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THE RISE OF THE CHICAGO PACKERS AND THE ORIGINS OF MEAT INSPECTION AND ANTITRUST

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ABSTRACT

The Meat Inspection Act of 1891 and the Sherman Act of 1890 are shown to be closely tied. This link makes clearer Congress' intent in enacting the legislation. Both laws were products of conditions in the economy after 1880, and they reflected in part, a common concern about the Chicago packers, or Beef trust. The concerns of local slaughterhouses, which were being displaced by new, low-cost refrigerated beef, and of farmers, who sold their livestock to the large Chicago packers, were echoed elsewhere by other small businesses and farmers, who feared for their competitive positions during a time of structural change in the economy.

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I. INTRODUCTION

In the relatively short period between 1887 and 1891, the legislative basis was established for major intervention by the federal government into the American economy: The Interstate Commerce Act of 1887, the Sherman Act of 1890, and the Meat Inspection Act of 1891.[1] With these laws, the federal government became directly involved in the regulation of railroad rates, antitrust enforcement, and the inspection and certification of food quality for consumers. Representing a significant break from what had been considered an appropriate role for the federal government in the past, this legislation provided for a new and permanent regulatory mandate for government in the market economy.

Despite the importance of these laws, the link between the economic and political environment in the United States in the late nineteenth century on the one hand, and the legislative histories of the laws on the other, has not been thoroughly explored. As a result, the motives of Congress for enacting these laws remain both unclear and controversial. Consider meat inspection and antitrust. Although most attention in the literature is focused on the 1906 Meat Inspection Act, made popular by the publication of Upton Sinclair's The Jungle, the initial legislation came fifteen years earlier in 1891, and it addressed the production and consumption of fresh beef. But as reported in the paper, there is no evidence of a major health

crisis regarding the consumption of beef at the time. Something else appears to have been on the mind of Congress in passing the legislation in 1891. The objectives of Congress in enacting the Sherman Act are even more controversial because of the prominence of the law. Debate also revolves around the intent of Congress in passing the law in 1890--whether it was designed to promote competition and consumer welfare or to limit competition and protect special interests.[2]

This paper argues that to gain a better understanding of the origins of important legislation enacted in the late nineteenth century and early economic effects, the laws must be placed into the context of the extraordinary changes taking place in the American economy at that time. The linkages among the laws help to identify the underlying political and economic forces behind the legislation.

Three broad characteristics of the economy must be kept in mind in analyzing this period: First, the post Civil War period was a time of general deflation. Between 1864 and 1900 the consumer price index fell by 47 percent (U.S. Department of Commerce [1975, 211]). In general, prices for farm products followed the overall pattern, but prices for cattle fell in real terms after the mid 1880s. Fluctuations in farm prices also appear to have coincided with periods of agrarian unrest.[3] Second, as described by Higgs [1971] and Chandler [1977] the period after 1880 was a time of major structural change in the economy. The economy was becoming more industrial, and biased

technological change; economies of scale in production, distribution, and marketing; as well as the lowering of transportation costs were fundamentally altering production methods and products. This affected the competitive positions of many firms, creating winners and losers (James [1983]; Burns [1983]; Atack [1985]). Emerging large firms expanded from local to national and international markets, and existing small firms found their local markets threatened by new competitors. Concentration levels in many industries rose, although as indicated by Nutter and Einhorn [1969], time-series data on concentration for documenting this are limited. Those firms adversely affected by technological change had incentives to appeal to the federal and state governments to mold and control the effects of new technology in ways similar to that described in a broad context by Mokyr [1990]. Large firms became very visible and obvious targets for those who were disadvantaged and who increasingly sought redress through the federal government.

Third, by the late nineteenth century, the federal government began to displace state and local governments as the focus of interest group lobbying for regulatory actions. The rapid integration of the national economy, as well as the growth of the federal government in the post Civil War period, meant that only the federal government had the requisite jurisdiction and size to broadly influence economic events.

This paper examines the origins of the first federal food quality guarantees in the Meat Inspection Act of 1891 and of the

first federal antitrust provisions in the Sherman Act of 1890. Both laws were products of the changing economic and political environment in the country, which brought new demands on Congress for intervention into the economy. The origins of the laws were closely linked by a common concern about the Chicago packers, the Beef trust. The Chicago packers and their new product, refrigerated (dressed) beef, were an integral part of the demand for government inspection of meat. Additionally, although certainly other trusts or combinations were targeted in congressional debate over antitrust, the Beef trust played a more prominent role in the events leading to the enactment of the Sherman Act than has been recognized in the literature.

In brief, the arguments of the paper are as follows: The rise of the Chicago packers, following the introduction of refrigeration in approximately 1880, fundamentally altered both demand and supply conditions in the meat-packing industry. Small, local slaughterhouses, which previously had characterized the industry, were displaced rapidly in most markets because they could not compete with the new, low-cost substitute from Chicago. To counter, local slaughterhouses charged that the Chicago packers used diseased cattle and that dressed beef was unwholesome. This disease issue damaged export markets for cattle and beef products and may also have threatened the growth of domestic demand for dressed beef. One remedy, urged especially by midwestern cattle raisers, was federal meat inspection to promote demand. But meat inspection alone was not

enough in the view of midwestern farmers, who not only raised grains, but were the country's major producers of cattle. Even though the popularity of refrigerated dressed beef supported an increase in the derived demand for cattle, cattle raisers were wary of the feared market power of the Chicago packers. They believed that the Chicago packers were responsible for the severe fall in cattle prices after 1885. Promoting demand through meat inspection would be of little benefit if the Chicago packers colluded to hold down cattle prices. Accordingly, state and federal antitrust legislation was demanded as a solution to this problem. This relationship between meat inspection and antitrust legislation provides new insight into the economy of the late nineteenth century and the intent of Congress in enacting the laws.

II. THE DISEASE ISSUE AND THE INCENTIVES OF THE CHICAGO PACKERS TO CHEAT ON MEAT QUALITY

Before examining the political and economic ramifications of the disease issue, it is useful to address the incentives of the Chicago packers to cheat on product quality. This helps to place the debate over federal meat inspection and its link to antitrust into perspective.

Asymmetric product quality information between consumers and producers can lead to various private and, in some cases, governmental arrangements to assist consumers in market choices.[4] Klein and Leffler [1981] argue that firms will provide and adhere to quality standards if the expected present discounted value of

the stream of returns from long-term sales exceeds any short-term wealth increase from quality deception and lower-cost production. Firm adherence to quality guarantees depends, in part, on the extent of investment in firm-specific (nonsalvageable) capital. If a firm has significant investments with limited alternative uses, it will have more at stake in maintaining a long-term relationship with consumers and will gain less from deception.

In the case at hand, the four Chicago packers had considerable investments in stockyards, centralized slaughterhouses, refrigeration cars, and wholesale units, whose values depended upon consumer acceptance of refrigerated beef.[5]

Firm adherence to quality standards also depends upon market share. Larger firms, facing downward-sloping demand schedules, must reduce price to sell the additional products made possible through deception and lower production costs. In general, lower prices reduce the returns to cheating on quality. If the price and cost of a homogeneous product is a function of product quality as well as total output, then a firm would consider lowering quality only if the losses in revenue from the negative industry price effects were less than its cost savings. For firms with exceedingly small market shares, the price effects will be close to zero, while the cost savings may be substantial, depending on the technology involved. Under these circumstances, small firms are more likely to cheat on quality. Additionally, producers with large market shares absorb more of the industry-wide losses of a demand shift to substitutes if consumers cannot

isolate the violating firm.[6]

In this case as well, the large Chicago packers had reasons to adhere to quality standards. Relative to the much smaller local slaughterhouses, the Chicago packers had large market shares and would have borne most of the losses of consumer rejection of dressed beef. As noted by Yeager [1981, 67] in 1890 Armour accounted for 27 percent of the cattle slaughtered in Chicago, by far the country's largest packing center, while Swift had 26 percent, Morris 24 percent, and Hammond 12 percent. These firms, as well as Cudahy and Schwarzschild and Sulzberger, also headquartered in Chicago, were virtually the only producers of refrigerated dressed beef through 1906.

