**Foreign Interest in U.S. Agricultural Land: A Case Study of Kansas and Iowa**

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# Foreign Interest in U.S. Agricultural Land: A Case Study of Kansas and Iowa

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**Abstract**

Foreign purchases of U.S. farmland make up a relatively small percentage of the overall land base. However, these purchases have been growing in recent years generating some concern over who is buying the farmland and their intended use for the land. The analysis conducted for this study was designed to better understand the basic characteristics of land being purchased by foreigners in the states of Kansas and Iowa. These two states provide a useful snapshot of the U.S. land market and the nuances of foreign ownership due to differences between the two in state laws governing who can buy farmland. Corporate laws in place in Iowa that restrict farmland ownership do not exist in Kansas, thereby offering a good comparison of two distinct land markets. The results of the paired t-tests for Kansas indicate a willingness of foreign buyers to purchase land at a higher price per acre. This was not the case for the Iowa foreign land purchases, where the domestic price paid per acre was higher. In both Kansas and Iowa, foreign buyers are interested in larger tracts of land. This may reflect the transaction costs associated with foreign purchases of land and a desire to spread those costs over larger tracts of land. Future research will investigate the factors that may be driving these average and distributional differences in the land purchase data.

**Keywords:** Agricultural land; Farmland; Land ownership; Foreign land ownership; Investor

**JEL Codes:** Q15; Q18; F21

Foreign holdings of U.S. agricultural and forest land increase by 2.4 million acres in 2020 (USDA-FSA 2021). However, these holdings remain a relatively small portion of the overall base of U.S. farmland. The total amount of U.S. farm, ranch, and forest land under foreign ownership in 2020 was 37.6 million acres, which represents about 2.9% of all agricultural land. As shown in Figure 1, there has been a rise in foreign land ownership over the past decade which has spurred interest in knowing who is buying the land and for what purposes.

The issue of foreign ownership or participation in U.S. agricultural land markets has been on the horizon for the past half a century. According to Adrian, Thompson, and Mims (1991) the subject was topical in most states prior to the 1970's. The culmination of these discussions on the influx of foreigners acquiring U.S. agricultural land was for Congress to pass the Agricultural Foreign Investment Act (AFIDA; P.L. 95 – 460, 7 U.S.C. §§3501 - 3508). It must be noted that this Act does not to limit or prevent the participation of foreigners in the U.S. agricultural land market, neither does it limit the amount of land that can be foreign owned. Instead, AFIDA is a means to monitor these purchases through disclosure. Under the act there is an economic incentive to report transfers; failure to report a purchase attracts penalties and fines related to the value of the land. "Agricultural land" is broadly defined under AFIDA to capture all lands in the United States used for ranching, farming, and timber production if the tracts of land are in excess of 10 acres.

AFIDA requires foreign persons who acquire or transfer interest in U.S. agricultural lands to not only report this to the Secretary of Agriculture with specific information on the transaction but to do so within 90 days of acquiring or transferring interest. The information required includes such things as legal name and address, citizenship for individuals and government, the nature of business, primary place of business, legal description, and legal interest. Required

parcel related information includes acreage; purchase or transfer price; land use; and intended use. The required reporting provides useful information on trends in foreign-owned agricultural and timber lands, which can be used to understand recent land purchases and projections for the future.

The goal of this study is to better understand the characteristics of the land purchased by foreign buyers and analyze the differences between foreign and domestic purchases of U.S. agricultural land. The data used in this analysis are from Kansas and Iowa and represent sales over the periods 1975 to 2014 and 1990 to 2014, respectively. We employ a data matching technique to make comparisons between land sales with similar characteristics, as would be done if the sales were being evaluated by professional appraisers. The results of the analysis indicate that, there are differences in the mean values of price paid per acre and size of parcels bought by foreigners in both states. Distributions of price per acre and size are also different when compared between foreign and domestic purchases. Further research will address the drivers of these differences and attempt to explain the motivations and impacts of these purchases on the domestic agricultural land market.

