CULTURE OF VIOLENCE: ANIMALS AS DOUBLE VICTIMS OF THE 'ANIMAL PRODUCTION' INDUSTRY

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ABSTRACT

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Legal precedent and past scholarly research has clearly identified animal abuse as a social problem. This work has linked violence against humans to past violence against animals, but it has not looked at the determinants of animal abuse. Further, studies have identified a positive relationship between legitimized violence in slaughterhouses and community violence, but have not explored the effect of institutionalized commoditization of animal life in the animal production industry on animal abuse. The current study uses OLS regression to address both of these shortcomings, examining the relationship between the animal production industry and animal abuse rates at the state level and finding a significant positive relationship between the strength of the animal production industry and reported animal abuse. Using the theories of institutional social distance and moral dissonance, the paper suggests that this relationship exists because institutional norms about the value and treatment of production animals are transferred to society at large and result in elevated abuse rates.

Dedicated to Phyllis Whitley

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Introduction

In 2007 Michael Dwayne Vick, a professional quarterback in the National Football League pled guilty to federal felony charges for his involvement in an illegal interstate dog fighting ring. He served twenty-one months in prison with two months of home confinement, lost his position on the Atlanta Falcons American Football Team and subsequently filed for chapter eleven bankruptcy. High profile perpetrators like Vick refocus public attention on animal cruelty as a social problem, reminding us that it is both a crosscutting and ongoing issue. In addition to this particular incident, 2007 brought with it nearly 2,000 reported cases of animal cruelty with over 25,000 animals abused in the U.S. (petabuse.com).

The recognition of animal cruelty as a social problem is not a contemporary one. It first gained recognition in the U.S. in the Massachusetts Bay Colony in 1641, when the first legal code protecting domestic animals from cruelty was instituted (Francione 1996). The legal and communal conceptions of animal cruelty have changed little over the last 370 years, focusing almost exclusively on narrow acts of violence against domestic animals. Today, the Animal Welfare Act is the foundation of animal cruelty legislation but excludes rats, mice and birds used for laboratory experimentation, animals used for food and cold-blooded creatures. Though there is a basic federal structure, inconsistencies in states' laws and interpretations mean that an action defined as animal abuse and aggressively prosecuted in one state may be entirely legal in another (Gross 2006; Patterson-Kane & Piper 2009). For example, six states have enacted humane farming laws that outlaw gestation and/or veal crates, while the remaining 44 have not legislated on humane farming practices at all; in addition, each state identifies different species that are

subject to protection. These inconsistencies are representative of varied attitudes towards the value and utility of animal life.

The problem of animal cruelty is deeply embedded in how the animal "other" is constructed; how we define the social problem is related to a number of social factors including the "symptom" of collective group moral dissonance (Patterson-Kane & Piper 2009). As it relates to animals, group moral dissonance refers to the process of creating a social structure that encourages society to distance itself from animals when it faces a moral dilemma, opposing animal cruelty but supporting animal commoditization. This process is particularly acute when legal and commercial institutions reinforce moral dissonance by excluding particular animals from welfare considerations, such as those in the Animal Welfare Act and the animal production industry. Though essential to the U.S. economy and culture, the large-scale animal production industry relies heavily on definitions of welfare and cruelty that are in conflict with those applied to domestic animals.

With animal cruelty firmly established as a social problem, scholars have begun to explore its social ramifications. This research has established the link between human and animal violence, often focusing on well-cited studies connecting individual violence against humans to previous violence against animals. A less well-known but equally important literature has begun to explore the relationship between institutional norms of violence and community violence, focusing specifically on the legitimated violence against animals in slaughterhouses and its relationship to community violence against humans. This research suggests that institutionalized and legitimized violence has a spillover effect that encourages criminal violence by influencing a community's culture of violence. What has not been explored is the possible spillover effect from broader animal production, where violence may be less acute but where there is a

pronounced commoditization of animal life. Further there has been no examination of the relationship between industrial commoditization and animal abuse. The current study begins to address this broad issue by asking: Is the strength of the animal production industry in a state related to animal abuse levels? Further, is there reason to believe that the animal production industry perpetuates communal moral dissonance and institutionalized social distance that alters animal treatment norms in such a way as to influence rates of violence against animals?

In addition to examining the idea that commoditization influences communal norms that affect the prevalence of animal abuse, this study explores the determinants of animal abuse, something that is largely missing in extant work. This is a particularly important contribution because animal abuse is a pervasive social problem that is linked to other forms of violence and is both a reflection and potential indicator of pathologies in human society. Understanding what drives this type of violence is thus essential.