In addition to the likely interest of the packers in maintaining consumer confidence in their product, consumers had the assistance of local retail butchers for assessing beef quality. Retailers who switched from local to refrigerated beef had strong incentives to maintain quality because the retail industry was very competitive. Even though consumers could not easily differentiate Armour from Swift beef, they could switch from any retailer who sold poor quality meat, and retailers could turn to a different supplier or drop dressed beef altogether.

A third factor that encourages firm adherence to quality standards is an expected growth in demand.[7] If product demand is expected to grow, the rate of quasi rent flow from high quality and associated higher-priced production increases relative to the short-term gains from deception.

For the dressed-beef trade in the late nineteenth century, the Chicago packers clearly believed that they had a product with enormous long term potential and invested accordingly. Centralized production was not only low cost, but refrigeration allowed for year-round consumption of beef and the greater export of fresh beef products. With this stake in the industry, the firms were less likely to have been tempted by the tradeoff provided by any short-term wealth gain from cheating on quality and thereby possibly compromising consumer acceptance of their product.

Finally, the greater the frequency of repeat purchases, the more likely quality will be maintained by a firm. With small, repeat purchases, firm cheating provides only limited returns relative to those from a long-term relationship between producers and consumers.

With scarce household refrigeration in the late nineteenth century, beef and other meats were purchased in small amounts on at least a weekly basis by consumers, suggesting that long-term relationships between local retailers and consumers were important. Under these circumstances, local retail butchers would have monitored the quality of the meat purchased from wholesalers in order to retain their customers.

Overall, placing the charges of quality deception into the context of economic theory raises questions about alleged cheating by the Chicago packers. Indeed if anything, the theory suggests that the packers had very important reasons for

maintaining the quality of their dressed beef product. Federal intervention as a third party guarantor of quality still may have been warranted had a significant health risk existed from the consumption of beef from diseased cattle. But the record does not indicate that the incidence of diseased cattle or their consumption was very great, and there is no evidence of a major health issue at that time over beef consumption.[8] Nevertheless, there was an intense political debate over beef inspection in certain states and in the federal government that culminated in the Meat Inspection Act of 1891. Accordingly, while not ruling out a health issue, the theory suggests a look elsewhere is warranted for understanding the timing and nature of the first federal meat inspection law. This look also reveals the ties between the origins of federal meat inspection and antitrust.

III. THE UNEVEN ECONOMIC BENEFITS OF THE INTRODUCTION OF NEW TECHNOLOGY

Impact on Small Slaughterhouses

According to census data from the U.S. Department of the Interior [1904, 318] and the U.S. Department of Commerce and Labor [1913, 442] slaughtering and meat packing was either the first or second most valuable U.S. industry from 1880 through 1910. Prior to the introduction of refrigeration, the industry was characterized by small wholesale slaughterhouses and packing plants, located near or in urban areas. They slaughtered both local livestock and those shipped from the Midwest. As shown by

the U.S. Department of the Interior [1904, 318] in the census, the number of slaughter and packing firms in the industry was large, with 872 in 1880 for example. Local slaughterhouses often had retail outlets, but there were also numerous specialized small retail butchers. Both local wholesale and retail markets were competitive with ease of entry and relatively large numbers of firms in each community. For example, according to the leading industry trade journal, National Provisioner, [February 13, 1892, 11; June 10, 1893, 13] in 1892 there were 1,950 wholesale and retail butchers in Chicago alone and some 80,000 nationwide.

Refrigeration allowed for the centralized, large-scale slaughtering of cattle in Chicago or other leading western packing centers and the shipment of carcasses to eastern markets and export. Centralized slaughtering offered economies that the older, live cattle trade could not match. As noted by the Bureau of Animal Industry [1885, 233] and Skaggs [1986, 94], carcasses could be shipped from Chicago at one-third the cost of transporting live cattle. In addition Clemen [1923, 195] reported that there were weight losses of 10 to 15 percent and injuries from crowding in shipping live cattle that could be avoided with dressed beef. Besides lower transportation costs, there were economies of scale in slaughtering, packing, and canning, and in the use of by products.[9]

The Chicago packers, Swift, Armour, Morris, and Hammond, who were not involved in the live cattle trade, pioneered the use of refrigeration and centralized slaughter. To distribute the

dressed beef product, they invested in refrigerator railroad cars and wholesale branch units. By 1917, according to the Federal Trade Commission [1919a, 153, 260], the major packers had 1,165 branch houses for the storage and distribution of dressed beef and 15,454 refrigerator cars, 93 percent of the U.S. total. As early as 1884, 84 percent of the cattle slaughtered in Chicago were by the 'big four' packers.[10] Additionally, the Chicago packers established slaughter and packing plants in other midwestern cities, such as Omaha, East St. Louis, Kansas City, South St. Paul, and Ft. Worth.

Table I illustrates the change in production size that followed the introduction of refrigeration. The table shows the average capital of the slaughter and packing plants in the western packing states of Illinois (Chicago), Kansas (Kansas City), and Nebraska (Omaha) and those in the eastern consuming areas which had been supplied by local slaughterhouses. As late as 1880, the average capital of slaughterhouses in the western states was not dramatically larger than in the east. By 1890, however, the firm size differences in the two regions are clear. According to census data from the U.S. Department of the Interior [1883, 474; 1904, 389], in 1880, Illinois, Kansas, and Nebraska accounted for 35 percent of the total value of U.S. meat production of $303,562,413; by 1900, those states accounted for 55 percent of total production valued at $790,252,586.

With these production, distribution, and transportation advantages, refrigerated dressed beef could be provided to retail

markets at lower cost than could be supplied by local slaughterhouses. Moreover, as the technology was improved by the late 1880s, dressed and local beef were perfect substitutes. Retail prices for beef for consumers fell. For example as reported by Yeager [1981, 70], between 1883 and 1889 the average price of beef tenderloins fell by 39 percent from $.275 per pound to $.1675. In addition with refrigerated storage, beef could be held for consumption year-round. Beef consumption rose. Clemen [1923, 255] noted that per capita consumption of beef, which was 77.8 pounds during the period 1870-1879, rose by 12 percent to 87.2 pounds during the period 1880-1889. Although consumers clearly benefitted from the new technology, many high-cost, local slaughterhouses could not compete with the centralized Chicago packers. Given this, Chicago dressed beef began to displace the shipment and local slaughter of live cattle. Table II documents the relevant patterns.

