted every 5 years, with the most recent Censuses conducted in 1997, 2002, and 2007 (data from 2012 Census are not available yet). The ARMS data have comprehensive financial information, including assets and debt, income, production and marketing practices and farm operator information. The Census data has limited financial information, but still includes values for land and equipment as well demographics and information on the primary operator and second and third operators.

Many research papers that use USDA data sets treat it as repeated cross-sectional data, failing to take into account changes over time. This study uses methodologies to track farms over time so that we are able to talk about dynamics and changes of individual farms over time. Instead of only summarizing the current state, characteristics and needs of beginning and young farmers, it is important to use these new methodologies to analyze farm transitions.

New variables identifying both the farm as well as the operators of these farms allow better matching of the farm records across farms and years. For example, about 60% of the farms can be found in both 2002 and 2007 Censuses and the remaining 40% are found in only one of the two Censuses. Similar linkages can also be made between Censuses in other years. Also, most of the farms participating in the ARMS survey can be found in the Census data.

Approach and methodology

The methodology used for this research focuses on studying the dynamics and mechanics of farm transitions and capital requirements. Three methods were used to analyze farm transitions and the necessary capital to start and expand a farm business.

Method #1: Define farm transitions and calculate transition matrices for farm entry and exit rates

The goal is to study “farm transitions” where farms are entering and exiting agriculture. They are calculated by linking farm records over time in the Census of Agriculture data. Specifically, the goal is to track if a farm continues operating, exits, or enters between two Census surveys. If the farm continues operations, then there is no farm transition. If the farm is found in a later survey but not in an earlier survey, this is defined as a farm entry. Farms exiting will be found in an earlier survey but not in a later survey. Percentages of farms staying, entering, and exiting farming define the farm transition matrices. For example, the entry rates are calculated as the number of farms that have entered between a particular Census survey and the next survey divided by the total number of farms for the next Census survey (this is the sum of the number of farms that entered and the number of continuing farms). Similarly, exit rates are defined as the number of farms exiting divided by the total number of farms (this is the sum of farms exiting and the number of farms continuing operations). Entry and exit rates and farm transitions can be

calculated for the 5- or 10- year period, and then annualized by dividing by 5 and 10, respectively. These entry and exit rates are calculated for all farms and also based on the farmer lifecycle stages (young versus old operators).

Method #2: Calculate asset holdings changes over the farmer lifecycle

The goal is to calculate land holdings and changes for each farm in terms of acres owned, acres rented from others, acres rented to others, and total acres operated. The question to consider is how young and beginning farmers enter agriculture and in the first years of operating farms how they accumulate capital and grow. These dynamics over the farmer lifecycle (entering agriculture and asset accumulation) are explored in detail and several patterns of entry as well as operation expansion/contraction are provided for young versus beginning farmers. For young and beginning farmers, their entering land positions and growth rates (percent changes) over time are calculated and presented.

Statistics for acres owned, rented, and operated are calculated for beginning and young farmers in each of the Census years. For linked, continuing farms, changes in farm size are calculated by taking differences in owned, rented, and operated acres between Censuses to estimate 5- and 10-year changes in acres. Growth rates are calculated as the changes in acres divided by the starting acres. These changes and growth rates are divided by the number of years (5 or 10) to obtain annual changes in acres and growth rates.

Method #3: Determine capital needs for young and beginning farmers

In this final stage, the acres and value of farmland for young and beginning farmers are calculated. For young and beginning farmers, it is important to calculate the acres owned and rented at which they enter agriculture, as well as the growth in acres owned and rented that they need to finance as they expand their operations. Instead of using historical prices for farmland values, recent 2013 prices from the NASS-USDA Land Values publication are used, using average for the U.S. and low and high values based on geographic region. The total farmland value needed to enter farming and expand is calculated. These results land value assessment will provide estimates for the capital needs to finance new land ownership and expansion over the next decade by young and beginning farmers.

