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Abstract: In this paper we consider the question of whether middle-scale farmers, which we define as producers generating between $100,000 and$250,000 in sales annually, are better agricultural stewards than small and large-scale producers. Our study is motivated by the argument of some commentators that farmers of this class ought to be protected in part because of the unique attitudes and values they possess regarding what constitutes a "good farmer". We present results of a survey of Missouri farmers designed to assess farmer attitudes and values regarding a variety of indicators of farmer stewardship, such as the most important issues in agriculture, environment and treatment of farm animals, perspectives on the past and future of agriculture, and ethical behavior. We find no evidence that farmers-of-the-middle are particularly noteworthy in these regards. We do find evidence, however, that middle-scale farmers are more pessimistic and anxious about their role in the future of agriculture.

Key words: Farmers of the middle, good farmer, agrarianism, farmer attitudes and values

Introduction

Are middle-scale family farms, or "farmers of the middle," better agricultural stewards than small and large scale producers? That is, do "farmers of the middle" provide important social, ecological and political benefits to society that small-scale, part-time farmers and large-scale agribusiness farms do not? These questions are important for two reasons. First, the number of middle-scale family farms is declining in the United States, a trend that had been noted since at least the early 1980s (Buttel and LaRamee, 1991). For example, according to United States Department of Agriculture (USDA) data, in 1997 approximately 189,000 farms, or 10 percent of all US farms, had annual sales between $100,000 and $250,000 (USDA 1999a). In 2007 the number of farms in this sales category decreased to 149,000, representing less than 7 percent of total US farms (USDA 2009a). Second, some authors have asserted that middle-sized family farms provide social, economic and environmental benefits to communities and societies, at least compared to large-scale farmers and corporate farming operations. Commentators have also claimed that these "farmers of the middle" are the ones with operations large enough to produce for the growing market for differentiated and local foods, but nimble enough to produce the differentiated (e.g. organic, humane, fair, etc.) products important to this emerging market (Kirschenmann et al, 2008). If middle-sized farms provide important benefits to communities and society at-large, and if their numbers are declining, then there ought to be a concerted effort to develop local, state and federal policies to "save" the middle-scale family farm (see, for instance, Ray and Schaffer, 2008).

There is a broad literature examining the notion of what a good farmer is and why good farmers are essential to society. Most notable are the agrarian ideal popularized by Thomas Jefferson and Wendell Berry's (1997) depiction of the "ideal" or "good" farmer. Thompson (1995, p. 73) summarizes these ideas as follows:

> Farmers have long been thought to be natural stewards of the land. The ideal of good farming has been expressed in terms of care for the soil, water, plants, and animals under the farmer's supervision. Although there have always been bad farmers who ruin their farms, the practice of stewardship has traditionally been thought characteristic of an ideal to which all farmers aspire.

Related is a literature describing the characteristics of farming families, their households and the communities in which they live (e.g., Salamon, 1992). We are interested in a different

question. Are certain types of farmers – where "type" is defined in terms of the scale of operation – more likely than others to approach this ideal of the "good farmer"? Specifically, are the attitudes and values of middle-scale farmers different or distinct enough so that these farms should be preserved in order to preserve and promote idealized farmer's values? Our motivation is based in part on the Kirschenmann et al (2008) argument that "farmers of the middle" – or farmers with farm sizes that fall mid-range between very large and small – are not only different from other producers but also essential and that their decline will have detrimental implications for rural communities, emerging markets and society in general. This is not based solely on the expectations that the *behavior* of such farmers is better in terms of the choice of specific agricultural or conservation practices or that they will fill important niche agricultural markets. Rather, the motivation is based on the idea that farms of this size ought to be protected because of the unique *attitudes and values* they possess. Whether it is true or not that middle-scale farmers are distinct from other farmers depends fundamentally on whether they are in fact different from small-scale and large-scale producers, particularly regarding the degree to which such farmers have attitudes and values that are more closely aligned with desired principles of sustainability, environmental stewardship and community citizenship, among others, when compared with small or large scale producers.

Some scholars have examined the effects of farm size and structure on farm conservation practices. For example, Lee (1980) finds that while the business structure of farms does not affect rates of soil erosion, the size of farms as measured by net farm income is important, with small-scale farms having relatively larger rates of erosion than larger farms. In contrast, Tavernier and Tolomeo (2004) suggest that smaller farms are more likely than larger farms to promote sustainable agriculture because of the significant relationship they find between farm size and land tenure. Lambert et al (2007) find evidence that scale of farm operations is related to decisions to adopt some conservation practices, with larger farms being motivated to adopt practices that lower costs or increase yields and profits. However, Soule (2001) finds that farm size is not associated with most soil and nutrient management practices studied, including contour farming, terracing and precision agriculture, with the exception that high-sales farms were more likely than smaller farms to rotate crops with legumes and use conservation tillage practices.

Rather than looking at the relationship between farm size and specific farming and sustainable agriculture practices per se, we are interested in the question of whether farms of a particular size – in this case, middle-scale farmers – differ from large-scale producers and small-scale, part-time farmers with respect to the range of issues connected with attitudes and values of farmers regarding environmental stewardship and the like. In this study we present results from a survey of Missouri agricultural producers conducted in early 2006, one purpose of which was to assess what farmers think about rural life, agricultural policy, and the ethics of various social, economic and environmental issues in order to determine if middle-scales farmers – or "farmers of the middle" – are significantly different from and noteworthy when compared to small and large scale producers.

Based on our examination of the data, we cannot conclude that "farmers of the middle" have particularly strong, unique or noteworthy attitudes or inclinations with respect to environmental, social or animal stewardship that would justify the belief that a decline in the number of these farmers will result in adverse consequences for society. Simply, we do not find evidence that middle-scale farmers are more likely than small or large-scale producers to deserve a designation of "good farmer." Differences that do exist suggest that there is a relative degree of anxiety among middle-scale farmers which we attribute to structural and economic conditions in agriculture. Thus, we find that farmers of the middle are different from small and large scale producers in that they are relatively more stressed and less secure about their well-being. We speculate that such stress can lead farmers to change decision-making, seeking security in whatever ways they can. For instance, such stress could lead them to rationalize unethical conduct if they feel their farming options are becoming increasingly limited or constrained (Hendrickson and James, 2005). It may also affect their willingness to explore alternative farming and marketing methods if income cannot be guaranteed; or it could encourage them to seek contracting arrangements that will provide guaranteed sources of income, with a corresponding decrease in their ability to adopt sustainable practices (Hinrichs and Welsh, 2003). Such anxiety may also prompt these farmers to give up farming entirely, which will likely result in further consolidation at the farm level with the documented impacts on rural communities (Stofferhan 2006).