**Background on Foreign Purchases of U.S. Land**

Foreigners invest in U.S. agricultural land for a variety of purposes. Crop production is one of these reasons; by maintaining the acreages in their original programs these farms benefit from USDA crop programs. Foreign person or entities according to the Congressional Research Service (2021) qualify for a select USDA program if they meet the same requirements as domestic family farms or corporate farms. This incentive, to some extent, plays a role in maintaining the acquired acreages in crop production coupled with the upward trends in commodity prices and the premium prices attracted by U.S. commodities abroad.

Forest lands are the number one type of foreign owned land. The 2021 USDA report on AFIDA shows Canada is the leading foreign purchaser and most of its holdings are in timber. Federal tax incentives in the form of subsidies serve as additional incentives to owners of forest lands to keep these lands forested primarily for the positive externalities (carbon sequestration and windbreaks) that are generated (Bogdankski, 2011). U.S. agricultural lands are also used in wind farming for energy production and as a hedging tool or speculative investment.

Research by Kitchen and DeBraal (1989) revealed a negative connection between foreign purchases and the exchange rate of the dollar. In other words, we expect to see a surge in foreign acquisitions when domestic currencies of the buyers appreciate or strengthen against the U.S. dollar making U.S. agricultural lands relatively cheaper during periods characterized by a depreciating dollar. The authors also found a negative and a positive relationship between foreign acquisitions and US real interest rates and farm returns, respectively. The latter relationship has been empirically demonstrated in several studies looking at estimating the value of lands. The former is an interesting point of note because the real interest or the Feds rate is adjusted upwards in the face of rising inflation (prices) or recession as way to stimulate the economy to save. It also means borrowing cost rises domestically, but the effect on foreigners seeking to investing from outside the states will depend on the exchange rate.

Corporations are the leading type of foreign entities purchasing U.S. agricultural lands[1]. Anti-corporate participation laws seek to restrict this development for a variety of reasons in order to protect family farms. As of 2016, nine states[2] have laws on their books with varying limitations on the corporate and foreign entities participation in U.S. agriculture, including Iowa.

[1] Using AFIDA data available from 1900 – 2013
[2] https://nationalaglawcenter.org/research-by-topic/corporate-farming-laws/

Kansas, however, has no law limiting corporate ownership of agricultural land. The goal of these statutes is to promote the continuous growth of family business by limiting the effects of corporate influence on agricultural business. Corporations have been cited for anti-competitive behavior (monopolistic behavior), larger purchasing power especially in the agricultural land market, vertical integration and other anti-competitive behavior consistent with large corporations. By extension, foreign owned entities under AFIDA face the same anti-corporate restrictions in their state of operation. These corporations have the goal of boosting production and output and are more likely to target large tracts of land in order to capture benefits from returns to scale and ensure profits, the primary goal of corporations. Advocates of corporate involvement in agriculture argue based on efficiency and the welfare gains to consumers from a larger output and lower prices. Counter arguments claim the efficiency gains do not offset the negative impacts on rural farmers (Wittmaack, 2006). Thus, it is important to evaluate the agricultural land purchases by foreign corporate farms and to ascertain if they are systematically buying larger tracks and securing lower prices by this strategy and potentially driving out domestic buyers.

## Data and Methodology

### *Data on Foreign and Regular Farmland Sales*

The data used for our estimation are drawn from three unique data sources at the finest resolution possible, which include a transaction-level database containing all AFIDA land purchases from 1900 to 2016, and two parcel-level sales databases of agricultural land transactions in Kansas and Iowa. In particular, the AFIDA database was downloaded from the website of the Midwest Center for Investigative Reporting, which filed a Freedom of Information Act request for all AFIDA transactions spanning from 1900 to 2014. This database includes ownership, buyer, sale

and land-use details included in the in the FSA-153 form filed by foreign owners with the U.S. Department of Agriculture. This database has a total of more than 24,900 records across the United States from 1900, and in particular has 694 foreign sales in Iowa and 688 foreign sales in Kansas. Note that although the database contains foreign sales that date back to 1900, the AFIDA Act did not become effective until 1978 and thus the sales before that year may not be complete. For each transaction, this database includes the foreign buyer country, buyer company or type, sale price, sale date, total acres and acres by different land use types, and the parcel location down to the U.S. state and county.