Analysis and Results

The methodology described above is used for the findings presented here. Table 1 shows the annual entry and exit rates from farming. The annual entry rate is 5.5% and exit rate is 5.7% for the period of 1997 to 2007 (Katchova and Ahearn, 2013b). Not surprisingly, entry rates are higher for young farmers (under 35 years) at 8.3% and lower for old farmers (over 65) at 4.3%. The exit rates for young farmers of 5.6% are comparable to those of all farmers, but the exit rates are higher for the old farmers at 7.1%. These rates are somewhat lower than the rates reported in Ahearn, Korb, and Yee (2009) of 8-10% annual entry rate and 9-10% for the annual exit rate for the 1987 to 1997 period.

The entry and exit rates for farm businesses are somewhat higher than the rates reported for other industries. Caution should be used interpreting these entry and rates as they depend on the NASS-USDA's ability to link and track farms over time. These rates reflect upper bounds of the rates in agriculture due to the challenges of linking farms over time and getting high response rates to the NASS surveys.

Of the 2.2 million farms, 875,709 farms or about 39.7% can be found in all three Censuses in 1997, 2002, and 2007. This panel of farms participating in all three Censuses is referred to as continuing, linked, or surviving farms. The analysis about changes over time and growth rates is based on this panel of continuing, linked farms.

It is important to note that when the analysis is done for the surviving farms that are continuing operations and linked over time, their designation of beginning (10 years or less of experience) or young (farmer age is less than 35) is as of 1997. This means that their experience and age will increase by 5 years in 2002 and by 10 years in 2007. In other words, a beginning farm in 1997, if surviving, will be an established farm by 2007 and a young farmer will likely be joining the mid-age group of farmers by 2007.

Table 2 shows the average number of acres owned, acres rented from others, acres rented to others, and acres operated for all farms in the three Censuses (1997, 2002, and 2007) and for the continuing, linked farms in the three Censuses and then for groups of beginning versus established farms and young, mid-age, and old farmers (Katchova and Ahearn, 2013a). The average number of total operated acres for all farms is 431 in 1997, 442 in 2002, and 419 in 2007. The continuing farms tend to be larger with average number of operated acres being 554, 604, and 590 in 1997, 2002, and 2007 respectively. On average the continuing farms are 35% larger in size as compared to the average farm in the U.S. The larger farm size of surviving farms likely reflects the survivorship bias of remaining in business for over a decade.

The term beginning farms is used to denote farms that are operated by a primary operator that has 10 years or less of experience. The number of beginning farms has remained relatively stable, from 692,674 in 1997 to 720,578 in 2002 to 715,408 in 2007, but the proportion of beginning farmers compared to all farms is declining over time. Beginning farmers were 37.6% of all farms in 1997, but only 33.8% in 2002 and 32.4% in 2007. For the linked, continuous farms, beginning farmers compose 33.5% of all farms, which is a similar proportion to the statistics for each year.

Beginning farms are smaller – the average for the three Censuses (1997, 2002, and 2007) for the total number of operated acres is 273 for beginning farms, as compared to 431 acres for all farms. In other words, the size of beginning farms is 63.4% of the size for all farms. The surviving beginning farms also have the similar proportion for farm size which is 343 acres (or 58.8%) as compared to 583 acres for all surviving farms.

Farms with a principal operator who is less than 35 years old have declined in terms of numbers and percentages of the total farm population over the last three Censuses. The number of young farmers declined from 178,611 (8% of all farms) in 1997 to 123,105 (5.8%) in 2002 to 118,636 (5.3%) in 2007. It is interesting to compare that there were only 118,636 young farmers (5.3% of the farms) versus 715,408 beginning farms (32.4% of all farms) in 2007, so there are very few young (who are also beginning) farmers in comparison to all beginning farms that can be of any

age. These statistics are important for designing the target groups for government programs and loan programs.

Farms operated by young farmers are also smaller – the average for the three Censuses of the total number of operated acres is 318 for young farmers, as compared to 431 acres for all farms. So farm size for young farmers is 74% of the farm size for all farms averaged over the three Censuses. Young farmers, although they own fewer acres than all farms (131 vs. 191), they rent more acres than all farms (194 vs. 86).