To explore this question, I build on theories in Eco-Marxism and Green Criminology to argue that in addition to the individual characteristics predicting animal cruelty, there are systemic, institutionally driven norms that encourage social distance between the human and animal other. Specifically, this paper relies on Patterson-Kane & Piper's (2009) theory of communal moral dissonance and Beirne's (2004) idea of institutionalized social distance, which suggests that institutions create norms about the treatment of animals that are transferred to society at large and influence violent behavior. I use OLS regression to test the relationship between the animal production industry, operationalized as animal production employment, and animal abuse rates at the state level. I find a positive correlation between these variables and argue that the animal production industry promotes a commoditization and objectification of animals that transfers to broader communities and results in increased animal abuse. I use state

level data from a number of sources and animal abuse data from petabuse.com to assess this relationship.

Animal Production

Much attention has been paid to social problems generated by large-scale animal production operations. However, many of these studies have centered on two primary concerns that exclude human and animal interactions: environmental degradation (Bradford et al. 2008; Fiala 2008; Koneswaran and Nierenberg 2008) and economic impacts, such as community costs and the loss of small family farms (Kim, Goldsmith and Thomas 2010; Kim, Goldsmith and Thomas 2009; Isakson and Ecker 2008). While useful, these studies do not address how the animal production industry's domination or construction of animals as commodities of production may spill into the surrounding communities.

To the extent that existing work has addressed the human-animal relationship, it has done so through case studies of the psychological effects of small-scale animal production on workers (Arluke 1990; 1993; Birke 1994; Irvine 2004; Lynch 1988; Philips 1994). These studies have demonstrated that workers attempt to manage their emotions by attributing limited anthropomorphic qualities to the animals they are working with, decreasing their ability to connect to their animals as a means of emotional self-preservation. Engaging in the required work means that employees must emotionally disconnect from the animals they are working with (Remy 2003; Smith 2002). Interestingly, this type of self-preservation has also been identified in social organizations like 4-H, where children who are engaged in animal production will eventually sell their animals for slaughter (Ellis and Irvine 2010). Arlie Russell Hochschild (1983; 1979) defines this type of emotional remoteness in work as emotional labor. At all scales

of production, animal production employees use emotional labor when they choose to stop viewing animals as individuals, instead viewing them as commodities of production. This occurs either as a form of self-preservation or in an effort to uphold work place norms. Building from this concept, Arluke (1994b) identifies emotional management in animal production as the caring-killing paradox, where workers are forced to care for and then kill, or recognize the killing, of production animals. Wilkie (2005; 2010) identified the dialectic existence of caring for and then killing (or being aware of the future slaughter) of the animal and the resulting communication and emotional attachment in livestock production. Scholars have documented similar emotional management processes in medical students using animals for experimentation (Arluke & Hafferty 1996), grade school students dissecting animals (Solot & Arluke 1997) and animal shelter workers euthanizing animals (Arluke 2006; Reeve, Rogelberg, Spitzmuller & DiGiacomo 2006; Arluke 1994b). Kellert (1980) and Kellert and Berry (1980) argue that farmers view animal production as commoditization.

The existing literature has made tremendous headway in identifying and understanding the ways in which the animal production industry influences individual emotional processes; what is missing, is a systemic, institutional approach that examines how the animal production industry influences broader animal treatment patterns. This paper begins to fill this gap, combining ideas from theories in Eco-Marxism and Green Criminology to argue that higher rates of animal production employment increase reported animal abuse at the state level.

Eco-Marxism

Ecological Marxism unites the concepts of culture and nature with the traditional Marxist

notions of labor and production and contends that capitalism separates nature and humanity, where "the commoditization of land and labor, isolation of physical/biological objects from their environment and…individual labor market, and the idea of individual workers as 'factors of production,'" (O'Connor 1998:22) takes shape. The inclusion of the natural environment in the conceptual framework of production and commoditization allows a theoretical basis for understanding how institutions cause environmental degradation, or in the case of animal production, how they institute social norms that encourage people to commoditize animals, whether within or external to the animal production industry. Eco-Marxists argue that within capitalist societies social problems, particularly environmental ones, are only addressed when there is an economic incentive to do so, either because the problem is so great that it creates economic challenges or because addressing the issue will increase profit margins. New technologies are often developed to address current issues, but are implemented without a full understanding of potential long-term consequences. For example, in animal production the desire for cheaper animal protein drove producers to decrease the amount of land used for production, which in turn prompted confined animal feeding operations (CAFO). Although these facilities decreased production costs and land use, they have generated a host of social problems such as concentrated pollution and the collapse of small-scale farming. In addition to these social problems, I contend that large-scale animal production has had an unforeseen systemic influence on animal treatment patterns by promoting a culture of animal commoditization.

