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Political Affiliation and Exit Intentions of U.S. Dairy Farms

by

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Abstract

The United States dairy industry is heavily dependent on foreign labor. Current and newly proposed U.S. immigration policies have been appointed to disrupt the agricultural labor availability, especially that of hired foreign labor. A national survey of dairy farmers across herd sizes and regions of the U.S. was conducted for the year 2009 and the results were used to evaluate the extent to which hired foreign labor dependence will affect the exit intentions in dairy farming. The political affiliation of dairy farmers was based on the 2008 election map and their locations. Our findings indicate that the expected probability of exit from dairy farming increased as the use of hired foreign labor intensified. Results also suggest that states with Republican political affiliation has a greater probability of exiting dairy operations with more stricter immigration laws.

Keywords: immigration, political affiliation, foreign labor, exit intention, dairy industry.

Introduction

According to Susanto et al (2010), the number of U.S. dairy operations has been declining in the last few decades, decreasing approximately 32% from 2000 to 2007. Many factors explain exit decisions in dairy farming, but labor availability and political affiliation are among the least analyzed. The literature has been conducting studies that analyze the potential reasons (Chavas and Magand, 1988; Rahelizatovo and Gillespie, 1999; Foltz, 2004; Bragg and Dalton, 2004; Tauer, 2006; Bragg and Dalton, 2004; Susanto et al, 2010). Factors such as prices, input costs, demographic, yield, dairy policies, immigration policies, among others, have suggested the potential variables that affect exit decisions. Recently, more emphasis has been given to anti-immigration policies at state levels. The most recent case is the Arizona Senate Bill

1070, often referred as the Arizona SB1070, which has been considered the broadest and strictest anti-immigration measure in decades (Archibold, 2010). This state legislative act is considered an example of law that is expected to harden the life of illegal foreign workforce that is constantly hired by dairy farmers all over the U.S. Furthermore, the creation of such laws is expected to rise as in the last gubernatorial elections candidates in more than 20 states (most of them Republicans) endorsed adopting a strict Arizona-style immigration law or passing legislation that makes it harder for illegal immigrants to live, work and access basic public services in their states (Brown, 2010).

The importance of the immigration workforce to the agricultural sector is evident. According to the Economic Research Service (2010), an estimated 42.2 percent of all farm workforce is foreign and lack U.S. citizenship. Hence, the disrupt of the foreign labor workforce due to more strict anti-immigration laws can potentially affect agricultural production and costs, thereby resulting in exit decisions. Furthermore, for the case of the dairy industry, since the foreign labor workforce represents 41 percent of the total workforce, it is estimated that a 50 percent reduction of this labor category would result in the closure of 2,266 dairy firms (Rosson et al, 2009).

In lieu of this scenario, the main objective of this study is to evaluate the likely effects of the political atmosphere by state based on the 2008 presidential elections on exit intentions of the U.S. dairy farms. Other important aspects such as Hispanic population and geographical location of farms by state is analyzed. The methodology is composed of estimating binary models (probit and logit) and builds on the study done by Susanto et al (2010). The data is the result of a recent survey of 5,005 dairy farmers across the U.S. The results of this work will give useful information for examining the potential trend of the political agenda by state with respect to anti-

immigration laws on the dairy farmers' exit decisions as well as a discussion on state population and geographical location of the farms.

Literature Review

There are several studies that have analyzed exit decisions in the dairy industry, with more emphasis given to Markov chain analysis and real option analyses. To cite a few pieces for the first method of analysis, Chavas and Magand (1988) showed that U.S. dairy farmers with fewer than 50 cows were not size efficient. They also estimated that increases in the milk prices would increase the number of farms in all farm size categories but such increase varied by regions. Rahelizatovo and Gillespie (1999) found that the structure of the Louisiana dairy industry was affected by several factors such as the milk and input prices, technology, agricultural policies and farmers' financial conditions.

With respect to the real option analysis, Foltz (2004) showed that price premiums and lower price variances helped farmers not exit the market. Furthermore, the study indicated that local community factors were interfering on the dairy farmers' decision to exit or not. Still in the real option framework, Tauer (2006) examined the level of milk prices that encouraged farmers to exit and enter the market given the structure of dairy farm located in the New York state. His findings were that price bounds were present and exit (entry) would not occur until milk price moves below (above) the lower (upper) price bound.