Background

Most U.S. farms are family farms, which the USDA defines as "proprietorships, partnerships, or family corporations that do not have hired mangers" (Hoppe and Banker, 2005, p. iii). In 2003, 98.3 percent of all US farms were "family farms." However, there is no "typical" family farm. Some farming operations are small, with annual farm sales less than $10,000. Other family farms are very large, with annual farm sales of $500,000 or more. Farms also differ in terms of the sources of household income and farm labor (Briggeman et al, 2007). Some farm families report that they operate farms because they like the lifestyle but draw most of their income from occupations other than farming. Other farm families rely extensively if not exclusively on farming as their primary occupation.

According to USDA (2009a; 2009b) data, most family farms have annual sales less than $250,000; 90.2 percent of US farms in 2007 consisted of these relatively small scale operations. In Missouri, the percentage is relatively larger; 94.3 percent of farms had annual sales less than $250,000 in 2007. On the other hand, more than 80 percent of all US farm sales come from farms with sales of $250,000 or more. In Missouri, slightly more than 70 percent of the value of year 2007 sales came from farms with sales in excess of $250,000.

This picture of farms is by no means a static one. U.S. agriculture has gone through a dramatic change during the twentieth century, a change that continues even today. This change is characterized largely by the concentration and specialization of agricultural activity both vertically across production stages and horizontally within markets. In the case of farm-level production, concentration is manifested in two ways. The first is a shift from small size and labor intensive farming practices in which labor is the scarce factor of production, to large-scale operations that rely on machinery and technology and the intensive use of land, chemicals and energy. The second is simply the reduction in the total number of farms and families in farming and the concurrent increase in farm size. There has been a corresponding specialization in particular commodities among farms of all sizes.

However, the shift from small scale to large scale does not tell the full story. Although on average farm size has generally increased, this increase is not manifested by a gradual reduction in the number of small farms and a corresponding increase in large farms. Rather, the number of middle-sized farms is declining in significantly greater proportion compared with small and large farms. Figure 1 shows the change in the percent of all US and Missouri farms by sales category

in the decade between 1997 and 2007. Ignoring for now the very small farms with annual sales under $10,000, the figure shows that the category with the largest decline at both the US and Missouri levels come from farms with sales between $100,000 and $249,000. Specifically, there was a 21 percent decrease in US farms and an 11 percent decrease in Missouri farms in this sales category between 1997 and 2007. However, at the US and Missouri state levels, the category with the largest increase is for the largest farms; US farms with sales in excess of $1 million annually increased more than 120 percent, while the corresponding increase in Missouri farms was 183 percent. While data does not justify the assertion that there is *currently* a bimodal distribution of farms in the US (Wolf and Sumner, 2001), there is a trend that is clearly moving agriculture in that direction. The US and Missouri are losing mid-scale farms.

[Figure 1 about here]

In order to examine whether "farmers of the middle" differ from small and large scale producers, we need to define the middle-scale farm. Although there is no uniform consensus on what constitutes the "middle" range, we focus our attention on farms with sales between $100,000 and $250,000 annually. The Economic Research Service of the USDA defines small farms as farms with less than $250,000 in annual sales. In order for farm families to generate sufficient income from farming to support a family household, we suppose that farm sales would have to be at the upper range of the scale (e.g., above $100,000). Moreover, the USDA defines "farming occupation farms" as "Small family farms whose operators report farming as their major occupation" and "medium-sales farms" as farms with sales of $100,000-$249,999 (USDA, 2006, p. 2). This definition captures the popular notion of what a "family farm" is, in the sense that it is a farm run by and for a family's income needs. According to Skaggs (2001, p. 13), farms with sales less than $250,000 "are operated by individuals who are attempting or would prefer to earn 100% of their income from their farm operations."

Commentators concerned about family farms generally, and "farmers of the middle" specifically, have purposely identified this farm segment as of key concern. For example, Kirschenmann et al (2008) particularly refer to farms with gross sales between $100,000 and $250,000 in their discussion of why it is important to worry about "agriculture of the middle." The reason is that farms with sales greater than $100,000 and less than $250,000 "have

traditionally constituted the heart of U.S. agriculture" (p. 3). These farms are important because they have been in farm families for multiple generations. Hence, "good land stewardship is a high priority since they regard their land a part of the family's heritage and local ecological knowledge has been handed down from one generation to the next" (pp. 4-5). Moreover, these farms produce a "public good" in that they "have supplied in the form of land stewardship and community social capital" benefits than other farms do not provide (p. 5). These views are support by observations by Madden and Tischbein (1979, p. 942) that

> The need for preservation of this middle sector, of small- to moderate-sized family farms seems to be a central value judgment underlying much of the current concern for what is loosely termed the "small farm." Many observers are convinced that society needs to retain the flexibility of keeping options open, options which will disappear permanently if the middle sector of family farms is totally replaced by huge farming operations. Frequently, concern is voiced regarding the need to prevent an irrevocable concentration of farmland in the hands of a few investors – particularly speculators or others who have little concern for the husbandry of the soil or for enhancing the quality of life in rural communities.

There has been a long history of academic scholarship examining the relationship between the structure of agricultural production and community well-being (Goldschmidt 1978; Lobao 1990; Crowley and Roscigno, 2004). Often, size or scale is used as the proxy for structure in this scholarship, although studies also look at industrialization and specialization, two aspects of farm consolidation. Goldschmidt's (1978) well-known study from the 1940s documented the relationship between large-scale, industrialized farming and adverse consequences on a community's quality of life such as lower incomes, higher poverty, smaller middle-class, poorer public education, fewer civic organizations and churches, and less control over public decision-making. Over the decades, some studies have shown negative consequences for communities where industrialized farms predominate, while others have proven inconclusive. Still, in a review of 56 studies examining the impact of industrialized or large-scale farming on community well-being, Stofferahn (2006) found that researchers reported largely detrimental effects on communities in 32 studies, and some detrimental impacts in 14 for a total of 46 (or 82 percent) of the reviewed studies. He concluded there was a great deal of evidence produced using at least five different methodologies, involving a number of different researchers and looking at different

regions of the US that showed detrimental impacts for community well-being from industrialized farming. However, Stofferahn notes that these studies also showed that industrialized farming involved a trade-off effect, did not consistently produce detrimental effects for all time periods or for all regions, and involved beneficial impacts for some groups and detrimental ones for others.

