WHAT FACTORS INFLUENCE HOW A STATE WILL VOTE ON ANIMAL WELFARE BALLOT INITIATIVES?

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CHAPTER I

ANIMAL WELFARE IN THE STATES

There is an ongoing controversy between advocates for animal welfare and what the advocates call factory farms. The twentieth century witnessed a revolution in animal production technology, where animals raised indoors with small space allotments reduced production costs considerably. However, livestock raised permanently indoors and in cramped quarters (often so cramped they cannot turn around) are thought by some to live miserable lives. As a result, animal advocates have rallied on behalf of the animals to protect them against said misery.

The Humane Society of the United States (HSUS) is by far most active opponent of modern livestock farms, with a particular zeal for banning battery cages, gestation stalls, and veal crates (hereafter, livestock cages). To date, eight states have passed legislation forbidding the confinement of livestock such as gestating sows, veal calves, and egg laying hens, preventing them from turning around, extending their limbs without touching another animal, or to lie down comfortably. Arizona, California, Colorado, Florida, Maine, Michigan, Ohio, and Oregon have banned some or all cages (Norwood and Lusk, 2011; Ohio, 2010). The bans may emanate from direct lobbying of politicians for legislation. Or, legislators may be forced to ban cages after animal advocacy

organizations collect petitions for a referendum, the product of which always results in citizens voting in favor of bans on animal cages. Colorado pork producers capitulated before a referendum could be held, saving themselves an embarrassing defeat at the polls, and asking legislators to ban their own production practices. It should also be noted that public pressure placed on food retailers by HSUS has forced some retailers to reduce purchases of food from animals raised in cages.

Florida and Oregon have banned the confinement of pregnant sows using gestation crates. Gestation crates are metal 7 x 2 foot enclosures used in intensive hog farming, in which a female breeding sow may be confined during pregnancy, and in effect most of her adult life. In Florida, the ban was added to their state constitution art. 10, sec. 21. Oregon passed their legislation as Senate Bill 694 and was signed into law by Governor Ted Kulongoski (Oregon, 2007).

The following states have banned both gestation crates and veal crates: Arizona, Colorado, Main, Michigan, and Ohio. Veal crates are similar to gestation crates for sows, where the calf is unable to turn around or lie down comfortably. In addition to veal crates, Michigan also banned the confinement of egg laying hens in enclosures such as battery cages. (Arizona, 2006; Colorado, 2008; Maine, 2009; Michigan, 2009; Ohio, 2010).

California, the largest agricultural state in the US, was the only state besides Michigan to ban gestation crates, veal crates, and battery cages. The ballot measure was known as Proposition 2, and is now known as the *Prevention of Farm Animal Cruelty Act* (California, 2008). Proposition 2 garnered more attention than bans in other states, both because of California's size and its reputation as a trend-setter. Thus, it was in California

where the livestock industry launched an aggressive campaign against the measure. Almost 8.8 million dollars was spent urging Californians to vote against the proposition, compared to 10.3 million in campaign expenditures for the measure (Campaign spending, 2008). This was the first referendum where the fight for and against the measure was similar, and the intensity of the struggle was not confined to California. Even the Oprah Winfrey show—the most highly rated talk show in history—recorded an episode on Proposition 2, where a gestation crate and battery cage were on display for millions of viewers. Consequently, when 63.5% of Californians voted to ban animal cages, it portended defeat in other states to come.

Naturally, the agricultural community asked: which state is next? The answer soon came: Ohio. The next state HSUS targets—there is little reason to suspect it will be satisfied with less than fifty states—depends on myriad factors. The laws dictating how petitions and referendums are administered will partly determine the chance and cost of a successful referendum. The agricultural composition of the state also matters. When Florida became the first state to ban gestation crates, the ban would only affect one farm (Florida's Ban on Gestation Crates, 2001), allowing HSUS to campaign with little opposition.

Of these various attributes of a state determining its susceptibility to a referendum similar to Proposition 2, the demographics of the state are included. There is a good reason HSUS has not yet targeted Iowa, with its many citizens earning their living from livestock agriculture. With the strong conservative composition of South Carolina, and conservatism's general opposition to paternalism, there has been no Proposition 2 in South Carolina, even though livestock agriculture within the state is a relatively small

industry. Surveys of attitudes towards farm animal welfare are demonstrated to be correlated with demographics like gender, political affiliation, and education (Prickett, Norwood, and Lusk, 2010).

