Chapter 3
A History of Government's Role in the Food and Agricultural Marketing System

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Abstract The Federal Government's involvement in the marketing of agricultural and food products began in the nineteenth century, grew rapidly in the early twentieth century, and continues to evolve. Federal programs affecting food and agricultural marketing have addressed consumers' concerns about food safety and farmers' concerns about fair pricing in the marketplace. Regulation of the railroads and competition in the agricultural product processing began in the late 1800s. The Meat Inspection and Pure Food and Drug Acts of 1906 initiated a series of regulatory steps continuing to this day to reduce food-borne illness. Beginning in 1915, Federal market news, grades and standards, support for cooperatives, and marketing orders increased farmers' marketing power. The Farmer-to-Consumer Direct Marketing Act was passed in 1976. Programs have been modified in recent decades to address new food safety problems, increased demand for organic and locally grown foods, and renewed concerns about concentration in agricultural markets. Future programs will be affected by tight federal budgets, continuing changes in technology, high concentration in agricultural markets, and new challenges in preventing food-borne disease.

This chapter traces government actions affecting food and agricultural markets beginning in the nineteenth century. It should be noted at the outset that the government's primary role in food and agricultural marketing, as in other areas of commerce, is to enforce property rights and contracts. In the USA, this function is shared by the state and federal courts and law enforcement agencies. Since the time of Adam Smith, economists have recognized that high levels of economic efficiency are attained in markets where private firms are allowed considerable freedom to pursue their own self interests. This implies that government should intervene only when markets fail to allocate resources efficiently. Stiglitz lists eight sources of market

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failures that may justify government activity in the marketplace (Stiglitz 1986). Three of these, failure of competition, information failures, and the existence of public goods provide justification for most food and agricultural marketing programs.

Competition fails when one or a few dominant firms in an industry are able to distort prices to their advantage without competitors entering the market. Agricultural product markets are vulnerable to such failures because the products of many producers typically funnel through one or a few buyers. Perishability exacerbates the problem in markets for livestock products and produce. The measures taken in the late 1800s to regulate railroads were the first major federal government actions affecting food and agricultural markets. Regulation of competition in meat packing soon followed. Later programs, such as support for cooperatives and marketing orders, were intended to increase the marketing power of farmers acting in groups when buyers were few.

Information failures occur when market participants lack the information about quantity, price, quality, and safety necessary to make sound decisions, particularly when the distribution of such information between sellers and buyers is asymmetrical. Market information often has the characteristics of a public good—once produced it can be provided to additional individuals at near zero cost and it is nearly impossible to deny others its use. The setting of grades and standards and provision of market news fall into this category. Provision of grading and inspection services may or may not, depending on whether and how much the broader public benefits. Information failures led to the initiation of market news programs, government grading and quality standards, and food safety programs early in the twentieth century. Changes in technology, tastes, marketing practices, and organization of the food processing industries have required continual modification and strengthening of these programs throughout the twentieth century and up to the present.

Table 3.1 provides a chronology of major programs aimed specifically at problems in food and agricultural markets. Not every program is included for lack of space. Some programs with major effects on markets, but aimed primarily at other problems, particularly the farm price and income support programs, are not covered. Also neglected are programs affecting farm input markets and food retailing.

1880–1900: The Regulation of Competition Begins

During the late 1800s the westward expansion of agriculture and the expanding railroads led to large-scale long-distance movement of agricultural products. Although the railroads tended to compete with each other for the long hauls, many were the sole carriers for short hauls in the areas they served. This enabled them to charge higher rates for the short hauls than for the long hauls. Farmers' dissatisfaction with such practices helped lead to the formation of the National Grange in 1867. The Grange grew rapidly in power and helped pass laws in several Midwest states to regulate the services and rates of businesses serving farmers, primarily the railroads and elevators. Most of these state laws were declared unconstitutional by

Table 3.1 A chronology of significant government actions affecting food and agricultural marketing

Year	Event
1862	Bureau of Chemistry established in the Department of Agriculture (USDA) to analyze foods
1884	Bureau of Animal Industry created in USDA to keep diseased animals out of the food supply
1887	Interstate Commerce Act regulated railroads
1890	Sherman Antitrust Act prohibited anticompetitive combinations and practices
1906	Meat Inspection Act required all meat animals to be inspected before slaughter
1906	Pure Foods and Drugs Act prohibited commerce in adulterated and misbranded foods and drugs
1913	Gould Amendment required food packages to show weight, measure, or numerical count
1914	Clayton Antitrust Act clarified policy with respect to the organization and control of industry
1915	First USDA Market News report issued (Strawberries in Hammond, LA)
1916	Standard Container Act authorized packaging standards for fruits and vegetables
1916	Grain Standards Act authorized grain and oilseed standards and required their use for exports
1918	Market News reporting began for most commodities
1921	Packers and Stockyards Act prohibited unfair practices in livestock markets
1922	Capper-Volstead Cooperative Marketing Act partly exempted cooperatives from antitrust laws
1922	Grain Futures Act provided for regulation of futures markets
1930	Perishable Agricultural Commodities Act prohibited unfair trading practices in produce markets
1936	Commodity Exchange Act established the Commodity Exchange Authority within USDA
1936	Robinson Patman Act clarified the meaning of price discrimination
1937	Agricultural Marketing Agreement Act provided authority for federal marketing orders
1938	Food, Drug, and Cosmetic Act prohibited adding poisons to foods and mandated food standards
1946	Agricultural Marketing Act broadened USDA's research and extension activities in marketing
1954	Miller Pesticide Amendment spelled out procedures for setting limits on pesticide residues
1958	Food Additives Amendment required makers of new food additives to establish safety
1967	Fair Packaging and Labeling Act required specified consumer product labeling
1967	Wholesome Meat Act regulates meat inspection and requires states to have equivalent programs
1968	Poultry and meat inspection merged under USDA's Agricultural Research Service
1970	Environmental Protection Agency established and takes over the setting of pesticide tolerances
1974	Commodity Futures Trading Commission Act established the CFTC as an independent agency
1980	Staggers Rail Act gave railroads more flexibility in competing for traffic
1981	Amendments to Agricultural Marketing Act required user fees
1982	Futures Trading Act legalized options trading in agricultural commodities
1990	Nutrition Labeling and Education Act required nutrition labeling
1990	Organic Foods Production Act provided for national standards for organic products
1996	HACCP System implemented by FSIS to reduce microbial infections of raw products
1999	Livestock Mandatory Reporting Act provided for mandatory reporting of livestock prices
2002	Farm Security and Rural Investment Act regulated swine contracting