The domestic Kansas farmland sales database of more than 40,000 sales is a parcel-level dataset of 'representative' sales used by the Kansas Society of Farm Managers and Rural Appraisers to conduct appraisals. It includes sales that are at least 40 acres in size from 1975 to 2014. The Iowa data is collected from two sources: individual county assessor offices from 25 Iowa counties between 1990 and 2015, as well as the individual farmland transactions from 2005 to 2015 for another 20 counties in Iowa from a private company, Iowa Land Sales.

*Matching Foreign and Regular Farmland Sales*

The previous section shows that the number of domestic Iowa and Kansas sales are 50-100 times more than the number of corresponding foreign land sales recorded by AFIDA. Given the explicit restrictions and substantially higher transaction costs for foreign buyers, it is possible that the foreign buyers would systematically target different types of farmland parcels, geographical region, or are willing to pay significantly higher prices. As a result, a simple comparison that directly contrasts foreign land sales with all domestic farmland sales would suffer from selection bias.

As a result, we use a nearest neighbor matching method to construct a matched sample that only contains comparable foreign and domestic sales. This method is akin to the Coarsened Exact Matching or Multivariate matching (Iacus et al. 2012; Stuart 2010). In particular, for every foreign land sale in county c sold in year t, we first restrict the comparison group to only include the K domestic land sales sold in years t or t-1 in county c, its neighboring counties, or counties located in the same crop reporting district. Next we construct a metric that compares the differences between foreign and each of K domestic sales based on three factors: the parcel size of sold farmland parcel, the percent tillable measured as the ratio of crop acres over all acres, and lastly, whether they are located in a high wind energy potential county[3]. Each factor receives the same weight, and a lower metric would indicate smaller weighted-average differences across these three factors. For each foreign land sale, we kept at most 10 matches that have the lowest score or the ten most comparable domestic sales; and in our analysis we focus on the top three domestic sales. The final estimation dataset contains 554 foreign land sales and 1651 domestic sales in Iowa, as well as 461 foreign land sales and 1351 domestic sales in Kansas, respectively.

*Analysis on Matched Land Sales Dataset*

In this analysis, we rely on two comparisons: The first test is the paired t-test which is used to determine whether the mean of the sales price per acre or parcel size is the same across the AFIDA sales versus the domestic farmland sales in Iowa or Kansas. Note that the t-test assumes that the distribution of the differences in the outcome variables between these two sales groups should be approximately normally distributed.

[3] This is a binary dummy variable that equals to one when the counties are in the top third of all counties in terms of county-level annual average wind speed at 80 meters.

The Kolmogorov-Smirnov test is the second and nonparametric test that further examines the equality of two continuous probability distributions, or to test whether the two samples come from the same distributions. We use this test on two key variables: sale price per acre, and parcel size of farmland sales. The null hypothesis is that the two underlying one-dimensional probability distributions are from the same distribution. Note that the test does not specify whether the common distribution is normal or not.

**Results**

The matched data were compared using paired t-tests of mean values and the Kolmogorov-Smirnov test for equality of distribution functions. Tables 3 and 4 show the results of three hypothesis mean tests for each variable of interest. For price paid per acre in Kansas, the null hypothesis of zero difference between the mean of foreign price paid per acre and domestic price paid per acre is rejected, indicating that the foreign purchases are selling for a higher price per acre on average than the domestic Kansas purchases. In a similar manner, the null hypothesis of equal parcel size is rejected indicating that average parcels size of foreign land is greater than domestic purchases of Kansas farmland.

