

Issues in the analysis of buyer power in agricultural markets

February 11, 2011

George A. Rozanski and T. Scott Thompson¹

¹ Partners, Bates White, LLC., 1300 Eye Street NW, Suite 600, Washington, DC 20005. The authors thank Carolina Czaskiewicz and Konstantinos Metaxoglou for their invaluable assistance. The authors are solely responsible for the contents of this article. The views expressed are their own and do not necessarily reflect the opinions of Bates White, its other partners or affiliates. The authors acknowledge that from time to time they and Bates White have provided expert and consulting services in matters involving agricultural products.

Table of contents

I. Introduction	1
II. Buyer power: classic monopsony or oligopsony	1
III. Buyer power: negotiated contracts.....	4
III.A. The theory of bargaining	6
III.B. Bilateral monopoly and countervailing power	7
IV. Application of analytical framework to agricultural markets	8
IV.A. Poultry.....	9
IV.B. Cattle	11
IV.C. Hogs	13
IV.D. Grains	15
IV.E. Dairy	16
V. Evidence of buyer power in farm to consumer price spreads	19
V.A. Concerns about farm-to-retail spreads.....	19
V.B. Evidence on farm-to-retail spreads	20
V.C. Farm-to-consumer price spreads and buyer power claims	29

List of figures

Figure 1: Fluid milk bottling, number of plants and average volume processed.....	18
Figure 2: Components of consumer expenditure for farm foods: 1970	21
Figure 3: Components of consumer expenditure for farm foods: 2006	24
Figure 4: Components of consumer expenditure for farm foods: trends	25
Figure 5: Beef price spreads.....	26
Figure 6: Pork price spreads.....	27
Figure 7: Beef price spreads adjusted for inflation.....	28
Figure 8: Pork price spreads adjusted for inflation.....	29

List of tables

Table 1: Broiler slaughterers concentration	10
Table 2: Steer and heifer slaughter concentration	12
Table 3: Hog slaughter concentration	15
Table 4: Fluid milk manufacturing concentration.....	18
Table 5: Farm share of consumer food expenditure for selected products	23

I. Introduction

- (1) The issue of buyer power in agricultural markets was a focus of the Workshops on Agriculture and Antitrust Enforcement Issues in Our 21st Century Economy (“Workshops”) held jointly by the Department of Justice (DOJ) and the Department of Agriculture (USDA) in 2010. Empirical and anecdotal evidence related to the question of buyer power in several agricultural sectors was discussed during the Workshops. This paper describes the appropriate analytical framework for analyzing competition policy issues related to buyer power, including both monopsony and bargaining power and it identifies some of the specific facts and issues relevant to the application of this framework to important agricultural sectors, including poultry, livestock, dairy, and grain. This paper also presents some data on the farm-retail spread, and discusses issues in interpreting these data as evidence of the exercise of buyer power.

II. Buyer power: classic monopsony or oligopsony

- (2) A firm has buyer power if it can profitably reduce the price paid to sellers below the competitive level. Buyer power includes classic monopsony (or oligopsony) power, which can arise in markets in which all purchases are made at a common price per unit. Buyer power can also arise in situations in which prices and terms are individually negotiated between buyers and sellers. In this context, buyer power is an example of bargaining power. The antitrust analysis of buyer power has close parallels to the analysis of seller market power—indeed, the two concepts are sometimes viewed as mirror images. A focus of the analysis in both cases is on the availability and closeness of substitutes—substitute products or sources of supply in the case of market power and substitute buyers or alternative activities in the case of buyer power. The likely response of rivals can also be important and might include the entry and expansion of fringe suppliers when analyzing market power, as well as the entry and expansion of alternative purchasers when analyzing buyer power.
- (3) While the focus of the discussion is on the exercise of buyer power that is anticompetitive, it should be recognized that not all conduct by buyers—even large buyers—that reduces prices paid to suppliers is a cause for concern. For example, a buyer that demands and is able to pay lower prices based on cost savings resulting from purchasing in volume, or from the use of improved purchasing practices, is simply sharing in cost savings. Similarly, a buyer that is able to promise large volumes may be able to incent suppliers to undertake risky investments that could

reduce costs, and such a buyer will expect to share these savings if the effort is successful.

- (4) Buyer power arises when the buyer perceives that the price it must pay for an input will increase if it chooses to purchase a larger amount. This may occur if suppliers' marginal costs would increase if they were to expand output. In the case of labor, for example, a higher wage offer may be necessary to attract workers from other occupations or from other geographic areas or to tempt workers to sacrifice leisure time for work. A second example is the nineteenth century economist David Ricardo's theory of rent. Ricardo recognized that the productivity of land in agriculture varied depending on its fertility and proximity to the buyers of crops. The price of crops must be high enough to cover the cost of production from the worst land cultivated, and owners of more productive land would realize a surplus, or, if they let the land to others, a "rent." For output to expand, the price of crops would need to increase in order to attract less productive land into production.²
- (5) The classic textbook treatment of monopsony applies to the case in which every unit of the input purchased is paid a uniform price. The monopsonist facing an upward sloping supply curve will choose to reduce its level of purchases below the competitive level. This is because the monopsonist recognizes that the incremental cost of adding a unit to its total volume of purchases includes not just the price necessary to induce suppliers to provide that unit but also the accompanying increase in the unit price paid for all of the earlier, or "inframarginal," units. Although the monopsonist would be reducing its level of purchases below the competitive level, this reduction in demand lowers the price of all the units it purchases, and transfers some of the rents earned on the inframarginal units from suppliers to the monopsonist.
- (6) The assumptions made in this simple model may be a good fit to various sectors in the agricultural industry. Many row crops, for example, are relatively homogeneous products; growers might be limited to interacting with only one or a few traders; and individual growers likely take the prices of crops such as corn, wheat, soybeans, and cotton as given.
- (7) The logic of monopsony power is analogous to the logic of monopoly power. In the case of monopoly, the monopolist perceives that, to sell an additional unit, it will have to reduce the price it charges. The monopolist chooses a lower level of output compared to the competitive level because it recognizes that the addition to its total revenues from expanding its level of sales by one unit is less than the price it will be paid for that one unit. This is because the price reduction necessary to make the

² Eric Roll, *History of Economic Thought*, 3d ed. (Englewood Cliffs NJ: Prentice-Hall), 177-184.

incremental sale also reduces revenues received by the monopolist on the inframarginal units. In both the monopsony and monopoly cases, the quantity exchanged is less than the quantity exchanged under competition. The monopolist exercises market power by restricting output to increase prices relative to the competitive case. The monopsonist exercises buyer power by restricting purchases of the input to depress prices relative to the competitive case.

- (8) One effect of monopsony is to reduce the price paid to suppliers. The antitrust concern with monopsony follows from the likely effect of the exercise of monopsony power on total welfare, which is measured by the total value of goods and services produced in the economy. Effects of monopsony on the welfare and incomes of consumers and suppliers often are of concern also. Monopsony power leads firms to reduce their level of input purchases below the competitive level. As a result, the amount of output they produce will decrease, or the output might be produced inefficiently at higher costs by using alternative inputs. Output prices might increase. In particular, it is a mistake to think that because the buyer is paying less for the input that the buyer's price to its customers for the output will fall. The price paid for the input falls because the buyer is purchasing less of it. This means that less output is produced, and the price of the output is, therefore, likely to rise.
- (9) The units of input that the monopsonist refrains from purchasing might be employed to produce other goods and services, but the value created by these alternative uses will be less than it would have been had they been employed in the monopsonized market. This distortion in production implies that welfare falls, even if the buyer sells its product in a competitive market.³
- (10) A key determinant of the likelihood and effects of monopsony power is the elasticity of the supply curve. In the case of monopsony, the shape of the supply curve facing the buyer plays a similar role to that of the elasticity of the demand curve in the case of monopoly. If the supply curve is steeper—or more inelastic—then it is more likely that the monopsonist will find it profitable to exercise buyer power. Factors that make the supply curve more elastic and that limit the exercise of monopsony power include the ability of sellers to substitute to other buyers of the same input, the possibility of entry by new buyers, and the ability of sellers to use their assets to produce alternative outputs.
- (11) Some of these mitigating factors might not be significant in the case of agricultural markets. The ability of sellers to substitute to other buyers may be limited by high

³ Marius Schwartz, "Should Antitrust Assess Buyer Market Power Differently than Seller Market Power?" Comments presented at DOJ/FTC Workshop on Merger Enforcement, Washington DC, February 17, 2004. Roger Noll "Buyer Power and Economic Policy," *Antitrust Law Journal* 72, no. 2 (2005): 589-624.

transportation costs in the case of grains, or maximum hauling distances in the case of livestock and poultry. In addition, the possibility of entry by new buyers may be limited by pre-existing contractual arrangements between livestock growers and slaughter houses. If such arrangements cover a significant amount of the available supply in an area, they could limit the buying opportunity for a new buyer and impede entry by denying prospective entrants economies of scale. Finally, sellers may not be able to easily switch their production assets to other activities: for example, poultry houses cannot be used to raise livestock and crop producers may not be able to easily switch to alternative crops due to climate and soil conditions.