In 1998, a USDA National Commission on Small Farms issued a report which examined the effects of government policies on small farms and which recommended changes in policies to promote the viability of small and medium-sized farms. In this report, small farms were defined as having farm sales between $50,000 and $250,000 annually. The report stated that the benefits of these farms include (a) a diversity of ownership, farming structures and cultures, (b) environmental benefits, particularly "Responsible management of the natural resources of soil, water, and wildlife" (USDA, 1998, p. 13), (c) self-empowerment and community responsibility, (d) nurturing places for families and for children, and (e) personal connection to food.

Are "farms of the middle" different from and more valuable to society than other size farms? If so, how? Do these farms reflect our perceptions of them as good stewards in terms of how they view and treat the land, animals, and community? Are "farmers of the middle" noteworthy in their attitudes towards ecological, community and animal issues in agriculture and in terms of their personal ethics? In this paper we present findings from a survey of Missouri farmers to answer these questions.

Overview of Our Study

We randomly surveyed 3,000 Missouri farmers in early 2006 from the population of all Missouri farmers with sales in excess of $10,000 per year (41 percent of all Missouri farms are within this category). Our survey was stratified by farms sales to facilitate comparisons across these groups: $10,000-$49,999, $50,000-$99,999, $100,000-$249,999, $250,000-$499,999, $500,000-$999,999 and $1 million and above. We mailed a "heads-up" postcard, which was followed by the survey, with a second mailing to non-respondents a few weeks later. Of the 3,000 surveys we mailed, 2941 surveys were deliverable and 692 returned, resulting in an effective response rate of 23.5 percent. In this report we examine only respondents who reported that they are currently farm operators (thus excluding retirees and non-farming landowners). Therefore, our sample size is 519 respondents. As indicated in Table 1, farmers in our sample on average farm 961 acres,

have 31 years of farming experience, and are most likely to grow hay, corn, soybeans and beef cattle. Additionally, the table shows that more than 80 percent of farms with sales of at least $100,000 provided at least 50 percent of household income from farming activities. More than half of middle farms, and nearly three-quarters of large-scale farms, provided at least 75 percent of all household income from farming. Most small-scale farms produce less than half of household income from farming, suggesting that most of household income comes from off-farm sources for farms of this size.

[Table 1 about here]

We are interested in the extent to which "middle" farmers – which we define as producers with 2005 annual incomes of at least $100,000 but less than $250,000 – have different perspectives regarding sustainability, the environment, and ethical issues involving agriculture, when compared with small and large scale producers. By this definition, 123 farmers in our sample, or 23.7 percent, are "middle" farmers. In contrast, half of the producers in our sample are small-scale farmers (farms with 2005 sales less than $100,000 but greater than $10,000), while 26 percent are large-scale producers (farms with 2005 sales of $250,000 and greater).

The measures of "different" that we are particularly concerned with are those that reflect attitudes and possibly behaviors that might indicate that some farmers are better or more conscientious stewards of animals, the environment, and communities than other producers. In order to make this assessment we examine farmer attitudes regarding various ethical issues in agriculture, focusing on identifying significant differences between middle-size and other producers. Specifically, we consider the following possible indicators that "farmers of the middle" are better environmental and social stewards than farmers of other farm sizes: the concerns of farmers and types of agricultural issues farmers believe are most important; the extent to which farmers agree with various statements assessing notions of stewardship; farmer outlook on directions society should take and their views of the future; and their attitudes towards various ethical problems. In assessing the extent to which mid-scale farmers differ from small and large-scale producers, we utilize in part one-way analysis of variance (ANOVA) and difference of means tests, which we generally report as p-values.

Analysis

Concerns of farmers

We begin by presenting evidence that we believe illustrates why an interest in farmers of the middle is informative. We asked farmers to indicate, on a scale from 1 to 10, how satisfied they are with their life as a whole, how much freedom of choice and control they feel they have over the way their life turns out, and how concerned they are about their financial security. Figure 2 shows that farmers with sales between $100,000 and $249,999 are in general less satisfied, feel they have less control over their lives, and are more concerned about their financial security, than farmers in any other sales category. ANOVA tests reveal that the results for the "control" ($p=0.0629$) and "concern with finances" ($p=0.0450$) measures are statistically significant, suggesting that size of farm operation does affect farmer attitudes with respect to the control and concern with finances indicators. ANOVA results for "satisfaction with life" are not significant ($p=.3432$). This data, combined with the fact that the number of these "middle" farms is decreasing in greater proportion than farms in other sales categories are increasing or decreasing (as shown in Figure 1), suggests that many of these farmers may face greater economic pressures than other farmers, possibly from industrialization and globalization and other economic conditions affecting agriculture. We conjecture that these farmers may feel "squeezed" by continuing consolidation in markets for both inputs and commodity products and are probably concerned that they will need to leave agriculture all together if current trends continue. If small-scale producers generally rely on outside sources of farming, and if large-scale producers can generate sufficient markets and income from farming (see, for instance, the row labeled "Percent with at least 50% … farming income" in table 1), middle-scale producers may be particularly anxious about their economic prospects. As one source of evidence, in our extension work across the state of Missouri, some farmers have expressed anxiousness about the effect on their community if farms continue to consolidate, especially in regard to the loss of farmer neighbors.

[Figure 2 about here]

[Table 2 about here]

We also asked farmers to indicate, from a list of eight statements, which are the two most important issues in agriculture generally. We list the statements in Table 2, along with the percent of small, middle and large scale producers indicating that the given issue is one of the two most important in agriculture. The table also shows that farmer attitudes toward agricultural issues differ depending on the size of their farming operations. We find that middle farmers, or farms with sales between $100,000 and $249,999, identified farm structure and the economic and social characteristics of agriculture as most important; indeed, half of all mid-scale farmers identified this as one of the two most important issues in agriculture. In contrast, small farmers consider food safety and security to be the most important issue in agriculture, while large farmers believe government farm policies, including those involving agricultural subsidies, to be most important. Thus, it appears that farmers have different concern regarding issues in agriculture, which differences are affected in part by the scale of operation, with middle-scaled farmers most concerned about the economic conditions of agriculture.

