

May 27, 2021

The Honorable Thomas J. Vilsack
Secretary
U.S. Department of Agriculture
1400 Independence Avenue, SW
Washington, D.C. 20250



Dear Secretary Vilsack:

As the nation and U.S. hog farmers continue to recover from the devastating toll of COVID 19, we are writing regarding a rapidly approaching challenge addressed in the attached economic report by Dr. Barry Goodwin, an economist with N.C. State University.

Proposition 12, a California voter initiative, will take effect at the end of this year. It sets highly prescriptive standards for breeding and housing sows and bans the sale of uncooked pork in California that doesn't comply. Since California has very little hog production within its borders, the burden of Proposition 12's compliance will be imposed almost entirely on out-of-state producers. According to a recent Rabobank analysis (also attached), less than four percent of current pork production can comply with the law. This problem is exacerbated by the lack of regulations from California. Despite a mandate in Proposition 12 that final regulations be published by September 1, 2019, California is only just this week expected to propose regulations.

Proposition 12 violates the U.S. Constitution's dormant commerce clause. NPPC, along with the American Farm Bureau Federation, is currently in litigation before the 9th Circuit Court of Appeals challenging this measure. However, a final decision in that case is unlikely to come before Proposition 12 is implemented at the end of the year. The implementation of Proposition 12 will cause irreparable harm to U.S. hog farms and the entire pork supply chain. The unfortunate irony is that Proposition 12 does absolutely nothing to improve animal health or food safety, and it jeopardizes on farm worker well-being. Sow housing practices employed by the industry are based on pig behavior, supported by the American Veterinary Medical Association and designed to keep sows healthy and safe.

As Dr. Goodwin's report highlights, the costs to producers will be catastrophic. Rabobank estimates that California, which consumes 15 percent of the U.S. pork supply, will see supplies cut by more than 50 percent. Much of the pork that was previously destined for California will likely be diverted to other states, causing the value of pork in other states to crash. So, while California consumers will see astronomical increases in the price of pork, pork markets outside of California will be forced to absorb a wave of surplus pork and crashing values for market hogs from non-compliant sows.

At the same time, hog farmers are going to be forced to incur the costs of extensive renovations or the construction of new facilities – currently estimated at \$3,500 or more per sow. Hog farmers will also face losses in productivity as they move to new production and management systems. This lost productivity will be especially acute in the short run, as new systems are

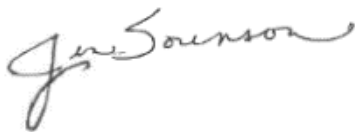
mastered. The new production systems will lead to increased stress on breeding sows, which in turn will lead to lower fertility and embryo survival rates. The industry will be required to take on new identity and market segmentation procedures. This will involve considerable changes in the logistics of pork product distribution. These costs will have a more severe impact on smaller, independent operations. These operations, whether on the farm or processing side, tend to be higher cost and have lower profit margins. Smaller operations also have less access to the credit needed to finance renovations and new construction. Thus, Proposition 12 will increase the number of smaller hog operations going out of business. According to Dr. Goodwin, the pork industry will become more concentrated with fewer but bigger farm operations. He concludes that the stresses placed on the entire production and marketing chain will favor larger processors, thereby leading to ever-increasing consolidation and concentration of the industry.

The challenges U.S. hog farmers face from Proposition 12 are daunting and come on top of the ravages of trade retaliation in 2018-19 and the shock of COVID in 2020. Hog farmers are also faced in 2021 with a federal district court decision which, if left unchecked, will result in a loss of 2.5 percent of national pork harvest capacity -- handing pork packers more market power at the expenses of hog farmers, especially smaller producers.

NPPC requests the immediate assistance of USDA and the Biden administration to help hog farmers address the harm caused by Proposition 12. Hog farmers need financial assistance to retrofit existing farm operations and to address the shock of declining hog values expected when Proposition 12 is fully implemented.

We request an opportunity to discuss with you both the implications of Proposition 12, as laid out in Dr. Goodwin's analysis and the Rabobank Report, as well as possible avenues for USDA to assist the industry.

Sincerely,



Jen Sorenson
President
National Pork Producers Council

The Global Voice of the U.S. Pork Industry

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California's Proposition 12 and its Impacts on the Pork Industry¹

May 13, 2021

Barry K. Goodwin, Ph.D.

Executive Summary

This report provides a high-level overview of issues surrounding California's Proposition 12, which is set to take effect on January 1, 2022. Among other things, the proposition imposes new space requirements for breeding sows. All pork sold in California, with few exceptions, must be sourced from the offspring of sows that have been provided at least 24 square feet of usable floor space for each sow, regardless of where the hogs are produced. Because California produces only a small amount of the pork sold there, the proposition will impose space requirements on hog producers across the nation. The costs of these restrictions are widespread and extensive. Farmers face the costs of renovation or the construction of new facilities. Farmers will also face losses in productivity as they move to new production and management systems. This lost productivity will be especially acute in the short run, as the new systems are mastered. The new production systems will lead to increased stress on breeding sows, which in turn will lead to lower fertility and embryo survival rates. The industry must maintain identity preservation and market segmentations. This will involve considerable changes in the logistics of pork product distribution. These costs will have a more severe impact on smaller, independent operations. These operations tend to be less efficient and have lower profit margins. Smaller operations also have less access to the credit needed to finance renovations and new construction. Thus, one important outcome of Proposition 12 will be an increase in the exit of smaller hog operations. The pork industry will become more concentrated with fewer but bigger farm operations. The stresses placed upon the entire production and marketing chain will also favor larger processors, thereby leading to ever-increasing consolidation and concentration of the industry.

¹ Research report furnished to the National Pork Producers Council. The views and opinions expressed here are solely those of the author and do not represent views or opinions of any other organization, regardless of affiliation.