Impact on Cattle Raisers

As suppliers of the prime input for dressed beef, cattle raisers were also affected by the new technology. The lowering of production and distribution costs for beef and increases in demand for beef due to refrigeration raised the derived demand for cattle. Nominal cattle prices, which had declined from 1871 through 1879, rose to an average of $25.26 in 1884, their highest level since 1867, when data are first available through the U.S. Department of Agriculture [1937, 27]. This rise in value encouraged investment in cattle in what has been called the 1880-

1885 'cattle boom' by historians of the livestock industry, such as Osgood [1929, 85-89, 106-14] and Dale [1930, 93-97, 105-159]. With increased profit expectations from these investments, the total stock of cattle grew. Based on data from the U.S. Department of Agriculture [1937, 27], in 1875, there were 35,361,000 cattle in the U.S.; in 1885, 52,563,000, an increase of 49 percent; and by 1890, 60,014,000, 70 percent greater than in 1875 and 14 percent more than in 1885. There were three major cattle producing regions, the corn belt, which accounted for 36 percent of the total stock of cattle in 1889; Texas and the southwest; and the western range states. Most midwestern farmers marketed at least some cattle, which were fed corn before slaughter in Chicago or shipped to eastern urban areas or export. This accounts for the intense concern in the Midwest as cattle prices fell in 1885. Texas, New Mexico, and Arizona, which accounted for 19 percent of the stock of cattle in 1889, produced grass-fed cattle, often considered inferior in size and quality to midwestern cattle. The Chicago packers demanded large numbers of Texas cattle for the production of dressed and canned beef, and they were shipped north and often fed corn in the Midwest prior to slaughter.[11]

With the increase in the stock, the number of cattle marketed rose rapidly. In 1880 the total number of cattle received in Chicago was 1,382,477. By 1884, the number received was up by 31 percent to 1,817,697, and by 1890, 3,484,280 were marketed in Chicago, 152 percent more than in 1880 and 92 percent

greater than in 1884. Cattle prices, however, began to fall in 1885, ending the cattle boom. Nominal U.S. cattle prices declined gradually from their 1884 peak of $25.26 per head to $16.49 in 1891, a decline of 35 percent, and real prices fell by 24 percent between 1885 and 1890 from $28.71 to $20.67. This was the longest and most severe fall in cattle prices since the end of the Civil War. Although prices for other agricultural commodities, such as hogs and grains, also fell in the late nineteenth century, they had temporary recoveries during the 1884-1891 period.[12] The cattle price decline and ways to counter it became central issues in the efforts by cattle raisers to obtain inspection legislation and antitrust laws.

Midwestern farmers argued that the consolidation of cattle markets in Chicago with the rise of centralized slaughter and the market power of the big four packers were responsible for the decline in cattle prices. Although Chicago had been an important shipping center since the end of the Civil War, handling 29 percent of all cattle marketed in the U.S. in 1865, most were shipped elsewhere for slaughter by small slaughterhouses. This changed with refrigeration, so that in 1883 Chicago received 40 percent of the cattle marketed in the U.S., and approximately half of those were slaughtered there. Additionally, most of the cattle received in the Kansas City stockyards, the second largest in the U.S. in 1883, were shipped on to Chicago for slaughter. In these markets the packers were the major purchasers. By 1888, the Chicago packers purchased over 50 percent of the cattle in

Chicago and Kansas City. They also gradually obtained shares in 30 of the country's major stockyards where cattle were sold. The size and concentration of the packers in these markets made collusion a credible explanation for the fall in cattle prices to many cattle raisers.[13]

By available measures of concentration, the Chicago packers had large market shares, contributing to the notion that there existed a combine or Beef trust. In 1890, Armour, Swift, Morris, and Hammond slaughtered 89 percent of the cattle slaughtered in Chicago. Nutter and Einhorn [1969, 131-137, 140-142] provide a list of highly concentrated industries from 1895-1904 and the market shares of the leading firms. For meat packing, the four largest firms had over 50 percent of the market. Moreover, the ratios constructed by Nutter and Einhorn of value-added in highly concentrated sectors of the industry to the industry total value-added show that meat packing was one of the more concentrated industries at that time.[14]

Further, the Chicago packers attempted various pooling arrangements from 1886 through 1901 (the Allerton and Veeder Pools) to divide input and output markets and to set prices for dressed beef and other products. The pools had formal structures and the number of bargaining parties was relatively small, but any impact on cattle prices appears to have been short term. The pooling agreements were unstable with new entry first, by Cudahy, and later, by Schwarzschild and Sulzberger and unauthorized expanded production by the member parties.[15] Nevertheless, the

political reaction to declining cattle prices after 1884 took two directions. One was to limit the alleged market power of the packers through antitrust laws, and the other was to promote the demand for cattle and meat in domestic and export markets through inspection legislation.

IV. THE DISEASE ISSUE, MEAT INSPECTION, AND THE SHERMAN ACT

The Disease Issue

Because of the importance of the disease issue, it is necessary to go into its origins in some detail, and these predate the rise of the Chicago packers. Initial cattle disease concerns arose as midwestern farmers charged that the Texas and southern cattle that were being driven or transported across the Midwest carried contagious livestock diseases. Various, and mostly unsuccessful, efforts in the 1870s were made to restrict the flow of Texas cattle northward. As noted by Dale [1930, 161], the disease issue, however, became magnified after 1880 by rivalry among the cattle-producing regions, their ties to the Chicago packers, and the impact of disease on livestock and meat export markets.

Pleuropneumonia and Texas fever were the most commonly discussed cattle diseases. These diseases could devastate livestock herds, but there was no known impact on humans who consumed infected animals. Further, available evidence indicates that the contagious disease scare was more a political issue than an actual source of loss, since the incidence of the two diseases appears never to have been very great. In 1882, the Treasury

Department investigated the location of pleuropneumonia and reported its findings in U.S. Senate [1882, 19]. The Treasury investigators found the disease confined to a few herds in the midatlantic states. The Bureau of Animal Industry [1885, 268; 1891, 71-73, 76-78; 1893, 17] also followed the extent of the disease. The agency argued that pleuropneumonia occasionally appeared in the Midwest, but only briefly and involved a limited number of animals. It reported that between December 1, 1888 and November 30, 1889, only 351 cattle were found infected of the 329,000 inspected in the midatlantic states. In 1891, the bureau declared the disease virtually eradicated.

The incidence of Texas fever, which was spread by ticks brought from the South, appears to have been similarly spotty. Bureau of Animal Industry reports [1885, 417-18, 444; 1886, 378] point to only isolated cases of the disease. For example in 1884, the agency condemned 720 cattle for Texas fever in Chicago, a number small relative to the 1,047,077 cattle shipped through the city that year. The disease was an annual hazard, since the ticks could not survive a frost, and by 1893 Texas fever was no longer considered a threat after new procedures for disinfecting railroad cars and stockyards were adopted for tick control.

Prior to 1893, a number of northern states enacted separate quarantine laws to restrict the transport of Texas cattle across their territory. Texas ranchers naturally opposed the quarantines, which they claimed were used by northern livestock raisers to limit their access to the market. Their position was

supported by the Chicago packers, who feared the impact of any restrictions on cattle supplies. Federal legislation to establish the Bureau of Animal Industry in the Department of Agriculture to investigate livestock diseases and their prevention was debated between 1879 and 1884. The delay was due to disputes over Texas fever between members of Congress from Texas and other southern states and those from northern cattle states. Ultimately, to facilitate passage Texas fever was specifically declared not to be a contagious disease.[16]

Although there is no evidence of a major health problem for consumers of domestic beef, the debate over the incidence of cattle diseases and charges that the Chicago packers slaughtered diseased animals for human consumption gave credence to allegations by foreign competitors that American livestock and meat products were unwholesome. At the same time there was a bitter controversy over allegations of trichinosis in American pork that brought restrictions on American pork imports in Germany, France, Belgium, and other European countries. The Bureau of Animal Industry [1885, 476-477] countered that trichinosis was rare in the United States and more associated with European than American hogs due to differences in what hogs were fed in the U.S. Pork also generally was cooked in the United States prior to consumption. Protection of local hog producers from American competition appears to have been a motivation for German restrictions.[17]