While traditional Marxism recognizes that production employees are concurrently engaged in two relationships, it ignores the environmental component; Eco-Marxism addresses this shortcoming in the following ways. First, Marxist thought argues that there is a technical relationship between the individual and the means of production. Ecological Marxism adheres to

this assumption, but proposes that this connection is based in the successful manipulation of nature into a commodity of production. For animal production employees, this is the mechanized engagement of caring for animals that they consider units of production. The psychological dimensions of the human and animal production interaction discussed previously are nested within this first concept; the institutional relationship proposed in this paper is nested within the second. This second concept argues that production workers are engaged in a relationship with institutions, it is the institutions that then regulate the technical relationship described above. This is a multi-scale relationship where the individual is not only nested within the production institution, but is also a member of a community within a state, nation and global network. As production increases and the number of individuals influenced by the institution's norms of production swells, so too does the possibility that institutional commoditization norms will be transferred to the surrounding community.

Fitzgerald, Kalof and Dietz (2009) provide scholarly evidence of this phenomenon in their study of the correlation between slaughterhouses and community violence. Examining the aggregate level, they find that as slaughterhouse employment increases so too do arrest rates, violent crimes and sexual offences in the surrounding communities. They argue that this finding is evidence that the institutionalized norms around violence developed within the slaughterhouse industry are transferred to the community at large and result in violent crime. Although slaughterhouses are considered animal manufacturing, not animal production, this study provides foundational insight into how institutional values and norms transfer into local communities. I build on the evidence that proximity to slaughterhouses increases human on human violence to argue that the animal production industry promotes similar institutional norms that influence the way that animals outside of the production industry, such as domestic animals, are treated.

Green Criminology

The notion that animal production is correlated with animal abuse relies upon the idea described above that the institutional norm of social distance between animals and humans can be transmitted to society at large; but, this idea is insufficient because we must also understand the ways in which institutional norms facilitate criminal behavior. To do this, we turn to work in Green Criminology. Green Criminology (Lynch 1990) was established to address "crimes committed against humanity through environmental destruction" (South and Beirne 2007:166). This branch of criminology attempts to overcome the speciesist tendencies of mainstream criminology by paying serious attention to harm against animals and recognizing the interconnection of species (Beirne 1999; Cazaux 1999). Part of the interspecies research examines the connection between human and animal violence; scholars doing this type of work argue that we should think of violence as "linked"[1], suggesting that "… most violence is linked, and what is particular to these claimed links is that they encompass acts of violence toward human and non-human animals" (Patterson-Kane & Piper 2009:590). For example, scholars have identified abuse as a learned behavior, where exposure to family violence- including animal abuse in the home- increases the likelihood that a child or adolescent will exhibit violent behavior (e.g, Thomas and Gullone 2006; Baldry 2003; Flynn 1999; Raupp 1999; Ascione 1998; Kellert & Felthous 1985; Ressler, Burgess & Douglas 1988). Additionally, numerous studies have documented the connection between torturing and killing small animals and future violent behavior (e.g., Peterson & Farrington 2007; Simmons & Lehmann 2007; Tallichet & Singer

[1] Growing theoretical work addressing animal abuse and family violence has been articulated as "link(s)" (e.g., The American Human Society: Understanding The Link Between Animal Abuse and Family Violence (Anonymous 2005))

2006; Duncan, Thomas and Miller 2005; Charlisle-Frank, Frank & Nielsen 2004; Faver & Strand 2003; Wright & Hensley 2003; Flynn 2000a, 2000b; Flynn 1999; Arkow 1996; Felthous 1980) (e.g., Gupta 2008; Fitzgerald 2005; Flynn 2000a, 2000b; Ascione 1998; Ascione et al. 1997).