California's Proposition 12 and its Impacts on the Pork Industry

Proposition 12, the "Prevention of Cruelty to Farm Animals" Act, was approved by California voters in 2018 and its provisions for hogs are set to become effective on January 1, 2022. The Act proposes to "prevent animal cruelty by phasing out extreme methods of farm animal confinement, which also threaten the health and safety of California consumers and increase the risk of foodborne illness and associated negative fiscal impacts on the State of California." The new regulations mandate that all pork sold in California, with limited exceptions, must be sourced from the offspring of sows that have been provided at least 24 square feet of usable floor space for each sow. Enclosures must be sufficiently large enough to allow sows to turn around without touching the sides of the enclosure. The regulations apply to any breeding pigs over 6 months of age and to all whole pork meat marketed in the state, regardless of where it was produced. The restrictions given in draft versions of regulations exclude comminuted products containing more than just pork and pork used in processed food products.

A limited number of exemptions apply to Proposition 12. The restrictions do not apply for animals involved in transportation, research, during individual treatments, and at slaughter. The space requirements are also waived for 5 days prior to the expected farrowing date, while sows are nursing, and temporarily during breeding activities. The breeding activity exemption is limited to a maximum of 6 hours per day, not to exceed 24 total hours over a 30-day period. The limited nature of these exemptions has important implications for breeding, farrowing, and nursing efficiency. These restrictions will decrease the effectiveness of insemination services and will

diminish the overall health of recently farrowed piglets. In a presumed effort to improve the welfare of sows, animals will be intermingled to a much greater degree than is currently the practice. As is true of most livestock animals, efforts to establish social dominance when put into groups will lead to increased morbidity and mortality.

At present, California has a population of 39.5 million people, or about 12% of the US population. In 2020, California had a hog inventory of about 99,000 head. In comparison, the US had a hog inventory of 77.3 million head, implying that California only has about 0.12% of the nation's total hog and pig inventory.² California represents a growing market, with its population expanding by 6.1% between 2010 and 2019.

The consumption of pork products is not homogeneous across different ethnic groups. Figure 1 illustrates total expenditures on pork products by different demographic groups in the US. Consumption is especially high for Hispanic and Asian ethnic groups. California's population is diverse and ever evolving, with Hispanics or Latinos accounting for 39.4% of the population and Asians accounting for 15.5% of the population.³ These factors reinforce the importance of California as a destination market for pork products produced across the US. Nearly all pork consumed in California is produced outside of the state.

At present, it is estimated that only about 4% of existing US hog farm facilities currently conform to the Proposition 12 space requirements.⁴ The industry standard sow housing stalls

² Statistics taken from the USDA's National Agricultural Statistics Service quick stats database.

³ Population statistics taken from the US Department of Commerce's Census Bureau.

⁴ See McCracken, C. "US Pork Supply Chain Locked in Limbo as Producers Await Legal Ruling," Rabobank Research, February 2021.

currently average 18-20 square feet. If Proposition 12 withstands ongoing court challenges, the US pork industry will be subject to significant disruptions and adjustments, requiring extensive renovation or new construction to provide facilities that conform to the proposition's requirements.

The North American Meat Institute (NAMI) has filed a petition challenging the constitutionality of the proposition. The National Pork Producers Council, working jointly with the American Farm Bureau Federation, has also filed suit challenging the constitutionality of the proposition.⁵ These challenges are in part based upon presumed violations of the Commerce Clause of the US Constitution, where it is argued that California's regulations have a negative impact on the interstate commerce of other states. The regulations will also create obstructions to competition from pork producers outside of California. The petition has been supported by 20 states, who have filed amicus curiae briefs in support of the litigation. On February 26, NAMI filed a petition with the US Supreme Court to overturn Proposition 12.

California's Proposition 2, which expanded space requirements for egg-laying hens, withstood similar legal challenges. As Proposition 2 demonstrated, these propositions most certainly have impacts on interstate trade and the methods of production in other states. The prominence of cage-free egg production rose substantially across the US as egg producers undertook structural changes to accommodate the space requirements.

The objective of this article is to review the impacts and estimate the costs associated with implementation of Proposition 12. Many of these costs, such as the costs associated with renovation

⁵ See North American Meat Institute v. Becerra (October 4, 2019) and National Pork Producers Council v. Ross (December 5, 2019).

of existing facilities and construction of new facilities, are apparent. However, other costs that will affect the pork industry are less obvious. For example, I have noted the potential impacts that the new space requirements will have on the efficiency of breeding and the physical well-being of sows. Many of these costs have been considered in existing evaluations of Proposition 12.

However, other subtle cost changes have received less attention in the existing studies of Proposition 12. To the extent that the Proposition creates a bifurcation of the market with pork products segmented into those that are compliant and those that are not, the entire marketing chain from processors to retailers will be tasked with preserving the identity of pork products and effectively segmenting the market to identify those products that are compliant from those that are not. Past efforts at preserving the identity of differentiated basic commodities such as corn and rice have proven to be both expensive and difficult to maintain. These costs have both short run and long run implications. If the proposition withstands ongoing legal challenges, a likely outcome in the long run will be widespread adoption of production practices that conform to Proposition 12. Because such changes necessarily apply to long-lived assets in the form of production facilities, full adjustment of the industry to Proposition 12 is likely to take several years.

The Costs of Proposition 12

Proposition 12 will bring about fundamental changes in the structure of the US pork industry. Although ongoing litigation is attempting to overturn the restrictions imposed by the proposition, consumers in some states, with California being a leading example, are becoming increasingly sensitive to animal welfare issues. However, consumers may not fully comprehend the

nature of livestock production systems or the likely impacts of legislated actions meant to improve animal welfare.⁶ As existing facilities are replaced as a normal course of business, it is likely that new designs that conform to the types of animal welfare considerations reflected in Proposition 12 will be implemented, even if the proposition is overturned.

A major source of the costs of adjustment to such regulatory changes relates to the uncertainty that these changes introduce to the industry. We are months away from the intended implementation of Proposition 12 and many details regarding implementation remain uncertain. Uncertainty, by its very nature, introduces tangible costs to any business operation. Alongside efforts to have the restrictions overturned are several ongoing attempts to delay implementation of the space requirements. Many farmers and much of the industry are hesitant to commit to such fundamental changes if the likelihood and timing of the space requirements are unclear.