Moreover, previous research has shown demographics to affect voting behavior on farm animal welfare issues (Videras, 2006). The composition of income, population density, housing values, and religious affiliation within a county were demonstrated by Videras to predict changes in how Floridians voted for the 2002 referendum on gestation crates. It is then natural to use the Videras study to identify which states possess the demographics most accommodating, and most unfriendly, to livestock welfare referendums.

The Florida debate occurred almost ten years ago, and was the first such debate to take place. Moreover, because the Florida referendum would have almost no impact on the state's economy or the price of food, and because industry opposition was almost non-existent, voters probably took the referendum less seriously than voters would today, in most states. Conversely, California's Proposition 2 was the most recent and intense referendum to take place. Thus, it is perhaps more informative to measure the relationship between county-level demographics and voting behavior for California, and then uses these relationships to predict how voters would respond to a similar proposition in other states.

CHAPTER II

OBJECTIVES

The objective of this research is to investigate the demographic and attitudinal factors influencing voting patterns on Proposition 2 in California, which is generally considered the most important livestock welfare referendum thus far. The specific factors considered are income, wealth, gender, population density, agricultural familiarity, political affiliations, and religion. Regression analysis will be used to explain voting patterns across California counties as a function of the aforementioned variables. Although the statistical importance of each variable is of interest, this study focuses primarily on prediction. Model selection criteria will be used to identify the models which best predict voting patterns; these models are then employed to predict voter approval of a measure like Proposition 2 in other U.S. states.

CHAPTER III

METHODOLOGY AND DATA

The methodology involves a two-step process. First, the voting record of the 2008 Proposition 2 in California is used in conjunction with demographic data to construct a regression model of voting behavior. This model describes how the percent of voters who approve of Proposition 2 is influenced by demographics. Second, the parameters of this regression are assumed to be reasonably stable across other states, and are used to project voting patterns in other states, if a measure resembling Proposition 2 were placed on a ballot.

The primary objective is then a thought experiment: if the relationship between demographics and voting behavior were the same across all U.S. states, and if California's Proposition 2 were held in other states, what would be the result? The thought experiment proceeds while acknowledging the fact that the relationship between demographics and voting behavior will certainly not be identical. However, there are enough similarities between Democrats in California and Democrats in Florida, females in California and females in Virginia, that the predictions should be at least informative, if not perfectly accurate.

Statistical Model Estimation

Because the thought experiment involves Proposition 2, it is prudent to explicitly remark upon the wording of the proposition. Below is an excerpt of Proposition 2, which voters either approved or disapproved, the result of which comprises the dependent variable in subsequent regressions.

> *…a person shall not tether or confine any covered animal, on a farm, for all or the majority of any day, in a manner that prevents such animals from (a) lying down, standing up, and fully extending his or her limbs; and (b) turning around freely.*
>
> *(California, 2008)*

California contains fifty-eight counties, and the share of individuals in each county voting for Proposition 2 constitutes the regression's dependent variable (before it is transformed). Concomitant with Proposition 2 ballot was the 2008 presidential election, and the percentage of voters in each county voting for President Obama serves as a proxy for political affiliation. Other demographic data are compiled from other sources, such as income, value of home, gender, and religion. Table 1 provides descriptive statistics of these variables, which are employed as explanatory variables in a regression model. The reader will also see that population density and number of farms are measured, and used to capture voting patterns shaped by a familiarity with agriculture and the rural lifestyle. These variables chosen are based on *a priori* expectations and

prior research on the relationship between demographics and animal welfare attitudes (Prickett, et al., 2010, Videras, 2006).

The statistical model used is an extension of the basic regression. In a basic regression, the dependent variable is the share of voters approving Proposition 2 in each California county (V_i), and the explanatory variables (denoted by the matrix X_i) are a combination of those variables in Table 1, where i denotes the i^{th} California county (i = 1, 2, …, 57, 58). Two extensions are warranted. First, because V_i is bounded between zero and one, using V_i as a dependent variable would result in biased estimates (Maddala, 2001). However, by using a transformed variable $Y_i = \ln(V_i / [1 - V_i])$ the dependent variable is made continuous and the bias eliminated. Also, economists typically find panel data to exhibit heterogeneity, and so regressions are estimated with and without correcting for heterogeneity.