III. Buyer power: negotiated contracts

- (12) The model of monopsony discussed in the previous section made specific assumptions about the nature of the interaction between the buyer and sellers of the input: there is a single price in the market and buyers and sellers transact desired quantities at that price. In many contexts, including some important examples in the agricultural sector, buyers engage in separate negotiations with different sellers, and the outcome of the negotiation might specify not just the unit price or some other form of payment, but also the quantity to be exchanged and various other terms and conditions of sale. In the cattle industry, for example, cash or spot transactions are being replaced over time by alternative marketing arrangements also known as committed procurement methods. In the case of cash or spot transactions, cattle producers negotiate the terms of sale directly with the packer. The committed procurement methods can take different forms, such as forward contracts, production contracts, or marketing agreements.⁴ The packer can own the cattle to be grown or the cattle can be owned by the cattle producer and then sold to the packer. Pricing in these contracts are sometimes set by a formula benchmarked to USDA “live” quotes or CME futures prices, with adjustments based on the quality of the beef.⁵ In the poultry industry, farmers and integrators enter into growing or production contracts. The integrator provides chicks to be grown by the farmer and buys back the grown-up broilers. These contracts typically include price and non-price terms, such as specifications the farmer must meet in building or updating the houses in which the broilers are grown, and the quality of feed (or even the specific feed), which may be provided by the integrator.

⁴ See Figure 1-11 in RTI, “Livestock and Meat Marketing Study, Volume 3: Fed Cattle and Beef Industries Final Report,” prepared for GIPSA, January 2007.

⁵ GIPSA, “2009 Annual Report,” USDA, March 2010. See also GIPSA, “Assessment of the Livestock and Poultry Industries – Fiscal Year 2007 Report,” USDA, May 2008.

- (13) The “all-or-nothing” model of monopsony or buyer power might be appropriate in the case of some negotiated contracts in which, instead of suppliers being faced with a decision of whether to supply an additional unit at the price offered by the buyer, they are faced with a decision to supply a given total quantity or nothing at all in response to the payment offered.⁶ This case is analogous to a situation on the output side of the market in which, rather than quoting a price per unit, producers offer consumers a bundle of products at a fixed price. A monopolist that is able to price its output in this manner might be able to increase the amount it receives from consumers for the output it supplies. Compared to the case of uniform pricing, the reduction in output and the resulting social cost of monopoly is less, because the monopolist can expand the units of output it sells without having to accept a lower price for inframarginal units. Similarly, the all-or-nothing buyer can reduce the amount it pays for the input without having to restrict its level of purchases. In the case of an all-or-nothing buyer, the social cost from monopsony or buyer power in the short run is likely to be less in terms of reduced output, higher output prices, and higher costs of production.
- (14) The exercise of buyer power can result in suppliers receiving less revenue. This can be true even if, as just explained in the case of all-or-nothing monopsony, the quantity supplied is not reduced. Over time, in addition to the obvious effects on suppliers’ incomes, the reduction in payments from buyers could reduce economic efficiency because suppliers might reduce their investments to maintain and expand capital stocks, to increase their human capital in the form of specific skills and knowledge, and to improve products and processes.⁷ For example, according to Ricardo’s theory of rent, described earlier, the surplus earned by suppliers—such as farmers selling a crop—might be explained as rents to whoever is lucky enough to own the most fertile land. If so, the exercise of buyer power by a single purchaser of the crop might be viewed as no more than a transfer of those rents from sellers to the buyer. But it is also possible that rents earned by suppliers in significant measure represent returns to past investments—such as draining the land and preventing erosion of the best soil—and the continuation of such investments could be placed at risk by the exercise of buyer power.

⁶ Such contracts are an example of “nonlinear pricing.” One form of nonlinear pricing is a two-part tariff, for which the total payment to the supplier may include a fixed fee as well as a component that varies with the quantity purchased. In more general forms of nonlinear pricing, the “per-unit” component of the nonlinear tariff may be different for different units purchased or depending on other conditions. See Jeffrey Church and Roger Ware, *Industrial Organization, A Strategic Approach* (Singapore: McGraw-Hill International Editions, 2000), chapter 5.

⁷ A forward looking monopsonist might recognize that the exercise of monopsony power could eventually lead to suppliers’ reducing levels of investment, or choosing an alternative and more profitable use of their resources and exiting the market. As a result, the monopsonist might not want to exercise its buyer power, or it might try to enter into alternative contractual arrangements with suppliers to provide them with adequate incentives to remain in the market and to invest.

III.A. The theory of bargaining

- (15) The economic theory of bargaining provides useful insights into the analysis of outcomes of contractual negotiations between a buyer and a seller. Much of the theory of bargaining builds on the Nash bargaining solution.⁸ This early result of game theory continues to provide a useful analytical framework for current theoretical and empirical analyses of bargaining.⁹
- (16) A simple bargaining framework assumes that the buyer and seller are negotiating over the terms of a contract. If the two parties can agree, then each expects to receive some benefit or payoff. If negotiations break down and no agreement is reached, then each receives an alternative payoff, which is referred to as the disagreement payoff. The net gains to each party are defined as the difference between the payoff if a contract is achieved and the disagreement payoff.
- (17) John Nash described a set of axioms that he argued should reasonably characterize the solution to a bargaining game. Nash proved that there is a unique solution that satisfies these axioms. This solution maximizes the product of the net gains each party would achieve from an agreement. An implication of this result when comparing outcomes between two different situations is that, if one party has a lower disagreement payoff and would therefore realize a greater net gain from an agreement in one situation then, at the Nash bargaining solution, that party would end up sharing a fraction of this incremental net gain with the other party.¹⁰ In effect, having more to gain from the successful outcome of a negotiation weakens a party's bargaining position.
- (18) A circumstance that reduces a seller's disagreement payoff or that increases the disagreement payoff of the buyer, therefore, makes the seller worse off. Consider, for

⁸ J. Harsanyi, "Bargaining," in *The New Palgrave Game Theory*, ed. John Eatwell, et al., 54–67 (London: Macmillan, 1989).

⁹ T. Chipty and C.M. Snyder, "The Role of Firm Size in Bilateral Bargaining: A Study of the Cable Television Industry," *Review of Economics and Statistics* 81 (1999): 326–40; A. Raskovich, "Pivotal Buyers and Bargaining Position," *Journal of Industrial Economics* 51, no. 4 (2003): 405–26; H. Horn and A. Wolinsky, "Bilateral Monopolies and Incentives for Merger," *The RAND Journal of Economics* 19, no. 3 (1988): 408–19.; M.J. Osborne and A. Rubinstein, *Bargaining and Markets*, (San Diego: Academic Press, 1990); G. Werden and L.M. Froeb, "Unilateral Competitive Effects of Horizontal Mergers II: Auctions and Bargaining," in *Issues in Competition Law and Policy*, chapter 56 (ABA Antitrust Section, 2008).

¹⁰ J. Harsanyi, "Bargaining," in *The New Palgrave Game Theory*, ed. John Eatwell, et al., 54–67 (London: Macmillan, 1989); M.J. Osborne and A. Rubinstein, *Bargaining and Markets* (San Diego: Academic Press, 1990); R.D. Luce and H. Raiffa, *Games and Decisions* (New York: Wiley, 1957); T. Chipty and C.M. Snyder, "The Role of Firm Size in Bilateral Bargaining: A Study of the Cable Television Industry," *Review of Economics and Statistics* 81, no. 2 (1999): 326–40.

example, the situation of a cattle producer negotiating to sell cattle to a packer. If there are two nearby independently owned packing plants, the seller can negotiate with either one knowing that, if the price offered is not favorable, it can try to strike a deal with the other. In this case the seller's disagreement payoff is relatively high because competition among packers provides a good alternative. If the two packing plants merge and there is no other nearby option, the seller's disagreement payoff falls significantly. The now single buyer's bargaining position has improved and the prediction of this simple theoretical model is that the seller will not be able to negotiate as high a selling price. Similar logic suggests that, if a particular purchaser becomes very large and accounts for a significant fraction of a supplier's revenues, the supplier might not be able to substitute entirely to other buyers and might be disadvantaged by the large buyer's bargaining power.¹¹

- (19) Possible effects of the exercise of buyer power in the context of negotiated contracts include those discussed earlier in the case of all-or-nothing monopsony. Even if the buyer and seller agree to the exchange the competitive level of the input, a reduction in the terms received by the seller could lead to adverse effects in the long run, including underinvestment by suppliers and possible exit.

III.B. Bilateral monopoly and countervailing power

- (20) The concept of countervailing power arises from the model of bilateral monopoly. Bilateral monopoly describes a situation in which there is a single seller and also a single buyer of a product. For purposes of this discussion, assume that the product in question is an input used by the buyer to produce a final product. If only the buyer side of the market were monopolized (monopsonized), then the theory of monopsony predicts that sales of the input would fall short of the efficient quantity. If the seller side of the market was also monopolized, however, the outcome is indeterminate according to simple textbook models, both in terms of the amount of the input sold and the payment made from the buyer to the seller. If it can be assumed that the buyer and seller will successfully maximize their joint interests, sales of the previously monopsonized input will expand, output of the final product will also expand, and downstream prices to final consumers will fall.

¹¹ It is not necessarily the case that bargaining power increases with size. If a large buyer enjoys economies of scale and therefore has lower costs, the seller might in fact be better off because it is able to share in the buyer's greater profit. Also, if a seller must be able to sell to a particularly large, "pivotal," buyer to cover fixed costs and stay in the market, then the large buyer will be in a weakened position and will in effect have to share some of the seller's fixed costs. See A. Raskovich, "Pivotal Buyers and Bargaining Position," *Journal of Industrial Economics* 51, no. 4 (2003): 405–26.

