MIDDLEMEN IN THE MARKET FOR GRAIN: CHANGES AND COMPARISONS

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ABSTRACT

The role of middlemen in the market for grain changed with the advent of standardized grain grading. Prior to grain grading, economies of scale were limited because of the requirement that middlemen develop strong personal reputations though the maintenance of multi-faceted relationships with clients. Grain grading homogenized grain, making it possible for middlemen to take advantage of economies of scale in their operations.

The economy of the Midwest matured during the post-Civil War decades: transportation service improved, markets for produce widened, Chicago boomed.[1,2] The marketable surpluses of farmers supported the small towns and cities at railroad junctions. Middlemen in the towns linked farmers and urban markets; networks of middlemen were key to the success of the rural regions.[3] Yet we know little about these middlemen, and even less about the firms they operated. This paper is part of an ongoing project that aims to develop a systematic analysis of middlemen in agricultural markets during this period of rapid growth and change. The primary goal of this paper is to develop a framework for analysis of changing market structure in grain during the latter half of the nineteenth century.[4]

The evolution of the trade in manufactured goods has been discussed in a number of important studies, but the evolution of the trade in grain differed from the evolution of the trade in manufactured goods. In some manufactured goods, the trend during the late nineteenth and early twentieth centuries was for firms to integrate forward into the distribution of the product. One of the reasons for forward integration was the movement away from homogeneous, easily substitutable products towards differentiated products.[5] Producers of differentiated products found it more efficient to market either directly to consumers or directly to retail outlets, cutting out the independent middleman in either case. We know much less about the status of independent middlemen in the grain trade. I argue here that the importance of the independent middleman was rising in the movement of grain from farm to processor at the same time the importance of the independent middleman was declining in the movement of manufactured goods from producer to consumer.

Alfred Chandler and Glenn Porter and Harold Livesay have made a convincing arguments that during the late nineteenth century the organization of the distribution of manufactured goods moved from a system of "market coordination" to a system of "administrative coordination" in response to the differentiation of products, among other factors.[6] But prior to the Civil War, grain was a differentiated product, each load

of grain was differentiated by its quality. Only after the standardization of grain grades did grain become a homogenous product. The expectation, therefore, is for the phases of market coordination and administrative coordination in the trade in grain to appear in reverse order in the trade in grain as compared to the trade in manufactured goods. Prior to the standardization of grain grades, I suggest that a combination of administrative coordination and market coordination was used. It seems that networks of middlemen connected by personal ties based on reputation negotiated much of the trade, but sales in open markets (really, open-air markets) were also possible. The increasing volume of trade over the period 1840-1860 led to better use of market coordination through brokerage houses and boards of exchange, but only after the standardization of grain grades and the widespread use of futures contracts could market coordination reach its zenith. By 1880 personal reputation was of little value to the grain middleman; knowledge of modern finance, storage and shipping methods was the crucial determinant of success. As the nineteenth century came to a close—and beyond the time frame of this paper—large grain trading companies came to coordinate movements of large quantities of grain directly from the farmer to the processor.[7] Vertical integration by grain processors into the purchase of raw materials marked a return to administrative coordination of a different sort.

The Grain Trade, A History Greatly Abridged

In 1850 Chicago was only one of several grain trading hubs in the Midwest. It had only been a decade since traffic in grain on the Great Lakes by 1840 had come to rival the traffic in grain on the Ohio and Mississippi Rivers (through St. Louis and New Orleans). But the trade in grain on Lake Erie dominated until 1850, after which it was surpassed by the trade on Lake Superior.[8] First Cleveland (on the Ohio Canal), then Toledo (on the Wabash and Erie Canal), and finally Chicago and Milwaukee rose as grain trading centers.

The development of a system of cities in the grain trade around Cleveland presaged the development of systems of cities around Chicago. Cleveland received most of its wheat from central Ohio. Smaller towns along the Ohio Canal grew up as forwarding points. For example, Akron became an important milling town in this early period and Massillon, thirty miles south of Akron, assembled unprocessed wheat often bought by millers in Akron. Development of the west-to-east through railroads in the early 1850s led to the eventual decline in the grain trade along the Ohio Canal.[9]

Again, during the 1840s shipment of grain from Lake Michigan ports was small compared to shipments from Lake Erie ports. The shipments were forwarded from many small towns (e.g. St. Joseph, Michigan City, Waukegan, Kenosha, Racine, Chicago, Milwaukee) on the lake shore; these towns competed with each other and with southern waterways for the grain trade. In 1848 Chicago became linked to wider markets by canal and rail. Thereafter, Chicago's rise to prominence was rapid; during 1854-56 its "gains were greater than those made in the entire previous history of the port."[10]

The migration of the Pillsbury and Washburn families from New England to Minnesota in the 1860s brought grain processing to the grain farmers of Minnesota, the Dakotas and the Canadian border. It was on the northern plains during the 1870s that the Cargill family and Frank Peavey became the great grain movers.