Attitudes towards land, environment, animals and communities

We asked farmers the extent to which they agree or disagree with various opinions regarding stewardship and agricultural conditions. The objective here is to assess the extent to which "farmers of the middle" differ from small and large-scale producers regarding issues that might be closely identified with the idea that farmers are good "stewards" of the land. To this end we consider four measures of stewardship. The first is whether respondents believe farmers have a responsibility to conserve their land, even if it hurts them financially. The second is the belief that a farmer who uses little or no artificial pesticides or herbicides is more responsible than a farmer who uses these chemicals extensively. The third is the belief that a farmer who allows animals to forage in an open pasture is more responsible than a farmer who confines animals to buildings or cages. The fourth is whether farmers believe that communities should have a say in the way farmers or ranchers operate their farming businesses. Although we recognize that multiple interpretations could be given to these ideas, we believe that an indication of "agreement" with each statement could align more closely with the ideas of good stewardship as articulated by Kirschenmann, Berry, and others than a response of disagreement with the statement.

[Table 3 about here]

Table 3 presents results comparing farmer responses to stewardship indicators, with the percent of farmers of different farm sizes indicating either "strongly agree" or "somewhat agree" (other options included "neutral," "somewhat disagree," "strongly disagree," and "don't know). ANOVA tests reveal that in three of the four statements, farm size is a statistically significant determinant of the extent to which farmers agree with the statements. However, the results do not support the hypothesis that "farmers of the middle" are particularly noteworthy with respect to these ideas. That is, middle-scale farmers are not more likely to express opinions suggesting they have a more conscientious concern for the land, animals and community than other farmers. For example, the evidence shows that middle-scale producers are somewhat more willing than other farmers to agree with the idea of protecting the land at the expense of farm incomes, but the difference is not statistically significant. Middle-scale farmers are more likely than large-scale producers to agree that the use of artificial pesticides and herbicide is not a responsible form of agriculture, but they are less likely than small-scale producers to agree. Similar findings exist for considerations of animals and the role of the community in farm production matters.

Outlook on broad societal directions

We asked farmers about their attitudes and outlook with respect to three important directions society can take. Should protecting the environment or economic growth and job creation be given top priority? Should we emphasize new technology or tradition? Does humanity have a bleak or bright future? Figure 3 shows how farmers of different farm sizes responded to these questions. All said, the results presented in Figure 3 reveal that farm size has a significant effect on farmer attitudes. However, middle-scale farms are not uniquely noteworthy in this regard. Panel (a) of figure 3 shows that middle and large-scale producers are more willing than small-scale producers to accept economic growth and jobs over the environment ($p=0.0088$). Of the three groups, middle farmers choose growth and jobs over the environment by more than a two to one margin; more than one-half of middle-sized producers will place jobs over the environment. Large-scale producers are similarly inclined to favor economic growth over the environment. In contrast, a greater percentage of small producers than mid-scale and large-scale

producers are willing to consider environmental concerns over jobs and the economy (p=0.0125). Moreover, small-scale farmers are evenly split between concerns for economic conditions and concerns for the environment.

[Figure 3 about here]

Panel (b) of Figure 3 shows that most farmers will choose technology over tradition, perhaps signaling a support for the continued implementation and improvement of mechanization, biotechnology and other technologically-oriented agricultural production practices. Whether this is because of innate preferences or a recognition that technology is needed to maintain competitive advantage is uncertain. As the size of farms increases, the percent of farmers willing to emphasize technology over tradition increases significantly (p=0.0408). Interestingly, one-quarter of small producers believe tradition is more important than technology. However, while the percent of farmers expressing this opinion declines as the size of the farm increases, the effect is not statistically significant (p=0.2969).

Finally, panel (c) shows how farmers differ in terms of their outlook on life generally. Less than half of all producers (48 percent) have a positive outlook for the future, or a belief that humanity has a bright future. The other 52 percent are either pessimistic or do not know. Perhaps not surprisingly, 21 percent of all farmers believe humanity has a bleak future. The percent of farmers who believe that humanity has a bright future increases as the size of the farm increases (p=0.0866). Farm size does not significantly affect the likelihood that farmers are pessimistic about the future (p=0.6996).

Related to the outlook of farmers with respect to the economy, technology, and general optimism is the question of whether farmers believe their own circumstances are improving. Figure 4 contrasts the perspectives of farmers of different farm sizes as they reflect on whether their life improved over the last 5 years and whether it will improve over the next 5 years. Panel (a) of figure 4 shows the percentage of Missouri farmers who believe their life became better, remained the same, or became worse during the past 5 years for each of the three sizes of farms. Farmers from middle-size farms are generally less likely to believe their life became better or no worse, although ANOVA results suggests the effect is not significant (p=0.1302). However, individuals t-tests comparing small to middle-size farms (p=0.1049) and middle to large-scale

farms (p=0.0587) do show a significant difference. Panel (b) shows how Missouri farmers expect the future to unfold for them. There is no significant difference in the attitudes of small, middle and large-scale producers with respect to outlook during the next 5 years of their life, although middle-scale farmers are relatively more pessimistic than farmers from the other groups. Interestingly, only 2 percent of these farmers believe things will become much better for them, while 28 percent believe their life will become only somewhat better.

Beliefs about the general conditions of Missouri farmers show a similar effect of firm size. While middle-farmers are relatively less optimistic, the effect is not significant when considering an ANOVA analysis (p=0.2575 for panel c, and p=0.1818 for panel d). However, the data reveal that less than one-half of all Missouri farmers believe that the economic conditions of Missouri agricultural producers will become better or much better during the next 5 years, with middle-scale farmers the most pessimistic of the group. Moreover, less than one percent of farmers believe economic conditions will improve for Missouri farmers during the next 5 years. T-tests comparing small to middle (p=0.0880) and middle to large (p=0.1095) suggests the effects of middle-scale farming are moderately significant.

[Figure 4 about here]

The bottom line here is that there is little evidence to suggest that middle-scale farmers are particularly optimistic or hopeful about farming. If anything, the data suggests a degree of relative degree of pessimism from this group of farmers.