A third type of analyses present in the literature is to estimate binary models to predict the probability of exit decisions for the dairy farmer. The work by Bragg and Dalton (2004) estimated OLS and Logit models to evaluate the factors affecting the decision of exit dairy farming for the state of Maine. The authors estimated the exit decision on explanatory variables that took into account demographic, efficiency, and opportunity cost aspects. Their findings

suggested that older producers, higher off-farm income, lower returns over variable costs, and greater diversification of farm income were more likely associated with the exit decision. In a more recent work, Susanto et al (2010) developed a probit model to estimate the expected probability of exit from dairy farming. In addition to variables related to operational and financial aspects, the authors introduced variables that take into account labor issues. Given the current immigration policies, the authors used explanatory variables such as ratio of hired foreign labor to total hired labor to predict the probability of exiting or not. They found that larger ratios of hired foreign labor and expected labor shortages due to immigration policies currently in place are important factors in the farmers' exit decision.

Several studies have analyzed exit decisions for dairy farmers. Most of the work has been more concentrated on the production efficiency (Chavas and Magand, 1988), output and input prices and sectorial policies (Rahelizatovo and Gillespie, 1999), sunk costs/real option analysis (Foltz, 2004; Tauer, 2006), opportunity costs (Bragg and Dalton, 2004), and immigration and foreign labor (Susanto et al, 2010). However, there is a lack of information focused on more macro aspects such as political agendas, population, and geographical location.

Data

The data related to the perception of the U.S. dairy farmers with respect to the economic impacts of immigration on the exit decisions as well as business operations was retrieved via a national survey which was conducted between June and August of 2008. The survey was based on mailing questionnaires to 5,005 farmers from different states and herd sizes across the U.S. The overall response rate was equivalent to 41.4 percent, which represents 2,071 returned questionnaires. From those 2,071 replies, a total of 1,089 were used in this analysis, which this ratio accounts for 21.6 percent of survey recipients and 52.2 percent of respondents. There were

two reasons to reduce the total number of respondents: (i) the exclusion of small dairy farmers (less than 50 cows) because they were considered as more of a hobby, and (ii) the lack of responses related to questions surrounding sensitive issues such as hired foreign labor and its characteristics.

In this analysis, the political data was retrieved by evaluating by state the 2008 election map in the U.S. The map is available online at the National Public Radio website (NPR, 2010) as well as in the CNN television network website (CNN, 2010). As for the data related to the proportion of Hispanic population with respect to the total population by state for 2009, the source is the Population Division of the U.S. Census Bureau (2010).

Empirical Model

There are many factors that can cause farmers to exit dairying. Those factors vary and can range from market indicators (milk price, demand for milk, quantity produced), government policies to financial aspects (interest rates, equity ratio). Lately, the most discussed factor has been labor issues with more emphasis on foreign labor and how it may impact exit decisions. One main reason for such concern is due to the fact that currently immigrant workers represent approximately 41 percent of the dairy workforce, and decreasing this workforce by half would result in the loss of 2,266 dairy farms (Rosson et al, 2009).

This research uses binary models (probit and logit) to estimate the probability of dairy farmers' intention of exiting dairy farming. The main reason of using a binary model is that our measure of the dependent variable is in the form of a binary variable reflecting dairy farmers' intention of exiting the market. Hence, the binary model gives an adequate method of predicting the probability of exit intention given changes in the independent variables. It is crucial to state that the dependent variable was designed in the survey to represent the state of immigration

policies for the year which was taken (2008). Therefore, the empirical model does not take into account variables that explicitly reflect immigration policies.

Specifically, the dependent variable (y_i) reflects dairy producers' intention to exit or not from farming and takes the value of 1 if a farmer intends to exit and 0 otherwise. Following the discussion from Wooldridge (2002), the binary response model has the form

$$P(y=1|x) = G(x\beta) = p(x) \quad (1)$$

where x is 1xK, β is Kx1, and we assume the first element of x to be unit. This model is called index model because it restricts the response probability on x: p(x) is a function of x only through the index $x\beta = \beta_1 + \beta_2 X_2 + \ldots + \beta_K X_K$. Hence, the function G maps the index into the response probability.