Renovation and New Construction Costs

Renovation and new construction represent major irreversible commitments requiring very significant investments. These costs are exacerbated by the very active nature of construction industries in the US. Building material costs have risen significantly in recent months as the US economy emerges from pandemic quarantines. A recent (March 17, 2021) *Wall Street Journal* article noted that lumber prices are currently twice the level of typical prices for this time of year.⁷ Crude

⁶ Proposition 12 also imposes space requirements for veal calves (43 square feet) and egg-laying hens (1 square foot). The support of consumers for any specific restriction, such as that applying solely to hogs, is unclear and it is possible that consumer concerns about specific production practices may be dominated by only certain types of animals, such as veal calves and hens.

⁷ R. Dezember and M. Quiroz-Gutierrez, “New Houses Are Costing More as Prices Jump for Wood, Bricks,” *Wall Street Journal*, March 17, 2021, available online at <https://www.wsj.com/articles/commodities-boom-hits-home-11615973404> (accessed April 15, 2021).

oil, which is an important ingredient in many construction materials, has risen by over 80% since October of 2020. Over the same period, copper, which plays an important role in water and power services, has increased by 33%. Concrete prices have reached record levels in the last month. Figure 3 contains the US Department of Commerce's construction price index. The significant increases in the cost of new construction are apparent.

An important but less obvious cost associated with renovating or constructing hog facilities arises from the irreversible nature of construction. That is, in addition to the obvious cost of materials, any new construction imposes a loss of option value for the investor. If the restrictions associated with Proposition 12 are changed at some future date, it is possible that facilities that were made to be compatible with Proposition 12 may not satisfy the new requirements.⁸ Further to this same point, because the imposition of restrictions always has negative impacts on efficiency, relaxing of the restrictions may leave producers that did invest in new facilities at a competitive disadvantage.⁹

The costs of converting new facilities to conform to the Proposition 12 requirements have been estimated by industry experts to be between \$8-\$12 per pig. Construction of a new facility covering the farrow to wean period of production has been estimated to be about \$3,000 per sow. About 75% of that cost is associated with the facility while 25% applies to land and infrastructure.

⁸ For example, Rule 901:12-9-02 of the Ohio Administrative Code requires group housing for all pregnant sows by 2025 but allows for breeding sow placement in individual stalls until pregnancy is confirmed. Farmers have transitioned to the new standards in facility design, but their new facilities will not satisfy the requirements of Proposition 12.

⁹ An important engineering result—the Le Chatelier Principle—holds that the imposition of restrictions on a profit-maximizing producer will almost always lead to lower profits (or at least no higher profits).

These costs vary substantially by the size of the operation. The \$3,000 per sow estimate applies to an operation size of 5,200 sows. However, smaller operations will pay considerably more per animal. A farm of 1,000 animals will have costs that are about 15% higher per animal. These costs are about 10% higher for a farm of 2,600 sows. This suggests that construction of a new facility that will allow 5,200 hogs to have the space requirements mandated by Proposition 12 will cost \$15.6 million (Herring, 2021).¹⁰

The differences in construction costs across different sized hog farms have important implications for how the industry will be impacted by Proposition 12. Smaller farms will be more constrained by access to capital and thinner margins. Figures 4 through 6 illustrate some important differences in the financial situations of different sized hog farms.¹¹ The USDA segments farms according to annual sales. The diagrams illustrate financial conditions for the following categories of total annual farm sales—less than \$100,000, \$100,000-\$249,999, \$250,000-\$499,999, \$500,000-\$1 million, and over \$1 million. The farms considered are those for which their principal designation is as a hog farm, meaning that the largest share of farm’s value of production is attributable to hogs.

The financial condition of a business operation is heavily influenced by the availability and cost of borrowed capital. Figure 4 illustrates the leverage position (total debts over total assets) in the top panel and the rate of return to equity in the bottom panel. Each portion of the panels represent the development of financial indicators across different economic classes of farms and the

¹⁰ Cost estimates obtained through personal communication via email with David Herring, Vice President of Hog Slat Incorporated, on April 11, 2021.

¹¹ Statistics taken from the ARMS Data Analysis Resource (<https://my.data.ers.usda.gov/arms/data-analysis>).

green bar represents the average value over the 1995-2019 period. The first block applies to all farms and then moving left to right, across increasingly larger (by sales) classes of farms.

Hog operations tend to be much more highly leveraged than is the case for other types of farms. According to the Economic Research Service of the USDA, the debt to assets ratio for all US farms averaged about 13.6% in 2019. In contrast, the 2019 debt to asset ratio for farms specializing in hog production is 19.5%. This demonstrates the fact that hog farms tend to be more highly leveraged than farms in general and that the leverage ratio tends to increase with farm size. This is not surprising in that the high debt to asset ratio reflects the fact that hog farm facilities require a substantial up-front capital investment and therefore hog farms require borrowed capital to a greater degree than farms in general.

The lower panel of Figure 4 contains the rate of return to equity for hog farms of various economic classes. The return to equity on hog farms tends to be progressively lower for smaller farms, as reflected in the value of production. This suggests that smaller farms realize a lower return to investments and therefore will likely realize less favorable terms of credit. This has important implications for the ability of farms to undertake the significant capital investments that conformity to Proposition 12 would require.

Figure 5 presents net farm income and the farms' operating profit margin. Again, the financial standing of smaller farms tends to be much less favorable than is the case for larger farms. The drop is especially substantial when considering the smallest category of farms—those with annual sales of less than \$100,000. This smallest category of farms tends to have net incomes that are close to zero and operating profit margins that are significantly negative. Again, this suggests

that the smallest hog farms will be the least able to undertake the changes that would make facilities conformable to Proposition 12.

Finally, we consider two measures of hog farm efficiency. The first is given by the ratio of net cash income to total cash expenses. The second focuses on feed efficiency and is given by the ratio of livestock sales to total feed expenditures. In both cases, the smallest category of farms tends to be significantly less efficient, both in terms of the total operation and in terms of feed efficiency. Overall farming efficiency tends to be moderately higher as farm size increases. In contrast, feed efficiency is similar across all economic classes of hog farms except for the smallest farms, which are substantially less efficient.