- (21) This result is the basis for the justification sometimes offered for a collaboration or merger among sellers when they face either a single buyer or buyers with substantial buyer power. The argument advanced is that loss of economic efficiency from the exercise of monopsony power might be reversed by creating countervailing monopoly power that could be exercised by sellers.¹²
- (22) The literature recognizes several reasons to be cautious about sanctioning the creation of monopoly power as a response to monopsony power.¹³ Among these reasons are skepticism that a single buyer and single seller will actually achieve a much more efficient outcome as a result of negotiations, and the possibility that sellers may use the opportunity to coordinate and reduce competition on other dimensions. In general, the better policy response would be to find some way to create or facilitate competition to the monopsonist.

IV. Application of analytical framework to agricultural markets

- (23) The federal antitrust agencies in the United States apply the Horizontal Merger Guidelines to analyze concerns about the creation or exercise of monopsony power as a result of a merger.¹⁴ The analytical framework of the Guidelines is also useful for assessing whether a particular firm possesses monopsony or buyer power and is engaging in anticompetitive conduct. The key issues in the Guidelines analysis are the same as those identified in the theoretical discussion of monopsony power above.
- (24) The general focus of the Guidelines' analysis is on whether sellers have good alternatives available to them if two buyers were to merge or if a group of buyers were to coordinate. One way in which anticompetitive effects could result from a merger is if the merged firm would have the ability and incentive to unilaterally exercise monopsony power. This is more likely if the merged firm would account for a large share of purchases. A second way in which anticompetitive effects could result is if the merger were to increase the likelihood of coordination among buyers. The likelihood of successful coordination depends on the number of buyers and other features of the market, such as transparency of information about prices.

¹² Similarly, collaborations or joint ventures among buyers might sometimes be proposed to offset harm from sellers with market power.

¹³ Roger Noll, "Buyer Power and Economic Policy," *Antitrust Law Journal* 72, no. 2 (2005), 606–609.

¹⁴ U.S. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (2010).

- (25) The alternatives available to sellers faced with the exercise of monopsony power include selling the same input to another buyer in the same geographic area, selling the same input to another buyer in a different geographic area, and substituting productive assets to produce a different product that could be sold to a different buyer. The possibility of entry by new buyers is an additional factor that could limit the exercise of monopsony power by creating a new option for sellers.
- (26) A significant concern discussed earlier was that buyer power could enable buyers to reduce payments to sellers and, as a result, deter investments by sellers that promote economic efficiency. Another important issue for the analysis of possible buyer power is, therefore, whether sellers have an opportunity to make such investments and whether these investments are specific to producing a particular product or even to the seller's relationship with a specific buyer.
- (27) The remainder of this section describes features of important sectors of the agricultural industry that relate to these issues and, hence, to the ultimate question of the likelihood and effects of buyer power.

IV.A. Poultry

- (28) The structure of the poultry industry has become increasingly concentrated and vertically integrated.
- (29) The industry includes integrators and growers. Integrators own hatcheries, processing plants, and feed mills. Growers contract with the integrators to "grow out" broiler chicks to market weight.¹⁵ Under the terms of a typical production contract, the grower invests in poultry houses that meet the specifications of the integrator and provides labor. The integrator provides the grower with chicks, feed, and veterinary and transportation services. The integrators make large investments in assets and absorb most of the risk of demand fluctuations, providing growers with a relatively stable income. The term of the production contracts is very short compared to the life of the grower's assets. There is no significant spot market for poultry.
- (30) The industry's current form developed during the 1950s and 1960s as integrators consolidated, built production complexes, developed breeding flocks, and devised grow-out contracts. Over time, grow-out farms have increased in size to achieve scale efficiencies.

¹⁵ For a description of the poultry industry, see J. MacDonald and P. Korb, "Agricultural Contracting Update 2005," EIB-35 Economic Research Service, USDA, April 2008.

- (31) Vertical integration and scale economies have led to increased efficiency and productivity. Improvements in breeding, feed formulations, housing, and management practices have all had positive effects on the broiler industry.
- (32) Table 1 shows that, based on data for the United States as a whole, the four-firm concentration ratio for broiler slaughterers increased from 41% to 57% between 1990 and 2008, while the HHI increased from 916 to 975 between 2000 and 2004. Broilers are fragile and can only be transported as far as 100 miles to a slaughtering facility.¹⁶ A grower's alternatives are therefore limited to buyers (integrators) in a narrow geographic area, and concentration among buyers in this area is likely to be much higher than suggested by Table 1.¹⁷ Many growers might have the option of contracting with only one or a small number of integrators, and their options might be limited even further by the specificity of their houses and the limited capacity of some integrators. For example, MacDonald and Korb (2005) report that, based on the USDA ARMS survey of 2004, 59% of growers had no alternative marketing options to their current integrator. In a subsequent survey, 25% of growers reported that there was only one integrator operating in their area and 29% of growers reported only two. The authors reconcile these results by observing that alternative integrators in an area might be operating at capacity and are unable to take new growers, making it impossible for a grower to switch.¹⁸

Table 1: Broiler slaughterers concentration

Year	CR-4	HHI
1990	41%	
1995	46%	
2000	49%	916
2001	48%	876
2002	48%	868
2003	55%	995
2004	54%	975
2007	57%	
2008	57%	

Source: USDA GIPSA Annual Reports 2006, 2008-2009.

¹⁶ See J. MacDonald and P. Korb, "Agricultural Contracting Update 2005," EIB-35 Economic Research Service, USDA, April 2008, at 15.

¹⁷ During the Alabama workshop, Secretary Vilsack mentioned that it is not uncommon for growers to do business with only one company [integrator] in their area. (Alabama workshop transcript, May 21, 2010, 11), (<http://www.justice.gov/atr/public/workshops/ag2010/alabama-agworkshop-transcript.pdf>)

¹⁸ *Supra* note 16.

- (33) Concerns have been expressed that the contracts between growers and integrators facilitate the exercise of buyer power and contribute to inefficient market outcomes. Over time, contracts have evolved to include take-it-or-leave-it terms and to be of increasingly short duration relative to the lifetime of the relationship-specific investments growers make.¹⁹
- (34) Growers make significant investments in houses that meet the specifications of particular integrators and, after they have made these investments, they face significant switching costs to contracting with an alternative integrator. This might allow the integrator to impose additional conditions on the grower, such as reducing the duration of the contract and requiring further investments with the threat of terminating the contract altogether.
- (35) Although the ability of the integrator to impose such take-it-or-leave-it offers stems from the fact that the grower has few alternatives and the integrator might be able to exercise buyer power, it is also possible that the arrangement will lead to efficiencies. For example, based on observing the performance of different growers, the integrator might be in a good position to identify the best housing specifications and poultry management strategies and to diffuse this knowledge through contract requirements. In addition, the ability and incentive of the integrator to exercise buyer power might be constrained by the need for the integrator to contract with additional growers, including growers in other areas. Developing a reputation for acting opportunistically against growers who are locked-in to a grower as a result of past relationship-specific investments is a poor strategy for attracting new growers and maintaining the willingness of incumbent growers to make additional investments.

IV.B. Cattle

- (36) The production and marketing of cattle involves multiple levels. At the farm level, cattle are usually produced at multiple locations. Cow-calf operations, backgrounding and feedlot operations contribute sequentially to the weight gain of the animals. Once finished, livestock are delivered to packing plants. Cattle carcasses and cuts leaving the slaughter houses might undergo additional processing before reaching meat wholesalers. Meat wholesalers, in turn, sell meat products through various distribution channels to grocery, restaurant, and food service establishments, where they become available to the final consumers.

¹⁹ During the Alabama workshop, Garry Staples, a producer, stated that producers are faced with take-it-or-leave-it offers from integrators. According to Carole Morison, former producer, growers' failure to comply with integrators demand for house improvements leads to contract termination. (Alabama workshop transcript, May 21, 2010, 70, 93).

- (37) The beef industry has been characterized by increasing consolidation and vertical coordination. Increases in concentration resulted from mergers in the 1980s and 1990s, which were significantly motivated by cost savings from economies of scale. Vertical coordination has been achieved through increased use of marketing agreements, as well as other forms of alliances and partnerships.
- (38) Table 2 shows that, at a national level, the four-firm concentration ratio for fed-cattle slaughter has remained constant at about 80%, while the HHI has decreased slight but remained over 1,800 between 1992 and 2006. Fed cattle are usually transported only short distances to packing plants, however, because of transportation costs and the fact that cattle lose weight during transport.²⁰ Geographic markets for selling fed cattle are regional and much more concentrated than national data suggest. In challenging the proposed merger between JBS and National, DOJ alleged two geographic markets for the purchase of fed cattle: the High Plains and the Southwest. Pre-merger HHIs exceeded 2,000 and 3,000.²¹ In its complaint, DOJ also alleged that there were no good alternative uses for fed-cattle and that sellers would not significantly switch to other activities.

Table 2: Steer and heifer slaughter concentration

Year	CR-4	HHI	Plants
1992	78%	2,016	937
1995	81%	2,036	801
2000	81%	1,939	711
2001	80%	1,909	702
2002	79%	1,842	686
2003	80%	1,900	666
2004	79%	1,791	669
2005	80%	1,818	637
2006	81%	1,826	614
2007	80%		
2008	79%		

Source: USDA GIPSA Statistical Report 2006. USDA GIPSA Annual Reports 2008-2009.

²⁰ Fed cattle refers to steers and heifers raised and fed for the production of beef. Cows and bulls are also slaughtered. Most slaughter plants tend to concentrate either on fed cattle or on cows and bulls (see GIPSA, Annual Report 2009). The DOJ's concerns about the proposed merger of JBS and National focused on fed cattle only.

²¹ Amended Complaint at 12, *United States v. JBS SA*, No. 08-CV-5992 (N.D. Ill, Nov. 7, 2008), <http://www.justice.gov/atr/cases/f239500/239578.htm>.

