Guest editorial: Special issue on beginning farmers and ranchers

Forward to Special Issue by Thomas Worth, Director of the Resource and Rural Economics Division of the USDA's Economic Research Service:

> We are pleased to recognize the efforts of the economists who contributed to the *Agricultural Finance Review's* special issue on beginning farmers and ranchers. The group's efforts were led by Jeffrey Hopkins, who circulated the original call resulting in 8 articles from 25 different authors. The USDA provided financial support – through a cooperative agreement with the Farm Foundation – to host a conference in November 2020 where authors presented early-stage drafts of their manuscripts and were invited to submit them to this peer-reviewed special issue.
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> USDA policies and programs support beginning farmers and ranchers in several ways that are consistent with improved competitiveness of the agricultural sector overall. These include initiatives, such as business planning education and technical assistance, on risk management and conservation decisions. The USDA also provides access to capital through its direct and guaranteed lending programs. Finally, the USDA supports beginning farmers and ranchers through statistical reporting and economic analysis on beginning farmers and ranchers.
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> The USDA's primary research insights into beginning farmer and rancher demographics and well-being come from an annual cross-sectional financial survey known as the Agricultural Resource Management Survey (ARMS) as well as the Census of Agriculture that takes place every five years. Farmers and ranchers who are surveyed through the ARMS are asked to record their production and financial information as well as how long they have been actively farming; this information allows researchers to compare outcomes between "beginning" farmers and ranchers vs others. Researchers at ERS and elsewhere have used successive Census of Agriculture data to understand what contributes to differences in the survival and growth of beginning farm operations. Research using the ARMS and Census of Agriculture data demonstrates the value of USDA's commitment to long-term data collection to understand the structure and dynamics of the agricultural sector.

Motivation from 1997 to 2017, the average age of farm operators increased, total farm number decreased and average farm size increased. Specifically, the average age of the principal farm operator increased from 54 to 58.6 years, and the number of farms decreased by 7.8% to 2.04 million in 2017, based on the data from Censuses of Agriculture. Entry into the sector by beginning farmers and ranchers runs largely counter to these trends. Key and Lyons (2018) note that for farm operations with at least $10,000 in sales, beginning farmers (defined as those with ten years or less experience operating a farm) were 20 years younger than operators on established farms. This special issue aims to advance the literature on beginning farmers and ranchers in US agriculture and lay a foundation for future research, while also providing insights for program managers, stakeholders and policymakers.

What is a beginning farmer or rancher, and what is a beginning farm or ranch? USDA programs define a beginning farmer as someone who has been farming for no more than ten years. Because the USDA surveys actual farm operations, many of which include multiple generations of decision-makers, or operators, researchers have adopted additional guidelines for analysis purposes. The USDA, Economic Research Service definition of a beginning farm

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is one on which all the operators have had no more than ten years of experience as an operator on any farm. As an illustration of the impact of different definitions, Key and Lyons report that a little more than half of the beginning farm operators were on beginning farms, and the remainder were operators on farms where not all operators were beginning farmers.

The articles in this special issue use various methods and datasets to study several subjects encompassing two-related topics: potential barriers to entry into the sector and data on actual entry into the sector. Barriers to entry could be important indicators of how competition within the sector is limited and restricted. Studies of potential barriers include barriers to credit access, barriers to land access and barriers to technology and market access. The second set of articles includes data on entry and exit into the sector by different types of farms, using census and other data sources.