The index models which have G(.) as a cumulative distribution function (cdf) can be derived from a latent variable model,

$$Y^* = x\beta + e,\ y = 1[y^*>0] \quad (2)$$

where e is a continuously distributed variable independent of x and the distribution of e is symmetric about zero and 1[.] is an indicator function. Hence, if G is the cdf of e, then 1 – G(-x) = G(x). Therefore, we will have

$$P(y=1|x) = P(y^*>0|x) = P(e>-x\beta|x) = 1 - G(-x\beta) = G(x\beta)$$

which is equivalent to equation (1).

However, the latent variable y* is unobserved but can be linked to the observed binary variable as follows

$$y = \begin{cases} 1\ if\ y^* \geq 0 \\ 0\ if\ y^* < 0 \end{cases}. \quad (3)$$

There are two cases of equation (1): probit and logit. The probit model is the following:

$$G(x) = \Phi(x) \equiv \int_{-\infty}^{x} \phi(x)dx \quad (4)$$

where $\phi(x)$ is the standard normal density

$$\phi(x) = (2\pi)^{-1/2}\exp(-x^2/2) \quad (5)$$

and the probit model can be derived from the latent variable formulation when e has a standard normal distribution.

The other type of model is the logit which is the following case of equation (1):

$$G(x) = \Lambda(x) \equiv \exp(x)/[1 + \exp(x)] \quad (6)$$

where this model comes from the model in equation (2) when e has a standard logit distribution.

To estimate the probit and logit models, we need to use the maximum likelihood estimation (MLE) method. Therefore, we need the log-likelihood function for each i. The density of y_i given x_i can be written as

$$f(y|x_i;\beta) = [G(x_i\beta)]^y[1-G(x_i\beta)]^{1-y},\ y=0,1 \quad (7)$$

The log-likelihood for observation i is a function of the kx1 vector of parameters and the data (x_i,y_i):

$$l_i(\beta) = y_i\log[G(x_i\beta)]+(1-y_i)\log[1-G(x_i\beta)] \quad (8)$$

so that when we restrict G(.) to be (0,1) gives us that $l_i(\beta)$ is well defined for all values of β.

Hence, if we have a sample size of N, the log likelihood is $L(\beta) = \sum_{i=1}^{N} l_i(\beta)$ and we have the MLE of β, β-hat, maximizing this log likelihood. If G(.) is the standard normal cdf, then β-hat is the probit estimator; if G(.) is the logistic cdf, then β-hat is the logit estimator.

The independent variables utilized in both models are described in Table 1. The effect of variable **Length** is a bit ambiguous. First, **Length** is expected to affect exit decisions in that the longer the farmer is in business the higher the probability of exit due to age and retirement considerations. A possible explanation for this positive relationship is due to the fact that the average age of a U.S. dairy farmer is 51.6 years old (the average of farmers in all activities is 57.1), according to the NASS (2007). Hence, the longer the farmer is in the business, the more

likely he is to retire (exit). On the other hand, **Length** can have a negative relationship with exit decision. Hoppe and Korb (2006) showed that more recent entrants are more likely to exit than more established farms.

Table 1. Description of dependent and independent variables

Variable	Description
Yi (dependent variable)	Given the current state of immigration policies, the farmer plans to exit (yes=1) or not exit (no=yes)
Length	Length of time the farmer has been in the business (years)
Flabor	Proportion of foreign labor to total labor
Elabor	Given the current state of immigration policies, farmer's perception about labor shortage (=1 if farmer expects; =0 if not)
Ncows	Number of cows in a farm (natural logs)
Party	Given the 2008 presidential election, if the farm is located in a state where the Republican party won=1, Democrat=0
Hispprop	Ratio of the Hispanic population to total population by state
Border	If the farm is located on the states which border with Mexico (CA, AZ, NM and TX)=1, otherwise=0.

The variables related to labor are **Flabor** and **Elabor**. The first one describes the proportion of foreign labor to total labor. The proportion is a more adequate measure than the absolute value of foreign labor since the ratio gives an idea of how dependent the farmer is to the foreign labor with respect to the total labor. In other words, 5 foreign labors might not represent much for a farm, but it represent substantially if the total labor is only 7. Regarding the impact of the variable in the exit decision, an individual farmer with high **Flabor** tends to be more inclined to exit dairy farming given the current immigration policies, especially with the recent increase in Expedited Removals of illegal aliens (DHS, 2010). The variable **Elabor** describes the farmer's expectations about labor shortages in the future. If the current immigration policies remain the same, the farmers expects or not a shortage of workers for dairy operations in the near future. A positive relationship between **Elabor** and exit intentions is expected.