Table 1. Descriptive Statistics of Voting and Demographics in all California Counties

Variable Values Across All 58 Counties	Mean	Standard Deviation
Votes in favor of ban (%)	0.57	0.09
Transformed ($\ln \frac{V_i}{1-V_i}$)	0.31	0.37
Wealth		
Median Household Income ($1000)	54.45	13.96
Median Value of owner-occupied housing units ($1000)	187.16	100.32
Female (%)	0.49	0.02
Vote for Obama in presidential 2008 election (%)	0.53	0.13
Population Density (people per square mile)	633.40	2,150.15
Number of Farms (NAICS 2007 adjusted)	1,397.12	1,453.50
Religion (%)		
Evangelical Protestants (%)	7.67	3.00
Mainline protestants (%)	3.31	1.22
Orthodox (%)	0.21	0.39
Catholic (%)	22.21	11.70
Other (%)	4.50	7.00
Unclaimed (%)	62.09	11.41
Evangelical or Mainline Protestant (%)	10.33	3.33
Orthodox or Catholic (%)	22.42	11.70

Sources: votes on Prop 2 came from California's statement of vote from Nov. 4 2008 general election. Median household income, median value of owner-occupied housing units, and percentage female came

from the 2008 Census. Population density came from the 2000 Census. The number of farms came from the National Agriculture Statistics Service (NASS). The membership data for religious affiliations came from the Association of Religion Data Archives for 2000.
Notes: because the religion variables sum 100, the *Unclaimed* variable is omitted from the regression whenever the other religion variables are included.

To summarize, the statistical model used to project how states other than California would react to a measure similar to Proposition 2 is estimated as

$$(1)\ Yi = \ln\left(\frac{V_i}{1-V_i}\right) \quad X_i\beta \ + \ \varepsilon_i,$$

where X_i is an i by k and β is a k by 1 matrix; k is the number of explanatory variable, including the intercept, Y_i is an i by 1 matrix; and ε_i is an i by 1 matrix, which will display a constant variance in some models and a function of X_i in other models. The heteroskedastic models are estimated using the *AUTOREG* procedure with a *HETERO* Statement. The exponential function is used to link the squared residuals and the variables in X_i. (excluding population density, which was removed to facilitate convergence of the SAS routine).

Because there are only fifty-eight observations of V_i, and a large set of potential explanatory variables (X_i), the tradeoff between information and degrees-of-freedom must be handled with care. Although adding another explanatory variable sharpens our conception of California voters, and this new information should enhance predictions, the loss of degrees-of-freedom detracts from precision accuracy (Kastens and Brester, 1996, Sawa, 1978). Model selection criteria (*e.g.,* adjusted R-square, Akaike Information Criteria, and Amemiya Information Criteria) are employed to assess whether the additional information a variable possesses outweighs the loss of degrees-of-freedom when the variable is added to the regression.

A total of eight models will be considered, including parsimonious models with only one explanatory variable, to a large model with twelve variables. The subset of variables used in the parsimonious models is chosen based on their perceived importance, and admittedly, casual data-mining. Some inconsistency regarding the statistical significance of explanatory variables is expected, and for the parsimonious models the p-values are not technically valid due to the data-mining. Because the primary goal is to develop an accurate prediction model, variables will be evaluated not only according to their p-values but their contribution to model selection criteria. Each of the eight models is estimated both under the assumption of homoskedasticity and heteroskedasticity, resulting in eight total regression models describing voter behavior in the 2008 California Proposition 2 referendum.

Statistical Model Predictions

Once the statistical models are estimated using the California data, a total of eight models will be available for the thought experiment: how would other states vote if faced with a referendum similar to Proposition 2 in California? These predictions are referred to as thought experiments, because it would be naïve to believe demographics influence voter behavior identically in California and Nebraska. Moreover, if a similar proposition was offered in other states, public debate would evolve differently, as the consequences of its passing would vary across states. For example, Iowa and North Carolina host far more hog farms than California, and thus the proposition could pose larger costs to the state's hog industry, shaping lobbying and propaganda efforts. The thought experiments are akin to asking: if the demographics associated with stronger support for farm animal

welfare legislation in California also exist in other U.S. states, which states will be the next recipient of HSUS activity?