Farmer Ethics

In addition to attitudes regarding important issues in agriculture, farm stewardship or outlook on society and farming generally, there is another way in which farmers of the middle may differ when compared with small and large-scale producers, and that is with respect to their ethical proclivities and trust in others. Economic growth and development requires that people adhere to basic ethical principles, such as being trustworthy and keeping one's promises. Therefore, farmer ethics might be just as important as their attitudes towards conservation, sustainability and environmental stewardship in terms of what makes a "good farmer". For example, Rappaprt and Himschoot (1994, p. 795) assert that the "ethical perceptions and standards of farmers have far

reaching public policy implications," possibly affecting the quality and price of food, the environment as well as "the overall quality of rural life." Moreover, James (2005) finds that farmers consider ethical challenges in agriculture to be particularly important, possibly as a result of the economic conditions of modern agriculture.

With respect to trust generally, we find no statistically significant evidence that farmers-of-the-middle are distinctive. Generalized trust is measured by the following question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" (see Uslaner, 2002, for a discussion of this concept). The percent of farmers who indicated that "most people can be trusted" increased as farm size increased. Specifically, 58 percent of small farmers, 63 percent of middle farmers, and 68 percent of large producers agreed that "most people can be trusted;" yet, ANOVA results show no significant effect of farm size ($p=0.2199$).

What about the ethical proclivities of farmers of the middle compared with farmers of small and large scale farms? Are middle farmers generally less tolerant of unethical business and farming practices than small or large-scale producers? Figure 5 summarized our findings of farmer responses to various scenarios that might be considered unethical. For convenience we group these scenarios into the categories of business ethics, practices with respect to genetically modified organisms, the environment, animal welfare and society. Respondents were asked to indicate on a 7-point Likert scale (where 1 represents acceptable and a 7 represents unacceptable) "the degree to which you believe the activity is acceptable or unacceptable." We assume that each scenario represents an unethical action. We also assume a response towards the "acceptable" (i.e., lower) end of the scale represents a greater tolerance for the unethical action, whereas a response towards the "unacceptable" (i.e., higher) end of the scale represents a greater intolerance for the unethical action. Our expectation is that if middle-scale farmers are important to society because they espouse socially-constructive values, for instance, then we might be able to observe a greater tendency of these farmers to be less tolerant of actions that might be generally considered unethical. That is, these farmers would be more likely than small and large-scale producers to rate unethical actions as "unacceptable".

[Figure 5 about here]

We find that in the 14 cases presented in Figure 5, in all but one case the middle-scale farmers are *more* tolerant of unethical actions than small or large-scale producers – as measured by their indicating that the unethical action is relatively more acceptable. However, these differences are significant only in the following four cases: retaining part of a harvest of genetically modified (GM) crops as seeds in violation of licensing requirements ($p=0.0675$), applying pesticides in windy conditions in order to maintain a production schedule ($p=0.0546$), not rinsing pesticide containers as required by law ($p=0.0865$), and hiring illegal aliens in order to keep costs low ($p=0.0400$). Interestingly, there was only one instance in which middle farmers were less tolerant of an unethical practice, and that is the case of a farmer who outbids a neighbor on rental farmland, even though the neighbor farmed the land for years. However, ANOVA results show the effect is not statistically significant ($p=0.1945$). Thus, we do not find any evidence that middle-scale farmers are "more ethical," or at least have opinions regarding ethical behavior that make them noteworthy or in a special class of agricultural producers.

Conclusions

We attempt to find evidence that "farmers of the middle" – which we define as farmers generating at least $100,000 but less than $250,000 in sales in 2005 – have significantly different, if not "better", attitudes regarding stewardship, the land, treatment of animals, ethics, and other concerns relevant to agriculture. In general, we find virtually no evidence from our analysis to support the hypothesis that "farmers of the middle" have more noteworthy attitudes regarding agricultural issues and ethics than small and large-scale producers. In other words, we do not find evidence that farmers of the middle ought to be preserved on the basis of the values and attitudes they possess regarding farming and rural life.

However, we find some differences between middle-scale and other farmers. Generally, these middle-scale farmers feel they have less control over their lives and are more concerned with their finances. They are most likely to consider that farm structure and economic conditions are the most important issues in agriculture, in contrast to concerns about biotechnologies, food safety and security, globalization or government policies. They tend to be relatively more pessimistic about their individual circumstances and about the conditions of farmers generally.

And, interestingly, they tend to be more tolerant of unethical practices, particularly violating licensing agreements, unsafely using of pesticides, and hiring of illegal aliens.

These general findings suggest that "farmers of the middle" are noteworthy not because they have greater respect for farming or the environment, thus designating them as "good farmers". Rather, we suspect the data suggest that there is a relative degree of anxiety among middle-scale farmers, probably resulting from structural and economic conditions in agriculture. As Kirschemann et al (2008) have argued, large-scale farmers have the possibility of competing in global commodity chains, markets which are continually closing off to "farmers of the middle." New market opportunities have emerged for small-scale farmers, especially those who market their products directly to consumers. However, the structure of these markets with low volume and high-transaction costs, make them unattractive to middle-scale farmers. Thus, "farmers of the middle" really do perceive limited options for their future. Although the differentiated markets that small-scale producers have been serving are beginning to scale up, many middle-scale may be in no position to take advantage of them, given the financial pressures they feel. As we indicated previously, financial pressures can lead to changes in decision-making, and these farmers may be more averse to the risk of participating in what they perceive as less secure emerging markets. Moreover, these markets may require significant production changes that in turn necessitate new knowledge, practices and equipment which can appear daunting to farmers already concerned about their future.

Of course, there may be other reasons to protect and sustain medium-sized farms besides the belief that they are "good stewards." A diversity of small and medium-sized farms may provide important economic benefits for local communities. For example, the USDA National Commission on Small Farms (1998, p. 5) states that these farms "fuel local economies and energize rural communities all across America. In the process of flourishing, small farms will contribute to the strengthening of society, providing communities and the Nation with opportunities for self-employment and ownership of land, and providing a cultural and traditional way of life as well as nurturing places to raise families." That farms provide economic benefits does not imply that they are necessarily good for the environment or treat their animals well.