The variable **Ncows** is intended to measure the effect of the herd size on exit intentions where the relationship between these two is expected to be negative. The reason behind this notion is that large farms have greater liquidation costs.

The dummy variable **Party** has the responsibility of capturing the impacts of the perception of dairy farmers with respect to potential political changes in immigration policies and how they will impact the availability of the foreign labor workforce. If the farm is located in a state where the majority of the votes in the 2008 presidential elections was for the Republican candidate, the farmer's perception for that state is that stricter immigration laws will occur. As it was discussed in the introduction section, the Republican candidates have been endorsing stricter immigration laws. Hence, it is expected that the dummy variable **Party** will be positively correlated with exit intentions. On the other hand, for a farm located in a Democrat state, the perception of the impacts of more stricter anti-immigration laws on the exit decision is less.

The last independent variable to be analyzed is the **Hispprop**. This variable represents the ratio of the Hispanic population to total population in the state. The importance of this variable in the analysis is to measure the relationship between the perception of exit decision and the society acceptance of foreign labor. Since 98 percent of the foreign labor in the dairy farming survey is of Hispanic origin (Mexican and other Central America), it is expected that states with a greater ratio will have more acceptance immigrant workers which would reduce the farmers' perception about exiting intentions. Therefore, a negative relationship between the dependent variable and the **Hispprop** variable is expected.

The other dummy variable is the **Border** binary. If the dairy farms are located in the states which borders with Mexico (California, Arizona, New Mexico, and Texas), they will equal to 1, otherwise equal to 0. The farmers located in these states are expected to be more inclined in

exiting dairy farming in the next few years due to greater dependency in foreign labor when compared to states not in the border. In other words, it is expected that states closer to the border have a greater amount of foreign hired labor than non-border states. Therefore, stricter immigration laws will have a greater impact on the propensity of exit decisions for those states. Hence, a positive relationship is expected between the dependent variable and the **Border** variable.

Estimation

Before the estimation is performed for the mentioned models, it is important to check for multicollinearity in the explanatory variables. To do so, a test for multicollinearity is performed via the "collin" command in Stata and, as we can see on the Table 2 below, the values of the variance inflation factor (VIF) for **Hispprop** and **Border** is both very high (9.44 and 8.60, respectively) when compared to the rule of thumb of 2.00 (Rabe-Hesketh and Everitt, 2006). Another indicator is the tolerance level which are very close to 0 which indicates an R^2 near unity. In summary, the model estimation would be better off if those two variables were excluded from the analysis. Therefore, the model was estimated by either dropping **Hispprop** or **Border** variables. In both cases, the variables were not statistically significant and there were no changes in the sign, magnitude and statistical significance of the other explanatory variables (length, flabor, etc.). Since there was not much difference in dropping both or one of the variables, the original model is estimated to understand better and measure the potential impacts of those variables on the exit decision.

Table 2. Test for multicollinearity

Independent Variable	VIF	Tolerance	R-squared
Length	1.01	0.9936	0.0064
Flabor	2.35	0.4260	0.5764
Elabor	1.05	0.9516	0.0484
Ncows	2.13	0.4705	0.5295
Party	1.03	0.9727	0.0273
Hispprop	9.44	0.1060	0.8940
Border	8.60	0.1163	0.8837

Results

As it was discussed in the estimation part, despite the presence of multicollinearity in two explanatory variables, the original binary model is estimated via probit and logit specifications. The estimation of both the probit and logit models are performed via coding the MLE estimation and not using the existent Stata commands. Please refer to the Appendix A.

Table 3. Probit and Logit estimates of dairy farmer exit: complete model

Y_i = exit	Probit		Logit	
Ind. Variables	Parameter	Marginal[1]	Parameter	Marginal
Length	0.024(0.003)*	0.006(0.001)*	0.042(0.006)*	0.005(0.001)*
Flabor	0.392(0.169)**	0.092(0.039)**	0.741(0.300)**	0.093(0.037)**
Elabor	0.335(0.115)*	0.079(0.027)*	0.620(0.200)*	0.078(0.025)*
Ncows	-0.352(0.061)*	-0.083(0.014)*	-0.655(0.117)*	-0.082(0.013)*
Party	0.389(0.101)*	0.091(0.023)*	0.656(0.177)*	0.082(0.022)*
Hispprop	-0.800(1.244)	-0.188(0.293)	-1.082(2.218)	-0.136(0.279)
Border	0.202(0.371)	0.047(0.087)	0.244(0.668)	0.031(0.084)
Constant	-0.157(0.314)	–	-0.065(0.578)	–
Number of Obs.	1,089	–	1,089	–
Log-likelihood value	-458.9019	–	-458.8524	–
Pseudo R-squared[1]	0.1112	–	0.1114	–