The state-level predictions follow a simple methodology. Let $\hat{\beta}^M$ be the coefficients from one of the eight regression models estimated (M = 1, 2, …, 15, 16), and let X_S^M be the vector of demographics describing state S in model M. The predicted voter approval of a referendum like Proposition 2 in state S equals the expected value of V_S^M, $\hat{V}_S^M$, given the value of $\hat{Y}^M = X_S^M \hat{\beta}^M$. Because V_S^M is a non-linear function of Y_S^M, one cannot simply set $\hat{V}_S^M$ equal to $e^{\hat{Y}_S^M} / \left(1 + e^{\hat{Y}_S^M}\right)$.

Instead, parametric simulations are employed. From the variance-covariance matrix of $\hat{\beta}^M$, for each model, 5,000 simulations of $\hat{\beta}^M$ are drawn. Let each simulation be denoted $\hat{\beta}_d^M$, where d refers to a "draw". The value of $\hat{V}_S^M$ is then calculated as

(2) $\hat{V}_S^M = (5000)^{-1} \sum_{d=1}^{5000} \left[\frac{e^{\{X_S^M \hat{\beta}_d^M\}}}{1 + e^{\{X_S^M \hat{\beta}_d^M\}}} \right]$.

Although this is technically the optimum estimate of the percentage of voters approving the referendums, in practice, the value of (2) is virtually identical so simply calculating

(3) $\hat{V}_S^M = \frac{e^{\{X_S^M \hat{\beta}^M\}}}{1 + e^{\{X_S^M \hat{\beta}^M\}}}$.

Once the values of (2) or (3) are formed, states can be ranked according to their susceptibility to farm animal welfare initiatives, given the demographics of that state. In practice, the model deemed to possess the most accurate predictions will be used to provide one ranking of states, rather than eight.

A number of states have already held similar referendums, or other forms of livestock welfare activity. If those states experience high values of (2), it would provide evidence that the thought experiment is useful. However, there are some instances when we have ample reason to be skeptical of the results. For instance, the percentage of voters who voted for Obama may represent different attitudes in California and Hawaii. In California, voters who support President Obama do so because of their progressive politics, while in Hawaii the Obama vote may represent affiliation with Hawaii citizens. Despite these drawbacks, so long as the readers contend that demographics matters, the thought experiment conducted here will provide useful results.

CHAPTER IV

RESULTS

Table 2 shows the results from our eight simple regressions, and standard errors from White's General Test (White, 1980). Each model is placed to the left of all models with a higher Akaike Information Criteria (AIC), where a higher AIC value is associated with less predictive ability. Also, variables in the top rows generally possess lower p-values than variables in the bottom rows.