For Iowa, the results are similar for parcel size, in that the foreign purchases are greater than the domestic purchases, on average. However, the average price paid per acre is greater for domestic purchases than for foreign purchases of Iowa farmland. The difference in results of the paired t-tests between Kansas and Iowa warrant further investigation. It may be that differences between the two states' laws on corporate ownership of farmland are driving these results. Future research will address these differences in the legal aspects of farmland ownership and purchases between the two states.

In addition to the paired t-tests, the distributions of the variables of interest were compared to determine if they are equal. Figures 1 and 2 depict the distributions of price paid per acre and parcel size, respectively for Kansas. Distributions of those same variables for Iowa are shown in figures 3 and 4. Kolmogorov-Smirnov test of equal distributions were conducted for price paid per acre and parcel size and the p-values are shown in table 5. For both variables in both states the null hypothesis of equal distributions was rejected. This suggests that there are differences in the purchasing patterns of foreign and domestic buyers that must be considered in future research.

**Conclusions and future research**

Foreign purchases of U.S. farmland make up a relatively small percentage of the overall land base. However, these purchases have been growing in recent years generating some concern over who is buying the farmland and their intended use for the land. This analysis was designed to better understand the basic characteristics of land being purchased by foreigners in the states of Kansas and Iowa. These two states provide a useful snapshot of the U.S. land market and the nuances of foreign ownership due to differences between the two in state laws governing who can buy farmland. Corporate laws in place in Iowa that restrict farmland ownership do not exist in Kansas, thereby offering a good comparison of two distinct land markets.

The results of the paired t-tests for Kansas indicate a willingness of foreign buyers to purchase land at a higher price per acre. This was not the case for the Iowa foreign land purchases, where the domestic price paid per acre was higher. This difference in average price paid by state needs to be investigated to better understand what drives the price paid per acre by foreign buyers.

In both Kansas and Iowa, foreign buyers are interested in larger tracts of land. This may reflect the transaction costs associated with foreign purchases of land and a desire to spread those costs over larger tracts of land. This aspect of foreign land holdings will also be investigated in future research which controls for purchases intended for wind farms and other unique uses of agricultural land.

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Table 1. Summary Statistics of Kansas Agricultural Land Sales (1975 to 2014)

| Variable | Mean | Mode | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Foreign Total Price | 967,509 | 232,000 | 4,292,878 | 1,000 | 56,300,000 |
| Kansas Total Price | 599,575 | 232,000 | 1,928,094 | 2,000 | 48,600,000 |
| Foreign Price Per Acre | 1,125 | 718 | 1,965 | 1 | 25,394 |
| Kansas Price Per Acre | 1,001 | 804 | 829 | 1 | 10,417 |
| Foreign Total Acres | 888 | 318 | 2,514 | 2 | 38,147 |
| Kansas Total Acres | 621 | 312 | 1,273 | 70 | 21,025 |

No. foreign land sales: 554; No. matched regular Kansas land sales: 1651

Note: Kansas observations based on top 3 matches to foreign observations.

Table 2. Comparative Summary Statistics of Matched Foreign and Regular Iowa Agricultural Land Sales (1990 to 2014)

| Variable | Mean | Mode | Standard Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Foreign Total Price | 1,943,071 | 672,000 | 5,437,704 | 1,000 | 52,500,000 |
| Iowa Total Price | 829,580 | 671,486 | 763,445 | 19,500 | 5,515,020 |
| Foreign Price Per Acre | 4,201 | 4,200 | 3,103 | 52 | 46,591 |
| Iowa Price Per Acre | 5,018 | 4,653 | 3,522 | 543 | 44,721 |
| Foreign Total Acres | 462 | 160 | 1,231 | 1 | 12,660 |
| Iowa Total Acres | 168 | 154 | 126 | 6 | 653 |

No. foreign land sales: 461; No. matched regular Iowa land sales: 1,354

Note: Iowa observations based on top 3 matches to foreign observations.