Table 3 shows the annual changes in owned, rented, and operated land in terms of changes in the number of acres and growth rates (percent changes) for the surviving farms (Katchova and Ahearn, 2013a). Farmers experienced higher growth rates during the 1997-2002 period than during the subsequent 2002-2007 period. Farms were expanding significantly during the 1997-2002 period, by 10 acres or 3% annually for owned land and 10 acres or 1.8% for the total operated farmland. In contrast, farms only expanded owned land by 1 acre or 0.3% and contracted the size of their operation by 3 acres or 0.5% annually during the 2002-2007 period. On average, during the 10 year period of 1997 to 2007, farms expanded annually by 5 acres or 1.6% their land ownership, had similar number of rented acres, and expanded by 4 acres or 0.6% their total operated acres.

The farm expansion trends are also present and stronger for beginning farmers and much stronger for young farmers. Beginning farmers have similar expansion of owned land by 5 acres or 3% annually but also increase their rented acres by 4 acres or 2.6% annually for a total increase of 9 acres or 2.9% annually for the farm size. Note that even though the farm expansion for beginning farmers is similar in terms of acres, the percentage changes are higher than those for all farms because beginning farmers operate smaller farms than the rest of the farmers. It is young farmers that experience the most rapid growth of all groups – an increase of 11 acres (7.9% annually) in owned land and 12 acres (4.5%) in leased land, for a total annual increase of 23 acres (5.6%) in total acres operated.

Table 4 presents the past year and current 2013 values for farm real estate according to the USDA-NASS Land Values Summary for 2013. The value of farm real estate per acre in 2013 for the U.S. averaged \$2,900 up from 2,650 in 2012, which represents a 9.4% increase. There is a considerable variation regionally, with values between \$1,020 for the Mountain region to \$6,400 for the Corn Belt. These two values were used as the low and high values for the calculation of capital needed to fund initial purchase and expansion of the farm real estate. Regional increases ranged from 23.1% increase in the Northern Plains to no change in the Southeast region.

Table 5 presents an analysis for the capital needed to fund an initial purchase of farmland (top part of table) and then the capital needed to fund an expansion or growth of the farm (bottom part of table). The average owned acres are obtained from tables 2 and 3 – the average number of acres for 2007 and the average change in acres between 1997 and 2007. The low and high numbers for the initial acres are determined by using a range of 100 around the average values. The low and high numbers for the change in owned acres reflects periods of lower and higher growth. The 2013 land prices are from table 4, the average for the U.S. and the lowest and highest land values based on regions. The last set of columns is calculated by multiplying the

low, average, and high columns respectively for acres and land prices to obtain the low, average, and high values of initial purchases and expansions of farmland.

The results show that based on the average number of acres owned and the current 2013 values, starting a farm business requires about \$553,900 for beginning farmers and \$379,900 for young farmers. These values can range from one hundred thousand to over a million dollars for the low and high scenarios. In addition, an expansion over a decade in terms of land ownership on average would require an additional 50 acres or \$145,000 for beginning farmers and 110 acres or \$319,000 for young farmers. The low value scenarios can range from tens of thousands of dollars to half a million or a million dollars for the high value scenarios.

Summary and Conclusions

Young and beginning farmers may start their farm businesses by purchasing or leasing farm real estate. There is substantial leasing among young and beginning farmers and as they get older they tend to purchase more farmland and lease less farmland. Young farmers may not have the necessary capital to purchase farmland. On the other hand, they might want to rely on leasing because of the high cash flow requirement to purchase farmland, the added risk that comes with owning farmland, and the low returns on owned real estate. It is also common that intergenerational family transfers involve leasing of farm real estate from the older to the younger generation, which is consistent with the results that young farmers tend to increase the number of rented acres. These considerations of owning versus leasing of farmland are reflected in the results of this study.

Entry rates for farm businesses are found to be 5.5% and exit rates of 5.7% but these rates vary based on the farmer's age. These rates are likely higher than the actual rates, due to the methodology of linking farm records in Census data. Land ownership levels and changes are identified using the linked-farms approach. Young and beginning farmers are found to be smaller in farm size (owned, rented, and operated acres), but they do grow faster than the rest of the farms, with annual growth rates of 2.9% for all beginning farmers and 5.6% for young farmers as compared to 0.6% for all farms during the 1997-2007 period. Projections are used to obtain the expected capital needed to fund farmland purchases to start a farm business and to subsequently expand the farm operation, with an average capital of \$553,900 needed to start a farm business as a beginning farmer and \$379,900 as a young farmer. These projections indicate the capital and financing needs for young and beginning farmers transitioning into agriculture.