European controls on American livestock and meat products

not only accentuated the disease issue, but they became central in subsequent efforts to enact federal inspection legislation as cattle raisers began to argue that greater exports were required to raise cattle prices. For example, cattle exports ranged from 10 to 13 percent of the total cattle marketed in Chicago between 1880 and 1890. Charges of pleuropneumonia brought British controls on live cattle imports from the U.S. in 1878. Under those rules American cattle had to be slaughtered on the wharf within ten days of arrival. The Bureau of Animal Industry [1886, 177] estimated that these restrictions led to losses of $15 to $25 per head relative to comparable Canadian cattle for U.S. cattle exporters. Exports, mostly to Britain, which reached $14,304,000 in fiscal year 1881, fell sharply in 1882 and 1883, to $8,342,000. They rose in 1884, but declined again through 1887 at $9,172,000.[18]

The association between the Chicago packers and diseased cattle was made by local slaughterhouses, who through the Butchers' National Protective Association, organized in 1886, charged that the Chicago packers slaughtered cattle with Texas Fever, Pleuropneumonia, and other diseases.[19] They asserted that the use of these low-cost, diseased cattle allowed the Chicago packers to underprice local slaughterhouses, which used only healthy animals. The earlier opposition of the Chicago packers to restrictions on northern shipment of Texas cattle was given as additional evidence of the desire of the Chicago packers to have access to low-cost and low-quality supplies. Moreover, the

Butchers' National Protective Association argued that consumers could not distinguish between wholesome and unwholesome beef and hence, were at risk.

The use of derogatory claims about the quality of a competitor's products was a common competitive strategy in many industries in the late nineteenth and early twentieth centuries. As production processes became more complex with new products and new technology and as consumers increasingly were separated from the production of the goods they consumed, a potential information problem rose that was exploited, generally by established producers against new, less well-understood products. For instance, discriminatory taxes or outright bans were placed on oleomargarine and compound lard, as well as certain kinds of baking powder, milk, whiskey, coffee, candy, drugs, which were claimed by competitors to be adulterated. In most cases, no health hazard was ever identified.[20]

State Meat Inspection and State Antitrust

The political battle over the call for government inspection of cattle began at the state level, where the laws were designed to serve three purposes--to provide for inspection of livestock prior slaughter, to limit the shipment of dressed beef, and to reduce the market power of the packers through state antitrust laws. In February 1889, Kansas Governor Lyman Humphrey sent a resolution to the governors of cattle-producing states, mostly from the Midwest, calling for joint legislation and a convention of legislators. The convention was to address meat inspection

and the effects of the Beef trust on cattle prices in Chicago and Kansas City. In response, delegates from state legislatures were sent to St. Louis in March 1889 from Indiana, Illinois, Minnesota, Iowa, Missouri, Kansas, Nebraska, Colorado, and Texas.

The convention called on Congress to construct a deep-water port in Texas to compete with Chicago for livestock shipments and to enact an antitrust bill to prohibit contracts among the Chicago packers that "have united and combined for the purpose of controlling the market price of the cattle, pork, grain and other products of the country....".[21] In addition, the convention presented to each state sample antitrust legislation and a local meat inspection bill for adoption. Local inspection of livestock was to occur just prior to slaughter, and its goal was "...to render it impossible for Chicago dressed meat to be sold anywhere except in Chicago. The resultant effect of such measure would be...that butchers all over the country would resume business, and, competition being restored, the value of cattle would naturally rise."[22]

Twenty states subsequently considered the local inspection legislation in 1889, and four adopted the law. Local inspection as a solution to the disease issue, however, was short-lived as efforts quickly turned to the federal government. An examination of the journals of state legislatures in Colorado, Delaware, Illinois, Indiana, Minnesota, Missouri, Nebraska, New York, and Ohio from 1885 to 1892 shows that local inspection bills appeared only in the 1889 legislative sessions. The U.S. Supreme Court

ruled against such legislation in Minnesota v. Barber (136 U.S. 313) in May 1890 because of the impact on interstate commerce.

While the states were considering local meat inspection legislation, they also were adopting antitrust prohibitions. In the 1889 St. Louis convention, agricultural interests, organized through groups like the Grange and Farmers' Alliance were major proponents of state antitrust legislation. In 1889, twelve states (nine from the Midwest) passed antitrust laws for the first time.[23] Seager and Gulick [1929] report that by 1890, 27 states had antitrust restrictions, either through statute or constitutional provisions.

In their analysis of the Missouri state antitrust law, passed in 1889, Boudreaux and DiLorenzo [1990] find that farmers were the major special interest behind the legislation. According to Boudreaux and DiLorenzo, Missouri farmers blamed the Chicago packers for the fall in cattle prices.

Cattle accounted for one-quarter of Missouri's agricultural output, and cattle raising was the largest single contributor to agricultural gross product in the state.[24]

The Chicago packers naturally opposed the local inspection laws.[25] The packers, through the Chicago Board of Trade, were quick to respond. As reported in the Cincinnati Price Current January 31, 1889, a resolution was passed by the Board of Trade claiming that local inspection legislation would "irretrievably embarrass and ruin the dressed beef industry...". In testimony before the Vest Committee of the Senate, George Beck, a Detroit

butcher, claimed that a major packer, Hammond, offered: "If you men will take down those cards [No Chicago Dressed Meat Sold Here] and if you will withdraw the petition you are now circulating through the state to go to the legislature for local cattle inspection, I will agree to keep out of Detroit myself with my dressed beef and to keep Mr. Armour and Mr. Swift out".[26] The Chicago Board of Trade charged that state inspection was a sham, designed primarily to prohibit the interstate shipment of dressed beef, and that it had the potential to discredit American meat products in foreign markets.

The protests of the Chicago packers were supported by the Bureau of Animal Industry. Between 1884, when the agency was established, and 1891, the bureau joined in refuting claims that dressed beef was unwholesome. For example in [1885, 248], it disputed articles in the press that diseased animals were slaughtered for food: "The facts seem to warrant the assertion made that the meat supply of Chicago is practically entirely wholesome. Self-interest leads the packers and the canners to use every available means for preventing even the shadow of suspicion resting upon the goods they have to sell; hence, they become most efficient aids to the health department".[27] While local inspection and antitrust legislation was being considered at the state level, more comprehensive efforts for meat inspection and antitrust were occurring at the federal level.

Federal Government Meat Inspection

The position of midwestern farmers and politicians on the

issues of cattle diseases, the role of the packers in the decline in cattle prices, and federal inspection and antitrust legislation are reflected in the testimony and reports of the Senate Select Committee on the Transportation and Sale of Meat Products (the Vest Committee). The committee was approved by the Senate on May 14, 1888, following a resolution by Senator George Vest of Missouri, calling for an investigation as to "whether there exists or has existed any combination of any kind by reason of which the price of beef and beef cattle have been so controlled or affected as to diminish the prices paid the producer....".[28] Five senators from cattle states, four of them from the Midwest, made up the Vest Committee, including Vest of Missouri, Preston Plumb of Kansas, Shelby Cullom and later, Charles Farwell of Illinois, Charles Manderson of Nebraska, and Richard Coke of Texas.

Beginning in November 1888, and for the next 13 months, the Vest Committee held hearings in St. Louis, Washington D.C., Chicago, Des Moines, Kansas City, and New York City. The committee elected to begin the hearings in St. Louis to coincide with the meetings of the International Cattle Range Association and the Butchers' National Protective Association. During the hearings, the committee listened to 111 individuals, including 57 cattle raisers and sales commission agents, 19 slaughterhouse owners and butchers, and S.B. Armour of Kansas City and P.D. Armour of Chicago.