the US Supreme Court. Since much of the movement crossed state lines and regulations differed among states, a uniform set of federal regulations was found to be needed. This led to the passage of the Interstate Commerce Act of 1887, the first time that Congress asserted its Constitutional authority to regulate commerce between the states. It also was the first time that Congress created an independent agency, the Interstate Commerce Commission (ICC), to regulate commerce. Although additional laws in the early 1900s added to ICC's powers, it was not very effective in curtailing anticompetitive behavior in its early years.

By the 1890s American industry was changing shape. Large corporations began to dominate many industries. One of the first areas where concentration in farm product processing became an issue was in meat packing. The westward expansion of the railroads, the development of refrigerator cars, and economies of scale in meat packing led packers to concentrate in major Midwestern cities such as Cincinnati, Chicago, Omaha, and Kansas City. Farm interests, particularly those concerned about the Beef Trust in Chicago and the Cottonseed Oil Trust, played a role in passing the Sherman Antitrust Act of 1890. In broadest terms, the Sherman Act prohibited two things: (1) anticompetitive combinations or coordination between actual or potential competitors; and (2) anticompetitive practices as well as exclusionary conduct by firms that have monopoly power in a particular market. Among its early applications was a 1903 injunction against the members of the Beef Trust, which was substantially upheld by the US Supreme Court (Weiser 2009). A 1911 antitrust suit divided the American Tobacco Company into four firms: American Tobacco, R. J. Reynolds, Liggett & Myers, and P. Lorillard.

Although the Sherman Act established lasting principles of antitrust regulation, such regulation continued to evolve into the twentieth century (Winerman 2003). The Clayton Act and the Federal Trade Commission Act were passed in 1914. The Clayton Act attempted to clarify basic policy with respect to the organization and control of industry. It identified conditions under which price discrimination, exclusive dealing arrangements and tying, mergers and acquisitions, and shared directors are anticompetitive. Price discrimination was further defined in the Robinson-Patman Act of 1936.

1900–1920: Food Safety Programs Are Launched

The federal government's concern with food safety can be traced to 1848, when a chemist was hired by the Patent Office to analyze food products (United States Food and Drug Administration 2010). This function moved to the newly formed Department of Agriculture (USDA) in 1862, where it resided in the Division of Chemistry—later the Bureau of Chemistry. Beginning in 1883, chief chemist Harvey Washington Wiley expanded research on food adulteration and mislabeling. This work was to lead to increased public concern about the safety of the food supply. In 1884, federal regulation of meat safety began with the establishment of the Bureau of Animal Industry (BAI) within the USDA. Its role was to prevent diseased animals from entering the food supply. Upton Sinclair's 1905 book, *The Jungle*, describing conditions in Chicago's meatpacking houses, heightened public concern, which led to passing both of the Meat Inspection Act and the Pure Food and Drug Act in 1906. Both Acts were administered within USDA by BAI and the Bureau of Chemistry, respectively. The Meat Inspection Act made the inspection of meats entering interstate or foreign channels mandatory at certain points in the meat marketing channel. With minor exceptions, the Act remained the major legislation governing red meat inspection for over 60 years (Sporleder et al. 1983).

The Pure Food and Drug Act of 1906 prohibited interstate commerce in adulterated or misbranded food and drugs and marked the beginning of modern food safety regulation. It prohibited the addition of any ingredient that would substitute for the food, conceal damage, pose a health hazard, or constitute a filthy or decomposed substance. Food labels could not be false or misleading and amounts of specified dangerous ingredients had to be listed. The Bureau of Chemistry administered the Act from 1906 to 1937. The Gould Amendment passed in 1913 required food packages to show weight, measure, or numerical count. Enforcement of the regulations led to many battles within the Administration and in the courts. After multiple transformations, food safety regulation became administered by the Department of Health and Human Services while meat inspection remained in USDA.

1910–1920: USDA Market News and Grading Services Begin

Information is power in the marketplace. Traders with better information have an advantage. Early in the twentieth century, concerns that farm product buyers had better information than farmers led to demands for government price reporting. The first Office of Markets was established in USDA in 1913. It became the Bureau of Markets, which was incorporated into the Bureau of Agricultural Economics in 1922 (Breimyer 1963). USDA Market News reporting began in 1915 with strawberries in Hammond, Louisiana. Price reporting for meat began in 1917. By 1918, price reporting had begun for most crops and livestock. Market news for cotton began in 1919. However, tobacco market news reporting did not begin until 1931.

Demand for uniform grading standards for livestock and meat arose in the livestock industry early in the twentieth century (Harris et al. 1996). The 1916 Congressional mandate for livestock market news reporting required some type of grading system to make the reports meaningful. Moreover, consumers had begun to ask that meat be identified by grade. The first tentative standards for dressed beef were formulated by USDA in 1916. The standards were improved over several years and first published in 1923. USDA began developing grade standards for market hogs, slaughter lambs, and sheep in 1917.