In addition to economic benefits, there may be other reasons to maintain a diversity of farm types and hence preserve middle-scale farmers. In Stofferhan's (2006) review of the

relationship between agricultural structure and community well-being, detrimental effects of industrialized farming on communities included greater income inequality or poverty; decreased retail trade and diversity of retail firms; population declines and health effects of large livestock operations. Of particular importance is Berry's (1987) political and cultural justification for preserving the family farm. The "principle of democratic property" suggests that unless economic power and property are widely distributed among and controlled by members of society, then "people … must submit to the few who do own it", the effect of which would be a "tragic folly" for society (pp. 349, 350).

In the end, we believe the question becomes if it too much to expect that "farmers of the middle" are tasked with providing ecological stewardship, maintaining community-well being, and protecting animal welfare when these farmers are already facing significant economic pressures resulting from industrialization, globalization and the like. If these things are important to society, then we need to invest in a mix of public and private approaches that will provide the economic stability not only for "farmers of the middle" but also for all farmers to flourish and supply these sorts of public goods. However, relieving the economic pressures that "farmers of the middle" feel may indeed gain society ecological and social benefits.

Acknowledgements

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Table 1. Descriptive statistics from 2006 survey of Missouri farmers

	Small	Middle	Large	Full Sample
Size, in sales	$10,000-$99,999	$100,000-$249,999	$250,000+	
Number	260	123	136	519
Average acres	379	958	2036	961
Average years farming	31	30	32	31
Percent with at least 50% (at least 75%) farming income	33 (12)	82 (57)	88 (73)	59 (39)
Most common products (at least 50% indicated)	Beef, hay	Beef, soybeans, hay, corn	Soybeans, corn, wheat, hay, beef	Beef, hay, soybeans, corn

Table 2. Percent of farmers who believe given issue is one of the two most important issues in agriculture generally, by sales category

Issue	Small	Middle	Large	p-value
Animal welfare and treatment of farm animals	**15.4**	**12.2**	**2.2**	**p=0.0003**
Biotechnology and the genetic modification of food and crops	**13.8**	**12.6**	**24.3**	**p=0.0049**
Environmental pollution and degradation	14.6	14.6	8.8	p=0.2283
Food safety and security	**44.6**	**35.0**	**27.2**	**p=0.0023**
Farm structure and economic, social features of agriculture	**32.7**	**50.0**	**36.0**	**p=0.0055**
Globalization and international trade	28.5	30.9	36.8	p=0.2386
Government farm policies, including agricultural subsidies	**34.6**	**36.6**	**53.7**	**p=0.0007**
Other	5.0	8.1	4.4	p=0.3631

Bold indicates significant at 10 percent or better on one-way ANOVA tests.

Table 3. Percent of farmers indicating either "strongly agree" or "somewhat agree" to the following opinions.

Issue	Small	Middle	Large	p-value
Farmers have a responsibility to conserve their land, even if it hurts them financially	51.1	52.8	50.7	p=0.9361
A farmer who uses little or no artificial pesticides or herbicides is more responsible than a farmer who uses these chemicals extensively	**47.7**	**40.7**	**28.7**	**p=0.0012**
A farmer who allows animals to forage in an open pasture is more responsible than a farmer who confines animals to buildings or cages	**28.1**	**20.3**	**10.3**	**p=0.0002**
The community should have some say in the way a farmer farms or a rancher raises livestock on private land.	**29.6**	**27.6**	**15.4**	**p=0.0007**

Bold indicates significant at 10 percent or better on one-way ANOVA tests.

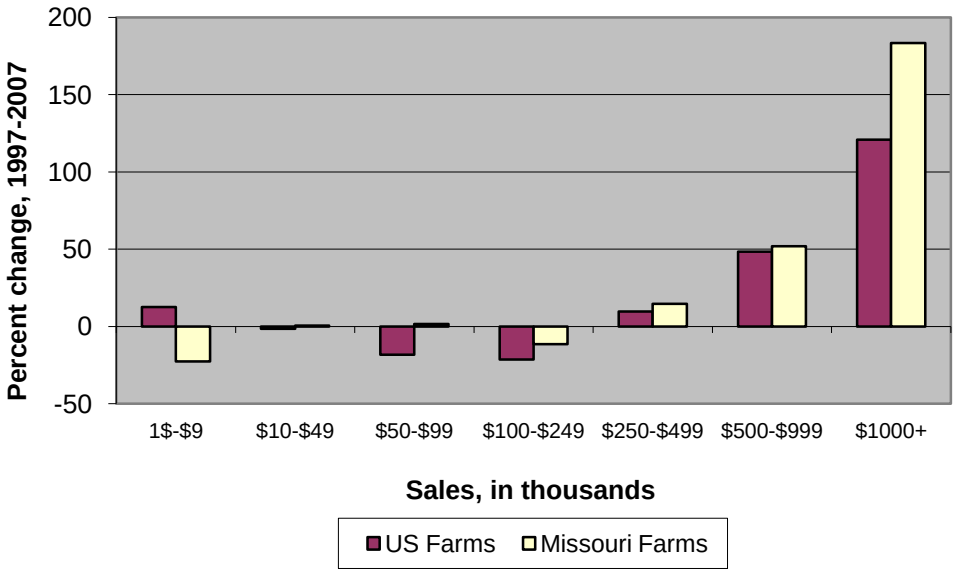


Figure 1. Percent Change in U.S. and Missouri Farms by Sales Category, 1997 to 2007

Source: 1997 Census of Agriculture: United States Data table 50 (USDA 1999a) and Missouri State and County Data table 2 (USDA 1999b); 2007 Census of Agriculture: United States Data table 59 (USDA 2009a) and Missouri State and County Data table 2 (USDA 2009b).