Table 3. Paired T-Tests of mean values for Kansas

| | Mean | Ha1: Mean (difference) < 0 P-Value | Ha2: Mean (difference) ≠ 0 P-Value | Ha3: Mean (difference) > 0 P-Value |
|---|---|---|---|---|
| Ho: Mean (Foreign Price Per Acre - Kansas Price Per Acre) = Mean (difference) = 0 | | | | |
| Foreign Price Per Acre | 1,125 | 0.995 | 0.011 | 0.006 |
| Kansas Price Per Acre | 1,001 | | | |
| Degrees of Freedom | 1,650 | | | |
| | | | | |
| Ho: Mean (Foreign Total Acres - Kansas Total Acres) = Mean (difference) = 0 | | | | |
| Foreign Total Acres | 888 | 1.000 | 0.000 | 0.000 |
| Kansas Total Acres | 621 | | | |
| Degrees of Freedom | 1,650 | | | |

Table 4. Paired T-Tests of mean values for Iowa

| | Mean | Ha1: Mean (difference) < 0 P-Value | Ha2: Mean (difference) ≠ 0 P-Value | Ha3: Mean (difference) > 0 P-Value |
|---|---|---|---|---|
| Ho: Mean (Foreign Price Per Acre - Iowa Price Per Acre) = Mean (difference) = 0 | | | | |
| Foreign Price Per Acre | 4,201 | 0.000 | 0.000 | 1.000 |
| Iowa Price Per Acre | 5,018 | | | |
| Degrees of Freedom | 1,354 | | | |
| | | | | |
| Ho: Mean (Foreign Total Acres - Iowa Total Acres) = Mean (difference) = 0 | | | | |
| Foreign Total Acres | 462 | 1.000 | 0.000 | 0.000 |
| Iowa Total Acres | 168 | | | |
| Degrees of Freedom | 1,354 | | | |

Table 5. Kolmogorov-Smirnov Test for Distribution Equality

| Test for Equality of Distribution Functions | P-Value |
|---|---|
| Kansas | |
| Price per Acre | 0.000 |
| Total Acres | 0.018 |
| Iowa | |
| Price per Acre | 0.000 |
| Total Acres | 0.004 |