- (39) One explanation offered for the increased concentration in the meat packing industry is scale economies.²² Over the past few decades, packers have realized efficiency gains from increased scale of operation. According to a report prepared at GIPSA's request, there are substantial economies of scale in both processing and waste management.²³
- (40) As in the poultry industry, purchasing mechanisms used in the cattle industry have been evolving. In particular, an increasing number of transactions are made through marketing agreements such as committed procurement methods (CPMs). CPMs are employed primarily by large packers to secure livestock for slaughter. They are claimed to achieve procurement and production efficiencies. CPMs differ in several respects, including the ownership method specified, the pricing method used, and the valuation method used. The cattle ownership method might specify that the cattle will be owned by the producer, owned by the packer, or shared between them. Pricing methods take multiple forms. The valuation method refers to whether the price is set on a per-head basis, liveweight basis, carcass-weight basis, or the accumulated value of the individual cuts. These valuation methods also include premiums or discounts based on beef quality.²⁴ Issues in analyzing the possible role of CPMs in creating or facilitating the exercise of buyer power are similar to the issues relating to contracts between poultry growers and integrators.

IV.C. Hogs

- (41) The production and marketing of hogs bears some similarity to the cattle industry. The production of hogs by growers that specialize in various stages of hog development is coordinated by integrators. These stages include farrowing, nursing, and finishing operations, which contribute sequentially to the weight gain of the animals. Regardless of the method used to raise the pigs, the finished hogs are shipped to a

²² See remarks by Clem Ward, Professor and Extension Economist, Oklahoma State and Mark Dopp, Senior Vice President of the American Meat Institute during the Colorado workshop. Colorado workshop transcript, August 27, 2010, at 164 and 219, <http://www.justice.gov/atr/public/workshops/ag2010/colorado-agworkshop-transcript.pdf>

²³ RTI, "Spot and Alternative Marketing Arrangements in the Livestock and Meat Industries," Interim Report prepared for GIPSA, July 2005, at 4–59. See also G.W. Brester, and J.M. Marsh, "The Effects of U.S. Meat Packing and Livestock Production Technologies on Marketing Margins and Prices," *Journal of Agricultural and Resource Economics* 26, no. 2 (2001): 445–62; C.J. Morrison Paul, "Market and Cost Structure in the U.S. Beef Packing Industry: A Plant-Level Analysis," *American Journal of Agricultural Economics* 83, no. 1 (2001): 64–76.

²⁴ RTI, "Livestock and Meat Marketing Study, Volume 3: Fed Cattle and Beef Industries Final Report," prepared for GIPSA, January 2007, at 1–15.

slaughter facility and reach the final consumer through a downstream supply chain resembling that in the cattle industry.

- (42) The industry has witnessed increased consolidation and vertical coordination, as well as vertical integration. Some hog integrators play a role similar to that of poultry integrators. They are involved in feed-mill and packing operations and they contract with growers to raise hogs. Other hog integrators organize contract hog production while purchasing feed from mills and selling their hogs to packers. About 40 major integrators coordinate three quarters of the production of hogs marketed annually in the United States.²⁵
- (43) Hog packers operate large plants to achieve economies of scale. There is significant variation in their procurement methods, including some combination of CPMs, such as packer-fed hogs, marketing agreements and forward contracts, and spot market procurements. The different stages of hog production, namely, farrowing, nursing, and finishing are covered by different types of contracts. Contracts most frequently cover a single stage. As in the poultry industry, contracts allocate responsibility for providing inputs. For example, growers provide housing and labor, and contractors provide the animals, feed, and veterinary care. The most common compensation schemes for the finishing contracts involve a base payment (e.g., per pound of liveweight) with bonuses for greater efficiency in the conversion of feed. The increasing reliance on CPMs in the hog industry compared to the cattle industry, especially by major packers, is largely due to greater need for vertical coordination.²⁶
- (44) Table 3 shows that the four-firm concentration ratio for hog slaughter concentration increased from 44% to 65% between 1992 and 2008, while the HHI increased from 702 to 1,225 between 1992 and 2006.
- (45) The buying side of the market (packers) is much more concentrated than the selling side (growers). Most contracts are written in a take-it-or-leave it form and are rarely individually tailored to satisfy the needs of both sides.²⁷

²⁵ J.M. MacDonald and W.D. McBride, "The Transformation of U.S. Livestock Agriculture Scale, Efficiency, and Risks," EIB-43, Economic Research Service, USDA, January 2009.

²⁶ RTI, "Spot and Alternative Marketing Arrangements in the Livestock and Meat Industries," Interim Report prepared for GIPSA, July 2005, at 4-70.

²⁷ *Id.* at 4-58.

Table 3: Hog slaughter concentration

Year	CR-4	HHI	Plants
1992	44%	702	921
1995	46%	769	802
2000	56%	1,033	721
2001	57%	1,035	699
2002	55%	1,005	683
2003	64%	1,334	662
2004	64%	1,320	664
2005	64%	1,340	629
2006	61%	1,225	612
2007	65%		
2008	65%		

Source: USDA GIPSA Statistical Report 2006. USDA GIPSA Annual Reports 2008-2009.

IV.D. Grains

- (46) Buyer power in grains was not a focus of the Workshops, but concern about buyer power in markets for purchasing corn, soybeans, and wheat was the basis for DOJ's 1999 challenge to the proposed merger of Cargill and Continental. As in the case of other agricultural products already discussed, farmers sell their crops in limited geographic markets. Because transportation costs are very high, most farmers sell their output to grain elevators within about 25 miles of their farms.²⁸ The area around a grain elevator from which farmers come to sell their crop is called the "draw" area. If elevators are close enough to each other, these draw areas can overlap. Even with this overlap, many farmers have only one or few elevators available in their area. For example, in markets alleged by DOJ, the merged firm would have accounted for 94% of purchases of soybeans and 53% of purchases of corn in the Pacific Northwest and "virtually all" purchases of wheat in Central California. In addressing the question of what alternatives farmers would have in response to the exercise of monopsony power, DOJ claimed that, because of constraints imposed by the length of growing seasons, climate, and other attributes of geography, farmers would not significantly substitute among agricultural commodities.²⁹

²⁸ F. Dooley, "The Effect of Ethanol on Grain Transportation and Storage," Purdue Extension, ID-329, December 2006, <http://www.extension.purdue.edu/extmedia/ID/ID-329.pdf>.

²⁹ Complaint at 11, *United States v. Cargill*, No. 99 1875 (U.S.D.C. July 8, 1999), (<http://www.justice.gov/atr/cases/f2500/2552.htm>).

IV.E. Dairy

- (47) The dairy industry, like the livestock industry, exhibits a vertical structure with multiple entities involved in various stages of the milk production and marketing process. Producers of raw milk, cooperatives, processors and retailers interact in markets that tend to be local. This is especially the case for fluid milk compared to other manufactured dairy products, such as cheese and butter.³⁰ Factors that give rise to local markets for dairy products include the highly perishable nature of milk, and the historical evolution of price regulation at a regional level.
- (48) The producers of raw milk used to produce fluid milk market it through dairy cooperatives, sell it directly to wholesale processors, or process it into fluid milk themselves for direct sale to consumers. Compared to poultry growers and, to a lesser extent, hog growers, dairy farmers are still largely paid for their products as opposed to their services.³¹
- (49) Cooperatives either arrange for the sale of raw milk by farmers to processors, or they purchase the raw milk themselves and sell it directly. In some cases, cooperatives also process raw milk into fluid milk and distribute it to retail outlets. The processing of raw milk into fluid milk and its distribution to various retail outlets is done by independent bottling plants or retail food chains that own bottling plants.³²
- (50) The dairy industry has experienced significant consolidation at all levels. Every year more raw milk is produced but it comes from fewer farms. There are fewer large cooperatives to market the milk to processors and fewer large processors to convert the raw milk into fluid milk and manufactured products.³³ Between 1980 and 2002, the total number of dairy cooperatives dropped by 55% and their share of total milk marketed increased from 77% to 86%.³⁴ The number of fluid milk bottling plants decreased from about 1,000 to roughly 300 and the average volume per plant tripled between 1980 and 2006. Based on data from the U.S. Census, the four-firm concentration ratio in fluid milk manufacturing increased from 18% in 1972 to 46% in 2007.

³⁰ GAO, "DAIRY INDUSTRY - Information on Milk Prices and Changing Market Structure," 2004, 110.

³¹ *Supra* note 25.

³² GAO, "FLUID MILK - Farm and Retail Prices and the Factors That Influence Them," 2001, 2.

³³ James J. Miller and Don P. Blayney, "Dairy Backgrounder," LDP-M-145-01 Electronic Outlook Report from the Economic Research Service, USDA, July 2006, 3.

³⁴ See Table 1 in USDA, "Cooperatives in the Dairy Industry," Cooperative Information Report 1, Section 16, September 2005.