A number of scholars have challenged the idea that it is simply violent behavior that is linked, arguing that the behavior may actually result from socialized norms developed within institutions and transferred to communities (Arluke 2006; Beirne 2004; Arluke 2002; Arluke, Levin, Luke and Ascione 1999; Arluke and Lockwood; 1997). In the case of violence against animals, Beirne (2004) explains that "whenever human-animal relationships are marked by authority and power, and thus by institutionalized social distance, there is an aggravated possibility of extra-institutional violence" (p.54). Because of this, Bierne and others argue that institutions employing procedures or practices that harm animals for socially acceptable reasons should be studied (Beirne 2002; 2004; 2007, Beirne & South 2007; Cazaux 1999; South & Beirne 2006; Paterson-Kane and Piper 2009). The current study takes up this call by testing the relationship between animal production and animal abuse. Although animal abuse is a growing field of scholarly inquiry (e.g., Patterson-Kane & Piper 2009; Goodney-Lea 2008; Hackett & Uprichard 2007; Piper 2003), there are gaps in the literature addressing how the norms of large-scale animal production institutions reduce animals to commodities of production and how these institutional norms may spill into the surrounding communities.

Data and Methods

Sample

The sample used to test the relationship between employment in the animal production industry and reported animals abused includes 48 states with 56,001 reported animals abused.

Data come from a combination of secondary sources, with all data gathered in 2009 except for education, which was gathered in 2008, and the percent urban, which was gathered in 2000. Variables come from the U.S. Census Bureau Decennial Census, U.S. Census Bureau American Community Survey (ACS), Bureau of Labor Statistics and Pet.Abuse.com.

Dependent Variable

The dependent variable, *reported animals abused based on court documentation or verifiable media reference,* from here on identified as *reported animals abused,* comes from Pet-Abuse.Com and represents animal abuse cases verified by the organization for each state in the year 2009. Pet-Abuse.Com was founded in 2001 as an animal protection agency dedicated to the research and tracking of criminal animal abuse and houses the largest known global animal abuse database. The website allows anyone to submit an animal abuse case; however, court or media documentation must accompany the file for verification before the case is included in the database. Cases are identified in one of four ways: alleged, not charged, convicted, and open. The first three categories are self-explanatory; the forth identifies a case as 'open' if an animal has been abused but the responsible party cannot be identified or legally charged. Cases of abuse include: beating, bestiality, burning, choking/strangulation/suffocation, drowning, fighting, hanging, hoarding, kicking/stomping, mutilation/torture, neglect/abandonment, poisoning, shooting, stabbing, theft, throwing, unlawful trade/smuggling, unlawful hunting/trapping, and vehicular[2]. The site documents not only "pet" abuse, but also wild and agriculture animal violations, though the majority of cases involve domestic animals. All cases on the database

[2] Vehicular is used to identify incidents where animals have been intentionally dragged behind vehicles or where evidence indicates that the animal was intentionally struck or run-over with a vehicle, not accidents in which an animal was hit unintentionally

include identifiable information such as case documentation, animal type, abuse classification and geographic location.

All reported animal abuse cases from 2009 were reviewed and coded to verify usability. A total of 56,001 animals were reported abused in 2009. Reporting mechanisms and laws against animal cruelty vary by state and are typically isolated to 'domestic' animals. However, this analysis recognizes all reported animals abused, including both domestic and non-domestic species. Including all species not only reduces bias due to state law differences, but it is also essential in understanding how the animal production industry's domination or construction of animals as commodities of production may spill into the surrounding communities. Abuse cases in this study include violence against: dogs, cats, birds, chickens, cows, deer, goats, horses, marine animals, opossums, farm animals, pigs, rabbits, raccoons, reptiles, rodents, sheep and squirrels. This data source has demonstrated reliability and has been used in other scholarly studies (Gerbasi 2004).

The number of reported animals abused per 100,000 people was calculated using state population statistics from the U.S. Census Bureau for each of the 48 states included in the dataset. This variable is treated as continuous and is log transformed to satisfy OLS regression assumptions.

Independent Variable

The primary independent variable is *employment in animal production* (per 100K), which operationalizes the strength of the animal production industry in each state. Establishments are classified based on the North American Industry Classification System (NAICS). The animal

production industry is a subsector of sector 11-agriculture, forestry, fishing and hunting. This subsector includes:

> …establishments, such as ranches, farms and feedlots, primarily engaged in raising animals, producing animal products and fattening animals. Industries have been created taking into account input factors such as suitable grazing or pasture land, specialized buildings, type of equipment, and the amount and type of labor required. An establishment is classified to a NAICS industry or a national level industry in this subsector provided that fifty percent or more of the establishment's agricultural production consists of the products of that industry, (Bureau of Labor Statistics).

Employment in animal production (per 100,000 workers) was determined by taking the total number of individuals employed in the animal production industry in a state and dividing it by the number of persons employed in all industries (measured in 100,000s). To adhere to OLS assumptions and reduce skew, employment in animal production (per 100,000) is log-transformed.