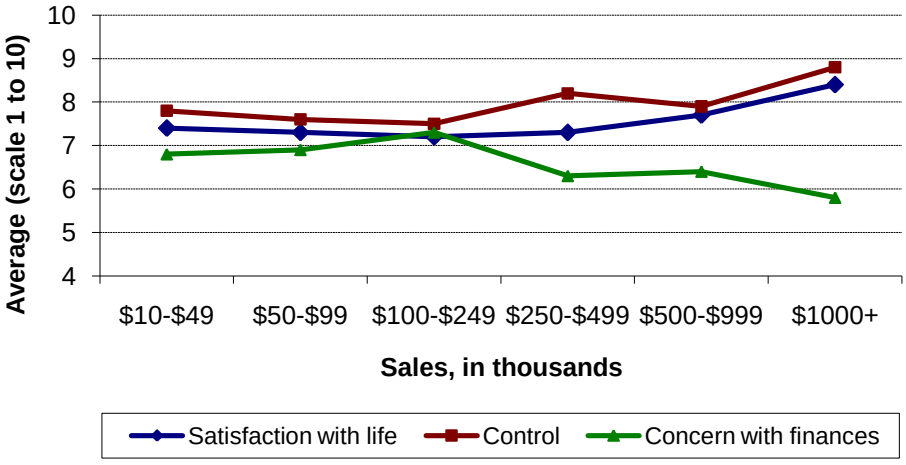
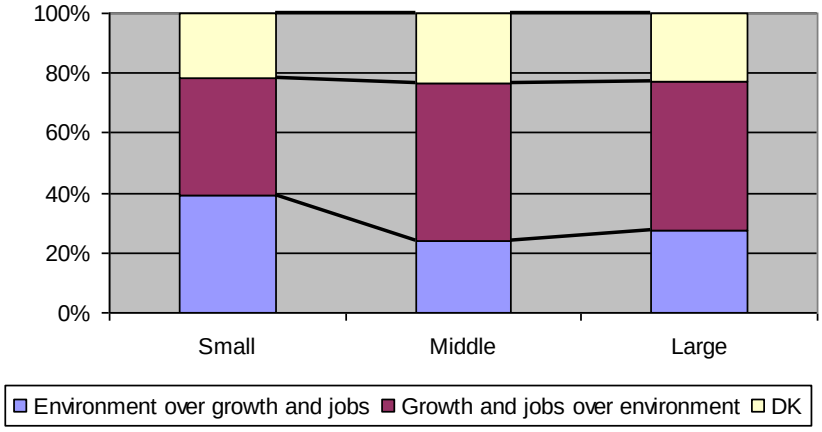
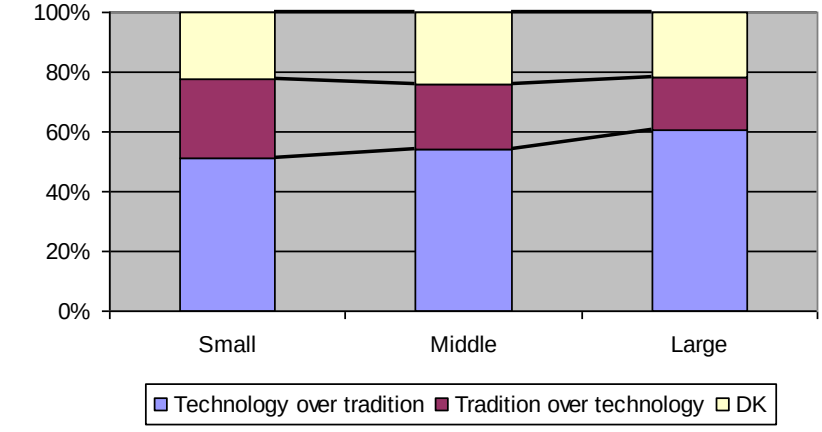


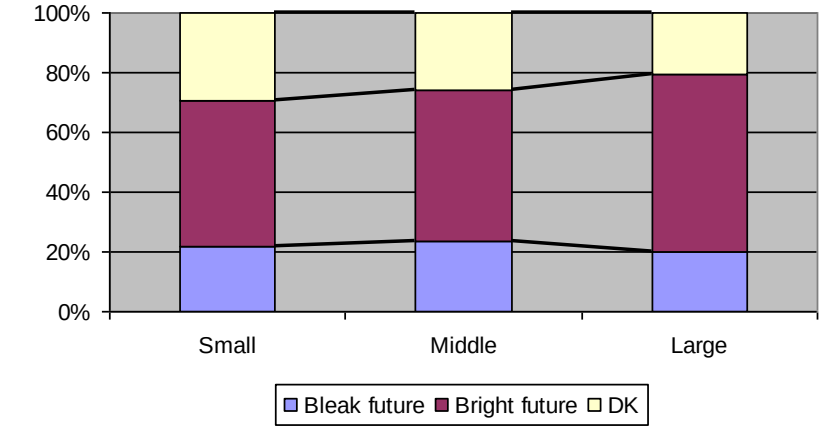
Figure 2. Average response values for questions on life satisfaction, control and financial concern, by farm size.



(a) Should protecting the environment or economic growth and job creation be given top priority?

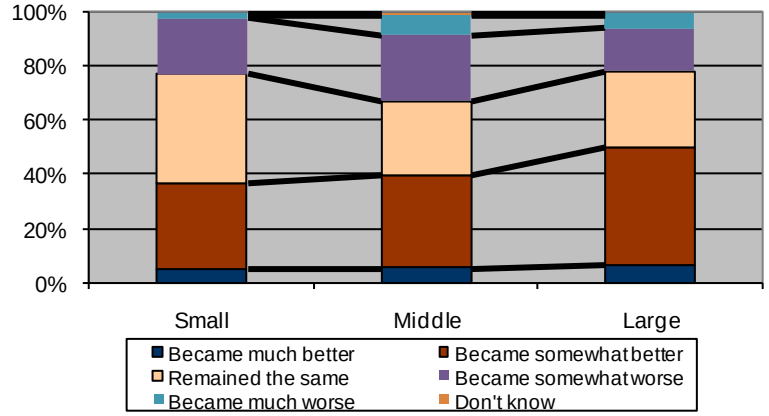


(b) Should we emphasize new technology or tradition?

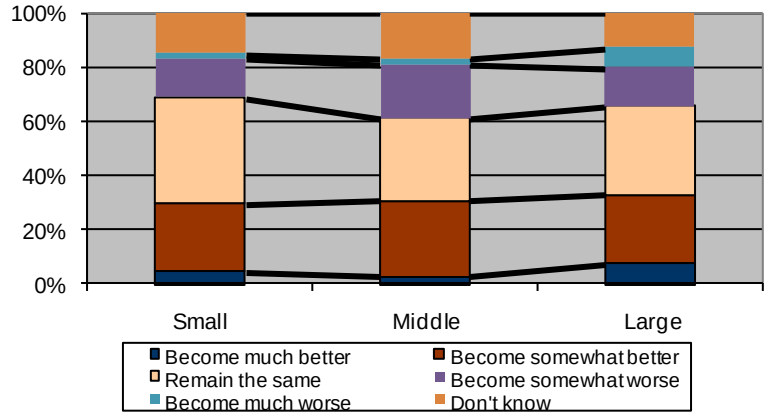


(c) Does humanity have a bleak or bright future?