Credit-based barriers to entry and profitability

Data indicate that actual outcomes for agricultural operations can be quite varied. However, larger farms tend to report higher operating profit margins, even when profit levels control for farm size by expressing them as a share of total gross income (Whitt *et al.*, 2021). Because beginning farms are smaller than established farms (Key and Lyons, 2018), operations looking to increase profitability will often prioritize growth. The article "Credit constraints and the survival and growth of beginning farms" (Key, 2022) uses data from successive Agricultural Censuses to track beginning farm operations over time. Because high interest expenses are an indicator of an operation's ability to repay loans, the study focuses on those beginning farms reporting interest expenses that are large relative to gross income levels. The study finds that operations that are relatively credit constrained (in the top five percent compared to their peers) took on less new debt and were less likely to survive and grow in subsequent periods compared to unconstrained beginning farms. The study shows that credit-constrained beginning farms led by principal operators of any age were equally likely to survive, but growth was significantly lower for those credit constrained farms where the principal operator was less than 40 years old in the initial period. This finding is supportive of the notion that credit access programs targeting beginning farms have even greater impacts for farms with younger principal operators.

Additionally, the analysis of beginning farms agrees with previous literature that studied all farms, finding greater rates of survival and growth associated with operations that had higher levels of productivity, more direct-to-consumer marketing and higher agricultural program payments. The study also looked at effects of the demographics of the principal operator on the survival and growth of beginning farms and found that female-led beginning farms, farms where the principal operator was Asian, Native Hawaiian or Pacific Islander, Black or African American, or Hispanic all had lower survival and growth rates than farms led by a white non-Hispanic principal operator.

The article "Beginning farmer and rancher credit usage by socially disadvantaged status" (Ahrendsen *et al.*, 2022) looks at credit market participation rates by beginning farmers, specifically those considered socially disadvantaged. Targeted socially disadvantaged applicants are historically underserved groups, such as women and racial or ethnic minorities, including American Indian or Alaska Native, African American or Black, Asian, Native Hawaiian or other Pacific Islander, and Hispanic regardless of race. Federal law requires that direct loans (those loans made and serviced through USDA county offices) and guaranteed loans by commercial lenders (loans where USDA assumes the obligation in the case of borrower default) be targeted toward beginning and socially disadvantaged farmers and ranchers, and since 2013, over 80% of direct loans have reached a targeted group (either beginning or socially disadvantaged or both), but 60% of direct loans were to nonsocially disadvantaged beginning farms.

Ahrendsen *et al.* examine Agricultural Census data and show that farms where the principal operator is a beginning farmer and is also socially disadvantaged incurred interest

expenses (i.e. use credit) at lower rates than all other beginning farms and less than farms where the principal operator is not socially disadvantaged. Because beginning farmers and socially disadvantaged farmers participate in credit markets at lower-than-average rates, they were interested in calculating the market penetration of USDA direct and guaranteed loans in the portfolios of different types of operations. By matching ARMS data on all farms from 2015 to 2018 to loan-level data on USDA loan participants, they found about 9% of all farms with debt had a USDA direct or guaranteed loan, but that USDA loans were utilized at greater rates by farms with gross incomes greater than $350,000 per year. Further, by matching the same loan-level administrative data with state totals of credit-using beginning or socially disadvantaged principal farm operators from the 2017 Agricultural Census, they found much higher USDA loan penetration for beginning farms with socially disadvantaged principal operators, especially in the Northern Plains, Northeast and Southeast.

Land-based barriers to entry and profitability

Access to land is frequently cited as a barrier to entry for beginning farmers and ranchers as well as a possible limitation to achieving economies of scale in agricultural production. Land markets are notoriously illiquid, with a study by Bigelow *et al.* (2018) reporting that only a small fraction of land changes hand annually. For example, a 2014 survey reported 93 million acres (about 10% of all agricultural land) were expected to be transferred in the five years to 2019, and of that amount, only 21 million acres were anticipated to be sold to a non-relative on the open market.