In addition to the primary independent variable, I include a number of theoretically grounded controls, including community violence indicators. There is a sizable literature on community violence that dates to the 1940s. In 1994 the National Research Council panel on *Understanding and Preventing Violence* reviewed this literature to identify the robust causal indicators of community violence. Many of the established indicators are reminiscent of Shaw and McKay's (1942; 1969) seminal work on the community characteristics associated with delinquency. Factors connected to higher rates of violence fall into three main categories: economic indicators like income (Boney-McCoy and Finklerher 1995; Shaw and McKay 1942), unemployment and poverty (Smith and Jarjowa 1988; Cantor & Land 1985; Shaw and McKay 1969); social disorganization and population stability indicators including residential mobility (Shaw and McKay 1942; 1969) and population density (Smith and Jarjowa 1988); and individual demographic characteristics like age, gender, marital status and education (Bensing and Shroeder

1960). What is largely missing from this analysis are institutional characteristics like industry employment. Although some work has looked at the correlation between slaughterhouses and meat packing facilities and community violence (Broadway 2000, 2007; Broadway & Stull 2006; Eisnitz 1997; Markus 2005; Schlosser 2005; Stull & Broadway 2004), in general there is a dearth of literature assessing the correlation between industry and community violence.

I include indicators from the above categories in my models, but it must be noted that these indicators have been identified based on human violence; there has been limited study of the determinants of violence against animals. As was discussed above, Fitzgerald, Kalof and Dietz (2009) identified the connection between slaughterhouses and human violence, supporting the institutional transmission argument; what is now needed is an examination of the animal production industry and its potential influence on violence against animals.

Following the literature on predictors of community violence I include poverty rate, median household income, education, unemployment, population change, and urban residence[3] as controls. Assuming that the factors associated with community violence have similar causal relationships with animal abuse, I expect that as the poverty rate, unemployment rate, population change and urban residents increase, so will reported animals abused.

The 2009 *poverty rate* for each state was obtained from the U.S. Census Bureau (ACS). 2009 *unemployment* statistics were gathered from the Bureau of Labor Statistics. This is a percentage rate based on the population eligible for employment. *Population change* comes from the U.S. Census Bureau and is the change in population from 2000-2009. Percent of *urban residents* is a 2000 statistic from the U.S. Census Bureau Decennial Census. In line with Green Criminology, which asserts that the full social system must be taken into account, I also include

variables that measure the criminal consequences of animal abuse. *Maximum fine* and *maximum jail* time for animal abuse in 2009 are thus included as predictive indicators in this analysis. I expect a negative relationship between animals abused and the maximum fines and jail time for animal abuse. Each state's maximum penalties were gathered from Pet-Abuse.Com, which provides a number of legal statistics related to animal abuse.

Because the dependent variable is continuous, and for ease of presentation, I use ordinary least square regression[4]. Data was analyzed using Stata. A Dfbeta test for outliers and influential cases showed eleven states that could be influencing the data. Based on these influence levels, states were removed one by one to assess their influence on the statistical significance of the variables; all models excluding cases were then compared to the full model. No significant changes were observed by excluding cases; because of this and because the larger dataset provides a more complete picture of the U.S., the full dataset was used.

Results

Table 1 presents descriptive statistics for the sample. All statistics represent variables prior to transformation. For the sake of brevity, I discuss only the four variables that have a direct barring on state-level relationships with animals, r*eported animals abused, animal production employment, maximum fine and maximum jail time*. The independent variable, *reported animals abused* has a large range from .15 animals to 129.10 animals abused per 100,000 people. Nevada has the lowest rate of reported animals abused, while Texas has the

[4] Because the dependent variable, *reported animals abused*, could also be considered a count variable- a random variable indicating the number of times that an event has occurred, a negative binomial model was also considered. However the negative binomial's assumption of the independence of events could not be satisfied theoretically.

highest. The primary independent variable, animal production employment, varies greatly, ranging from a low of 10.13 to a high of 1,437.08 individuals employed in animal production per 100,000 workers. As mentioned previously and in line with Green Criminology, criminal consequences are included because they highlight differences in how states view the utility and value of animals, placing a different monetary and penal value on their harm. These differences are highlighted in the range of maximum fines for animal abuse among states, which vary from a low of $1,000 in Arkansas, Mississippi, North Carolina, and South Dakota to a high of $500,000 in Colorado; similarly maximum jail time varies from a low of three months in North Carolina and Mississippi to a high of ten years in Louisiana and Alabama.