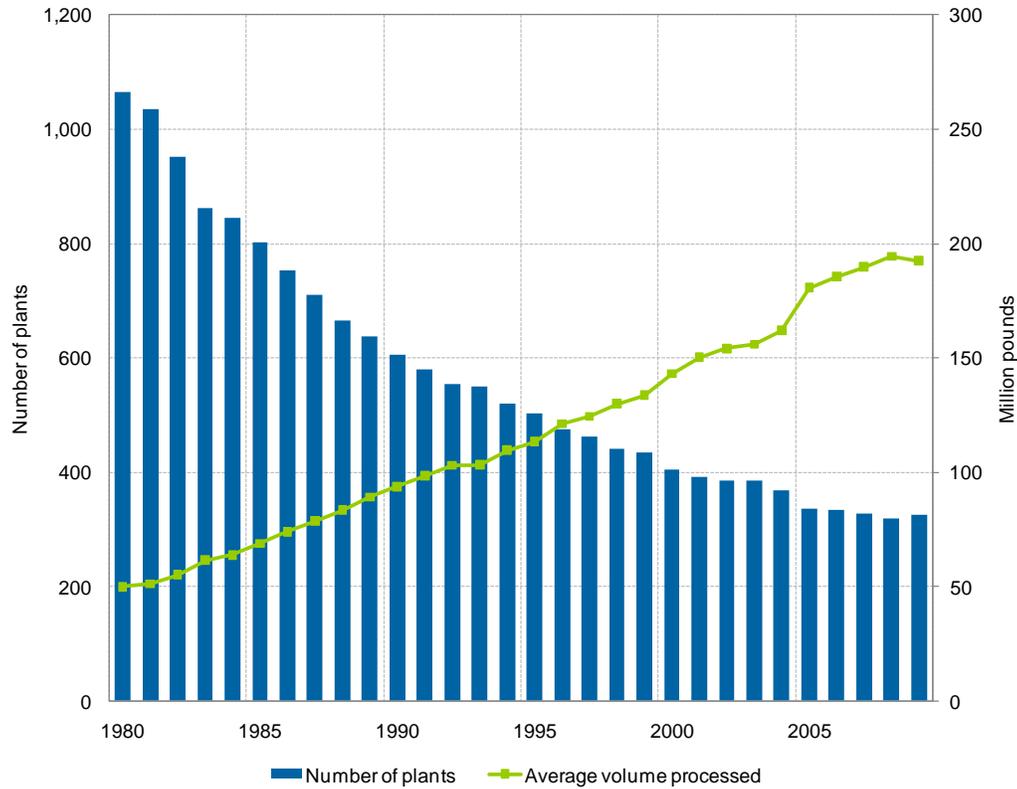
- (51) Efficiency gains, as well as countervailing market power arguments, have been offered as explanations for increases in concentration at various stages of the supply chain for milk. The consolidation of farmers into cooperatives might be a response to consolidation of processors, and consolidation of processors might be a response to consolidation of retailers.³⁵
- (52) There might be historical precedent for this argument. The development of railroads in the nineteenth century allowed for the possibility of milk to be transported over greater distances. This, in turn, reduced the need for milk dealers to be located close to farmers. As the industry structure evolved towards a situation in which hundreds of thousands of dairy farmers sold to a few milk dealers, farmers formed cooperatives to counter the buyer power of dealers.³⁶ This historical narrative might still have relevance today, as both processors and cooperatives increase in size and decrease in number.
- (53) Monopsony concerns have surfaced in connection with past mergers in the dairy industry. Although few details are available, to some extent DOJ was concerned about monopsony in connection with the merger in 2002 of Dean and Suiza. DOJ intervened to try to preserve competition among dairies to purchase milk from independent producers.³⁷

³⁵ Two studies by the Government Accountability Office (GAO, 2001 and 2004) examine in detail the structure of the dairy industry and reach qualitatively similar conclusions. See also the report by the Congressional Research Service (2010), <http://www.nationalaglawcenter.org/assets/crs/R41224.pdf>. Based on the GAO (2001) report, the consolidation at the processor level, which was the response to ongoing consolidation at the retail level, triggered the unification of cooperatives, as a means of maintaining or acquiring market prominence and enhancing the bargaining position of their members. The most prominent example of such unification is the formation of Dairy Farmers of America in 1998.

³⁶ USDA, "Cooperatives in the Dairy Industry," Cooperative Information Report 1, Section 16, September 2005.

³⁷ See Statement of R. Hewitt Pate, Assistant Attorney General, Antitrust Division, before the Committee on the Judiciary U.S. Senate Concerning Antitrust Enforcement in the Agricultural Marketplace, October 30, 2003, at 11, <http://www.justice.gov/atr/public/testimony/201430.pdf>.

Figure 1: Fluid milk bottling, number of plants and average volume processed



Source: USDA.

Table 4: Fluid milk manufacturing concentration

Year	CR-4	HHI-50	Companies
1972	18%	0	2,025
1977	18%	0	1,516
1982	16%	151	853
1987	21%	195	652
1992	22%	188	525
1997	21%	205	402
2002	43%	1,060	315
2007	46%	1,075	280

Source: Economic Census.

Note: Years 1972-1987: SIC 2026. Years 1992:2007: NAICS 311511.

V. Evidence of buyer power in farm to consumer price spreads

V.A. Concerns about farm-to-retail spreads

- (54) The difference between retail and farm prices is one of the most widely discussed and perhaps most controversial topics in agriculture. Some commentators have gone as far as arguing that the increasing differential between the prices that the consumers pay and the price that the farmers receive for agricultural products is bad news for the long-run viability of the agricultural sector in the US economy. Large retail food outlets, food processors, meat packers and milk processors are often alleged to exercise market power somewhere along the food supply chain, leading to farmers' shrinking share of the food retail dollar over time.
- (55) Indeed, the final session of the Workshops was devoted to looking at “discrepancies between the prices received by farmers and the prices paid by consumers.”³⁸ Some examples of the testimony at the Workshops provide insight into the nature of the concerns that were expressed about these spreads:
- Our members are concerned about corporate consolidation in the agriculture and production and retail sectors because it negatively effects [sic] both producers and consumers. Producers are receiving less of the retail dollar and consumers are paying more for food. (Kathy Mulvey, Community Food Security Coalition, DC workshop transcript, p. 145)
 - Through all these consolidations and quality improvements, however, it is undeniable that farmers have seen their share of what the consumer pays for milk and other dairy products go down significantly. The farm price for a gallon of milk today is now roughly 30 percent of what you pay in the retail store. (Jamie Bledsoe, Dairy farmer from California, Wisconsin workshop transcript, p. 85)
 - I am concerned that there may be too much consolidation beyond our cooperatives. The clear example is how dairy farmers' share of the retail dollar has fallen from 52 percent in 1980 down to 27

³⁸ Washington, DC workshop, December 8, 2010. (<http://www.justice.gov/atr/public/workshops/ag2010/dc-agworkshop-transcript.pdf>)

percent in 2006. (Christine Sukalski, Partner and dairy farmer in Reiland Farms, LLP, Wisconsin workshop transcript, p. 92-93)

- Second, the producers' share of the consumer dollar has shrunk substantially in recent years. ... This is particularly evident in the fluid milk market, because consolidation in the retail food marketing industry has reached the point where major chain marketers can flex their buying power muscle and demand price concessions from processors in the name of keeping them competitive. (Ed King, Dairy Farmer owning and operating King's Ransom Farm, Wisconsin workshop transcript, p. 106)
- I believe the retailers have too much power. We can all be concerned about the processors, and I am, but the retailers have taken an ever greater share of the retail dollar, and that has hampered our processing and especially our production sectors. By taking those extra margins, they've taken away money for innovations and strength in our sectors. (Larry Schroder, crop, dairy, hog, and beef farmer, Iowa workshop transcript, p. 332)

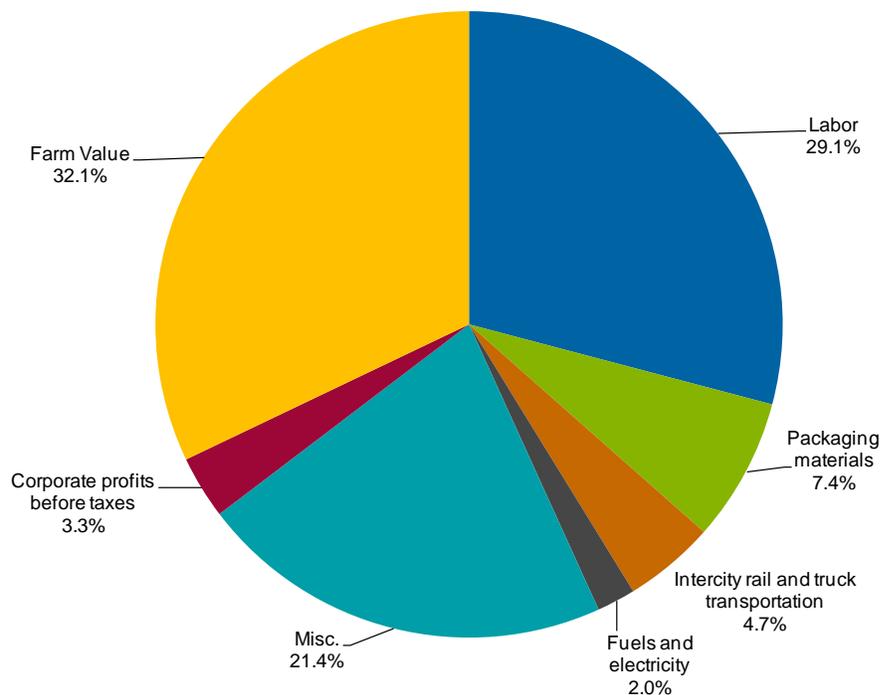
- (56) A detailed analysis of facts in specific markets generally is required to assess the validity of claims like these and to determine whether they indicate anticompetitive conduct or increases in the exercise of market power over time. The antitrust enforcement agencies and the Department of Agriculture can and do use compulsory processes to obtain detailed relevant facts in the course of their duties. Unfortunately, public data is usually too aggregated across geographies or products to offer more than suggestive evidence. Nevertheless, consideration of public data can call attention to broad market facts that, while not definitive, are at least suggestive of how a more detailed inquiry might be conducted, and of possible conclusions to which such an inquiry it might lead. The discussion of public data that follows, therefore, is intended to be suggestive of more detailed facts about specific products and markets that would need to be considered in a careful inquiry about specific allegations of anticompetitive outcomes.