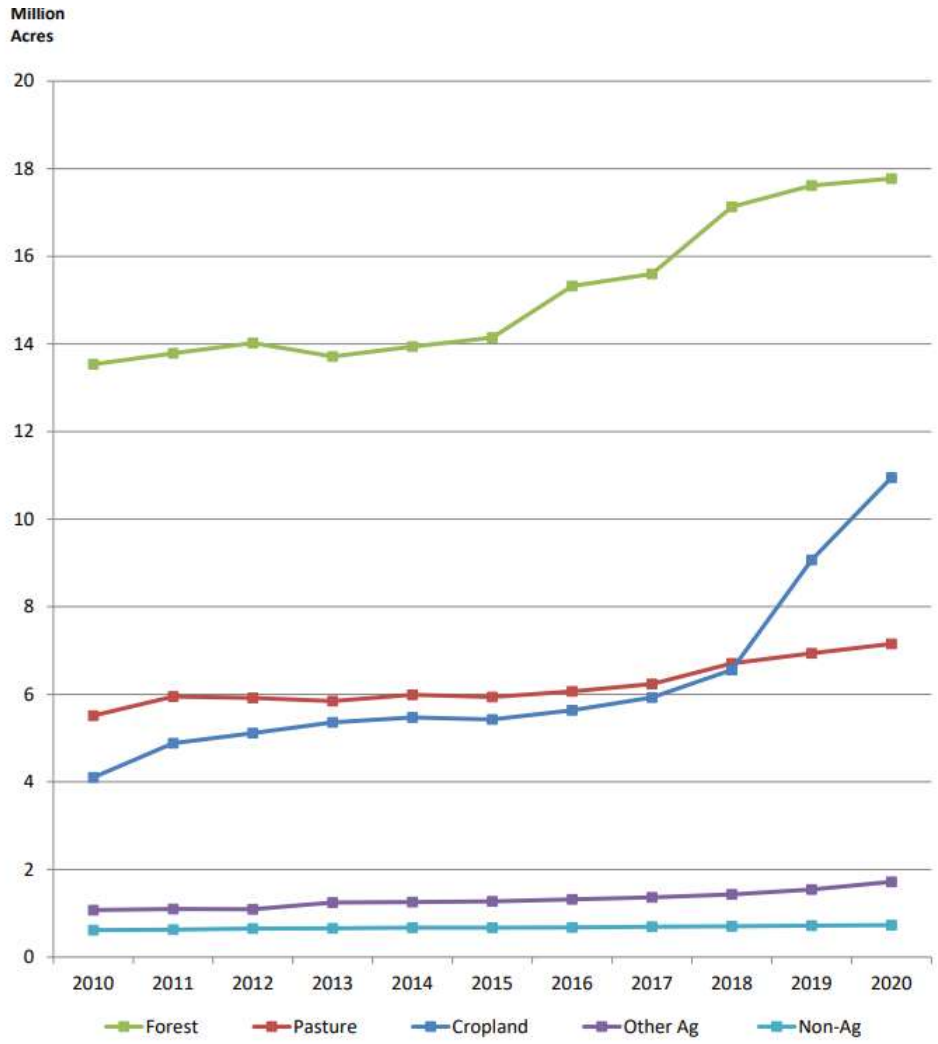


Figure 1. Trends in Foreign Holdings of Agricultural Land by Type of Use (2010 – 2020). Source: USDA-FSA.

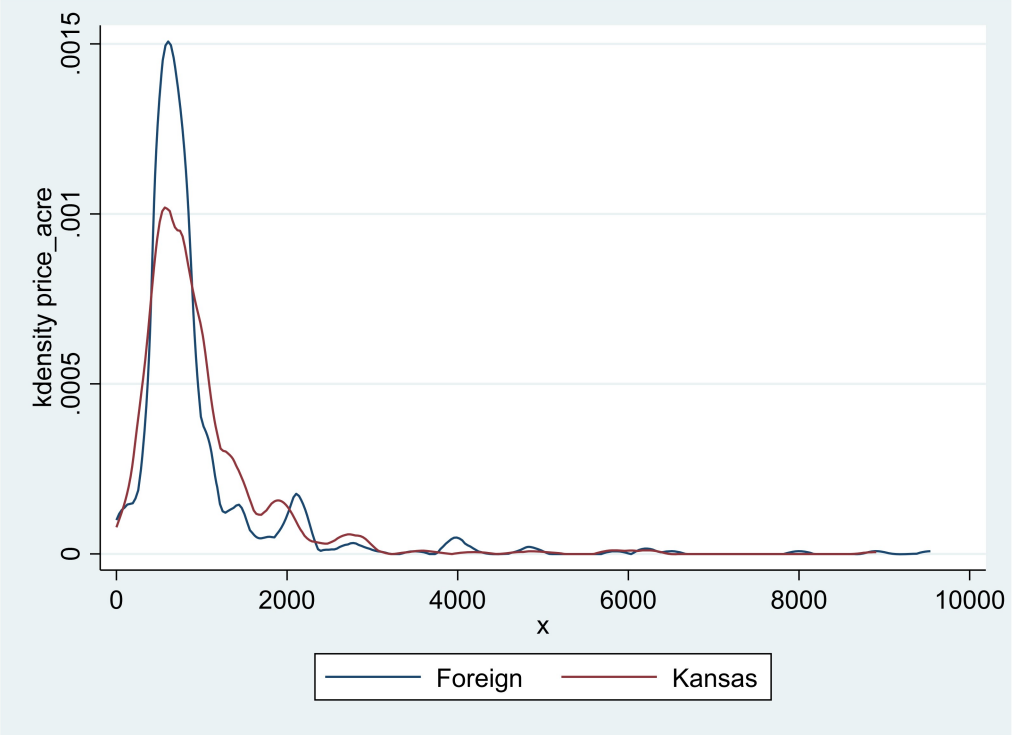


Figure 1. Distributions of Price Per Acre of Agricultural Land Sales in Kansas (1975 to 2014).