The main contribution of this study is to show the entry positions of young and beginning farmers and the extent of farm expansions after entering agriculture. For example, it is mostly farms operated by young beginning farmers that grow intensely during the first few years of operating while farm businesses operated by older beginning farmers seem to have limited growth. These results help new farmers and agricultural lenders to better plan for the capital needs of new farmers. Policy makers may use these results to better target programs and support for new farmers.

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Table 1. Annual Entry and Exit Rates from Farming

| Annual rates based on period | All farmers | | Young farmers <35 years old | | Old farmers >65 years old | |
|-------------------------------------|--------------------|-------------------|---------------------------------------|-------------------|-------------------------------------|-------------------|
| | Entry rates | Exit rates | Entry rates | Exit rates | Entry rates | Exit rates |
| 1997 to 2002 | 7.4% | 8.6% | 12.4% | 9.0% | 5.4% | 10.4% |
| 2002 to 2007 | 8.6% | 8.2% | 14.4% | 8.8% | 6.6% | 9.4% |
| 1997 to 2007 | 5.5% | 5.7% | 8.3% | 5.6% | 4.3% | 7.1% |

Source: Katchova and Ahearn (2013b) based on USDA's Census of Agriculture data.

| Annual rates | All farmers | |
|---------------------|--------------------|-------------------|
| | Entry rates | Exit rates |
| 1987 to 1992 | 8% | 10% |
| 1992 to 1997 | 10% | 9% |

Source: Ahearn, Korb, and Yee (2009).

Table 2. Average Number of Acres Owned, Rented, and Operated

| Year | All Farms or Continuing, Linked Farms | Group | Number of Farms | Acres Owned | Acres Rented | Acres Rented to Others | Acres Operated |
|-------------|--|---------------------|------------------------|--------------------|---------------------|-------------------------------|-----------------------|
| 1997 | All | All | 2,215,888 | 286 | 177 | -32 | 431 |
| 2002 | All | All | 2,130,336 | 304 | 169 | -31 | 442 |
| 2007 | All | All | 2,205,895 | 294 | 162 | -36 | 419 |
| 1997 | Continuing, linked farms | All | 875,709 | 329 | 252 | -27 | 554 |
| 2002 | Continuing, linked farms | All | 875,709 | 378 | 259 | -33 | 604 |
| 2007 | Continuing, linked farms | All | 875,709 | 383 | 248 | -41 | 590 |
| | | | | | | | |
| 1997 | All | Beginning farmers | 692,674 | 164 | 127 | -23 | 268 |
| 2002 | All | Beginning farmers | 720,578 | 217 | 105 | -23 | 299 |
| 2007 | All | Beginning farmers | 715,408 | 191 | 86 | -25 | 252 |
| 1997 | Continuing, linked farms | Beginning farmers | 135,798 | 173 | 134 | -16 | 292 |
| 2002 | Continuing, linked farms | Beginning farmers | 135,798 | 215 | 158 | -14 | 359 |
| 2007 | Continuing, linked farms | Beginning farmers | 135,798 | 225 | 170 | -17 | 377 |
| | | | | | | | |
| 1997 | All | Established farmers | 1,149,499 | 317 | 213 | -35 | 495 |
| 2002 | All | Established farmers | 1,409,722 | 348 | 202 | -35 | 515 |
| 2007 | All | Established farmers | 1,490,486 | 343 | 198 | -42 | 499 |
| 1997 | Continuing, linked farms | Established farmers | 271,352 | 339 | 284 | -24 | 599 |
| 2002 | Continuing, linked farms | Established farmers | 271,352 | 385 | 277 | -27 | 635 |
| 2007 | Continuing, linked farms | Established farmers | 271,352 | 395 | 265 | -36 | 624 |

Source: Katchova and Ahearn (2013a) based on USDA's Census of Agriculture data.