V.B. Evidence on farm-to-retail spreads

- (57) Because allegations about processor and retailer market power often focus on the farm-to-retail price spread, it is instructive to look at data on that spread. At the broadest level one can think about the percentage of consumer food dollars that accrue to farmers and growers. A popular perception is that food comes from farms. But

agricultural products pass through many stages of processing and distribution on their way from farm to consumer. Along the way, value is added, costs are incurred that must be covered by the retail price, and processors, retailers, distributors, and other organizations, businesses and individuals take profits, taxes, and fees that add to the final cost of food to consumers.

Figure 2: Components of consumer expenditure for farm foods: 1970



Source: USDA Economic Research Service.

- (58) As a consequence, the percentage of the consumer food dollar that is paid to the farmer is surprisingly low. The farm share of consumer expenditures on food was relatively stable at about 33% from 1955 to 1980 but has declined steadily since then to 19% in 2006.³⁹ Figure 2 provides a breakdown of consumer expenditures for farm foods in 1970, as defined and calculated by the USDA's Economic Research Service

³⁹ Robert J. Meyers, Richard J. Sexton, and William G. Tomek, "A Century of Research on Agricultural Markets," *American Journal of Agricultural Economics* 92, no. 2 (2010): 376–403.

(“ERS”). This represents “the market value of foods originating on U.S. farms and purchased by or for consumers.”⁴⁰ Of the total consumer food dollar, in 1970 only 32% was “farm value,” defined as “the value of the farm products equivalent to foods purchased by or for consumers at the point of sale by farmers.”

- (59) The remainder of the food dollar in Figure 2 is the “food marketing bill,” which provides an estimate of the costs added to agricultural products after they leave the farm by the food processing, marketing and distribution system, for all types of food. The components of the food marketing bill include labor, packaging, intercity transportation, fuels and electricity, a miscellaneous category, and corporate profits (before taxes). The miscellaneous category includes depreciation, rent, advertising and promotion, interest, taxes, licenses, insurance, professional services, local for-hire transportation, food service in schools, colleges, hospitals, and other institutions, and other miscellaneous items. It is obvious from this list and the associated percentages that the final cost of food to consumers is primarily determined by the cost of inputs not produced on the farm. Non-farm labor contributed almost as much to consumer food expenditures as did farm costs in 1970. Notably, corporate profits (excluding farm profits) accounted for just 3.3% of the consumer food dollar and only 4.9% of the food marketing bill.

⁴⁰ A detailed definition of terms used in this section is available at <http://www.ers.usda.gov/Data/FarmToConsumer/definitions.htm>. The definition of consumer expenditure for farm foods includes foods consumed at restaurants and institutions in addition to foods purchased from a retailer or directly from a grower, and excludes seafood, non-food items purchased at supermarkets, and imported foods such as bananas and coffee,

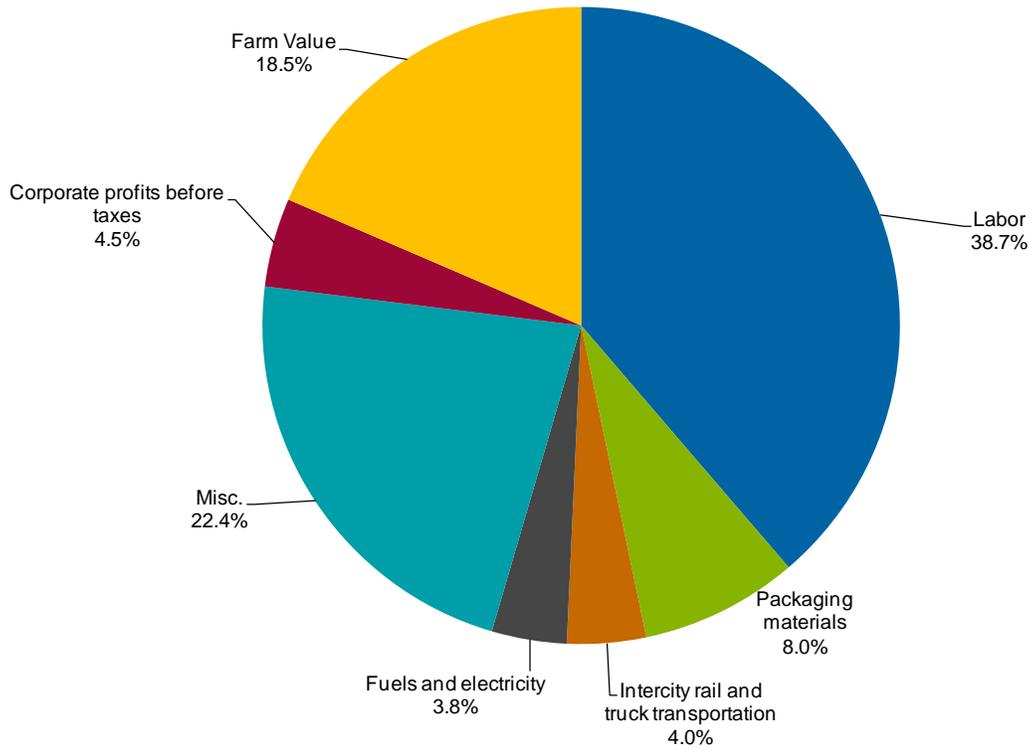
Table 5: Farm share of consumer food expenditure for selected products

Product	Year	Farm share of consumer food expenditure
Beef	2010	46%
Whole milk	2009	46%
Fresh Strawberries	2009	38%
Pork	2010	31%
Fresh Tomatoes	2009	30%
Fresh Lettuce-Iceberg	2009	29%
Fresh Broccoli	2009	27%
Fresh Peaches	2009	24%
Fresh Apples	2009	22%
Fresh Grapes	2009	21%
Fresh Lemons	2009/10	20%
Fresh Pears	2009	19%
Fresh Potatoes	2009	19%
Fresh Grapefruit	2009/10	13%

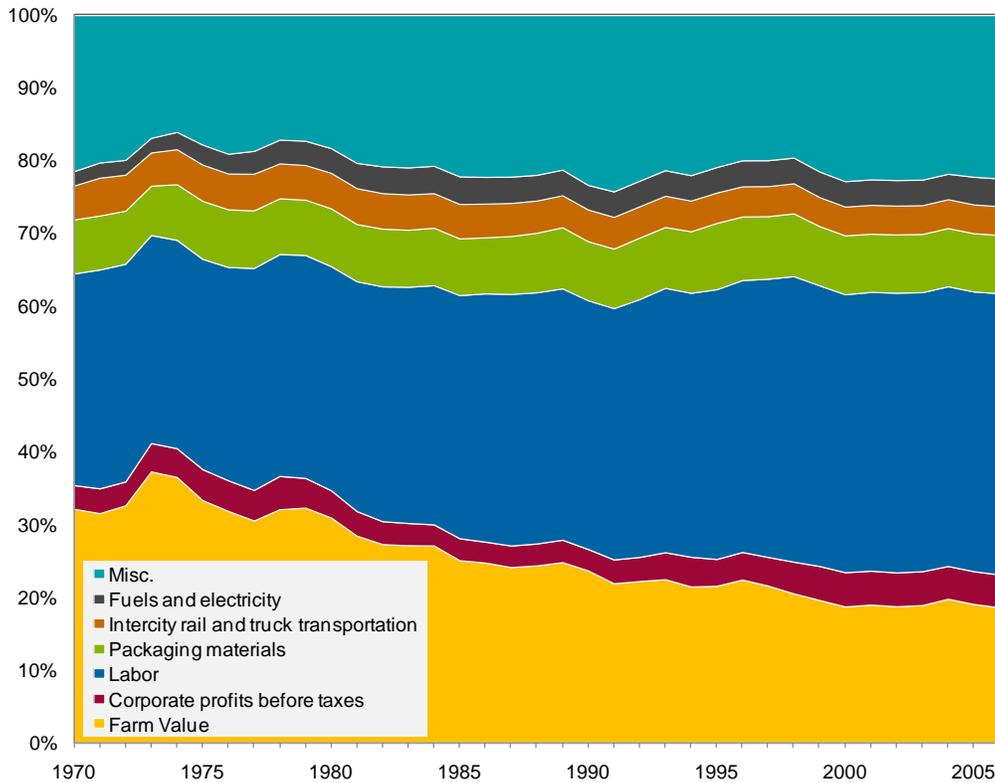
Source: USDA Economic Research Service.

- (60) The low farm value share of the consumer food dollar is also apparent in other evidence from ERS for some individual agricultural products. Table 5 shows values for selected products from recent data. While there is a wide range, none of the products reported by ERS has a farm value share greater than 50%.
- (61) Figure 3 gives the same breakdown as Figure 2 for 2006—the most recent year for which ERS has reported this data—and Figure 4 shows the trends in the components of food dollars over time. By 2006, the farm value share of consumer food expenditures was below 20%, and non-farm labor was more than twice as large at almost 40%. Corporate profits had grown slightly in importance to 4.5% of the food dollar and 5.5% of the food marketing bill. In particular, loss of share of the consumer food dollar by farmers does not appear to have been significantly due to rising corporate profits in the processing, marketing and distribution chain, but rather to increases in other non-farm input costs such as labor.

Figure 3: Components of consumer expenditure for farm foods: 2006



Source: USDA Economic Research Service.