The review of hog farm financial conditions provides several important insights that are all consistent in the implication that smaller farms will be impacted much more significantly than larger hog farms. The statistics reveal that hog farms are much more highly leveraged than farms in general and therefore are more dependent on credit markets for their survival. Adopting production processes and methods that are compatible with the requirements of Proposition 12 will require substantial access to borrowed capital. As noted above, the total investment involved in the construction or renovation of facilities that conform to the space requirements will be several million dollars, making access to credit a critical variable in the long-run survival of hog farms. Creditors will consider these financial ratios and variables when evaluating loans and these evaluations are likely to be especially negative for the smallest hog farms. These farms have the lowest relative incomes and profit margins. The statistics also demonstrate that the smallest farms tend to be

significantly less efficient, both in terms of overall returns over expenses and in terms of the efficiency of hog feeding.

These economic facts have important implications for how California's Proposition 12 is likely to impact the US hog sector. The increasing concentration of the US meat processing sector has been a concern often noted in Congressional rhetoric. As a rule, this sector has become increasingly concentrated. Likewise, concern over the economic viability of small and limited resource farms continues to be an important factor shaping US agricultural policy. The sectoral changes that Proposition 12 is likely to trigger will be unfavorable for smaller hog farms, who will have less access to credit and who will be less able to undertake the investments necessary to bring facilities into compliance with the space requirements of the proposition. This will hasten the concentration of the hog industry, with smaller farms exiting the sector, leaving a US hog industry that has fewer but larger farms. Those farms with thin margins, which tend to be the smallest operations, will be the first to exit the industry. Likewise, efficiency differences that favor larger operations will play a role in smaller farms being the first to exit the industry.

According to the 2017 *Agricultural Census*, there are 58,180 independent hog farmers. These independent farmers had 24.9 million hogs in inventory. Contractors/integrators and contract growers numbered 8,259 and had 47.5 million hogs in inventory. Independent growers with more than 2,000 hogs numbered 2,462 and had 22.2 million hogs in inventory. In contrast, of the farms operated by contractors or contractees, 5,862 farms had 2,000 or more hogs in inventory and accounted for 29 million hogs. These statistics demonstrate that hog farms with production contracts tend to be larger and account for a larger share of hog production (inventory) than

independent growers. It is likely that the processors/integrators will be a driving force in encouraging facility changes that conform to the proposition. I have shown that larger farms tend to be more efficient and more profitable. Thus, an obvious inference to emerge from this consideration of the 2017 census statistics suggests that the proposition will likely push more farms to adopt production contracts. The proposition will therefore hasten the transition from independent to contract growers.

Reductions in Available Space

An obvious cost that will be borne by hog producers pertains to the fact that an operation of a given size will suffer a reduction in output when facilities are renovated to make the necessary space available to sows. This space must be taken from existing uses. According to a recent report by Rabobank, if stocking density is reduced to meet the proposition's space requirements, production flows will drop by at least 25%.¹² This naturally implies a reduction in herd sizes and a flood of new construction to meet the requirements. According to the Rabobank report, to comply with Proposition 12, at least 15% of US hog producers will need to convert to the new facility requirements.

These changes will bring about costs associated with lost stall space, which will reduce the overall output of facilities of a given size that choose to convert. The extent to which the processors and integrators agree to offer premiums for hogs grown under the new requirements will be a major factor in determining the adoption of the new production techniques.

¹² See McCracken, C. "US Pork Supply Chain Locked in Limbo as Producers Await Legal Ruling," Rabobank Research, February 2021.

Farm Productivity Declines

Although the space requirements are intended to improve the welfare of pigs and hogs, there are many reasons to be concerned that changes in sow housing arrangements will bring about added stress to the animals. The existing science does not support the intentions of the regulations—hogs will be worse off under the new restrictions. Mixing animals together, as would be common in many of the conversion scenarios, will induce stress as animals compete for dominance and feed. Animals are likely to fight, therefore causing increases in morbidity and mortality. This in turn will also negatively impact fertility and embryo survival rates. The requirements of the proposition have limited exemptions for sows undergoing breeding and this will necessarily increase the amount of time that sows are housed together.

Existing research has reached uncertain conclusions about the productivity penalties associated with group mixing of sows. However, existing housing arrangements represent the optimum, at least at the time the facilities were constructed. Therefore, there are reasons to conclude that productivity will suffer because of the proposition.

Productivity will also suffer because new production and management systems take time to master. David Herring of Hog Slat, the leading facility construction firm, estimated that production costs could increase by 5-8% in the short run, until the new techniques are mastered by producers.¹³

Regulatory Overhead

The adoption and enforcement of new regulations always involves additional regulatory costs. These costs will be borne by both producers and consumers of pork. The enforcement process

¹³ Personal communication via email, April 11, 2021.

remains unclear in many respects but is likely to involve auditors working as third parties or on behalf of the California Department of Food and Agriculture (CDFA), the regulatory agency responsible for enforcing the restrictions of the proposition. The CDFA and California State Department of Public Health have been jointly tasked with promulgating the rules and regulations for the implementation of the proposition. California's Health and Safety Code (HSC) Section 25993.1 states that a business owner or operator must rely in good faith upon a written certification by their supplier that pork was not derived from an animal confined in a manner inconsistent with the proposition. The California code provides for a \$1,000 fine and 180 days of incarceration for a violation of the proposition.

The current draft rule of the CDFA describes a certification process that will be carried out by the CDFA or by a certifying agent, who must be accredited by the CDFA. The regulations also require that each producer and handler of pork hold a valid certification and that any pork handler selling meat in California must be registered. The proposition requires that all shipping invoices, bills of lading, and shipping manifests for all shipments of whole pork meat entering the state or transported within the state for commercial sale in California shall include the statement "California 24+Compliant."