Table 2. Average Number of Acres Owned, Rented, and Operated (Continued)

| Year | All Farms or Continuing, Linked Farms | Group | Number of Farms | Acres Owned | Acres Rented | Acres Rented to Others | Acres Operated |
|------|---------------------------------------|-------------------------|-----------------|-------------|--------------|------------------------|----------------|
| 1997 | All | Farmers younger than 35 | 178,611 | 127 | 206 | -14 | 320 |
| 2002 | All | Farmers younger than 35 | 123,105 | 146 | 196 | -13 | 329 |
| 2007 | All | Farmers younger than 35 | 118,636 | 131 | 194 | -17 | 307 |
| 1997 | Continuing, linked farms | Farmers younger than 35 | 54,841 | 140 | 279 | -10 | 409 |
| 2002 | Continuing, linked farms | Farmers younger than 35 | 54,841 | 211 | 353 | -10 | 555 |
| 2007 | Continuing, linked farms | Farmers younger than 35 | 54,841 | 250 | 403 | -14 | 640 |
| | | | | | | | |
| 1997 | All | Farmers 35-64 years old | 1,477,400 | 271 | 195 | -27 | 438 |
| 2002 | All | Farmers 35-64 years old | 1,449,007 | 295 | 189 | -26 | 458 |
| 2007 | All | Farmers 35-64 years old | 1,431,221 | 279 | 183 | -29 | 433 |
| 1997 | Continuing, linked farms | Farmers 35-64 years old | 574,369 | 297 | 265 | -21 | 540 |
| 2002 | Continuing, linked farms | Farmers 35-64 years old | 574,369 | 345 | 265 | -29 | 581 |
| 2007 | Continuing, linked farms | Farmers 35-64 years old | 574,369 | 353 | 250 | -37 | 566 |
| | | | | | | | |
| 1997 | All | Farmers 65 and older | 559,877 | 379 | 119 | -52 | 446 |
| 2002 | All | Farmers 65 and older | 558,188 | 361 | 111 | -47 | 425 |
| 2007 | All | Farmers 65 and older | 656,036 | 355 | 110 | -56 | 409 |
| 1997 | Continuing, linked farms | Farmers 65 and older | 115,565 | 405 | 153 | -43 | 514 |
| 2002 | Continuing, linked farms | Farmers 65 and older | 115,565 | 415 | 130 | -48 | 497 |
| 2007 | Continuing, linked farms | Farmers 65 and older | 115,565 | 403 | 105 | -58 | 450 |

Source: Katchova and Ahearn (2013a) based on USDA's Census of Agriculture data.