Prior to the establishment of federal grades, grain transactions were facilitated by a variety of grades and standards established by individuals, boards of trade, and state agencies. The use of federal grades was mandated by the Grain Standards Act of 1916 for grains sold by grade in interstate commerce (Nichols et al. 1983). The Cotton Futures Act of 1916 (which replaced the 1914 Act with the same name that had been declared unconstitutional) authorized USDA to develop standards for color, staple length and strength, and other characteristics to facilitate cotton trading. The Standard Fruits and Vegetables Baskets and Containers Act also was passed in 1916. It sets the cubic contents for dry half-pint, pint, and quart containers.

1920s and 1930s: New Marketing Programs Established to Protect and Empower Farmers

Export demand for US farm products declined after World War I initiating some two decades of low farm prices and incomes. The antitrust and market information programs that had been established earlier did little to restore farm prosperity and address farmers' concerns about abusive practices of farm product buyers. During the 1920s and 1930s several new marketing programs were initiated to protect farmers in the marketplace and increase their marketing power.

Control of meat packing by five companies in the early 1900s led to additional antitrust actions. A 1920 antitrust suit forced the meatpackers to relinquish their ownership and control of stockyards and prevented them from participating in other food processing activities. A Federal Trade Commission (FTC) investigation report in 1919 led to the passage of the Packers and Stockyards Act in 1921, which placed further limits and controls on the ways that livestock markets can operate. It prohibited anticompetitive behavior and unfair trading practices in the marketing and procurement of livestock and poultry and provided for financial protection of livestock sellers. USDA administered the Act while the Department of Justice and FTC retained primary responsibility for enforcing the statutes that directly address anticompetitive behavior, including the Sherman Act and the Clayton Act. Concentration in meat packing declined after the 1920s, prior to increasing again toward the end of the twentieth century. Public markets (auctions and terminals) have declined in volume while direct purchasing has increased.

The farm cooperative movement arose and grew during the last decades of the nineteenth century with support from the Grange (Frederick 2002). Some fruit and vegetable cooperatives on the West Coast and milk cooperatives on the East Coast began bargaining with the buyers of their products. Questions about whether such bargaining behavior constituted anticompetitive behavior arose. The Capper-Volstead Act passed in 1922 gave farm cooperatives a limited exemption from antitrust law. Under this Act, associations of producers could agree on prices and other terms of sale, select the extent of their joint marketing activity, agree on common marketing practices with other cooperatives, and achieve substantial market share and influence. The Act has remained in effect without major amendment for over 80 years. The Cooperative Marketing Act of 1926 established the Cooperative Marketing Division within the Bureau of Agricultural Economics to gather statistics, conduct studies, and provide advice on all aspects of farm cooperatives. It was transferred to the independent Farm Board in 1930 and to the Farm Credit Administration (FCA) in 1933. FCA became part of USDA in 1939. The Robinson-Patman Act of 1936 established that cooperative patronage refunds are not discriminatory.

The marketing of fresh fruits and vegetables requires many informal agreements and much trust because of the perishability of such products and distances shipped. Buyers are sometimes tempted to reject shipments or deny payment without good reason. The Perishable Agricultural Commodities Act of 1930 was designed to protect the interests of producers when marketing firms are slow to pay, go into

bankruptcy owing money to farmers, or disputes arise over product quality. The Act is administered by the USDA. It prohibits unfair trading practices and enforces prompt payment. Both sellers (not farmers) and buyers of produce must purchase licenses that may be withdrawn by USDA for infractions.

Trading in standardized forward contracts for grains commenced in the USA about 1865 at the Chicago Board of Trade (Santos 2010). Cotton forward trading followed soon thereafter at New York and New Orleans. The modern clearinghouse, which facilitates final settlement of contracts, did not evolve until the 1880s. Futures trading—trading standardized forward contracts on an organized exchange—enables merchants and producers to reduce their income uncertainty by pricing their products or inputs before delivery. Forward pricing involves either selling or buying futures or entering into a cash forward contract with another party who in turn may buy or sell offsetting futures contracts. Forward pricing in futures (hedging) is effective only if maturing futures prices converge to corresponding spot market prices. To assure such convergence futures contracts either provide for actual delivery or allow final settlement based on an average cash price. Futures trading may fail due to poor contract design that results in thin trading and/or excess price volatility, brokers' taking unfair advantage of their customers, and price manipulation. Futures price manipulation involves either cornering (controlling) the deliverable supply for a contract or distorting the cash prices used to calculate the futures settlement price. Alleged corners or price manipulation on futures occurred on numerous occasions during the late 1800s. This led to movements to regulate or ban futures and options trading, which did not succeed until the decline in farm prices after World War I. The Grain Futures Act of 1922 established the Grain Futures Administration within USDA and required futures markets to be registered, limited market manipulation, and publicized trading information. However, the Act was ineffective because its sole remedy was to ban an exchange, which was too harsh for most infractions.

The Commodity Exchange Act of 1936 established the Commodity Exchange Authority (CEA) within the USDA and enabled the government to deal directly with traders rather than the exchanges. This Act also provided that speculators' positions could be limited, regulated futures merchants, and banned options trading in agricultural commodities. It allowed futures to be traded in cotton, rice, butter, eggs, and Irish potatoes as well as grains. Over ensuing decades, more commodities were added and CEA was given additional regulatory tools. Among the regulatory tools used by CEA to prevent price manipulation were original and variation margin requirements, speculative position limits, price limits, and position reporting requirements for large traders.