Table 2. Results from Simple Regression: Dependent variable is log-odds ratio

	Model A	Model B	Model C	Model D	Model E	Model F	Model G	Model H
					Coefficient			
					(Standard P-Value, White Standard. Error)[a]			
Intercept	**-1.06**	**-0.96**	**-1.29**	**-1.15**	**-1.33**	**-1.38**	**1.08**	**-1.28**
	(0.00, 0.10)	***(0.00, 0.09)***	***(0.02, 0.30)***	***(0.04, 0.28)***	***(0.02, 0.28)***	***(0.02, 0.30)***	***(0.11, 0.58)***	***(0.62, 0.53)***
Voted for Obama	**2.07**	**2.38**	**2.08**	**2.37**	**2.03**	**1.99**	--------	--------
	(0.00, 0.21)	***(0.00, 0.15)***	***(0.00, 0.23)***	***(0.00, 0.16)***	***(0.00, 0.30)***	***(0.00, 0.41)***		
Percent Evangelical Protestant	--------	--------	--------	--------	------	**-0.16**	--------	**-5.18**
						(0.96, 2.90)		***(0.00, 1.54)***
Percent Evangelical or Mainline Protestant	--------	--------	--------	--------	--------	--------	**-4.02**	--------
							(0.01, 1.34)	
Median Household Income ($1,000) 2008 Census	**0.00**	--------	**0.00**	--------	**0.00**	**0.00**	--------	--------
	(0.03, 0.00)		***(0.03, 0.00)***		***(0.36, 0.00)***	***(0.74, 0.00)***		
Percent Female	--------	--------	**0.44**	**0.40**	**0.85**	**0.84**	--------	**3.87**
			(0.68, 0.65)	***(0.72, 0.64)***	***(0.45, 0.59)***	***(0.53, 0.80)***		***(0.06, 1.41)***
Farms-number (NAICS) 2007 (adjusted)	--------	--------	--------	--------	**0.00**	**0.00**	--------	--------
					(0.26, 0.00)	***(0.30, 0.00)***		
Percent Religious	--------	--------	--------	--------	**-0.18**	**0.99**	--------	--------
					(0.40, 0.19)	***(0.73, 2.33)***		
Median Value of owner-occupied housing units ($1,000) 2008 Census	--------	--------	--------	--------	**0.00**	**0.00**	--------	--------
					(0.65, 0.00)	***(0.42, 0.00)***		
Percent Orthodox	--------	--------	--------	--------	--------	**-5.04**	--------	**8.61**
						(0.58, 7.90)		***(0.46, 10.99)***
Percent Unclaimed Religion	--------	--------	--------	--------	--------	--------	**-0.53**	--------
							(0.50, 0.71)	
Percent Other Religion	--------	--------	--------	--------	--------	**-0.86**	--------	**0.28**
						(0.79, 2.58)		***(0.71, 0.55)***
Population Density	--------	--------	**0.00**	--------	**0.00**	**0.00**	--------	--------

			(0.73, 0.00)		*(0.61, 0.00)*	*(0.63, 0.00)*		
Percent Mainline Protestant	--------	--------	--------	--------	--------	**-0.89**	--------	**-0.89**
						(0.82, 3.72)		*(0.82, 4.74)*
Percent Catholic	--------	--------	--------	--------	--------	**-1.41**	--------	**0.32**
						(0.67, 2.65)		*(0.43, 0.38)*
Percent Orthodox or Catholic	--------	--------	--------	--------	--------	--------	**0.01**	--------
							(0.99, 0.69)	
R-square	**0.747**	**0.725**	**0.749**	**0.726**	**0.765**	**0.774**	**0.159**	**0.264**
Adjusted R-square	**0.738**	**0.720**	**0.730**	**0.716**	**0.732**	**0.692**	**0.112**	**0.158**
AIC	**-3.316**	**-3.266**	**-3.253**	**-3.234**	**-3.216**	**-3.050**	**-2.079**	**-2.075**
Amemiya	**0.037**	**0.039**	**0.039**	**0.040**	**0.041**	**0.048**	**0.127**	**0.126**

[a] The standard p-value assumes homoskedasticity. The White Standard Error uses the White estimator of the coefficients' standard errors, assuming heteroskedasticity, and as described in White (1980).

With the exception of Models G and H, the models fit the data well. The adjusted-R squared for models A-F averaged .721 thus explaining about 72% of the variation of the dependent variable. Model-A had the highest adjusted R-squared value and the lowest AIC value, explaining 73% of the variability and an AIC value of -3.316. It is prudent to point out that with our models these correlations are conditional correlations that might prove to have different results with different variables. It is telling that models with the Obama variable vastly outperform those without the Obama variable, and it is to this variable we now turn.

The percentage who voted for Obama was our strongest and most significant predictor variable (p-value less than 0.001). It had a positive and statistically significant effect on support for the ban. This result goes along with what Videras (2006) found, stating that those who are liberals will tend to endorse more government intervention than those who are conservative. Within the California counties that voted for Obama, the average vote for Proposition 2 was 63%, and the average vote for Obama was also 63%. However, in the counties that voted against Obama, the average vote for the animal welfare initiative was 51% and the average vote for Obama was 41%. Figures 1 and 2 have been added to show the link between the states that have passed Proposition 2 and the states that have voted for Obama.