As reported in the published testimony from the U.S. Senate

[1889, 13, 81, 95, 137, 177, 180, 185, 189, 268], it was repeatedly charged that the packers colluded in purchasing cattle, which accounted for the fall in cattle prices, and that dressed and canned beef shipped from Chicago was from diseased animals and therefore was less healthy than locally-slaughtered beef.

The report of the Vest Committee to the Senate on May 1, 1890 addressed the same two issues that had been raised earlier in the states: meat inspection <u>and</u> antitrust. In U.S. Senate [1890a], the committee recommended five pieces of legislation--two dealt with federal meat inspection and three dealt with various monopoly issues: SR78, which asked the President to obtain repeal of quarantine regulations against American cattle in Great Britain; S3717, which amended the Interstate Commerce Act to prevent discrimination by railroads in shipping rates for live cattle and dressed beef; S3718, which prohibited monopoly in transporting cattle to foreign countries; S3719, which provided for inspection of live cattle and beef products for export; and S1, which was the Sherman Antitrust bill, as passed by the Senate April 8, 1890. Senate Resolution 78 was agreed to by the Senate on June 11, 1890.[29] S3717, S3718, and S3719 also passed the Senate the same day, and were sent to the House.

During Senate debate on his committee's report, Vest argued that British cattle raisers wanted to block the importation of American cattle and that the cattle and beef inspection bill, S3719, should be passed to remove the pretense that diseased U.S.

cattle were exported. In the House, S3719 was incorporated into S4155, another bill for the inspection of livestock and meat products, and was passed by both houses of Congress on March 2, 1891.[30]

The Meat Inspection Act of 1891 required that the Secretary of Agriculture inspect and certify all cattle to be exported or to be slaughtered for either interstate or export trade. Section 3 of the law also authorized inspection of hogs and sheep prior to slaughter and interstate shipment and discretionary examination of carcasses and meat products.[31] The Bureau of Animal Industry was given the mandate for inspection, and all slaughterhouses that desired to produce for interstate trade had to apply for government inspection.[32] With this law, the federal government, for the first time, was authorized to inspect and certify food quality for American consumers.

The Sherman Act

In its report to the Senate, the Vest Committee repeated the claim made in March 1889 at the convention of cattle-raising states in St. Louis that inspection of cattle and meat products alone was insufficient to address the problems faced by farmers. If the demand for cattle were to rise with greater exports and domestic demand for beef, the gains could be captured by the Beef trust unless federal antitrust legislation also was enacted. Accordingly, the Vest committee included the Sherman bill, S1, in its report. Indeed, the Beef trust played an especially prominent role in congressional debate over federal antitrust

between 1888 and 1890.

The Chicago packers, along with the Standard Oil, sugar, whiskey, tobacco, and cotton bagging and oil trusts, were the most frequently cited examples of the evils presented by the great enterprises of the day. It is no coincidence that studies by Atack [1985] and Burns [1983] show that meat packing, whiskey, and tobacco were among the industries evidencing the greatest structural changes due to scale economies, biased technological change, and lower transportation costs by 1900. The Beef trust in particular, appears to have attracted the attention of those lobbying Congress for antitrust legislation. Although there was reference in Congress to "a great clamor" about trusts, in fact most of the lobbying came from farm groups, especially from the Midwest, where grains and cattle were the major products. For example, of the 59 petitions regarding trusts sent to the 51st Congress prior to the enactment of the Sherman Act, all but two came from Illinois, Indiana, Iowa, Kansas, Kentucky, and Tennessee, and were presented by groups, such as the Farmers Union, Farmers Alliance, Farmers Mutual Benefit Association, and Patrons of Animal Husbandry.[33]

This lobbying appears to have had the desired impact on members of Congress from the Midwest. At least thirteen of the sixteen antitrust bills introduced in the House, 50th Congress, 1st session, and all eighteen of the bills introduced in the House, 51st Congress, 1st session, were sponsored by midwestern or southern representatives. In the Senate, three antitrust

bills were introduced in the 50th and 51st Congresses also by midwestern or southern Senators--Cullom of Illinois (50th Congress), Sherman of Ohio, Reagan of Texas, and George of Mississippi (51st Congress).[34]

The Beef trust also played a prominent role in congressional hearings on the impact of trusts in the economy. Between 1888 and 1890, there were three major congressional hearings on trusts: two were conducted by the House Committee on Manufacturing during 1888 on the sugar, Standard Oil, whiskey and cotton bagging trusts and reported in U.S. House of Representatives [1888], [1889], and one was by the Senate Vest Committee on the Beef trust, reported in U.S. Senate [1890a].[35] In the House Committee on Manufacturing hearings, testimony was taken regarding combinations among sugar refiners, efforts of oil producers to reduce oil production in Pennsylvania and New York fields, and alleged agreements among distillers and cotton bag producers. These investigations were reported early in congressional deliberations on antitrust (July 30, 1888 and March 2, 1889), and provided no recommended legislation. The Vest Committee report, however, was introduced two months prior to adoption of the Sherman Act, and hence, timely enough to have had some influence on the debate. Further as noted above, unlike the other two committee reports, the Vest Committee provided a draft of the Sherman Act as a remedy for the problems it encountered in the meat-packing industry. In general, the members of the Vest committee were influential Senate proponents of antitrust

legislation, especially Senator Cullom, who introduced his own antitrust bill, S3510 in 1888, and Senators Vest and Coke, who were on the Judiciary Committee, which drafted the final version of the Sherman Act.

Finally, the Beef trust was directly targeted in an amendment to the Sherman Act by Representative Richard Bland of Missouri on May 1, 1890 that became a point of contention between the House and Senate. The amendment at least delayed congressional approval from April 8, 1890, when it passed the Senate, to June 20, 1890, when the same bill finally passed the House. Disputes over the amendment had the potential to threaten final adoption of the law. Letwin [1965, 90] noted that other antitrust bills, including earlier versions of the Sherman Act, had been introduced into Congress since 1888 only to languish in various committees.

Antitrust was a new and vague area for Congress, and especially in the May 1, 1890 House debate on the Senate-passed bill there was concern as to just what contracts, trusts, or combinations would be prohibited as restraints of trade under the general wording of the proposed law. Since congressional antitrust authority was based upon the commerce clause of the constitution, there was the question of when commercial activity fell under the jurisdiction of the federal government. Moreover, there were related issues of how federal and state antitrust statutes would blend.[36] Indeed, Representative David Culbertson of Texas argued that answers to these questions would not be

known until the courts had interpreted the provisions of the proposed act. He speculated, however, that resale price maintenance contracts to drive out competitors and purchase contracts to fix prices at some specified (low) level in interestate commerce would be illegal under the new law. Contracts by the Beef trust with retail butchers and with agents purchasing cattle to fix prices across state lines, along with similar actions taken by Standard Oil, were presented as specific examples of likely violations of the law. But the concerns about the coverage of the law and particularly, about how the Chicago packers would be affected continued to be raised. Representative David Henderson of Iowa pointed to the Vest committee report and asked if the bill would prohibit the actions of the Beef trust "to reduce the price of Western cattle from one-third to one-half...".[37]

Finally, after some discussion of various antitrust issues concerning the roles of state laws, congressional jurisdiction over corporations, and the contribution of the tariff to trusts, Representative Bland introduced his amendment: "Every contract or agreement entered into for the purpose of preventing competition in the sale or purchase of any commodity transported from one State or Territory to be sold in another, or so contracted to be sold, or for the transportation of persons or property from one State or Territory into another, shall be deemed unlawful within the meaning of this act....".[38]