TABLE 1. Descriptive Statistics for the Sample (n=48)

Variable	Mean	SD	Range
Animals abused (per 100K)	12.29	22.09	.15-129.10
Employment in AP (per 100K)	252.71	261.68	10.13-1,437.08
Poverty rate (%)	13.91	3.04	8.5-21.90
Unemployment (%)	8.23	2.27	.85-13.35
Pop density change 2000-09(per sq. mi.)	9.01	7.31	.31-37.27
Urban (%)	71.42	14.93	38.18-94.44
Education (BA %)	26.87	4.84	17.1-38.1
Median household income ($)	49,507.17	7,511.61	35,078-64,851
Maximum fine($)	24,604.17	75,074.64	1,000-500,000
Maximum jail time (months)	44.625	28.90	3-120

AP, animal production
All descriptive statistics represent variables prior to transformations necessary to meet OLS assumptions

Table 2 presents bivariate correlation coefficients and their significance levels. The correlation between animal production employment and reported animal abuse is .4 and demonstrates that there is a positive significant correlation between animal production employment and reported animals abused. Figure 1 shows this general pattern, highlighting the positive relationship between employment in animal production and animals abused.

TABLE 2. Bivariate Correlations (n=48)

Variables	1	2	3	4	5	6	7	8	9	10
1. Animals abused	1.00									
2. Employment in AP	0.40*	1.00								
3. Poverty rate	0.31*	0.17	1.00							
4. Unemployment	-0.14	-0.23	0.21	1.00						
5. Population change	0.08	0.14	0.07	0.08	1.00					
6. Urban	-0.05	-0.38*	-0.34*	0.26	0.30*	1.00				
7. Med. house Inc	-0.26	-0.32*	-0.88*	-0.10	0.00	0.55	1.00			
8. Education	-0.19	-0.27	-0.74*	-0.16	-0.03	0.49*	0.83*	1.00		
9. Maximum jail	-0.16	-0.32*	-0.13	0.12	-0.21	-0.01	0.21	0.10	1.00	
7. Maximum fine	0.00	0.00	-0.13	0.12	0.25	0.38*	0.22	0.18	0.39	1.00