Numbers in parentheses are estimated standard errors.
* Significant at the 1% level. ** Significant at the 5% level.
[1] The marginal effects values were calculated by treating the dummy variables as continuous.
[2] Since the Pseudo R-squared are not reported in the MLE estimation, they are available by estimating the model via the probit and logit command from Stata.

As noted in Table 3, both the Probit and Logit generated similar signs for the variables. However, the magnitudes of the parameter estimates for the variables for the Logit model were almost two times greater than the estimates from the Probit model. For example, the parameter estimate for **Length** was 0.042 for the Logit model, which is almost two times the coefficient for the same variable in the Probit model (0.024). As for significance, for both models, **Length, Elabor, Ncows**, and **Party** had estimated coefficients statistically significant parameters at the 1 percent level. One variable, **Flabor**, was statistically significant at the 5 percent level. Two variables, **Hispprop** and **Border**, were not statistically significant.

Regarding the interpretation of signs of the parameters estimates for both models, **Length** was positive, suggesting that the longer the farmer is engaged in dairy farming, the higher the

probability of exit intention. The corresponding marginal effect was very small at 0.006 and 0.005 for the probit and logit models, respectively. In other words, the marginal effect for the probit (logit) models indicates that with a one year increase in the mean value of time in dairy farming, the probability of exiting increased by 0.6 (0.5) percent These findings are not consistent with those reported in Hoppe and Korb (2006), which showed that the inverse holds. However, this may be an indicator of the age of the dairy farmer. If that is the case, over time, there is a greater propensity for the dairy farmer to retire or exit dairy farming. This finding is in accordance with Bragg and Dalton (2004) where they showed that older farmers often downsize their operations. In other words, length may work as a proxy for dairy farmer age which is not captured in the model.

For both models, as expected, the positive sign of **Flabor** indicates that greater hired foreign labor relative to total hired labor increases the probability of exit intentions from dairy farming. Although dairy farmers will be willing to substitute domestic labor for foreign labor, if labor shortages happen, this study indicates that the U.S. dairy farms is heavily dependent on the hired foreign labor. The marginal effects for the probit and logit models were very similar at 0.092. With respect to **Elabor,** a similar situation occurs where the sign was positive (as expected) and with only marginal effects (0.078). This suggests that having an expected labor shortage in the future increases the probability of exiting the dairy business. Since the question on the questionnaire was based on the labor shortage due to current immigration policies, it is evident that those policies have impacts on the exit decision. Hence, based on these two labor-related variables, both foreign labor and immigration policies play a crucial role in determining exit intentions.

The variable **Ncows** had the parameter estimates negative as it was expected. This suggests that the bigger the farm size, the lower the probability of the dairy farmer exit business. This relationship is consistent with the results presented by Hoppe and Kopp (2006), where the exit probability was estimated to be low for large farms. The marginal effects were very similar for both models at -0.083.

The political variable **Party** is now evaluated. As it was expected, there is a positive relationship between the farm being located in a Republican region and the probability of exiting dairy farming. In other words, since Republicans generally favor of a stricter immigration policy, farmer perception of the political agenda of the Republican state is perceived as a potential factor in exiting farming. One potential reason for exiting is that, as the immigration policies become an obstacle to hiring foreign labor, the farmers' losses would be significant due to the removal of immigrant workers, as it has been shown in the study by Rosson et al (2009). Under a mass deportation scenario, the work from Goyle and Jaeger (2005) also show that wages would rise for less-skilled native-born workers, which applies to laborers in the dairy farm. The marginal effects for probit and logit were 0.091 and 0.082, respectively, and these values represented one of the largest marginal impacts on the exit decision for the statistically significant variables.