The Bland amendment went beyond the Sherman bill in a

number of ways. It prohibited the 'intent' to restrict competition, a provision which was not explicit in the Sherman bill. Further, it targeted contracts to prevent competition in the sale or purchase of goods that <u>had been</u> or <u>would be</u> transported across state lines, as well as contracts directly affecting interestate commerce. Accordingly, contracts to restrict trade within a state, but involving goods that would be or had been shipped in interestate commerce would fall under the provisions of the new federal law. Bland wanted to make clear Congress' intent to limit the market power of the Chicago packers in both the purchase of cattle and in the sale of meat and not to leave the issue to the discretion of the courts: "We know the contract with the Big Four, so called, covers every State in this Union. They compel butchers in every town of any population, East or West, to purchase of them or else they establish by the side of those butchers other shops for the sale of beef and, by underselling for a short time, they compel the home seller to submit to their dictation...I want my friends to join with me to make this definite and certain, for there is no trust in this country that today is robbing the farmers of the great West and Northwest of more millions of their hard-earned money than this so-called Big Four beef trust of Chicago".[39]

After discussion, the House passed the amended Sherman Act and sent it back to the Senate. The Senate Judiciary Committee, however, believed that the Bland amendment went too far--beyond the "constitutional power of Congress. The mere fact that an

article has once been the subject of transportation from one state to another does not authorize the Congress to treat forever after the dealing in that article as interstate commerce", and it reduced the amendment to focus solely on contracts directly affecting competition in interstate transport.[40] A House-Senate conference committee meeting was held to resolve the dispute, and it forwarded the Senate version to the House. Senator Vest and Representative Bland, who were members of the conference committee supported the original amendment, and did not sign the committee report.

The House overwhelmingly rejected the Senate amendment, with Bland arguing that his original wording was necessary so that the question of which contracts were in restraint of trade "is no longer a judicial question at all. It is simply a question of fact." Again Bland wanted to insure Congress' ability to police the actions of the Chicago packers "in relation to the purchase of beef, cattle, and hogs that are shipped from the Northwest and Western States to Chicago." He did not want the matter referred to the courts: "We do not know what the court will hold in regard to contracts to prevent fair competition in interstate commerce or in restraint of trade".[41] As debate continued, prospects for enacting any antitrust legislation appeared to dim, and the House voted on June 12, 1890, 106 to 98, with 123 abstaining, to remove the Bland amendment. Thorelli [1955, 209] argues that the close vote reflected the strong support held in the House for the Bland amendment. A final

House-Senate conference committee struck all amendments from the bill, and the House approved the original Sherman Act on June 20, 1890, 242 to 0 with 85 abstentions. The bill was signed by President Harrison on July 2, 1890.[42]

V. CONCLUDING REMARKS

Coinciding with congressional enactment of the country's first law for federal inspection and guarantees of food quality, the Meat Inspection Act of 1891, was the passage of the first federal antitrust law, the Sherman Act of 1890. The timing of this legislation was no coincidence. Both laws were the product of fundamental changes taking place in the American economy in the late nineteenth century. The rise of the Chicago packers, or Beef trust, exemplified the irreversible effects of new technology; economies of scale in production, marketing, and shipment; and falling transportation costs, which were bringing about the rise of the modern industrial economy. The concerns of local slaughterhouses, which were being displaced by low-cost dressed beef, and of cattle raisers, who sold their products to the large Chicago packers, were echoed across the economy by small businesses, farmers, and other sellers of primary and intermediate products, who feared for their competitive positions during a time of structural change in the economy.

Indeed, congressional debate and hearings over the Sherman Act emphasized the protection of small businesses and farmers, who were being 'crushed' by the new industrial combines. Senator James George of Mississippi, a leading proponent of antitrust,

although a critic of the original Sherman Act, commented on the changes in the economy during Senate debate: "It is a sad thought to the philanthropist that the present system of production and of exchange is having that tendency which is sure at some not very distant day to crush out all small men, all small capitalists, all small enterprises".[43]

Meat inspection legislation was a part of the outcome of these changing competitive conditions, and there is no evidence that a documented consumer information problem or a domestic health threat were the principal factors behind adoption of the 1891 law. Instead, the disease issue was stressed by local slaughterhouses in an effort to limit or redirect the economic effects of the introduction of refrigeration. Similarly, midwestern farmers, who blamed the Beef trust for low cattle prices and who had other concerns about trusts and low agricultural prices, were the most active lobbyists for state and federal antitrust legislation.

The paper argues that the meat-packing industry played a more prominent role in the enactment of the Sherman Act than has been previously recognized. At the state level, concerns regarding falling cattle prices and the perceived role of the Chicago packers in their decline led to the St. Louis convention of delegates from largely midwestern states in 1889 to consider local inspection and state antitrust laws. Twenty states considered local inspection laws, and four adopted them in 1889, but they were dismissed by the U.S. Supreme Court in <u>Minnesota v.</u>

Barber later in 1890. In 1889, twelve states adopted antitrust legislation with the greatest outpouring of such legislation for any year. At the federal level, nineteen antitrust bills were introduced into the fiftieth Congress and twenty-one into the fifty-first Congress. Midwestern and southern members of Congress were the major proponents, sponsoring sixteen bills in the fiftieth Congress and all twenty-one in the fifty-first Congress. The principal lobby pressure for federal antitrust legislation came from Midwest farm groups. Of the three major congressional investigations into trusts between 1888 and 1890, only the Vest Committee report on the Beef trust in May 1890 offered the Sherman Act as a specific remedy. Finally, the Bland amendment, added in the House in May 1890 to strengthen the provisions of the Sherman Act, focused on the Beef trust, and it raised difficult jurisdiction and definition issues that were to persist in judicial interpretation of the Sherman Act.

The outcome of this judicial review, of course, was the concern of Representative Bland, Senator Vest, and others in their efforts to amend the Sherman Act. Indeed, the Supreme Court in United States v. E.C. Knight Co. 156 U.S. 1 (1895) took a narrow view of the commerce clause, separating contracts affecting the 'flow of commerce' from those involving the manufacture of goods within a state. This was exactly the interpetation feared by Bland. Nevertheless, the intensity of concern about the market power of the Chicago packers abated temporarily after 1890. Cattle prices rose after 1891, peaking

in 1900, and charges of anti competitive behavior in cattle markets disappeared. When prices began to decline in 1901, however, monopsony charges again were raised. As outlined by Letwin [1965, 240-44]; Thorelli [1955, 585]; and Yeager [1981, 181-95, 219-32], antitrust investigations into the actions of the Chicago packers by the Justice Department and the Bureau of Corporations began in 1902. They led to the 1912 dissolution of the National Packing Company by Armour, Swift, and Morris, as well as the FTC investigation and 1920 judicial Consent Decree, which required divestiture of ownership in stockyards, terminal railways, and cold storage facilities.[44]

The analysis of antitrust and meat inspection legislation indicates how closely tied were major legislative efforts in the late nineteenth century to expand the federal government's role in the economy. This record reaffirms the argument made by North [1978, 970-78] that a more thorough understanding of government regulation requires identification of the winners and losers in economic events, such as the introduction of new technology, and their efforts to construct institutions to mold those events to their benefit.