Figure 4: Components of consumer expenditure for farm foods: trends

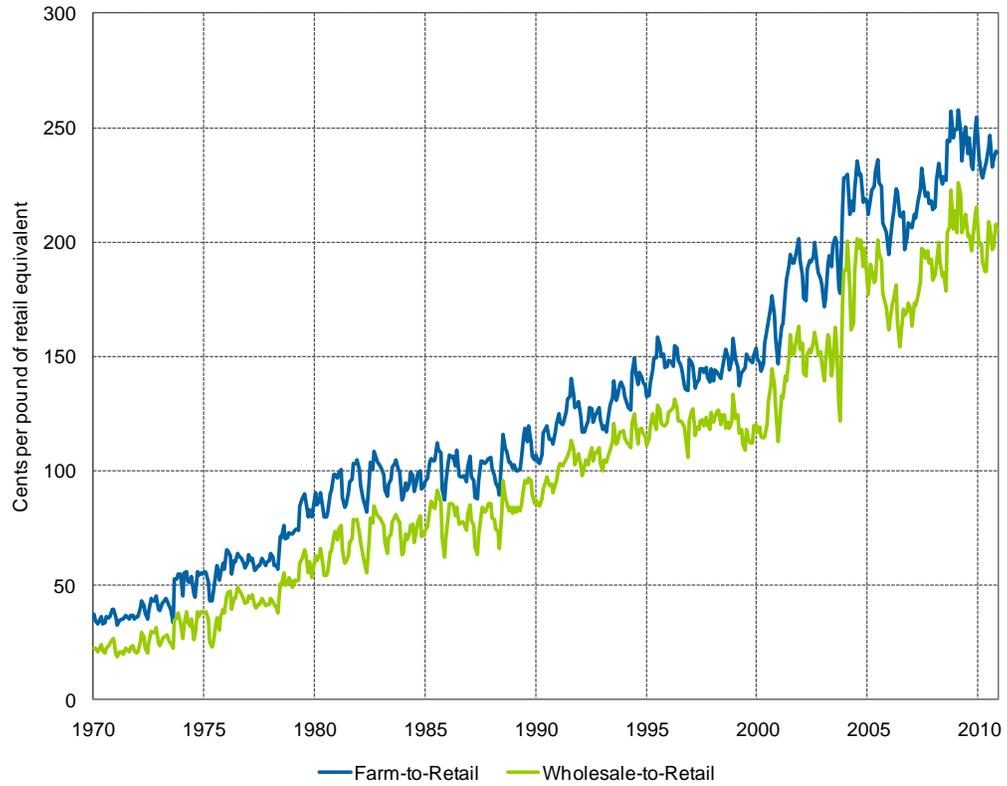
Source: USDA Economic Research Service.

- (62) The preceding figures show that the farm share of the consumer food dollar has fallen over time and that the nonfarm share has grown accordingly. This aggregated data does not tell us much about individual products. Similar breakdowns are not available from ERS for individual farm products. However Figure 5 and Figure 6 show price spreads for beef and pork in cents per pound from 1970 to 2010, representing the nonfarm contribution to final retail prices for these products. The price spreads were obtained by subtracting the farm price or the wholesale price from the retail price. Therefore the difference between the two spread measures in each figure is the farm-to-wholesale price spread.⁴¹ Both figures show substantial run-ups in the dollar amount of the spread over time; these run-ups were primarily driven by increases in

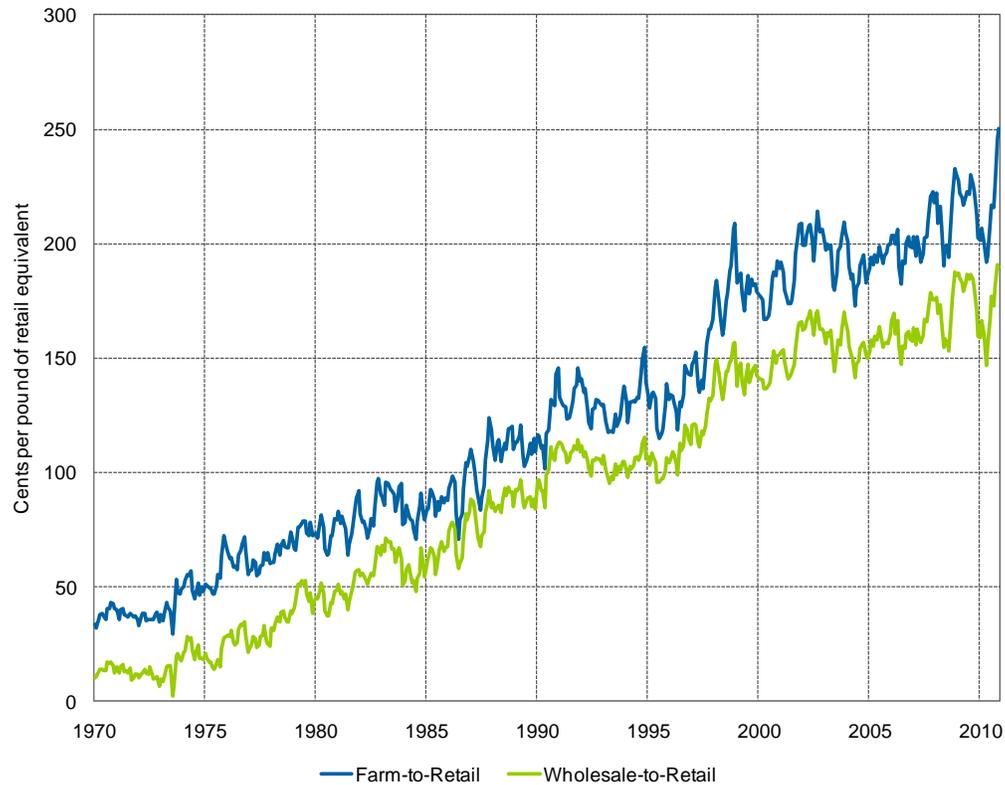
⁴¹ The wholesale price is measured as meat leaves the packer, so the wholesale-to-retail spread includes transportation and distribution costs incurred through delivery to the retailer. See <http://www.ers.usda.gov/Data/meatpricespreads/documentation.htm>.

the wholesale-to-retail spread rather than by the farm-to-wholesale spread. Increases in the farm-to-wholesale price spread are comparatively modest.

Figure 5: Beef price spreads



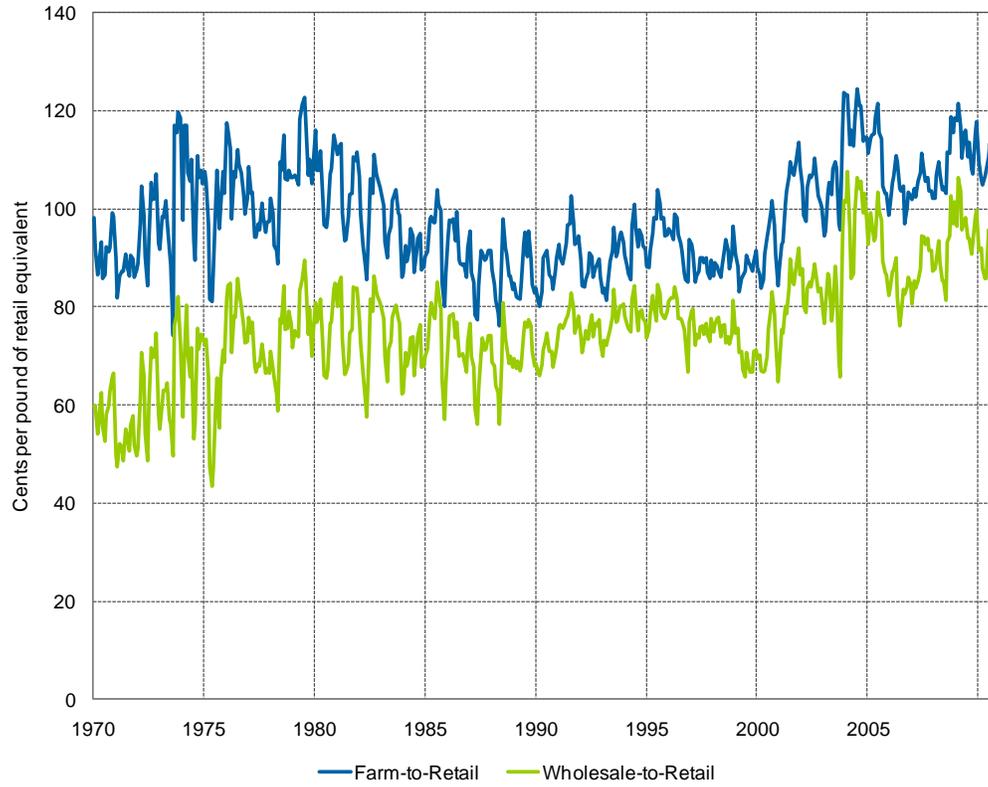
Source: USDA.