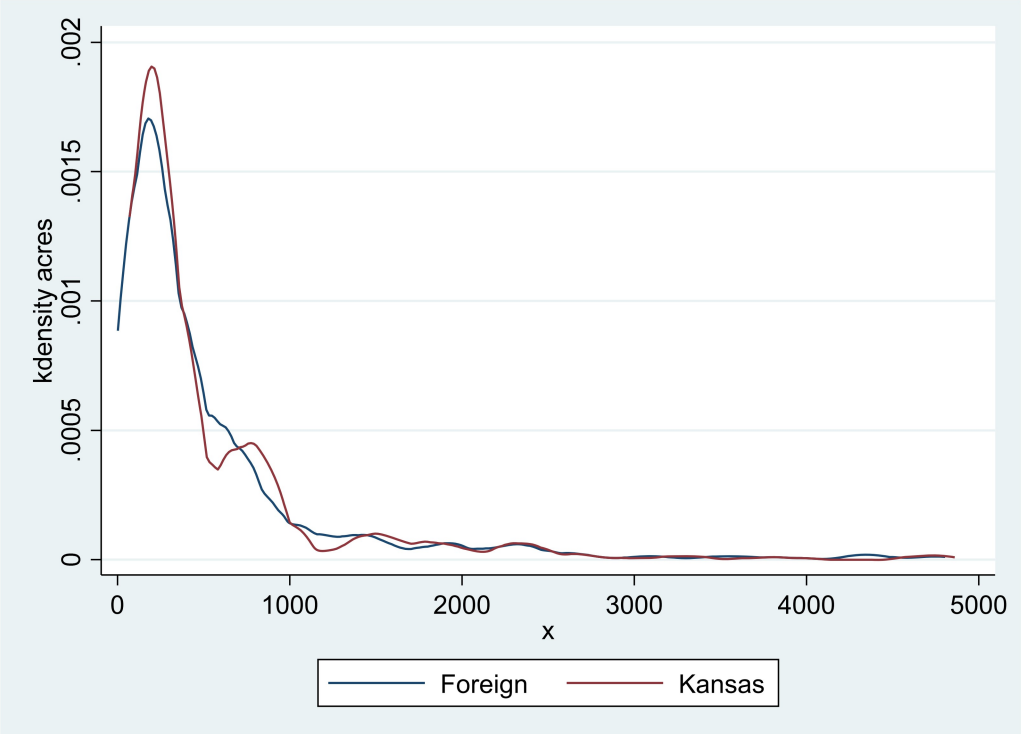


Figure 2. Distributions of Total Acres Purchased of Agricultural Land Sales in Kansas (1975 to 2014).