Table I

Average Capital in Slaughter and Packing Plants

State	1880	1890	1900	1910
Illinois	$84,056	$503,792	$1,112,957	$1,202,000
Kansas	119,243	615,892	1,177,584	1,081,971
Nebraska	27,558	724,214	1,377,075	1,078,556
Maryland	96,111	58,417	18,884	70,519
Massachusetts	37,720	299,489	514,276	165,394
New Jersey	57,256	36,513	38,741	97,405
New York	35,597	69,643	139,610	145,109
Rhode Island	66,444	75,310	108,550	28,238

Source: Calculated from the U.S. Department of the Interior [1883, 474; 1904, 389] and U.S. Department of Commerce and Labor [1913, 350-351].

Table II

The Growth of the Dressed Beef Trade
(in tons from Chicago)

	1880	1881	1882	1883	1884	1885
Live Cattle Shipments:	416,204	433,600	383,660	372,214	310,410	281,022
Dressed Beef Shipments:	30,705	43,774	65,775	149,640	184,993	231,634
Ratio of Dressed Beef to Live Cattle:	.07	.10	.17	.40	.60	.82

Source: Bureau of Animal Industry [1886, 278].

Footnotes

*Department of Economics and Karl Eller Center, University of Arizona, Tucson 85721 and National Bureau of Economic Research. This paper has benefitted from comments by Lee Alston, George Bittlingmayer, Louis Cain, Price Fishback, Bob Higgs, Ron Johnson, Shawn Kantor, Joe Reid, Barbara Sands, Pablo Spiller, Leslie Stratton, Tom Sullivan, Gordon Tullock, Mary Yeager, Gary Walton, and Mark Zupan, as well as participants at seminars at U.C. Berkeley, Chicago, U.C. Davis, George Mason, Harvard, Illinois, Michigan, Northwestern, UCLA, USC, and the All Washington D.C. Economic History Workshop, 1989 Cliometrics Conference, 1990 Public Choice Society Meetings, 1989 Social Science History Association Meetings, and 1990 Western Economics Association Meetings.

1. The Meat Inspection Act of 1891 (26 Stat. L. 1089) followed a 1890 law for federal inspection and certification of hams and bacon for export, which is discussed later. The 1890 law (26 Stat. L. 414), however, did not mandate the extent of federal involvement in the economy authorized by the Meat Inspection Act of 1891. This law brought about federal inspection and quality certification of livestock for fresh meat consumption in the domestic economy and export. The law represents the first time that the federal government was called upon to certify food quality. The inspection mandate described in the 1891 Meat Inspection Act was broadened by

the more familiar 1906 Meat Inspection Act (34 Stat. L. 674).

2. Discussion and debates over the origins of the Sherman Act include Thorelli [1955]; Letwin [1965]; Bork [1966]; Lande [1982]; Stigler [1985]; DiLorenzo [1985]; DiLorenzo and High [1988]; and Hazlett [1989]. Many of the arguments and relevant papers are in Sullivan [1991]. The origins of the Interstate Commerce Act are discussed by Gilligan, Marshall, and Weingast [1989].

3. In general, the Warren and Pearson price index for farm products fell by approximately the same percentage amount as did the all commodities index. Wheat prices as shown in U.S. Department of Commerce [1975, 201, 512], however, appear to have fallen more through the periods 1866-1889 and 1880-1889, suggesting a real income decline for wheat farmers. As pointed out later, cattle prices, which had risen through 1884, fell to their lowest nominal and real levels in the post Civil War period by 1891, implying a deterioration in real income from cattle raising. Although Bowman and Keehn [1974] find no secular decline in terms of trade in four midwestern states between 1870 and 1900, they note considerable short-run fluctuation. These fluctuations correspond to outbreaks of farmer discontent as argued by McGuire [1981]. Higgs [1971, 89-100] claims that railroad rates, relative to the prices of cotton, corn, and wheat, did not fall through 1897, a condition that farmers blamed on railroad collusion. Higgs also emphasizes that farm real

income was rising more slowly than income in other sectors of the economy.

4. Discussion of quality control, reputation, and information for consumers is provided in Akerloff [1970]; Chan and Leland [1982]; Darby and Karni [1973]; Klein and Leffler [1981]; Leland [1979]; and Shapiro [1982].

5. Investment in brand names for dressed beef carcasses was not practical because they would be divided subsequently into various beef products by retail butchers for final sale to consumers. Policing the transfer of trademarks to steaks and roasts would have been a serious problem.

6. For discussion of the differential incentives facing parties of different size in the provision of a group public good, see Olson [1965, 28-36]. For incentives in a cartel setting, see Wiggins and Libecap [1987]. As Akerloff has argued, quality can deteriorate throughout the industry if the identity of the firm that cheats on quality cannot be detected by consumers. With very homogeneous products and many producers, detection of the violator can be difficult.

7. This condition holds so long as there is no easy entry into the industry, which was the case at least through 1906.

8. This observation is based on a reading of primary and secondary material on the meat-packing industry in the 1880s, including Annual Reports of the Bureau of Animal Industry; the Congressional Record, forty-eighth through fifty-first Congresses; the National Provisioner; Clemen [1923]; Osgood [1929]; Dale [1930]; Yeager [1981]; and

Skaggs [1986].

9. Discussion of economies of scale in slaughter and meat packing is provided in Aduddell and Cain [1973; 1981a; 1981b].

10. U.S. Senate [1890a, 3], Yeager [1981, 67]).

11. U.S. Department of Agriculture [1937, 115-27] and U.S. Department of Commerce and Labor [1905, 88-92].

12. The number of cattle marketed is from the Bureau of Animal Industry [1989, 209-13]. Nominal cattle and hog prices are from the U.S. Department of Agriculture [1937, 26, 27]. The Warren and Pearson all commodities index is used for calculating real cattle prices as provided in U.S. Department of Commerce [1975, p. 201]. Cattle prices fell more than did those for other agricultural commodities. Hog prices in the post Civil War period had much shorter cycles with less variation than did cattle prices. Bowman and Keehn [1974, 592-609] also point out that there was a temporary recovery in real prices for grains in the 1880s.

13. Bureau of Animal Industry [1885, 247]; U.S. Senate [1889, 33, 226-30]; Federal Trade Commission [1919a, 39].

14. Data on slaughtering are from Yeager [1981, 67]. The ratios reported by Nutter and Einhorn [1969, 140] for various industries include .4546 for food; .7880 for iron and steel; .4678 for petroleum; .4574 for nonferrous metal products; .4949 for tobacco; and .4678 for transportation. The ratio for food understates that for the meat industry, which was the most concentrated sector of the food industry. Other

discussions of concentration in the meat industry include those by Van Hise [1912]; Moody [1904]; Stigler [1950]; and Wilcox [1940].

15. As reported by Federal Trade Commission [1919a; 1919b] and Yeager [1981, 113-28] from 1886-1893 the firms of Allerton, Armour, Hammond, Morris, and Swift took part in the 'Allerton Pool' to share markets east of the Mississippi, to devise formulas for uniform product pricing and profit margins, and to establish common price lists in purchasing cattle. The final collapse of the pool led to new efforts, called the 'Veeder Pools' from 1893-1901, including Armour, Cudahy (a new entrant), Morris, Swift, and Hammond. Markets were divided, allotments were assigned weekly, and penalties were assigned for violation. New entry (Schwarzschild and Sulzberger) and quota violations apparently plagued the collusive effort. There were conflicting reports on the impact of the Chicago packers on cattle prices in the twentieth century. The Commissioner of Corporations as reported in U.S. Department of Commerce and Labor [1905] found neither evidence of a growing spread between cattle and beef prices nor excessive rates of return based on 1902 data. The Federal Trade Commission [1919a, 24-32], however, argued collusion existed through the ownership of stockyards.