One can imagine that the proposition will create a new industry of third-party agents providing certification. This industry will certainly involve costs that will be borne by California pork consumers and producers providing pork to the California market. This regulatory overhead is commonly referred to as "deadweight costs" by economists. That is, costs that do not reflect benefits. From a scientific perspective, the welfare of hogs will not be appreciably improved by the

restrictions and may, in fact, be diminished. California consumers and pork buyers elsewhere may realize some benefit from the knowledge that the pork that they are enjoying was derived from pigs that had extra space. However, as previously noted, the restrictions also apply to egg-laying hens and veal calves and the precise motives underlying voters' intentions are unclear. Of course, third-party certification agents will benefit from the new demand for their services.

These costs will be shared by pork consumers, retailers, processors, and producers. It has been noted that a bifurcation of the market whereby pork commands a premium in California but is made cheaper outside of the state is likely to emerge in the short run. A considerable volume of pork that is currently shipped to California will instead be channeled to consumers in other states, thereby lowering the price outside of California. Likewise, considering the considerable volume of pork that is exported from the US, import markets may also realize lower prices.¹⁴ High market segmentation costs (discussed next) will likely encourage widespread adoption of the standards as it may be cheaper overall to adopt the new standards for all pork than to maintain separate markets for certified and non-certified pork.

Market Segmentation Costs

A bifurcated marketplace necessarily means that different qualities of a commodity that may not be obvious to the consumer must be identified and preserved throughout the marketing chain. Pork produced from pigs raised on operations that satisfy the space requirements of Proposition 12 must be identified and kept separate throughout the entire marketing chain, from farm, to processor,

¹⁴ The USDA's Foreign Agricultural Service (FAS) estimates that 26% of the projected US production of 12.8 million tons will be exported in 2021. See "Livestock and Poultry: World Markets and Trade," USDA-FAS, April 9, 2021.

wholesaler, and retailer. Any agent in the marketing chain must be able to identify and keep separate “certified” pork products. A concerned consumer must have confidence that the pork that they are purchasing is sourced from operations that satisfy the space requirements. Outside of a package label, consumers have no way of discerning how the hogs that were processed into the pork products on grocery shelves was produced.

This type of identity preservation may be especially difficult and costly for operations that utilize bulk pork commodities. By their very definition, such bulk commodities are typically homogeneous in quality and may be highly processed prior to reaching the end consumer. Large-scale food service operations often purchase very large amounts of lower valued trim cuts which may be comingled from a variety of sources. For such operations, it will be costly to identify and segment pork derived from hogs produced under the restrictions of Proposition 12.

The difficulties associated with maintaining identity preservation have been demonstrated in the cases of corn and rice. A form of genetically modified corn, known as Starlink, was not approved for human consumption, and therefore had to be kept separate from other corn hybrids. A similar case arose for MIR-162, a genetically modified corn hybrid from Syngenta that was not approved for sale in China. It proved impossible to prevent these corn hybrids from being comingled in the overall corn supply. Significant economic losses were realized by the companies that manufactured the corn seed as well as throughout the marketing chain. Prices to farmers dropped significantly when portions of the global market for commodity corn were closed due to comingling. Numerous product recalls occurred, and agents throughout the marketing chain realized significant

economic losses due to the loss of important markets for corn and commodities that were made from corn.

Questions arise in such cases as to who carries the liability associated with violations of the regulations. It may be difficult to ascertain exactly who is responsible for the loss of identity preservation in cases of comingling or other inadvertent violations of the space requirements. The logistics associated with ensuring that all pork sold in California satisfies the proposition are complex. Such complexity adds to the basic costs of business for merchants selling pork in California and for processors and wholesalers supplying pork to California. It is difficult to assign a value to this additional logistical burden, but the costs are most certainly substantial.

Concluding Remarks

When Proposition 12 takes effect on January 1, 2022, pork sold in California must be sourced from sows that have at least 24 square feet of space in breeding and finishing facilities. While the restrictions are to be implemented on this date, market impacts will be gradual as pork already in the marketing chain is gradually exhausted. The proposition will be costly to the production and marketing chain for pork in the US. At present, only about 4% of facilities satisfy the space requirements. The uncertainty surrounding the implementation and enforcement of the proposition has led to a “wait and see” attitude by many in the pork producing sector. Renovation and new construction costs run into several million dollars for the typical hog operation. Growers will need additional compensation to encourage the long-term investments that the proposition demands.

The impact of Proposition 12 will not be homogeneous across all hog producers. In the short run, the market will be segmented and supplies of pork in California will be constrained. This will result from a shortage of compliant pork. At the same time, noncompliant pork that once was sold in California will be relegated to the rest of the US market, depressing prices of pork everywhere except California, where pork prices will rise substantially.

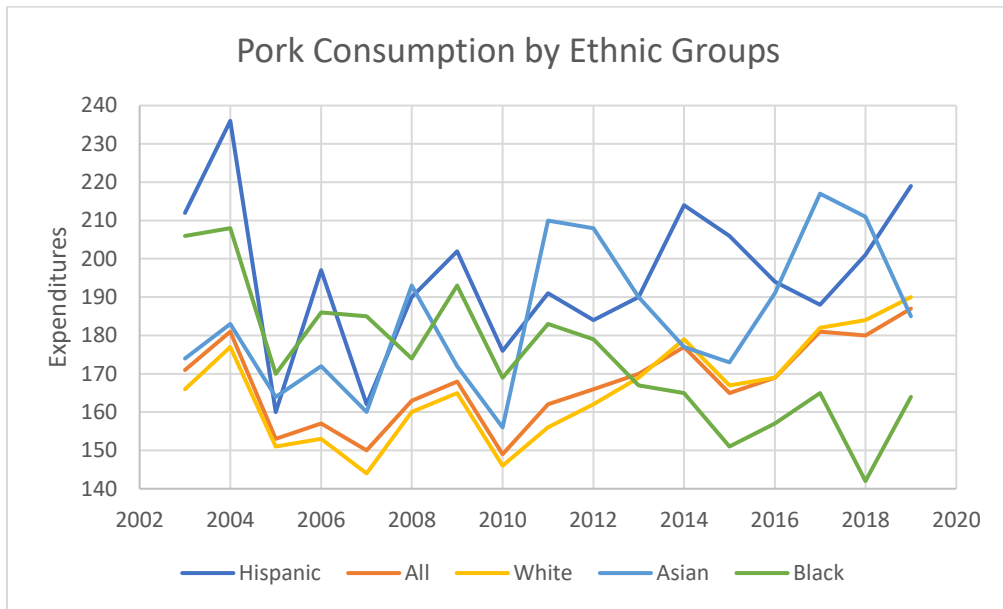
As I have noted, the extent to which consumers comprehend animal welfare issues and recognize the differences across different types of livestock and production systems is unclear. More specifically, consumers may not understand the nuances between different livestock animals and their space needs. As is often the case, regulatory initiatives that are promoted by special interests may not be consistent with sound scientific evidence and the extent to which voters are able to separate emotional rhetoric from sound scientific evidence is unclear. New construction will likely consider the increased space requirement in new facility designs and in the long run much of the industry may become compliant with these restrictions.