While land access is often cited as necessary for beginning farmers, "Land tenure and profitability among young farmers and ranchers" (Stevens and Wu, 2022) contrasts the benefits from land ownership vs land rental strategies. Using panel data constructed from state-based ARMS summary measures drawn from individual responses collected from 2003 to 2018 (data available at: https://my.data.ers.usda.gov/arms/tailored-reports), Stevens and Wu review how land access strategies correlate with six widely used measures of farm operation and farm household well-being. Due to data limitations, the regression-based analysis is focused on young farmers (in most cases, farms where the principal operator was younger than 55 years old) who they say are often beginning farmers as well. They report separately for young crop and livestock farms, since crop farms are overall more likely to rent land than own, and livestock farms are more likely to own than rent. They also report by different farm sizes and find that farms with more than $350,000 in gross cash farm income are more likely to rent than own. The findings are limited because the analysis was uncovering correlations in group averages rather than individual operations, but they do find that states where larger shares of young farmers rent all or most of the land to be associated with improved measures of well-being including higher value of production, higher levels of overall household income and higher returns on assets and equity. These findings are consistent with literature describing the debt-limiting benefits of renting land, especially for young and beginning producers.

The USDA reports that 98% of farms are family farms, meaning that related decision-makers and their families own the majority of the operation. Family farms, like family businesses in general, may have a goal of seeing the farm continuing with the successor generation. In "Management and ownership transfer in small and medium family farms" (Wiatt *et al.*, 2022), the authors look at the factors associated with farm succession planning and execution. Using data from 523 small and medium Midwestern family businesses surveyed in 2012, 68% of which are farms, they test whether transfer of management and ownership are "separate but related" succession processes. They ultimately reject the hypothesis that they are unrelated. They further review evidence that certain characteristics of succession decisions, including characteristics of the business, the current owner and the family itself influence

management and ownership transition processes. One of their more compelling findings is that all three types of characteristics significantly bear on ownership transfer, but management transfer is isolated to business and ownership characteristics rather than family characteristics.

While family farm succession is one pathway for beginning farmer entry, not all beginning farmers purchase or inherit their land from family members. Instead, they must acquire land from a current and unrelated landowner who is transitioning out of the sector. Some states operate "linkage" programs that exist to facilitate transfer of land to beginning farms. Land buyer–seller linkage programs are the subject of "The landowner role in beginning farmer/rancher land access: predictors of landowners' views of extrafamilial farm transfer to a BFR" (Valliant *et al.*, 2022). The authors use data from a 2017 convenience-based (i.e. nonrepresentative) survey of 322 farmland owners in the North Central Region of the USA. They find transferring farmland to beginning farmers was a near-universal desire of those considering transferring their land, especially those who did not anticipate transferring to a family member. Researchers also noted a strong correlation between those desiring to finance their retirement from the sale of assets to those most considering extrafamilial sales.

Technology and market-based barriers to entry and profitability

Market access tends to have a lower profile in discussing beginning farmer barriers to entry compared to credit and land access, perhaps because new technology and new markets themselves are rightly considered entry pathways. The market for industrial hemp is one example, as the 2014 and 2018 farm bill allowed for domestic cultivation for the first time since the 1940s and the new market was assumed to present few barriers to entry for producers. However, even in the absence of barriers, actual entry into industrial hemp will be determined by more than new technology and markets because expected economic returns may be higher elsewhere (Mark *et al.*, 2020). In "Exploring the adoption of technologies among beginning farmers in the specialty crop industry" (Torres, 2022), the author looks at whether recent innovations in production and value-added market technologies showed greater rates of adoption among beginning farmers compared to more experienced farmers. She finds that although beginning specialty crop farmers have higher rates of adoption in the hydroponic and hoop house production innovations studied, once they control for other variables that also determine adoption, there are no differences between beginning and experienced farmers. Likewise with respect to market technologies, the author finds that while beginning farmers were more likely to engage in value added efforts, such as drying vegetables and using customer-ready portion packaging, but once additional adoption variables characterizing adopters were added, there was likewise little difference between the two groups. This finding, while positive for technology adoption, is suggestive that these technologies have a universal appeal to beginning and experienced farmers alike.