Federal marketing orders for milk and fruits and vegetables were authorized by the Agricultural Marketing Agreement Act (AMAA) of 1937. Attempts during the 1920s by some of the larger fruit and vegetable cooperatives to organize and regulate quantity and quality had failed because not enough producers and handlers could be persuaded to cooperate. Those who did not participate received the same benefits as participants. This is called the "free-rider" problem. The purpose of the AMAA was to eliminate "free-riders." Marketing orders are especially attractive to fruit producers as a way to establish and maintain a reputation for quality.

Fruit size and quality are vulnerable to weather conditions and orders provide a way to set and enforce quality standards. Without such quality standards, substandard products sold by one or a few producers may turn consumers away from a product.

In the 1920s, milk marketing cooperatives tried to introduce "classified pricing," which involves setting a higher price for milk going into fluid uses than for manufactured uses and "pooling" the resulting payments among producers (Cropp 2001). This effort had limited success because buyers, who were mainly sellers of fluid milk, could acquire milk cheaper by staying outside of the arrangement. The Agricultural Adjustment Act of 1933 established a license program requiring all milk processors within a given area to implement classified pricing and pooling. The Agricultural Adjustment Act Amendment of 1935 set more specific terms and provisions and called the programs "marketing orders" instead of licenses. The above-mentioned 1937 AMAA refined the marketing order provisions and remains in effect. The stated purposes of the orders are to provide for orderly marketing, assure reasonable prices for farmers and consumers, and assure an adequate supply. Each marketing order must be approved by the producers involved. Milk handlers were required to pay at least minimum class prices into a pool. Class I applied to beverage milk products, Class II was milk used for soft products, and Class III was milk used for butter, cheese, and dried milk. All producers in each order received the same "blend" or average price. Dairy cooperatives that manufactured dairy products or sold farmers' milk to different handlers could reblend the prices in making payments to their members.

Federal grades and standards continued to evolve during the 1920s and 1930s. Congress passed the United States Agricultural Inspection and Grading Act in 1924, which authorized federal grading of livestock and meat. The carcass beef grades became official in 1926. Grading was provided free for 1 year and made available on a fee basis thereafter. Official slaughter cattle and veal and calf standards followed in 1928. Public hearings on pork grades were held in 1927 and lamb grades in 1928–1929. Grades for lamb and mutton carcasses became official in 1931. The Standard Container Act of 1928 authorized packaging standards for fruits and vegetables. The United States Cotton Standards Act of 1923 and the Cotton Classification Act of 1937 provided authority for developing the standards used today for classifying cotton. In 1939, USDA's grading services were moved from the Bureau of Agricultural Economics to the newly formed Agricultural Marketing Service.

1930–1970: Food Safety Regulations Are Expanded

The Food and Drug Administration (FDA) took its present name in 1930 but remained in the USDA. It was transferred to the Federal Security Agency in 1940, to the Department of Health, Education, and Welfare in 1953 and to the newly created Department of Health and Human Services in 1980. The Food, Drug, and Cosmetic Act of 1938 prohibited the addition of poisonous substances to foods and mandated legally enforceable food standards. Tolerances for poisonous substances

were addressed and factory inspections were authorized. The first food standards under the1938 Act were for canned tomatoes. Standards were extended to about half of the food supply by the 1960s. Lists of ingredients that could lawfully be included in specified foods were developed. Foods that vary from the standards must be labeled imitations.

During the 1950s and 1960s, mislabeling and adulteration from chemical additives became major food safety concerns. Most of the new concerns arose from new types of products, complex processing methods, and increased volume. Many focused on pesticides, residues of drugs given to meat animals, and preservatives. Following hearings under Representative James Delaney in the 1950s, a series of new laws gave the FDA tighter control over the growing list of chemicals entering the food supply. In 1954 the Miller Pesticide Amendment spelled out procedures for setting limits for pesticide residues in agricultural products. The 1958 Food Additives Amendment requires manufacturers of new food additives to establish safety. The Delaney Provision prohibited carcinogens. In 1959 the Cranberry crop was recalled to check for carcinogens. Standards were extended to about half of the food supply by the 1960s. Lists of ingredients that could lawfully be included in specified foods were developed.

The Fair Packaging and Labeling Act of 1967 required that consumer products be labeled with net contents, identity of contents, and the name and place of business of manufacturer, packer, or distributor. It is enforced by the Federal Trade Commission. The Wholesome Meat Act of 1967 required states to raise their meat standards to at least the federal level. The Animal and Plant Health Inspection Service was established in 1972 to administer this Act and related legislation. Since 1977 meat inspection has been the responsibility of the Food Safety and Inspection Service (FSIS) of USDA. The setting of pesticide residue tolerances was taken over by the newly established Environmental Protection Agency in 1970.

1940–Mid-1970s: Agricultural Marketing Programs Evolve Further

Administration of agricultural marketing programs moved from the Agricultural Marketing Service (AMS) to the Agricultural Marketing Administration in 1942, where it remained throughout World War II. During the war, farm prices were more favorable for farmers than in the 1930s. After the war, attention focused on revising and updating existing marketing programs instead of developing new programs. AMS was reestablished in 1953.

The USDA grading program received a boost when meat grading became mandatory under World War II price control programs and again during the Korean War. These experiences showed that consumers were well satisfied with federal grading and regional packers could compete with national brands by selling graded products. Regional packers temporarily increased their share of the market as a result (Harris et al. 1996).

After the war, efficient marketing gained attention as a way to increase farmers' incomes. The Hope-Flannagan Agricultural Marketing Act of 1946 reinvigorated agricultural marketing research. It declared efficient marketing to be "essential to a prosperous agriculture" and "indispensible to the maintenance of full employment and the welfare, prosperity, and health of the nation" (Breimyer 1963). The added financial support led to a substantial expansion in agricultural marketing research and extension in subsequent years.