The ratio variable **Hispprop** is negative as it was expected. However, the parameter estimate is not significant. Therefore, one should be careful in making conclusions regarding its effects on the dairy farmers' exit decisions. As the multicollinearity test showed, there is a multicollinearity problem in this variable and this may be the reason for no statistical significance. With respect to the interpretation, the greater the proportion of Hispanics in the population of a certain state may have a negative impact on the probability of the dairy farmer's exit decision. The relationship may also be interpreted as that a Hispanic society may be more

willing to accept foreign labors (where most of them are Hispanic) when compared to a more non-Hispanic society. Although statistically insignificant, the marginal effects were the largest when compared to the other explanatory variables in both models (-0.1888 and -0.136).

The dummy variable **Border** had a positive sign for its coefficient as it was expected. Similarly to the **Hispprop** variable, the parameter estimate was not significant, thus, the interpretation of the impacts of such a variable should be done with caution. The positive sign parameter estimate can be interpreted as that if the farm is located in one of those states, California, Arizona, New Mexico, and Texas, the probability of the farmer exiting business is greater. One possible explanation is the following: be closer to the border, makes it more accessible for farmers to hired foreign illegal labor, hence, stricter immigration law would reduce the foreign labor supply which would increase marginal costs and cause farmers to exit the dairy industry.

Conclusions

By continuing the work of Susanto et al (2010), I was able to introduce more factors that might influence the dairy farmers' perception of exiting the dairy industry. First, it is important to mention that these findings were similar to the work cited above. For example, the number of years that the farmer has engaged in dairy farming increases the probability of exiting the business. The impact of hired foreign labor on the probability of exit intention is relevant where a higher ratio of hired labor to total hired labor increases the probability of exit intentions from dairying. The effects of an expected labor shortage due to current immigration policies were shown to have a significant factor in the exit decision as it had an estimated marginal effect equivalent to 7.8 percent in both binary models. If there was an increase in the size of the herd,

the estimated reduction in the probability of exiting dairy farming was approximately 8.2 percent.

The most important contribution of this work was to introduce political, population and geographical aspects in the exit decision analysis performed by Susanto et al (2010). To do so, the model was expanded to have variables that captured those aspects. The political aspect was measured via the use of a dummy variable which had a value of one for the farmer that was located in a state that voted for the Republican party candidate in the 2008 election and zero otherwise. The expected sign for this variable was to be positive since it is accepted that the Republican party is perceived as being in favor of stricter immigration policies (case of the Arizona's SB 1070 immigration law). This variable had a positive and statistically significant parameter estimate with a marginal effect equivalent to 9.1 and 8.2 percent for the probit and logit models, respectively. In other words, the probit (logit) estimation suggests that the farmers' exit decision probability increases if the state is Republican by 9.1 (8.2) percent when compared to a Democrat state.

The ratio of Hispanic population to the total population by state was the chosen indicator for the population aspect. The idea of this variable was to measure what would be the impacts of a more Hispanic society on the dairy farmers' exit decision. The expected sign was negative since the reasoning is that farmers located in more Hispanic populated states are less probable of exiting business due to current anti-immigration laws. Before we start the interpretation of the results for this variable, the test for multicollinearity indicated that this variable may be problematic. Nonetheless, the model was estimated with the variable included and we found that there is a negative relationship between the Hispanic population ratio and the exit decision. Hence, even though not statistically significant, under more stringent immigration policies, one

can state that a more Hispanic society has a negative effect on the dairy famers' perception of exiting or not. The estimated marginal effects were the largest of all variables with 18.8 and 13.6 percent for the probit and logit models, respectively.

The geographical aspect was evaluated based on the location of the farm with respect to the Mexican border. We used a dummy variable which was equal to 1 for the states (California, Arizona, New Mexico, and Texas) which make border with Mexico, a major supplier of foreign labor, and zero otherwise. Similar to the Hispanic proportion variable, the test for multicollinearity found that this variable would not be appropriate to be used in our analysis. Nonetheless, the variable was retained to assess the possible relationship. The expectation was that the states on the border would have a greater probability of exiting dairy farming due to their proximity to the border. The sign of the parameter estimate for this variable was found to be positive as expected, but was statistically insignificant. In other words, one should be cautious with the following interpretation: if the farmer is located in the states of California, Arizona, New Mexico, and Texas, his perception of exiting business due to current immigration policies is greater than non-border states. In marginal effects terms, the estimated results suggest that farmers located in the border states have a greater probability of exit intentions by 4.7 and 3.1 percent for the probit and logit models, respectively.

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