Table 3. Annual Changes in Acres Owned, Rented, and Operated for Surviving Farms

| Period | Group | Change in Acres Owned | | Change in Acres Rented | | Change in Acres Rented to Others | | Change in Acres Operated | |
|-----------|-------------------------|-----------------------|------------|------------------------|------------|----------------------------------|------------|--------------------------|------------|
| | | Acres | Percentage | Acres | Percentage | Acres | Percentage | Acres | Percentage |
| 1997-2002 | All farms | 10 | 3.0% | 1 | 0.6% | -1 | 4.3% | 10 | 1.8% |
| 2002-2007 | All farms | 1 | 0.3% | -2 | -0.8% | -2 | 4.7% | -3 | -0.5% |
| 1997-2002 | All farms | 5 | 1.6% | 0 | -0.2% | -1 | 5.0% | 4 | 0.6% |
| | | | | | | | | | |
| 1997-2002 | Beginning farms | 8 | 4.8% | 5 | 3.6% | 0 | -1.6% | 13 | 4.6% |
| 2002-2007 | Beginning farms | 2 | 0.9% | 2 | 1.5% | -1 | 4.0% | 4 | 1.0% |
| 1997-2002 | Beginning farms | 5 | 3.0% | 4 | 2.6% | 0 | 1.0% | 9 | 2.9% |
| | | | | | | | | | |
| 1997-2002 | Established farms | 9 | 2.7% | -1 | -0.5% | -1 | 3.2% | 7 | 1.2% |
| 2002-2007 | Established farms | 2 | 0.5% | -2 | -0.9% | -2 | 6.7% | -2 | -0.3% |
| 1997-2002 | Established farms | 6 | 1.7% | -2 | -0.7% | -1 | 5.5% | 2 | 0.4% |
| | | | | | | | | | |
| 1997-2002 | Farmers younger than 35 | 14 | 10.2% | 15 | 5.3% | 0 | 0.0% | 29 | 7.1% |
| 2002-2007 | Farmers younger than 35 | 8 | 3.7% | 10 | 2.8% | -1 | 9.2% | 17 | 3.1% |
| 1997-2002 | Farmers younger than 35 | 11 | 7.9% | 12 | 4.5% | 0 | 4.6% | 23 | 5.6% |
| | | | | | | | | | |
| 1997-2002 | Farmers 35-64 years old | 10 | 3.3% | 0 | 0.0% | -2 | 7.1% | 8 | 1.5% |
| 2002-2007 | Farmers 35-64 years old | 2 | 0.4% | -3 | -1.1% | -2 | 5.2% | -3 | -0.5% |
| 1997-2002 | Farmers 35-64 years old | 6 | 1.9% | -1 | -0.6% | -2 | 7.1% | 3 | 0.5% |
| | | | | | | | | | |
| 1997-2002 | Farmers 65 and older | 2 | 0.5% | -5 | -3.1% | -1 | 2.0% | -4 | -0.7% |
| 2002-2007 | Farmers 65 and older | -2 | -0.5% | -5 | -3.8% | -2 | 4.4% | -9 | -1.9% |
| 1997-2002 | Farmers 65 and older | 0 | 0.0% | -5 | -3.1% | -1 | 3.4% | -6 | -1.2% |

Source: Katchova and Ahearn (2013a) based on USDA's Census of Agriculture data.

Table 4. Farm Real Estate (Average Value per Acre) for U.S. and by Region

| Region | 2012 | 2013 | Percent Change 2012-2013 |
|-----------------|-------------|-------------|-------------------------------------|
| U.S. | 2,650 | 2,900 | 9.4% |
| Northeast | 4,780 | 4,840 | 1.3% |
| Lake | 4,180 | 4,660 | 11.5% |
| Corn Belt | 5,550 | 6,400 | 15.3% |
| Northern Plains | 1,730 | 2,130 | 23.1% |
| Appalachian | 3,700 | 3,840 | 3.8% |
| Southeast | 3,320 | 3,320 | 0% |
| Delta | 2,500 | 2,600 | 4.0% |
| Southern Plains | 1,730 | 1,760 | 1.7% |
| Mountain | 974 | 1,029 | 4.7% |
| Pacific | 4,450 | 4,510 | 1.3% |

Source: USDA-NASS Land Values Summary for 2013.

Table 6. Values for Initial Purchase and Expansion of Owned Farmland

| | Owned Acres | | | 2013 Land Prices | | | 2013 Values of Owned Land | | |
|--|-------------|---------|------|------------------|---------|-------|---------------------------|---------|-----------|
| | Low | Average | High | Low | Average | High | Low | Average | High |
| <i>Initial Purchase of Farmland to Establish Operation Scenarios</i> | | | | | | | | | |
| All | 250 | 294 | 350 | 1,020 | 2,900 | 6,400 | 257,250 | 852,600 | 2,240,000 |
| Beginning | 150 | 191 | 250 | 1,020 | 2,900 | 6,400 | 154,350 | 553,900 | 1,600,000 |
| Young | 100 | 131 | 200 | 1,020 | 2,900 | 6,400 | 102,900 | 379,900 | 1,280,000 |
| <i>Expansion of Farm Operation Scenarios</i> | | | | | | | | | |
| All | 10 | 50 | 100 | 1,020 | 2,900 | 6,400 | 10,290 | 145,000 | 640,000 |
| Beginning | 20 | 50 | 80 | 1,020 | 2,900 | 6,400 | 20,580 | 145,000 | 512,000 |
| Young | 80 | 110 | 140 | 1,020 | 2,900 | 6,400 | 82,320 | 319,000 | 896,000 |

Source: Author's calculations.