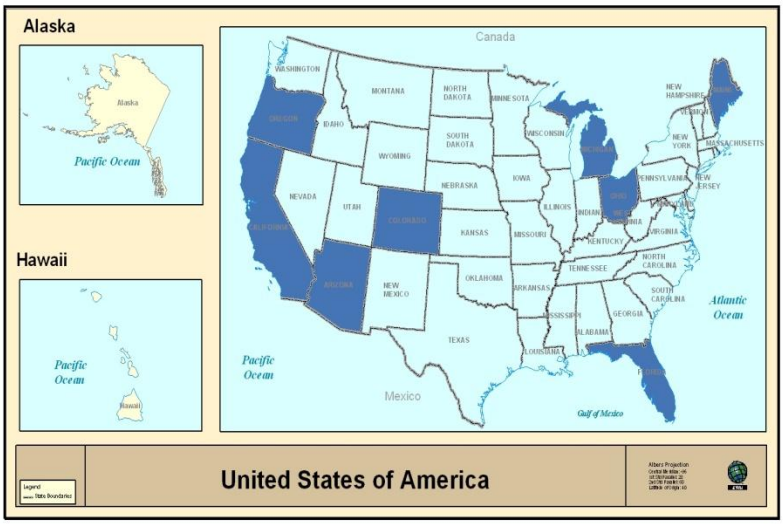

Figure 1. Passed Animal Welfare Legislation

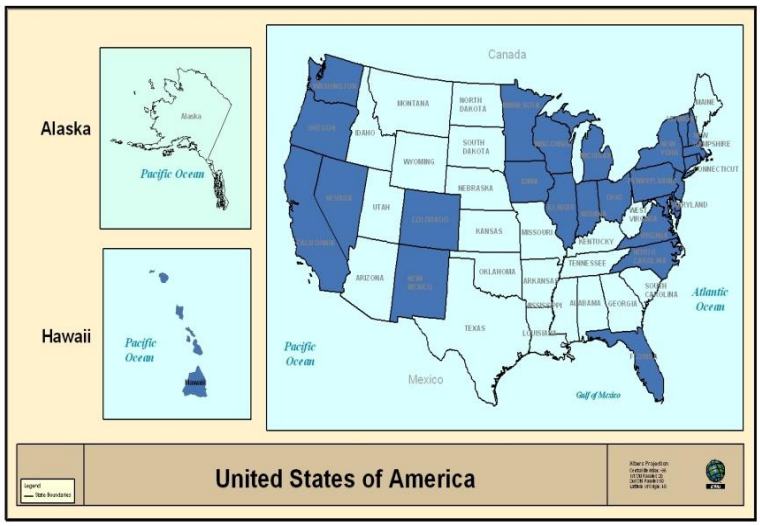

Figure 2. Voted for Obama

The percentage of those claiming Evangelical Protest in Model H was our next most significant predictor variable with a p-value of 0.0036. This variable had a negative and statistically significant effect on support for the ban. Right behind that were those claiming either Evangelical Protestant or Mainline Protestant in a region. This predictor variable had a p-value of 0.0054 and had a negative and statistically significant effect on

support for the ban. This finding goes along with previous research suggesting that church attendance to these denominations has a negative effect on support for animal welfare (Peek, et al., 1997). A reasoning behind this finding is the debate among animal rights opposition stating that Genesis (1:28) emphasizes that humans have dominion over animals (Peek, et al., 1997, Videras, 2006). However, official statements by a number of churches in the Evangelical and Mainline Protestants are made stating that even though they believe that mankind was granted complete dominion over creation, Christians should be good stewards of God's creation (Religious Statements on Animals, 2009).

The last significant variable found in our models is median household income with a p-value of 0.0318. This variable had a positive and statistically significant effect on support for the ban. This can be explained by the notion that those with a higher median household income will be more likely to support an animal welfare ballot initiative because of more disposable income.

As it turned out, all of the rest of our predictor variables were statistically insignificant. This was particularly surprising with the percentage of female in a region, considering previous studies found the percent female to be positive and statistically significant. Videras (2006) found that percentage of female residents is positive statistically significant only when religious variables are included. This, however, was not the case for model H, where the p-value for the female variable was 0.06.