The Agricultural Marketing Act of 1946 increased USDA's power to develop and administer standards. Grade standards changed frequently in the decades after the war. In 1950, beef carcass standards were lowered by one grade (Harris et al. 1996). Standards for slaughter lambs and sheep as well as hog barrows and gilts finally became official in 1951 and 1952, respectively. Cutability grades were added to create a dual grading system for beef in 1965 and lamb in 1969. The need to set higher standards for exported grains led Congress to establish The Federal Grain Inspection Service in 1976 to manage the national grain inspection system.

Poultry and livestock inspection were merged within USDA's Agricultural Research Service in 1968.

The work supporting cooperatives moved to the Farm Cooperative Service (FCS) in USDA in 1953, when the Farm Credit Administration again became an independent agency. The cooperative work was performed within the Economics, Statistics, and Cooperatives Service from 1977 to 1980, at which time it was separated as the Agricultural Cooperatives Service.

Uniform milk class pricing formulas were established nationwide in 1960. The Minnesota–Wisconsin (M–W) Grade B manufacturing price paid for farmers' milk price was established as the base price (Class III price) for all federal marketing orders. The Class II price was determined by adding a fixed differential to the M–W price and the Class I price for each order was determined by adding a differential based on distance from Eau Claire, Wisconsin to the M–W price.

Bargaining cooperatives operated in many fruit, nut, and vegetable markets and have played a significant role in the milk and sugar beet industries (Hueth and Marcoul 2002). The Agricultural Fair Practices Act of 1967 protected farmers from retaliation by handlers because farmers belong to any association of producers engaged in marketing, bargaining, shipping, or processing of agricultural products. However, this statute has fallen into disuse. Several states have similar legislation. During the 1970s several bills to facilitate agricultural bargaining failed to pass Congress.

New stand-alone promotion and research programs commenced for wool and lamb in 1954, cotton in 1966, potatoes in 1971, eggs in 1974, and wheat in 1977. Efforts to start a beef promotion program failed on two occasions. Most of the programs allowed for refunds to producers who did not want to participate and refund requests increased over time. Most of the fruit and vegetable marketing orders and some of the milk marketing orders also provided for promotion.

The Farmer-to-Consumer Direct Marketing Act of 1976 provided grants to improve and expand farmers' markets, roadside stands, community agricultural development programs, agritourism activities, and other farmer-to-consumer direct

marketing activities. The Federal State Marketing Improvement Program provides matching funds to state agencies for exploring new marketing opportunities for food and agricultural products.

Alleged anticompetitive behavior in the food industries continued to receive attention. More than 200 cases were filed between 1950 and 1965 charging violation of the Robinson-Patman Act by food marketing firms. The growth of large-scale retailing brought efforts to protect small retailers from being undersold. The 1952 McGuire Act restored legality to retail price maintenance by manufacturers. However, with few exceptions, food manufacturers no longer set retail prices for their products.

The growth of futures trading, particularly in nonagricultural contracts, led to the passage of the Commodity Futures Trading Commission Act of 1974, which moved the regulation of futures trading from USDA to the independent Commodity Futures Trading Commission (CFTC). The CFTC was given broad regulatory authority over all US futures trading and exchange activities, including the power to approve new contracts in any commodity and changes in existing contracts. The Commission consists of five Presidential appointees. One of CFTC's early actions was to approve futures trading in financial contracts. The volume of financial futures trading soon exceeded the volume of agricultural futures trading.

1970s and 1980s: Some Regulations Are Eased While Others Are Modified

By the 1970s, there was growing evidence that regulation was stifling competition in some industries, particularly the railroads and airlines. The interstate highway system had enabled truckers to compete vigorously with railroads, who were enmeshed in binding rate regulations. The railroads were losing traffic and many were going bankrupt. The Staggers Rail Act of 1980 gave railroads more flexibility in competing for traffic. The Act resulted in substantial declines in rail rates along with the abandonment of many branch lines serving agricultural communities.

The Futures Trading Act of 1982 lifted prohibitions against options trading in agricultural commodities that had been in place since 1936. It also clarified the jurisdictions of CFTC and the US Securities and Exchange Commission, particularly in the financial markets. Commodity options provide farmers and merchants more flexibility for shifting their price risks than do futures alone. Pilot programs to subsidize farmers' use of options as a possible alternative to price supports were implemented in the 1980s and 1990s for crops and in 1999 for milk (Buschena and McNew 2008).

Concern about excess regulation led to questions about the marketing order program (United States Department of Agriculture 1981). A series of government studies during the late 1970s and 1980s examined the effects of the orders on marketing efficiency (Jesse 1987). The hops and tart cherry marketing orders were terminated in 1986, although a new tart cherry order was promulgated in 1996. New marketing

orders for Texas-New Mexico potatoes and Vidalia onions were approved in 1989. By the end of the 1990s, there were 45 Federal marketing orders for horticultural crops.

Use of the Minnesota-Wisconsin price as the base price for milk came into question in the 1980s because Grade B production was declining in Minnesota and Wisconsin and other regions were manufacturing significant amounts of milk. By 1995 the Upper Midwest was questioning the increased differentials based on distance from Eau Claire for Class I milk. The method for determining the base price was changed in 1995 and the new base price was called the Basic Formula Price. The 1996 Farm Bill directed USDA to consolidate the existing 33 milk marketing orders to 10–14 by April 1999 and authorized the Secretary to revisit the federal order pricing provisions.

Changes in meat grading continued. In 1980, grading of wholesale cuts was eliminated leaving only whole carcass grading. Lamb and mutton as well as pork carcass standards were modified. The grade name "Good" was changed to "Select" to better fit consumer perceptions. User fees were required for USDA Grading Services by 1981 amendments to the Agricultural Marketing Act.