The costs of the restrictions are widespread and extensive. Farmers face the costs of renovation or the construction of new facilities. Farmers are also likely to face losses in productivity as they move to new production and management systems. This lost productivity will be especially acute in the short run, as the new systems are mastered. The new production systems will lead to increased stress on breeding sows, which in turn will lead to lower fertility and embryo survival rates. The industry must maintain identity preservation and maintain market segmentations. This will involve considerable changes to the logistics of pork product distribution.

These costs will have a more severe impact on smaller, independent operations. As we have shown, these operations tend to be less efficient and have lower profit margins. Smaller operations also have less access to the credit needed to finance renovations and new construction. Thus, one important outcome of Proposition 12 will be an increase in the exit of smaller hog operations. The pork industry will become more concentrated with fewer but bigger farm operations. The stresses placed upon the entire production and marketing chain will also favor larger processors, thereby leading to ever-increasing consolidation and concentration of the industry.

This document provides a high-level summary of the expected impacts of California's Proposition 12. Much greater research is needed to address the impacts of the proposition on heterogeneous farm operations, packers, wholesalers, and retailers. More in-depth empirical research is needed to quantify the impacts of the regulations and the long-term adjustments that the industry will realize. The costs of the proposition will be significant and will impact the entire marketing chain. The pork industry will become more concentrated with fewer but bigger farm operations. The stresses placed upon the entire production and marketing chain will also favor larger processors, thereby leading to ever-increasing consolidation and concentration of the industry.

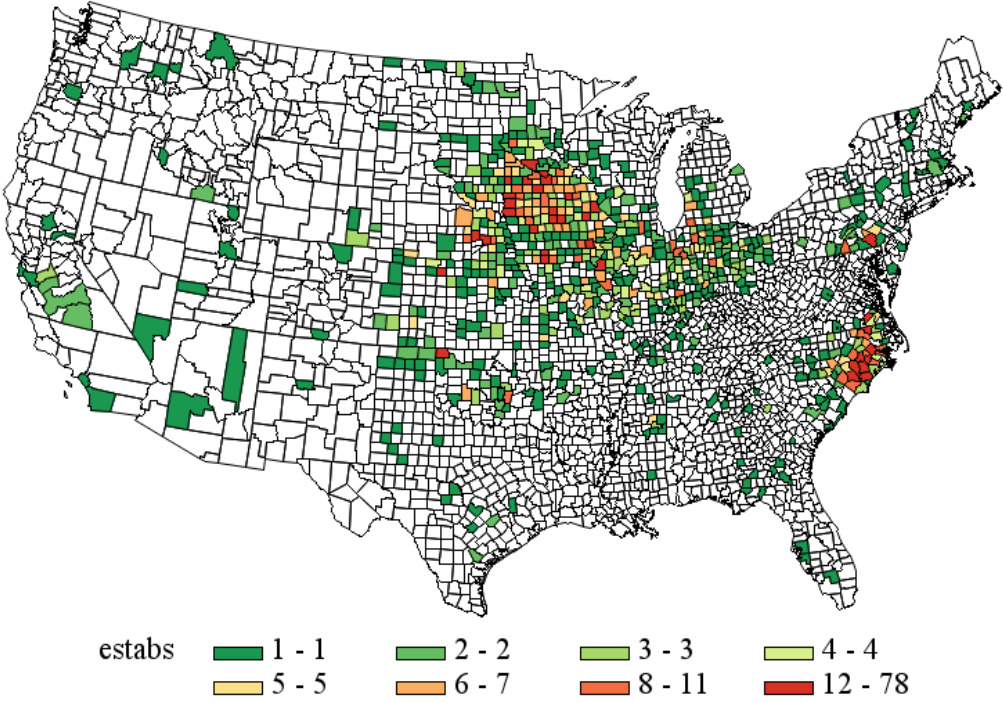
Figure 1. Evolution of Pork Consumption by US Ethnic Groups



Source: US Consumer Expenditure Survey.

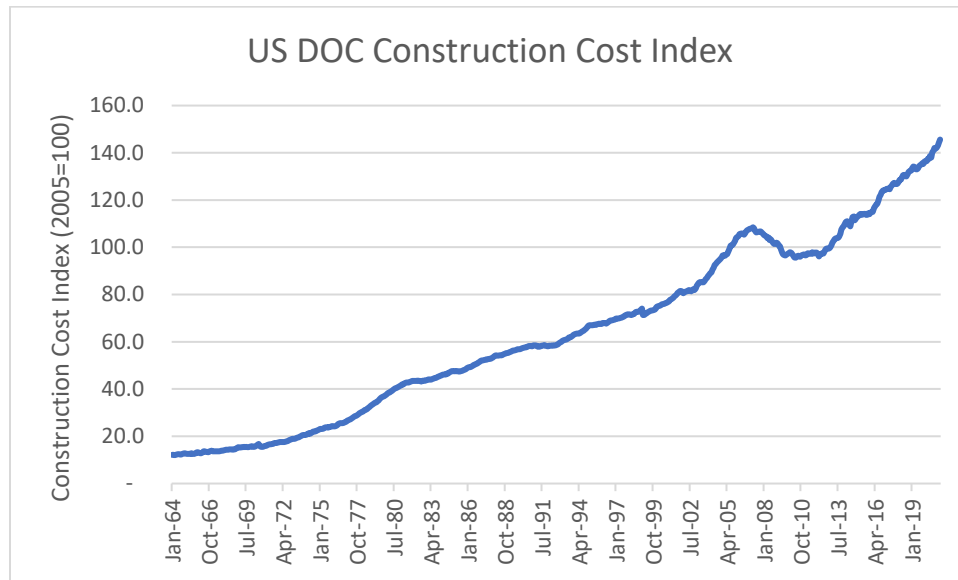
Figure 2. County-Level Counts of Hog Producing Establishments