Evidence of higher returns from production and marketing innovations is suggestive of higher future rates of practice adoption, but it may vary across operation type and operator experience. Beginning farmers and ranchers, who have overall lower farm incomes than established producers, may be in a good position to profit from adoption or at least not be disadvantaged relative to established producers. Beginning farmers look for increased returns from production and marketing practices that allow them to achieve economies of scale fostered by growth and continued investment. "The profitability implications of sales through local food markets for beginning farmers and ranchers" (Jablonski *et al.*, 2022) compares the gross cash farm income and rate of return on assets for beginning farms vs established farms that use local markets. They use ARMS data from 2013 to 2016 and find that about 17% of their sample of local food producers are beginning farm operations, and those beginners with gross cash farm income between $75,000 and $1 million are just as profitable (measured either by net farm income or return on assets) as operations with more

experienced heads. The authors find that the most cost-efficient operations engaged in local food marketing tend to also have low levels of capital relative to labor. Likewise, most beginning farm operations start out with limited capital. However, the authors also point out that high labor costs of many types of local food marketing activities may eventually challenge scalability of small-sized operations.

Entry and exit

Overall, churn within the sector is useful for providing a baseline of beginning farmers and ranchers. In 2017, the USDA's Census of Agriculture noted that there were 674,940 beginning farmers and ranchers who were "principal producers," a designation that reflected their key status at the core of an individual farming operation. While the USDA Census of Agriculture provides the most comprehensive overview of US farmers and ranchers, changes in data collection methods from previous census years do not allow direct comparisons to historical data (Pilgeram *et al.*, 2020).

However, researchers can look for differences in the rates of change in beginning farmers and ranchers between earlier years to 2017 that can provide evidence of changes in churn compared to earlier years. In "Beginning farmers' entry and exit: evidence from county level data" (Hartarska *et al.*, 2022), the authors look at differences in county-level, five-year and ten-year beginning farmer net entry (entry minus exit) trends across the 1997–2017 period. They create a model to explain this variation using county-level data from the census on the characteristics of farms and farmers as well as other county-level economic and financial data. Hartarska *et al.* find that counties with a greater numbers of farm operations, and smaller farm operations, are strongly associated with more beginning farmers and ranchers regardless of the trend length or how beginners were specified. They also found that counties with more part-time principal operators tended to have more beginning farm operators as well.

Conclusions and implications

The articles in this special issue are addressing the open question of whether beginning farmers and ranchers will continue to impact agricultural markets. Barriers to entry in the form of scale economies and market rigidities have contributed to consolidation over time. The studies are related to barriers to entry and profitability that beginning farmers and ranchers may face, including credit, land, market and technology access barriers. A better understanding of these barriers is important for policymakers, program managers and those delivering outreach activities intended to educate and inform on beginning farmer and rancher issues. Such research may inform those who design products and services to bring down remaining barriers.

Studies in this special issue showed varying levels of evidence of credit-based barriers. For example, Key (2022) finds that beginning farmers and ranchers with operations at the top five percent for interest expenses relative to value of production have lower rates of investment and growth in subsequent years. This research finding of farm-level impacts from 2007–2017, a period of generally declining interest rates and low interest expenses, has heightened implications in the current environment of rising interest rates.

Both the study by Key and the study by Ahrendsen *et al.* in this issue invite further research into the role of credit in the survival and growth for historically underserved populations. However, when impacts on survival and growth are carried out on demographics, careful attention to statistical design is needed to avoid identifying effects due to observable qualities when a missing or unobservable effect may also be contributing to survival and growth. In cases where these unobserved or missing variables are not highly

correlated with observable demographics, spurious results may be attained. Key's analysis of credit constraints on survival and growth reinforces the urgency of the questions asked by Ahrendsen *et al.* regarding why beginning and socially disadvantaged farm operations tend to use less credit than more experienced, white non-Hispanic male farm operators, including whether these types of farm operations remain underserved.