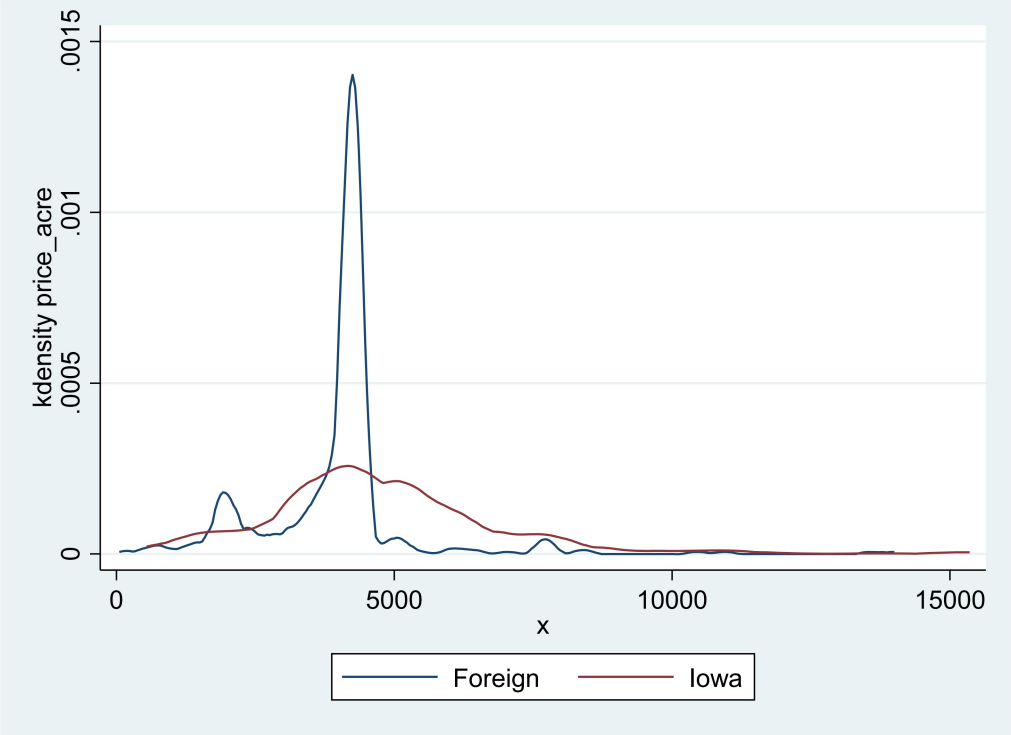


Figure 3. Distributions of Price Per Acre of Agricultural Land Sales in Iowa (1990 to 2014).

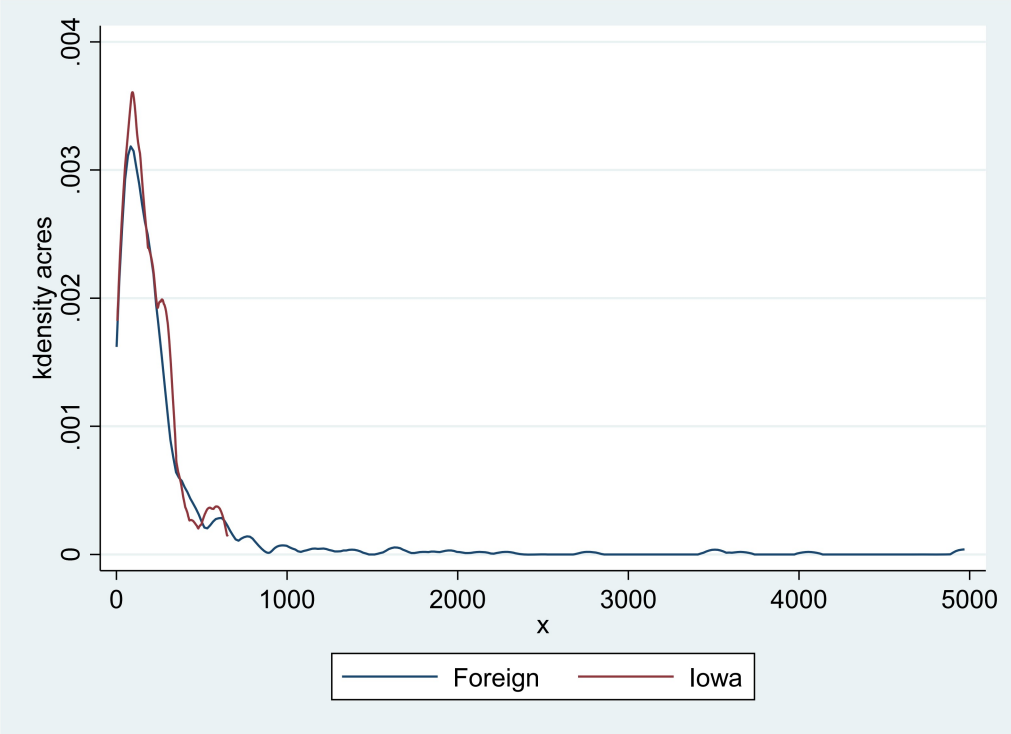


Figure 4. Distributions of Total Acres Purchased of Agricultural Land Sales in Iowa (1990 to 2014).