Hog Operations: 3rd Quarter of 2020



Source: Bureau of Labor Statistics

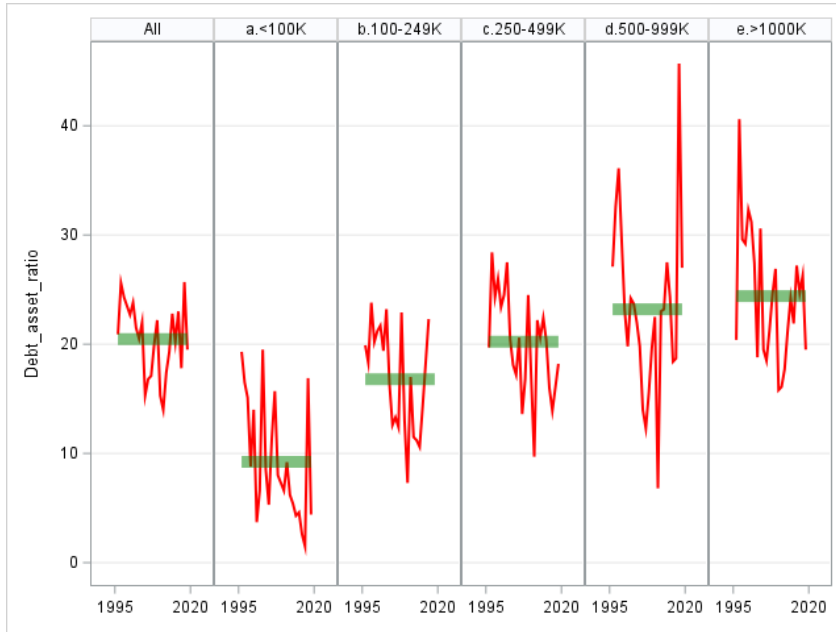
Figure 3. US Department of Commerce Construction Price Index



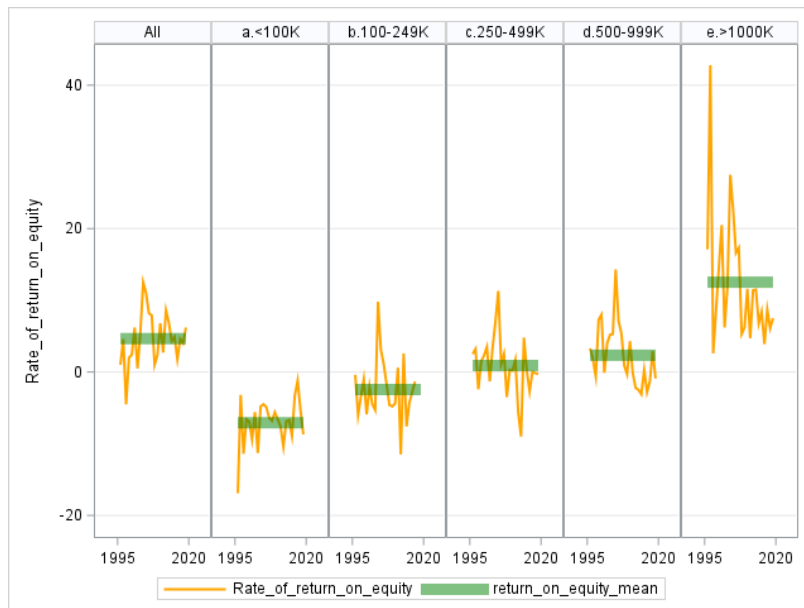
Source: US Department of Commerce

Figure 4. Financial Condition Differences by Hog Farm Size (Economic Class)