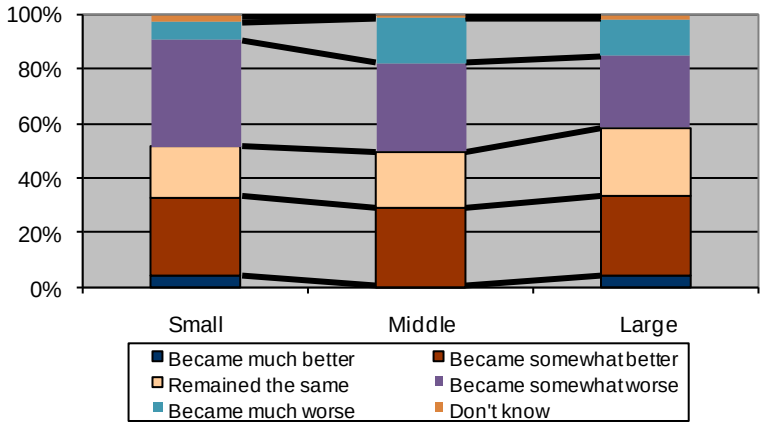
Figure 3. Farmer attitudes and outlook regarding outlook and direction of society, by farm size.



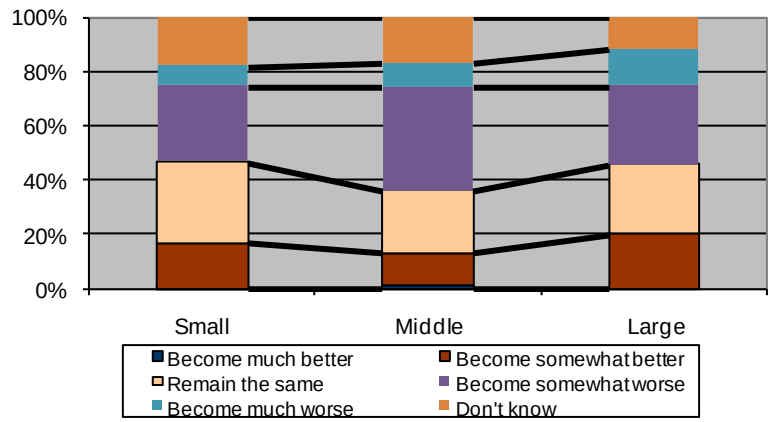
(a) During the past 5 years, the farmer's life …



(b) During the next 5 years, the farmer's life will …



(c) During the past 5 years, economic conditions for MO farmers …



(d) During the next 5 years, economic conditions for MO farmers will …

Figure 4. Perceptions of quality of life, by farm size.

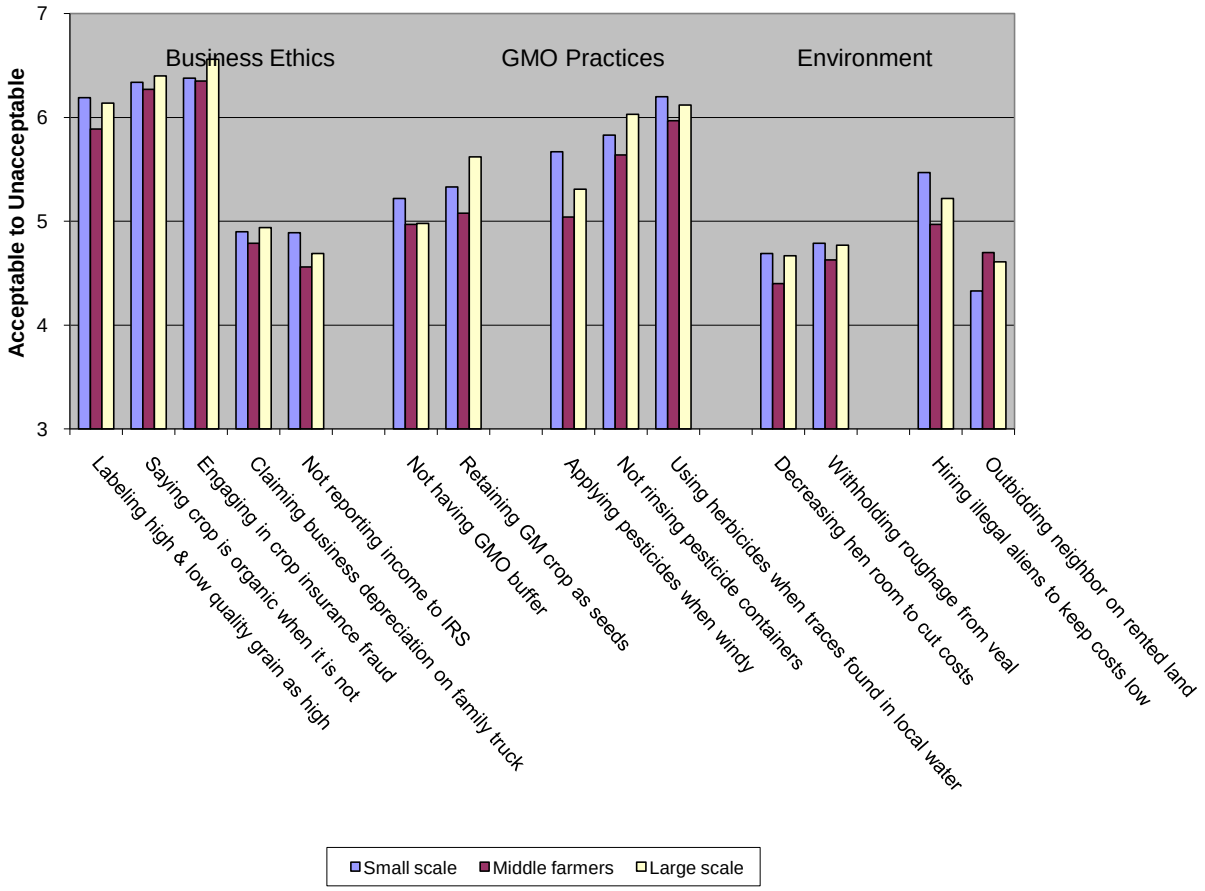


Figure 5. Farmer responses to ethical scenarios, by farm size.