*$p<0.05$

Figure 1: Animal Production Employment and Animal Abuse

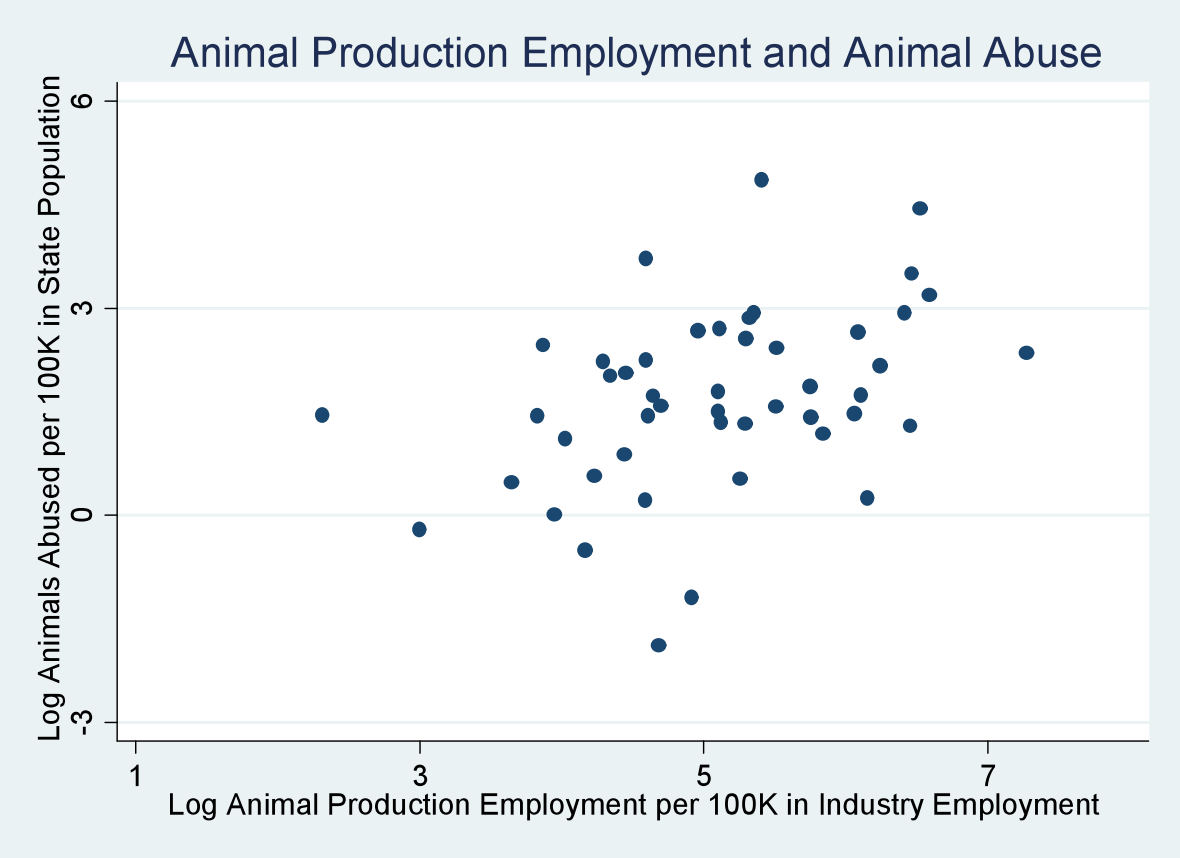

Table 3 reports the results of the OLS regression, which confirms that the positive relationship between reported animals abused and animal production employment is significant when controlling for other theoretically driven explanatory factors. The first column of each model provides the unstandardized coefficients and robust standard errors, which were used to correct for multicolinearity. The second column provides the standardized coefficients, which allow us to assess the impact of each independent variable relative to the other independent variables.

Model 1 includes the primary independent variable, employment in animal production, as well as the indicators previously indentified as predictive of community violence. Using

standardized coefficients, employment in animal production is positive and significant, with an increase of one logged animal production employee per 100,000 workers resulting in an increase of .51 logged reported animals abused per 100,000 people. Counter to expectations, the only economic variable that is significant is the poverty rate, with a 1% increase in the state poverty rate accounting for a .594 increase in reported animals abused.

Previous literature identifies a correlation between violence and population dynamics with less population stability being correlated to higher rates of violent crime. In line with these past studies, states that have less stable populations are more likely to have more reports of animals abused. Urban environments, where there are more interpersonal interactions, have higher rates of violence between humans, but not necessarily between humans and other species. To assess these dynamics, the percent of population change from 2000 to 2009 and the percent urban were added to the model. An increase in the percent of a state's population residing in urban areas also has a positive relationship with animals abused. This is consistent with expectations. State unemployment rates and change in population were not significant in this model. Including community violence indicators, the model accounts for 26.7% of variance in reported animals abused.

Model 2 builds on Model 1 by controlling for the maximum state fines and maximum jail time for reported animal abuse. Although these additional predictors do not have significance in the model, theory in Green Criminology suggests that legal ramifications should be taken into account. Even with the additional predictors, animal production employment remains positive and significant in Model 2. Because the two additional predictors are non-significant, the adjusted R-squared shows that Model 2 explains 23.9% of the variance in reported animals abused. This non-finding could have greater state ramifications given the links between violence

against animals and human on human violence. This additional predictor should be investigated further.

Model 3 includes regional variation in the model. All previous indicators are included. To account for regional variation all regions have been compared to the reference category (Midwest). This model indicates that there is no difference between the Midwest and other regions. Model 3 explains 22.3% of variance in reported animals abused.

TABLE 3. OLS Regressions Predicting (Log) State Reported Animal Abuse with Standardized β and Robust Standard Errors (n=48)

	Model 1		Model 2		Model 3	
Variables	b/rse	β	b/rse	β	b/rse	β
Employment in AP (log)	.610**	.510**	.729**	.556**	.681*	.519*
	(.180)		(.213)		(.299)	
Poverty rate	.256*	.594*	.252	.583	.186	.430
	(.153)		(.163)		(.164)	
Unemployment	-.101	-.176	-.103	-.179	-.088	-.152
	(.080)		(.083)		(.075)	
Population change	-.039	-.220	-.035	-.197	-.061	-.338
	(.032)		(.037)		(.047)	
Urban	.039*	.444*	.045*	.508*	.042*	.472*
	(.000)		(.019)		(.018)	
Median Household Inc.	.001	.146	.000	.107	.000	-.018
	(.069)		.000		(.000)	
Education	.007	.024	.011	.040	.041	.150
	(.069)		(.070)		(.075)	
Maximum fine (log)			-.118	-.113	-.124	-.119
			(.164)		(.187)	
Maximum jail time			.004	.096	.005	.112
			(.008)		(.009)	
South					.482	.175
					(.720)	
West					.634	.212
					(.654)	
Northeast					-.560	-.118
					(.837)	
Constant	-8.303		-7.89		-6.340	
R^2	0.377		0.385		0.421	
Adjusted R^2	0.267		0.239		0.223	