A. Debt to Asset Ratio



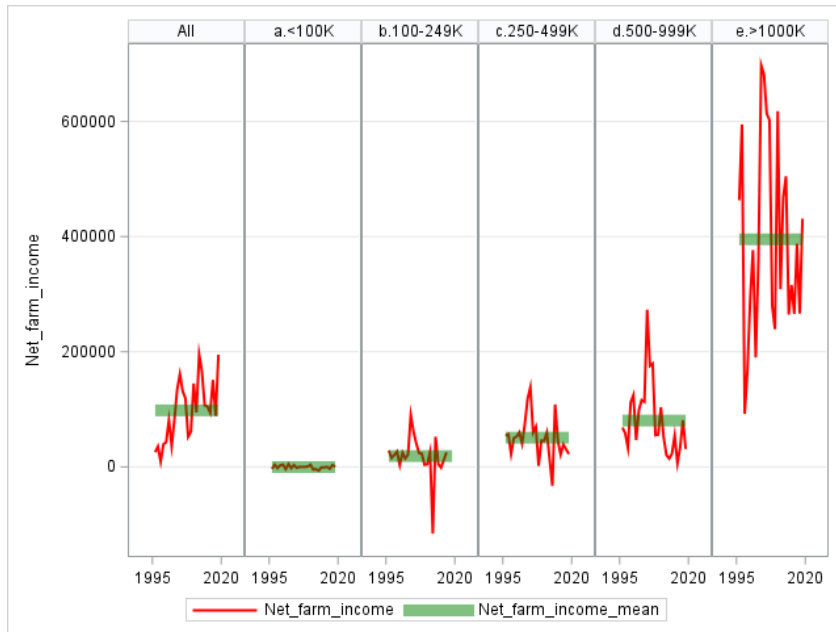
B. Rate of Return to Equity



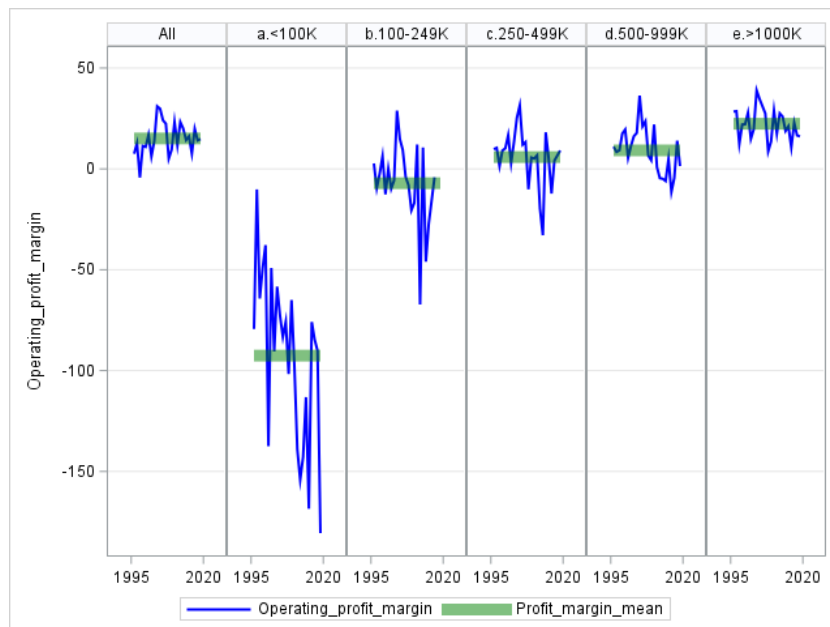
Source: Unpublished Summary Statistics from the ARMS Survey of USDA

Figure 5. Financial Condition Differences by Hog Farm Size (Economic Class)

A. Net Farm Income



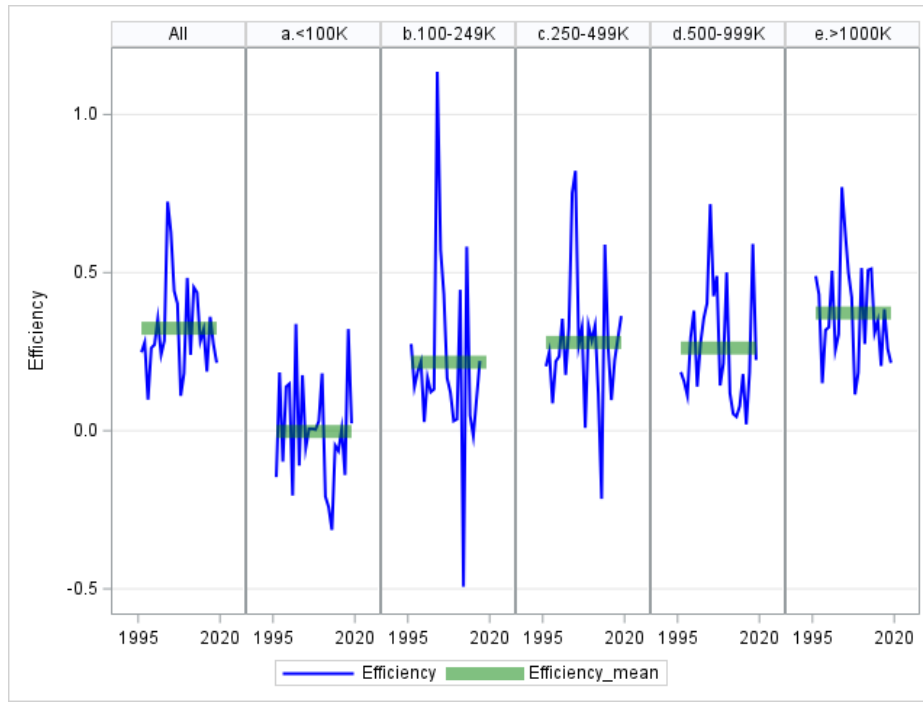
B. Operating Profit Margin



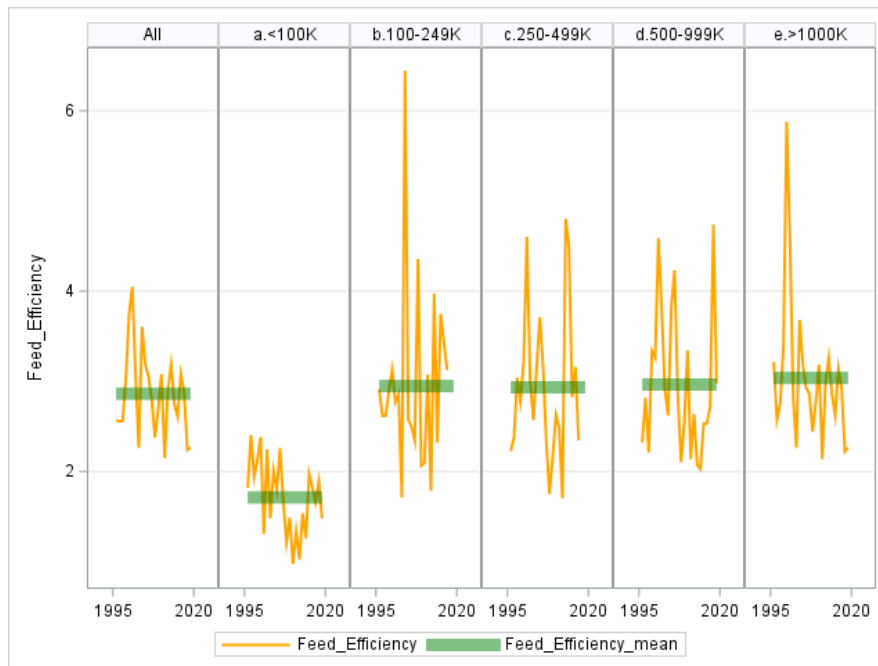
Source: Unpublished Summary Statistics from the ARMS Survey of USDA

Figure 6. Financial Condition Differences by Hog Farm Size (Economic Class)

A. Economic Efficiency



B. Feed Efficiency



Source: Unpublished Summary Statistics from the ARMS Survey of USDA