In addition to credit, land access through rental and purchase markets is often cited as one of the most significant barriers for young and beginning farmer and rancher success. While farmland rental markets are much larger than purchase markets, rental markets are often characterized by long-term agreements (Bigelow *et al.*, 2018) that may likewise present a barrier. The Stevens and Wu study showed that states where young farmers renting at higher rates relative to owning tend to have improved levels of well-being. This could suggest that additional research on a more expanded set of acquisition strategies could be useful for program managers that do outreach to current landowners on behalf of beginning farmers and ranchers. For experienced farmers, succession planning can include continuing to manage a farm business or, more simply, continued ownership of farmland, the principal asset of most farms and over 80% of the total value of assets within the sector. The views of nonoperator landlords (who owned 80% of land that was rented out to other operators in 2014) towards land transfer to beginning farmers are an important area for further study.

This special issue was probably most optimistic in terms of assessing the performance of technology and direct sales markets being widely available and adopted by both beginning and experienced producers. While there are hurdles in technology adoption and operations frequently want to grow in order to take advantage of scale economies, there is some evidence of scale and experience neutrality in at least in some aspects of specialty crop production studied by Torres and direct sales markets studied by Jablonski *et al.* Long focused on scale of adoption, technology adoption studies should continue to ask whether innovations exhibit "experience neutrality" as well.

Jeffrey W. Hopkins
Department of Farm Economy Branch, USDA Economic Research Service, Washington, District of Columbia, USA

References

Ahrendsen, B.L., Dodson, C.B., Short, G., Rainey, R.L. and Snell, H.A. (2022), "Beginning farmer and rancher credit usage by socially disadvantaged status", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 464-485.

Bigelow, D., Borchers, A. and Hubbs, T. (2018), *U.S. Farmland Ownership, Tenure, and Transfer*, Economic information Bulletin No. 161, U.S. Department of Agriculture Economic Research Service.

Hartarska, V., Nadolnyak, D. and Sehrawat, N. (2022), "Beginning farmers' entry and exit: evidence from county level data", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 577-596.

Jablonski, B.B.R., Hadrich, J., Bauman, A., Sullins, M. and Thilmany, D. (2022), "The profitability implications of sales through local food markets for beginning farmers and ranchers", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 559-576.

Key, N. (2022), "Credit constraints and the survival and growth of beginning farms", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 448-463.

Key, N. and Lyons, G. (2018), *An Overview of Beginning Farmers and Ranchers*, Economic Brief No. 29, U.S. Department of Agriculture Economic Research Service.

Mark, T., Shepherd, J., Olson, D., Snell, W., Proper, S. and Thornsbury, S. (2020), *Economic Viability of Industrial Hemp in the United States: A Review of State Pilot Programs*, Economic information Bulletin No. 217, United States Department of Agriculture Economic Research Service.

Pilgeram, R., Dentzman, K., Lewin, P. and Conley, K. (2020), "How the USDA changed the way women farmers are counted in the census of agriculture", *Choices*, Quarter 1, available at: http://www.choicesmagazine.org/choices-magazine/submitted-articles/how-the-usda-changed-the-way-women-farmers-are-counted-in-the-census-of-agriculture.

Stevens, A.W. and Wu, K. (2022), "Land tenure and profitability among young farmers and ranchers", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 486-504.

Torres, A. (2022), "Exploring the adoption of technologies among beginning farmers in the specialty crops industry", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 538-558.

Valliant, J.C.D., Dickinson, S., Zhang, Y., Golzarri-Arroyo, L. and Farmer, J.R. (2022), "The landowner role in beginning farmer/rancher land access: predictors of landowners' views of extrafamilial farm transfer to a BFR", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 522-537.

Whitt, C., Todd, J.E. and Keller, A.A. (2021), *America's Diverse Family Farms: 2021 Edition*, Economic information Bulletin No. 231, United States Department of Agriculture Economic Research Service.

Wiatt, R.D., Marshall, M.I. and Musselman, R. (2022), "Management and ownership transfer in small and medium family farms", *Agricultural Finance Review*, Vol. 82 No. 3, pp. 505-521.