16. Discussions of interstate conflicts over quarantines are provided in Yeager [1981, 113-128]; Bureau of Animal Industry [1888, 319-21]; U.S. Senate [1882, 117]; and Osgood

[1929, 171]. Another aspect of the compromise in Congress needed to pass the legislation was a limitation on the Bureau of Animal Industry's budget to $175,000 in fiscal 1885 and total staffing to 20 to minimize any constraints on the flow of Texas cattle north (Congressional Record 15(1), 899-904, 926-31; 15(2), 1436-66; 15(4), 3342, 3536).

17. Efforts to counter allegations of unwholesome pork and to promote bacon and ham exports led to enactment of a federal export inspection law for salted pork products in 1890 (26 Stat. L. 414). The law specifically authorized the President to retaliate against the exports of countries that discriminated against American pork products. The 'pork war' is described by Hoy and Nugent [1989], where they point out that Germany rescinded the import ban in late 1891. Hoy and Nugent argue that the rescission followed the 1890 inspection act for bacon and hams and the 1891 law, which allowed for the inspection of cattle, sheep, and hogs prior to slaughter, as well as a post mortem examination of livestock carcasses. They take this as evidence that health concerns were more important than protectionist pressures in motivating import restrictions. Whether the rescission of import bans was due to satisfaction regarding American inspection or fears of U.S. retaliation against German beet sugar and other exports, however, is not made clear in their study. Other discussions of British and European restrictions on U.S. livestock and meat products is provided by Clemen [1923, 320-23]; Perrin [1971, 434-39]; and Fisher

[1980]. The U.S. Bureau of Animal Industry and the U.S. Treasury strongly disputed the claims of disease in American livestock.

18. Osgood [1929, 166] describes British restrictions on U.S. cattle exports. As reported in the Bureau of Animal Industry [1891, 23-24; 1898, 209-13, 309-11; 1899, 586], and U.S. Department of Agriculture [1890a, 338; 1891, 319], the value of live cattle and dressed beef exports (mostly to the U.K.) began to rise in 1888 and 1889, but the major increases were in 1890 through 1892, reaching $35,099,000 for cattle and $19,177,000 for dressed beef by 1892. This was approximately three times the 1887 value of cattle and dressed beef exports. Hoy and Nugent [1989, 198] suggest that veterinary inspection facilitated the growth of cattle and dressed beef exports into Britain. The Cattle Diseases Act of 1878, which ordered the dockside slaughter of cattle from Europe and the United States, was not rescinded, although Fisher [1980, 291-93] and Perrin [1971, 439] note that the problem of cattle disease was minimal after 1884. English cattle raisers were strong proponents of import controls. American beef, either imported as dressed beef or from cattle slaughtered at ports, was a major source of supply in England, and inspection legislation may have contributed to increased demand for American beef and the observed jump in cattle and dressed beef exports.

19. U.S. Senate [1889, 150] and Leech and Carroll [1938, 173]. Because of the large number and heterogeneity of small

slaughterhouses, which were spread throughout the country, the Butchers' National Protective Association faced formidable organizing costs, and the group never contained more than a small percent of the country's slaughterhouses. The efforts of the Butchers' National Protective Association are discussed in National Provisioner May 27, 1893, 19; June 10, 1893, 13.

20. See Wood [1986, 155-56]; National Provisioner November 14, 1891, 9; June 18, 1892, 12; Temin [1979]; Okun [1986]; High and Coppin [1988]; and Leech and Carroll [1938, 172] for discussions of charges of adulteration in various products, such as lard and oleomargarine. Wood [1986, 154-64] sees the charges against oleomargarine made by dairy interests as part of an effort to block entry into the market. In the U.S. Senate [1890b], the argument was made that products from new technology and production processes were taking markets away from American farmers and 'real' products.

21. Nebraska Senate Journal March 15, 1889, 899.

22. Journal of the House of Representatives of Texas 1889, Appendix,1.

23. Stigler [1985, 6].

24. Boudreaux and DiLorenzo [1990, 7]. Boudreaux and DiLorenzo argue, though less persuasively, that farmers also were concerned about competition from more efficient, large farms.

25. The Chicago packers opposed local inspection laws, but supported local health regulations. For example, the

Chicago city health department, whose authority extended one mile beyond the city limits, required that all slaughter and packing houses obtain licenses, which could be revoked for violation of health standards beginning in 1877 (Bureau of Animal Industry [1886, 384]. With few firms involved in the dressed beef trade and all headquartered in Chicago, private quality control arrangements were possible. As noted by Clemens [1923, 383] the Chicago Board of Trade, which included founders of the large packing houses, adopted inspection and quality rules for meat products, and in 1884, the Chicago Livestock Exchange, which also included representatives of the packers, appointed a chief inspector to be responsible for inspecting livestock received at the Union Stockyards for disease and injuries. Condemned animals were to be set aside and not used. The Exchange's rules called for the expelling of any member of the association violating inspection rules. Sec. 5 of rule XVII stated that: "The object of this rule is to provide for and maintain a rigid examination into the sanitary condition of all livestock handled by members of this association, thereby preventing the dealing in or use of diseased or unwholesome meats, and so far as possible protect the interests of the public in that respect" (Bureau of Animal Industry [1886, 382-84]).

26. U.S. Senate [1889, 134].

27. At the same time, however, the Bureau of Animal Industry continually lobbied Congress for a greater federal

inspection mandate, even though it admitted that contagious livestock diseases were limited in the United States relative to Europe and that in the preparation of meat, the Chicago packers maintained strict quality control procedures. The annual reports of the Commissioner of the Bureau of Animal Industry [1886, 149, 156, 160; 1893, 41; 1896, 25-30] repeatedly called for greater staffing, budgets, and inspection authority.

28. Congressional Record 19(5), 4083.

29. Congressional Record 21(6), 5928.

30. As indicated in Congressional Record 21(7), 6415, this bill, S4155, had been introduced into the 51st Congress, 1st Session by the Senate Committee on Agriculture and Forestry. Debate and final enactment of the federal meat inspection act are provided in Congressional Record 22(4), 3712, 3713, 3716, 3680.

31. As indicated in Hoy and Nugent [1989, 218-19], post-mortem inspection was added apparently to meet demands of the German government in order to remove restrictions on the importation of American pork products.

32. This provision served through 1906 at least, to limit entry into the interstate dressed beef trade.

33. This is drawn from Congressional Record, 21, Index, "Petitions to Congress regarding Trusts". As indicated in Congressional Record 21(7), 6312; Thorelli [1955, 261]; and Letwin [1965, 8-9]), farmer groups voiced concern about the Beef trust and other combinations that they argued were

manipulating the prices of the products they sold, as well as of the goods they purchased. Thorelli [1955, 62, 72, 333-45] and Hazlett [1989] also describe complaints by farmers against railroad pooling agreements and the tariff.

34. U.S. Senate [1903, 31, 409], Thorelli [1955, 173]. It is surprising that no bills were sponsored by members of Congress from the populous Northeast, where most consumers lived, given assertions by Bork and Stigler that Congress' intent in passing the Sherman Act was to promote consumer welfare.

35. Congressional hearings on antitrust were identified through the CIS Congressional Committee Hearing Index for the Serial Set.

36. For discussion of some of these issues, see Hovenkamp [1983].

37. Congressional Record 21(5), 4089-91.

38. Congressional Record 21(5), 4099.

39. Congressional Record 21(5), 4099.

40. Congressional Record 21(5), 4560.

41. Congressional Record 21(6), 5953.

42. The two House votes are in Congressional Record 21(6), 5982; 21(7), 6314.

43. Congressional Record 21(3), 2600.

44. U.S. v. Louis Swift et al., 188 Fed. Rep. 1002.

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