After several transformations, inspection services were lodged in the Food Safety and Inspection Service in 1981. The Perishable Agricultural Commodities Act was amended in 1984 to provide additional protection to produce sellers. A 1995 amendment eliminated license fees for retailers and full-line grocery wholesalers and raised license fees for other buyers of produce.

1990–2010: New Challenges Arise for Food and Agricultural Marketing Programs

Increased food imports and changes in food processing and distribution technology during recent decades have posed new problems in assuring food safety, while reduced numbers of agricultural product handlers and processors seem to have increased potential for pricing abuses. The marketing services expected from government also have changed to require increased use of technology and increased coordination with foreign governments. Several major outbreaks of foodborne disease in recent decades have raised concerns about food safety. Concentration remains high in many segments of the food processing and distribution industries. The roles of cooperatives and marketing orders continue to be questioned and price behavior on futures markets has on occasions raised questions about their performance.

The public has begun to realize that foods can be harmful if they contribute excessively to chronic disease, such as diabetes or circulatory problems, as well as acute disease. In particular, excess consumption of sugars and fats is unhealthy, while modest quantities can be part of a healthy diet. Consequently, outright prohibition of such components has not been deemed the solution. Rather, it is hoped that consumers will make better nutritional choices if provided with better information. The Nutrition Labeling and Education Act of 1990 required nutrition labeling on

most prepared foods. Required label content continues to evolve. One of the new initiatives is to provide food labeling on the front of food packages.

A 1993 outbreak of *E. coli* killed four and sickened 400 showing that inspection services were not keeping up with evolving food processing and handling methods. By 1997, the Food Safety and Inspection Service began implementation of the Pathogen Reduction/Hazard Analysis and Critical Control Point rule (HACCP) to reduce microbial infections of raw products. HACCP provides flexibility for industry to develop and implement innovative measures to protect food safety while imposing unequivocal food safety responsibilities on the industries involved. It links eligibility to bear the marks of inspection with the plant's ability to control processes and sanitation. Costs of implementing the rule are relatively high and controversial (Ollinger and Moore 2009).

Several events over more recent years have renewed concerns about the safety of livestock products (US Recall News 2008). These include the 2003 Mad Cow Disease scare, the 2005 bird flu alarm, the 2006 North American *E. coli* outbreak, the 2007 withdrawal of approval for Tyson Foods to claim that their poultry was raised without antibiotics, and the 2008 Hallmark Meat recall. The largest food recall of the decade occurred in 2010 when 500 million eggs from two Iowa farms were pulled off store shelves. More than 1,800 people were made ill by salmonella poisoning, but there were no deaths. In December 2010 the Center for Disease Control estimated that there are about 48 million cases of foodborne illness in the USA each year (1 in 6 Americans). These illnesses result in about 128,000 hospitalizations and 3,000 deaths. Four-fifths of the illnesses are from "unidentified agents," including cases with little data and cases caused by organisms or chemicals not yet identified as harmful. About 90% of illnesses, hospitalizations, and deaths from known agents were due to seven pathogens: *Salmonella*, norovirus, *Campylobactor*, *Toxoplasma*, *E. coli O157*, *Listeria*, and *Clostridium perfingens* (Center for Disease Control 2010).

Growing concerns about health and the environment have resulted in movements to return to foods produced with few or no chemicals and foods produced locally. Organic produce, meat, and dairy now constitute about 3% of national consumption and their share is growing. The Organic Foods Production Act of 1990 provided for establishing national standards for organic products. The National Organic Standards Board makes recommendations about what substances should be allowed or prohibited in foods labeled organic and assists in the development of standards. AMS reports limited data on wholesale prices and shipments of organic produce. Debate about whether the nutritional and health benefits of organic foods exceed their extra costs continues. In a related development, country of origin labeling took effect for designated meats and fish, fresh and frozen fruits and vegetables, nuts, and ginseng in March 2009. The desirability of such labeling remains in question.

Concerns about concentration in meat packing have reemerged in the last 20 years. A wave of mergers and acquisitions occurred in the US beef packing industry from the late 1970s to the early 1990s. Four-firm concentration ratios for steer and heifer slaughter increased from 36% in 1980 to 80% in 2004.

Corresponding concentration ratios for hog slaughter increased from 34% to 64% over the same interval (United States Department of Agriculture 2005).

The captive supply (animals procured by packers through forward contracts, agreements, and packer feeding arrangements at least 14 days before slaughter) ratio for packers increased from 20.5% in 1988 to 44.4% in 2002. High concentration is not a violation of the Sherman Act but indicates that monitoring for anticompetitive behavior is warranted.

Concentration also is high in pork and broiler contracting. Drawing from a mix of USDA and industry sources, Hendrickson and Hefferman reported four-firm pork production and broiler concentration ratios of 46% and 50%, respectively, in 2001 (Hendrickson and Hefferman 2007). The Antitrust Division of the Department of Justice (DOJ) declined to challenge Smithfield's acquisition of Premium Standard in 2007, concluding that it would not undermine competition in the market for pork. In October, 2008, the Division filed a complaint about the proposed merger of JBS and National Beef Packing that led to abandonment of that merger (United States Department of Agriculture 2005).

Concentration in grain exporting remains high. Three firms exported 81% of the corn and 65% of the soybeans in 2000 (Hendrickson and Hefferman 2007). DOJ approved the Cargil-Continental Grain merger in 2000, but required divestiture of ten elevators in seven states (Heycoop 2003, P CRS-5). The four-firm concentration ratio for grain handling facilities was 60% in 2002.

In recent years farmers have increased their use of patented biotechnologies, such as seeds resistant to herbicides and insects. DOJ required a spinoff of gene technology when Monsanto acquired Dekalb (both seed companies). Recently, DOJ required Monsanto and Delta Land and Cotton to divest themselves of significant assets before they were allowed to merge.