Since Model A was our strongest predictor model, we used Model A from table 2 to continue on to our thought experiment to predict the likelihood of how other states will vote if Proposition 2 were held in that state. As a result, table 3 shows each states

predicted voting percentage of our animal welfare ballot initiative. The table is in order from least likely to most likely to vote in favor of Proposition 2.

Table 3. Predicted Percentage Voting in Favor of a Referendum Similar to California's Proposition 2

States		States	
Oklahoma	46%	Ohio	56%
Wyoming	48%	Iowa	58%
Idaho	48%	Pennsylvania	58%
Utah	49%	Virginia	58%
Arkansas	49%	New Mexico	59%
Alabama	49%	Colorado	59%
Louisiana	50%	Minnesota	59%
Kentucky	50%	Wisconsin	59%
West Virginia	50%	Nevada	59%
Mississippi	51%	Main	59%
Tennessee	51%	New Hampshire	60%
Nebraska	52%	Michigan	60%
Kansas	52%	Oregon	60%
Alaska	52%	Washington	61%
Texas	52%	New Jersey	62%
South Carolina	52%	Illinois	63%
North Dakota	53%	Delaware	63%
South Dakota	53%	California	63%
Arizona	53%	New York	63%
Montana	54%	Rhode Island	63%
Georgia	54%	Connecticut	63%
Missouri	55%	Massachusetts	64%
North Carolina	55%	Maryland	64%
Indiana	55%	Vermont	65%
Florida	56%	Hawaii	69%

As was mentioned in our intro, there have been eight other states that have passed animal welfare legislation banning gestation crates and veal crates. Of those, the only states that put animal welfare ballot initiatives before their voters were Arizona, Florida, and California. Our predictions for Arizona were the farthest off from the actual results. Arizona voters passed their legislation by 62%. Our predictions for Arizona were off by 9 percentage points. However, Florida voters passed their legislation by a margin of 55%.

Our predictions were only one percent point off, predicting Florida to pass the legislation by a margin of 56%. Finally, California voters passed their legislation by a margin of 63.5%. Our predictions were only off slightly, predicting Florida voters to pass the legislation by a margin of 63%. Figure 3 shows a map of our predictions of how every state would vote if Proposition 2 were being voted on.