*p<0.05; **p<0.01; ***p<0.001.
Midwest is the reference category for region

Discussion and Conclusions

Past literature has begun to establish the link between animal abuse and human social systems. This study builds on extent work by identifying the relationship between the strength of the animal production industry and animal abuse at the state level. These results support the hypothesis that employment in the animal production industry has a significant, positive relationship on the number of reported animals abused in a state, so that as state employment in the animal production industry increases, so too do the number of reported animals abused. Indeed, this relationship seems to suggest that there are systemic determinants of animal abuse and offers indirect support for the theories of communal moral dissonance and institutionalized social distance, though it does not test them directly.

The test clearly identifies a pattern in reported animal abuse that varies according to the strength of the animal production industry; however, it cannot explain why this relationship exists. For this, we turn to our theoretical foundations, which suggest that institutionalized attitudes towards animals can transfer into societal behavior. In this case, the institutionalized norms about the treatment of animals and the commoditization of animal life required by the animal production industry is likely to spill into state culture and communal attitudes towards animals more broadly, resulting in higher levels of animal abuse. The adoption of these attitudes would be facilitated by moral dissonance, which allows people to embrace behaviors they otherwise believe to be morally devoid- in this case behaviors that are considered abuse towards domestic animals but are acceptable for livestock- because they see the utility of the action**.**

Though this study is an important initial step in testing the relationship between animal production strength and animal abuse, it has a number of limitations. One of the primary limitations is that data is available only on reported cases that do not provide a full picture of

animal abuse in a state. Reporting is influenced by three factors identified in past work on human on human violence as points of caution: (1) sampling bias (2) reliability of reporting and (3) the definition of abuse (Patterson-Kane & Piper 2009).

Like other forms of abuse, animal cruelty is grossly underreported, a problem that is amplified by animals' inability to self-report. In addition, because of the Animal Welfare Act's species exclusions discussed previously, cruelty against many types of animals is not considered illegal and thus is not subject to reporting. Given the magnitude of this exclusion, the animal abuse numbers presented by Pet-Abuse.Com are conservative at best. Further, those cases that are reported may be biased in a variety of untestable ways. For example, severe cases may be reported more frequently because they may be more likely to be noticed; similarly, there may be cultural differences that encourage some communities to be more vigilant in their reporting of animal abuse. This latter point brings up a possible alternative explanation for the findings in this paper: states with increased animal production may actually be more aware of animal welfare and thus *report* animal cruelty at higher rates, though the actual occurrence of animal abuse may not differ from that of other states. Although this is a possible explanation, past research on slaughterhouses and community violence and the work done around moral dissonance and institutional distance suggest that this is an unlikely explanation.

In addition to the legal ambiguities discussed previously, reporting relies on definitions of animal abuse that vary across states. This variation may create a reporting bias. For example, Maine recently enacted humane farming legislation that will outlaw veal crates beginning this year. Because of this legislation, the use of veal crates becomes a form of animal cruelty in Maine, though it is an acceptable practice without cruelty connotations in the 45 states that have not passed the legislation. Because of these challenges- sampling bias, reporting accuracy and

the definition of abuse- I report my findings with some caution. However, these limitations are inherent in this type of research, since the only way to study animal abuse is through reported cases. I thus report my findings because they speak to an important social problem that has largely been ignored by the scholarly community. The data limitations suggest the need for further inquiry and more detailed studies of the prevalence of animal abuse.

In addition to the data limitations, this study speaks only to aggregate level trends, it cannot identify what is happening at the individual level. For example, I cannot identify whether there is a direct correlation between working in the animal production industry and engaging in animal abuse, nor can I identify the individual level cognitive processing that may transfer institutional norms into individual behavior. Finally, the study is limited by the state-level analysis in that it cannot identify spatial trends associated with proximity to animal production facilities.

What the study does is provide evidence that the strength of the animal production industry is related to reported animal abuse and provides insight into how institutional animal norms may be transferred to society at large. Further, it provides an indirect test of the theories of moral dissonance and institutional distance. Future research should more thoroughly examine the moral dissonance and institutional distance created in animal production, paying particular attention to the institutional norms developed in the industry and how they inform communal attitudes about animals. In addition, it should further examine the social drivers of animal abuse over time, and test public familiarity with animal cruelty laws as well as examining the attitudes associated with these laws.

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