Responsibilities for regulating competition have changed and been adjusted in the last 20 years. Traditionally, DOJ and the Federal Trade Commission (FTC) divided the antitrust work according to their respective areas of expertise. In a 2002 Memorandum of Agreement, DOJ took responsibility for agriculture and biotechnology, while FTC took responsibility for grocery manufacturers and grocery stores (Heycoop 2003, P CRS-4). The Surface Transportation Board (STB) was created in 1995 as the successor agency to the Interstate Commerce Commission and is part of the Department of Transportation. It is decisionally independent, affiliated with the US Department of Transportation only for administrative purposes. The STB is charged with resolving railroad rate and service disputes and reviewing proposed railroad mergers, serving as both an adjudicatory and a regulatory body. Rail mergers are handled differently at the STB than mergers in other industries (Heycoop 2003, P CRS-6). DOJ and FTC are allowed to testify, but the STB has final authority. In contrast to other industries, where mergers can proceed unless blocked by DOJ or FTC, railroads must have STB permission to merge. Also STB maintains oversight over mergers and can apply additional conditions after the merger occurs. The STB allowed the 1996 merger of the Union Pacific and Southern Pacific even though the DOJ opposed the merger. Recently there is concern that the Staggers Act

may have given the railroads too much pricing power over farmers, grain merchants, and other shippers.

The Grain Inspection and Packers and Stockyards Administration (GIPSA) was established within USDA in 1994 by joining the two previously separate agencies. The 2002 Farm Security and Rural Investment Act extended GIPSA's authority to regulate swine contracts as well as broiler contracts. Reporting of livestock prices to AMS Market News became mandatory in 1999 because the transactions not reported under the voluntary system had risen to about 35–40% for cattle, 75% for hogs, and 40% for lambs. Mandatory reporting lapsed in 2005, but continued on a voluntary basis for nearly all covered products. The legislative authority for mandatory price reporting was renewed in 2006 and again in 2010 with pork and dairy products added.

In 1990, federal marketing orders were in force for nearly all fresh citrus, about 60% of the milk and tree nuts produced in the USA, and many other fruits, vegetables, and specialty crops. The number of federal fruit and vegetable marketing orders declined from 45 in 1990 to 32 in 2010. Most farmers who produce commodities under marketing orders support them, but some growers dislike them and many consumers never heard of them. They invite continued scrutiny in an age of deregulation. Other than some administrative expenses, direct outlays are paid by the industries affected and do not show up in the Federal budget, so marketing orders have been called "farm programs that you do not see" (Zepp and Powers 1990).

Bargaining cooperatives continued to operate in many fruit, nut, and vegetable markets in the USA, particularly in California where there were 10 in 2001 (Siebert 2001). They have also played a role in the milk and sugar beet industries (Hueth and Marcoul 2002).

Milk marketing orders have decreased in number and increased in areas covered over recent decades. The 11 federal milk marketing orders that existed in 2000 covered 72% of all milk compared to 39 orders covering 25% of all milk in 1950. During this interval Grade A milk increased from 41% to 74% of the market and the number of handlers declined from 1,101 to 240 (Cropp 2001).

There were ten federal milk marketing orders accounting for about 60% of US milk production in February 2006. The California state order, which operates much like federal orders, accounted for another 20%. Some of the rest is covered by other state orders.

The classified pricing used in milk marketing orders is a form of price discrimination. It is well established that price discrimination—charging different buyers different prices for the same good—can raise sellers' returns at buyers' expense. Whether the public's gain from the coordination and stabilization provided by milk marketing orders outweighs the losses from the price discrimination involved remains an issue. Recently, Chouinard et al. concluded that nearly all groups of consumers, except the wealthiest, would gain by eliminating the price discrimination enforced by milk marketing orders. Poorer families and those with young children would gain the most (Chouinard et al. 2010).

The powers of cooperatives under the Capper-Volstead Act remained under contention at the end of 2010. Plaintiffs in several lawsuits were claiming that certain cooperatives had violated antitrust laws by, among other things, conspiring to restrict the production of agricultural commodities (Varney 2010). During the year, the Department of Justice and USDA hosted a series of meetings across the country to explore competitive issues in agriculture.

The volume of agricultural futures and options trading has increased rapidly in recent years. Commodities have grown as an asset class for investors. New investment vehicles such as managed futures funds, hedge funds, exchange traded funds, and swaps have evolved and their use has expanded. This raises concerns about whether investor (speculator) trading is distorting price (Sanders et al. 2010). In March 2009, the Commodity Futures Trading Commission set up a subcommittee to identify the causes of poor cash-future conversion on certain agricultural futures markets. The Commission initiated new position reports to increase transparency. New variation margin requirements and new price limits also were introduced. Electronic trading of cotton futures began in 2007 leading to a failure of open outcry trading in 2008.

The Future of Food and Agricultural Marketing Programs

We turn now to what history tells us about the future. Trends in the general economy and in agriculture and the food industries are identified and their implications for different types of food and agricultural marketing programs are examined. Such programs will be strongly affected by events arising outside of agriculture. These include the US trade imbalance and heavy debt burden, increasing costs of energy, continuing expansion of world trade, changing communication technology, and global warming. Changes arising within the food and agriculture sector include new production and marketing technologies, continuing consolidation in the handling and processing of agricultural products, growing world food demand, and increasing understanding of the nutritional and health effects of foods and food components.