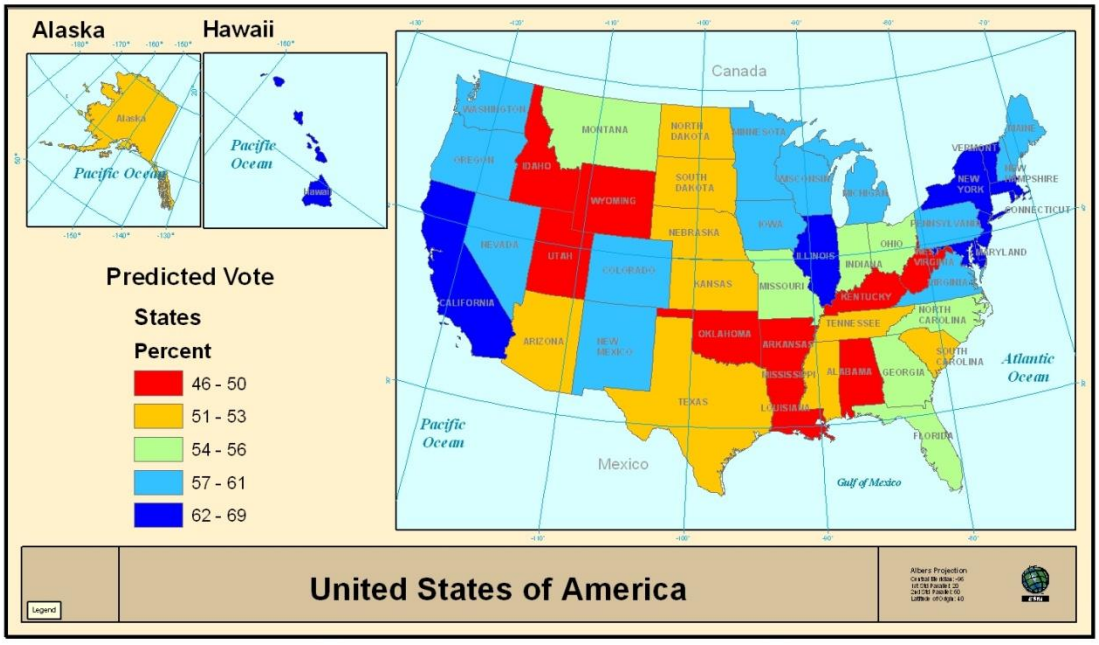

Figure 3. Predictions if Prop 2 were held in other state

Again, it should be stated that there is reason to believe that "Vote for Obama" might be a biased predictor variable in Hawaii. This would be because Hawaii is where President Obama was born. The likelihood between people voting for Obama and the likelihood to vote for an animal welfare ballot initiative could be completely different in California than in Hawaii.

CHAPTER V

SUMMARY AND CONCLUSIONS

Starting with Florida in 2002, there have been eight states that have passed similar animal friendly legislation, or, like Ohio, have at least negotiated with animal advocacy groups to alter livestock production practices. With that being said, the main purpose of this paper is to try and predict how every state would vote if Proposition 2 were being voted on based on the demographic factors of that state, including income, wealth, gender, population density, agricultural familiarity, political affiliations, and religion. The predictions are a thought experiment, made with the acknowledgement that demographics are one of many factors determining whether such a proposition in a state would arise.

As found in Videras (2006), a combination of cultural, political, and socio-economic factors can be used to help determine the likelihood that a region would vote for an animal welfare ballot initiative. Our results suggest that Model A was our strongest predictor model with vote for Obama and median household income as the predictor variables for votes in favor of Proposition 2. Although the number of other predictor variables such as percent Evangelical Protestant, and percent Mainline Protestant explain a proportion of variation in support for Proposition 2. The proportion of votes in favor of Proposition 2 was higher in states that had a higher proportion of votes for Obama and

median household income. The proportion of votes in favor of Proposition 2 was lower in states that had a higher proportion of those claiming Evangelical Protestant or Mainline Protestant.

According to our Model A from table 2, the five most likely states predicted to vote in favor of Proposition 2 if it were held in that state are Hawaii, Vermont, Maryland, Massachusetts, and Connecticut, based off of Model A. The five states that are least likely to vote in favor of Proposition 2 if it were held in that state are Oklahoma, Wyoming, Idaho, Utah, and Arkansas. In terms of preparation, this research may prove to be beneficial to those both for and against a ballot initiative similar to California's Proposition 2, if one were to be introduced in another state. Just having an idea of how that particular state may or may not vote could alter what measures are taken, and thus provoke changes in behavior. This, in turn, could change the accuracy of our predictions. Further research could be useful in conducting this study on Proposition 204 in Arizona. Since Arizona did not vote for Obama, it would be interesting to see what the strongest predictor variables would be in comparison to Florida and California.

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Scope and Method of Study: The objective of this research is to investigate the demographic and attitudinal factors influencing voting patterns on Proposition 2 in California, which is generally considered the most important livestock welfare referendum thus far. The specific factors considered are income, wealth, gender, population density, agricultural familiarity, political affiliations, and religion. Regression analysis will be used to explain voting patterns across California counties as a function of the aforementioned variables. Although the statistical importance of each variable is of interest, this study focuses primarily on prediction. Model selection criteria will be used to identify the models which best predict voting patterns; these models are then employed to predict voter approval of a measure like Proposition 2 in other U.S. states.

Findings and Conclusions: Our strongest predictor variables were Vote for Obama and Median Household Income in Model A. Although the number of other predictor variables such as percent Evangelical Protestant, and percent Mainline Protestant explain a proportion of variation in support for Proposition 2. The proportion of votes in favor of Proposition 2 was higher in states that had a higher proportion of votes for Obama and median household income. The proportion of votes in favor of Proposition 2 was lower in states that had a higher proportion of those claiming Evangelical Protestant or Mainline Protestant. The states that are least likely to vote for a measure like Proposition 2 are Oklahoma, Wyoming, Idaho, Utah, and Arkansas. The states that are most likely to vote for a measure like Proposition 2 are Hawaii, Vermont, Maryland, Massachusetts, and Connecticut.

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