Figure 6: Pork price spreads

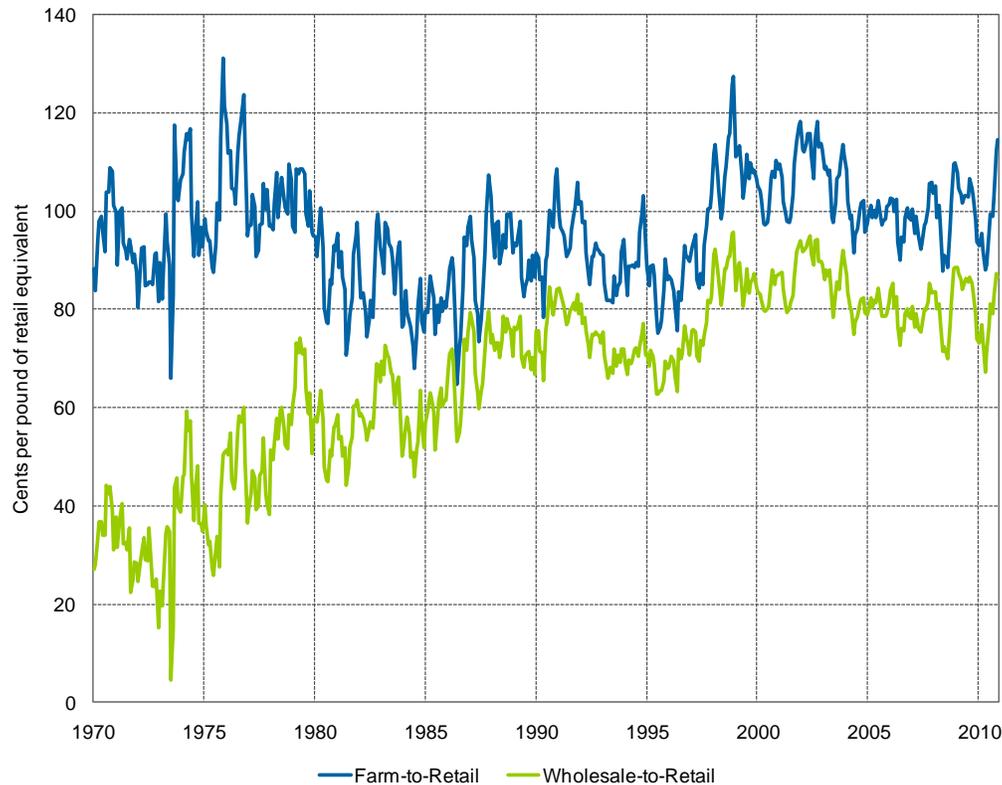
Source: USDA.

- (63) The upward trend in these price spreads suggest large increases in nonfarm costs and markups contributing to retail pork and beef prices over time, especially at the retail level. But the strong trends in farm-to-retail price spreads largely disappear after the prices are adjusted for inflation. Figure 7 and Figure 8 show the same price spreads adjusted for inflation by using the consumer price index (“CPI”). While inflation-adjusted farm-to-retail spreads for beef increased somewhat over the period, the changes are small compared to the variation in the spread over time within the period. Inflation-adjusted farm-to-retail spreads for pork show essentially no increase or decrease over the period. Thus the nonfarm contribution to beef and pork prices paid by consumers has been roughly unchanged in terms of the purchasing power of consumer dollars. The inflation-adjusted spreads also suggest that the difference between farm and wholesale prices narrowed somewhat from 1970 to 1985 for beef, and more strongly for pork, but these trends do not appear to have continued more recently.

Figure 7: Beef price spreads adjusted for inflation



Source: USDA and BLS.

Figure 8: Pork price spreads adjusted for inflation

Source: USDA and BLS.

V.C. Farm-to-consumer price spreads and buyer power claims

- (64) How might data similar to those presented, perhaps analyzed at a more disaggregated level to fully capture realities of specific markets, inform claims that downstream buyer power is leading to reduced farm income? It is apparent that the farm-to-consumer spreads do not provide directly relevant evidence about market power of buyers or sellers in the downstream markets.
- (65) A first problem is that movements in the spread data must be carefully analyzed to make sure that spreads really are increasing after controlling for other influences. For example, Figure 7 and Figure 8 suggest that evidence of a growing price spread might be less robust when prices are measured in real dollars.

- (66) There can also be problems of interpretation related to changes over time in the value added between the farm gate and the supermarket. For example, if strawberries grown in California could not be economically shipped out of the state, then the retail price of strawberries in California would likely be lower. Shipping the fresh berries to New York during the winter increases their value and raises retail prices, but it also raises the downstream costs after the berries leave the farm. As a consequence, farm-to-retail price spreads for California strawberries are probably higher, and the farm share of retail strawberry expenditures is probably lower, than they would be in the absence of sale into out-of-state markets. And changes in these sales could lead to changes in the spread measures over time that have nothing to do with market power. The increase in the spreads would instead be due to costs associated with serving broader markets.
- (67) Similarly, changes in the degree of food processing can add nonfarm costs that are reflected in rising retail prices but not in rising farm prices. For example, shifts in consumer purchasing trends for ground beef from bulk packages at supermarkets to frozen premade hamburger patties and then to purchases of cooked hamburgers at restaurants would increase the average nonfarm cost and farm-to-retail price spread for ground beef even in the absence of any market power by beef processors, distributors, or retailers. Indeed, the percentage of consumer food expenditures in the “away from home” channel has been growing relative to purchases from supermarkets and other traditional retailers selling food for home preparation and consumption.⁴² To the extent that “away from home” food products have higher costs of production, this trend could explain, at least in part, the falling farm value share of consumer food expenditures illustrated in Figure 4.
- (68) The common thread in these arguments is that farm-to-retail spreads are not informative about the presence of market power directly, because they include substantial real costs associated with producing and distributing the final product to consumers. Indeed, to the extent that Figure 3 is representative, the vast majority of the farm-to-consumer spread consists of such costs. They cannot be avoided short of having consumers purchase their food at the farm gate, but they do not reflect market power.
- (69) If farm-to-retail spreads are not informative about downstream market power then what might an economist look at instead? Because the concerns are related to effects on farm income, one might look at farm income directly. However, it would be a mistake to conclude that falling farm income is due to monopsony. Prices can fall over time for many reasons in perfectly competitive markets as a result of increases in

⁴² Data on “away from home” and “at home” shares of consumer expenditure on farm foods is available from ERS at <http://www.ers.usda.gov/Data/FarmToConsumer/Data/marketingbilltable1.htm>.

supply or reductions in demand.⁴³ Indeed, a fall in demand will lower prices at the farm whether the reduction in demand is due to falling consumer demand for final goods, an exercise of monopsony power by downstream retailers of processed food products, or an exercise of seller market power by a monopoly food processor. These events all reduce demand faced by growers, and are indistinguishable at the farm gate.⁴⁴

- (70) Some guidance as to better measures comes from the earlier discussion of classic monopsony. A classic monopsonist would reduce demand for farm output in order to create economic rents arising from the difference between the price paid to the farmer and the incremental revenue that the monopsonist earns by selling a comparable amount of final goods in the downstream market, net of other input costs that the monopsonist must cover at the same time. Therefore, one measure of whether the farm price may be depressed by downstream market power would be the percentage of the farm-to-retail spread consisting of such rents. If the percentage is high, then something anticompetitive might be going on in the downstream market that could have deleterious effects on upstream suppliers, including farmers. The test is essentially equivalent to asking whether the final price in the downstream markets substantially exceeds the true marginal cost of production; this is a classic test for exercise of market power.
- (71) Looking back at Figure 3, and thinking about an individual product for which similar data might be available, one might look at the percentage of corporate profits embedded in the “food marketing bill” as a measure of downstream economic rents. As noted previously, this percentage increased from 4.9% to 5.5% from 1970 to 2006 when looking at all consumer farm food expenditures. It seems unlikely that such small increases could explain large reductions in farm income. Of course the numbers could look quite different for individual products.
- (72) A measure like this must be carefully interpreted. The mere presence of rents is not sufficient to conclude that farm prices have been suppressed by exercise of

⁴³ For example, supply might increase because of improved farmer efficiency, or new entry or expansion induced by falling prices for alternative crops. Likewise, increased geographic integration of farm output markets that is due to falling transportation costs can shift production from low productivity to high productivity regions, lowering overall marginal costs. On the demand side, falling demand for finished goods can reduce demand for the farm products used to make them. But falling farm demand for a given product can also come from substitution to other inputs in downstream processing. For example, falling prices for high fructose corn syrup used as a sweetener could reduce demand for sugar beets.

⁴⁴ Farm profits could be examined instead of farm income. Done carefully, this approach could distinguish between improved farm productivity and other causes for falling prices. However it still could not distinguish between falling demand for farm output caused by downstream buyer power and falling demand caused by other forces.

downstream market power. The rents could be earned at the expense of final consumers or at the expense of suppliers of other inputs, for example, with no effects on farm prices. This would be expected if farmers have good alternative uses for their time and resources, for example. Furthermore, a certain amount of accounting profit is generally considered to be a normal economic “cost” and not a rent, because investors and entrepreneurs will not devote resources to the downstream enterprise without earning at least a competitive return.

- (73) Measuring the economic rent component of the farm-to-retail spread can be tricky. To identify all rents that might be distorting farm prices, one must look for economic rents that might be embedded in accounting measures of cost, for example. Energy costs could reflect, in part, rents earned by the OPEC oil cartel, for example. However, unless such indirect influences on farm prices are of concern, it might be best to ignore rents that are not earned primarily in the food supply chain.
- (74) On the other hand, if the rents are concentrated at particular stages of production, then their potential importance for farm incomes might be greater. For example, if all economic rents are earned by a processor that is the only direct purchaser of a farm output, and if the same purchaser has no market power in selling its own output, then one might conclude that farmers are victims of monopsony. In this case, one might use the processor’s selling price rather than the final consumer price in constructing the measure, and clearly this would increase the relative size of the economic rents in the “final” price. But even in this setting, one would have to make sure that the rents are earned through exercise of monopsony power against farmers and not through exercise of monopsony power against suppliers of other inputs to the same processor. A meat packer might also have monopsony power in local labor markets, for example.