Although the changes in food and agricultural marketing have been and will be large, many of the problems that originally led to government involvement remain. High among these are assuring food safety and enhancing competition in food processing and distribution. While the food industries have become more like other sectors of the economy, important differences continue to exist. An uninterrupted supply of healthful food remains critical to the nation's welfare. Crop production remains widely dispersed over space and subject to weather uncertainty. Many farm and food products are perishable. Farms have become much larger and fewer, but producers still far outnumber processors and other first handlers in most cases. Such conditions imply that special programs to assure food safety, enhance competition, and help farmers manage and coordinate their marketing activities will continue to be needed. These programs will require continuing modification to deal with changing conditions in the food industry.

The gains from globalization and recent technological advances have not been equitably distributed. Income dispersion has widened. Faulty decisions by government and business in dealing with the effects of globalization have left the USA with serious trade and budget deficits and persistent unemployment (Rajan 2010). Restoration of growth and prosperity calls for increasing exports and restoring fiscal discipline. US abundance of good land with favorable climate makes agriculture one of our prime areas of comparative advantage. The marketing sector needs to do its part to increase exports. This calls for continuing efforts to contain costs and to adjust our standards for food safety, quality, and packaging to better meet the needs and desires of foreign buyers. Our large existing federal debt and entitlements combined with desires for lower taxes imply years of tight federal budgets that will constrain government programs of all types. Considering federal and state budget constraints, expect a need for more marketing programs to be self-financing or be discontinued. Programs with the characteristics of public goods—where the benefits accrue to additional individuals at near zero cost and are nearly impossible to deny to others—are likely to be most constrained because they cannot be effectively financed with user fees. Such programs include basic research, market news, and the regulation of monopolistic practices.

Fuel costs likely will increase as demand for energy continues to grow in the developing world and costs for developing new sources of oil and gas increase. Renewable energy sources will only partly fill the gap and at higher costs. Among the likely food industry effects are increased use of rail transport relative to truck transport and increased consumption of foods grown locally. Food processors and marketers will be motivated to reduce their assembly and distribution costs by relocating plants and warehouses and rearranging their routes. Competition may become more local, which means less competition in some markets.

Improvements in communication technology are changing markets. The internet has become a valuable source of market information for farmers and consumers. Government agencies providing marketing services, such as market news and grading and inspection, will be expected to use the latest available technology. Futures and options trading is already highly computerized and online selling and buying is growing in importance for many nonfood and some food products. How far computerized trading will extend into food and farm product markets remains unclear, however, because of consumers' desire to see, touch, and/or smell many food products and because of expanded farmer-processor contracting that reduces the numbers of transactions while increasing their complexity.

Food production, processing, and distribution technologies will continue to evolve requiring corresponding adjustments in food marketing programs. During the twentieth century, technological developments contributed to increased long distance movement of foods and increased consumption of processed foods. In contrast, growing health and environmental concerns have recently increased interest in organic and locally produced foods. The USA is a nation of varied food preferences. Examples include not only preferences for organic and local foods but also preferences for ethnic foods for crop and livestock products with special characteristics, such as high protein or low fat, and for different kinds and varieties of fruits and

vegetables. Higher costs of production will continue to restrain demand for natural and organically produced foods. Demand for such foods will depend on what scientists discover about their health benefits or lack of benefits.

Preventing both chronic and acute food-borne disease will become more challenging as food production and processing technology presses the limits, world trade in food increases, and the climate warms. The long-term health effects of genetic modifications and many chemical and biological food additives remain to be quantified. Changing trade patterns and global warming may introduce unfamiliar human disease-causing organisms and increase the presence of known organisms in the food supply. Among other things, this calls for better international coordination of food safety programs. Broad public concerns about health and the likelihood of new food-borne disease outbreaks suggest that food safety programs will retain support, albeit with tight budgets. Research to identify the sources of food-borne illnesses and find appropriate and effective preventative measures deserves high priority. Additional food safety measures likely will be needed as more is learned. These may include additional inspections and tests for safety and new measures for tracing sources of disease or contamination. For example, concern about the possible recurrence of Mad Cow disease suggests developing a system to identify individual animals. Canada has such a system while the USA and Mexico do not (Knutson 2010). Congress has recently passed legislation to strengthen FDA's ability to order food recalls, require new produce safety standards, and apply stricter standards on imported foods. The burdens imposed on small producers and processors for complying with higher food safety requirements and the risks of exempting them are issues. As more is learned about the effects of foods on chronic health problems, further changes in food labeling likely will become desirable.

Concentration in food marketing and distribution is likely to increase further as expanded markets and improved communication technology increase the advantages of size. Farmer-first handler contracting will also increase as processors seek more control over the flow and quality characteristics of their inputs. Meanwhile, support for antitrust and other regulatory activities seems to have waned because the need has not been very obvious and industry has exerted strong pressures to deregulate. Whether reduced numbers of handlers, processors, and distributors lowers farmers' returns and/or raises food costs to consumers remains unclear in many cases. More research is needed into the conduct of firms in concentrated markets and the performance of such markets. The research should include evaluations of the risks to the food supply from the possible collapse of one or a few dominant firms in each major food sector.

The effects of the aforementioned changes on the marketing programs that serve farmers and/or farmers' organizations directly are mixed. Programs such as market news, support for cooperatives, and research will come under increased budgetary pressure. The roles of these programs are changing as farmers become more specialized and farmer-first handler contracting increases. Growing incomes combined with this diversity of needs and preferences likely will call for more detailed and precise product categorization, quality measurement, and grading. New measures may be needed to promote competition and protect farmers' interests. For example,

higher transportation costs and environmental concerns may call for more support for direct marketing by farmers. Programs financed directly by producers through user fees and checkoffs—such as grading, commodity promotion, and marketing orders—are less vulnerable to budgetary constraints. The number of commodity promotion programs seems likely to increase further as more commodity organizations see benefits from advertising. The inconsistencies between some promotion programs and the government's nutrition policies remain to be sorted out.

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