As the source of grain for eastern consumption moved farther west, the difficulties of the early system of trading grain became evident. Early in the settlement of the Midwest, the farmer had little choice but to take personally to market any surplus he desired to sell. Farmers by the thousands built sturdy rafts, known as flatboats, to carry the produce down river. Sometimes the farmer sold to a dealer at a town that offered regular steamboat service, sometimes the farmer designated an agent (perhaps a steam boat captain) to sell down river, and sometimes the farmer continued with his own crop. In the last two cases, the farmer retained ownership until a sale was made in St. Louis or New Orleans.[11]

As population grew large enough to support a town, a local general merchant began to provide the service of collecting the produce of the neighborhood and forwarding it for sale.[12] The merchant would credit the farmer for the produce at a fixed price, or the merchant would credit the farmer an advance if the grain was to be handled on a commission basis. The farmer could then purchase goods that he could not produce for himself against this credit. The merchant provided storage until a sufficient quantity of grain had been assembled. The merchant then sold the assembled grain (providing transportation) or engaged the services of a commission merchant in a larger city to find a buyer. The merchant used the proceeds from the sale of the produce to pay his own obligations because the goods in merchant's store had most likely been purchased on credit of six months to one year.

The barter business of the general merchant gave way to the more specialized business of forwarding and commission merchants. Forwarding and commission merchants handled grain for both farmers and merchants. Forwarding and commission merchants were agents of the seller; that is, they were to try to sell at the highest price, and they arranged transportation and provided storage and insurance along the way. They charged a fee (2 ½ percent was customary) and did not take title to the produce.[13] Forwarding and commission merchants "adopted the policy of extending cash advances to country merchants with whom they had consistently dealt." To some extent the credit of commission houses to general storekeepers replaced the credit of manufacturers as the century progressed.[14] In essence, then, the trade in grain was conducted on the basis of inland bills of exchange, a slight adaptation to the dominant method of trading since the merchants of Venice were in ascendance.

Grain was handled in sacks or barrels, and the sacks of each owner were warehoused together.[15] Until the 1850s grain in transit was described by its type (red winter wheat, soft spring wheat, white club wheat) and its point of origin. But all wheat of the same type was not the same. The quality of the grain was determined by the buyer. For each transaction, the purchaser determined the offer price based on inspection. Purchasing without inspection was a risky business. It was easy to conceal low-quality wheat in the midst of shipments of many sacks or barrels.[16]

To facilitate long distance sales, a merchant might forward a sample of the wheat by express delivery to a buyer, or more frequently to the buyer's forwarding and commission agent. This sample (or a certificate of quality) would act as a guarantee of sorts, but disputes were frequent and could be costly.[17] Sales by express sample were cheaper than forwarding an entire shipment, but in order to use the method the seller or his agent must be well-known, of good reputation. Sales of this type were part of long-term relationships, developed from personal interaction and many transactions.

Prior to the use of standard grading and standardized forward contracts, then, a middleman needed a strong personal reputation with buyers to be successful. The general merchant in the countryside must trust the middleman in the city. The strength of the reputation of the middleman extended backwards as well. The general-merchant-*cum*-middleman must be trusted by the farmer in order to maintain the barter in produce that financed the retail trade. Middlemen earned the trust of their clients—who were also their neighbors—in part through developing reputation in the rural community. In order to develop personal reputation, middlemen needed to interact with clients and potential clients repeatedly in a wide variety of circumstances, both economic and social. The need for repeated interaction, along with high cost of transportation and information dissemination, meant that the middleman at mid-century was likely a generalist who served many needs for a local clientele. Middlemen experienced economies of scope because of the importance of personal reputation.[18]

In addition to forwarding crops, commission merchants in the South routinely provided other services for farmers, including making purchases of domestic manufactured goods and imports. It is reasonable to assume that in the early development of commission middlemen, such multi-faceted agency relationships existed in the North as well. Farmers expected commission merchants to be "in the know" in the city; commission merchants who had good contacts in the city developed good reputations among country merchants.

For middlemen who developed good contacts in the city, credit was often easier to come by as well. The following description of transactions made through Buffalo demonstrates the point:

> Often a produce dealer at some point of consumption would make arrangements with a forwarding house at Buffalo for the purchase of grain. Then the forwarding house, either with its own resources or with the aid of the financial resources of the eastern purchaser, could extend an advance for the purchase of grain to a third agent at the point of production. This last agent could, in turn, offer a similar advance to the farmer, merchant or miller on the spot. The western merchant drew a sight draft (with warehouse receipts attached) on Buffalo corespondents. The drafts were made payable at Albany or New York, but discounted locally. The local banknotes enabled western merchants to continue to make advances on consignments to farmers and millers.[19]

Commission houses in the West acted as agents for dealers or millers in the East and received grain on consignment from middlemen farther west. Commission merchants would forward the grain to another commission house in the East if the final purchaser was yet undesignated. If the grain remained consigned to the agent at each step, the ownership remained with the farmer or, more likely, with the general merchant who originally purchased the crop. Each step required the payment of a commission or fee, so it was to the advantage of the western middleman—and his client—to make a final sale as early in the sequence as possible.[20]

As the production of grain increased, commission merchants in major cities—who had formerly added shipping services to their businesses to eliminate bottlenecks—split their businesses by function. At the same time, some merchants in the major grain trade cities split off their grain trade from their general trade. By 1845 the middleman who traded grain was separate from the middleman who shipped the grain through cities such as Buffalo.[21] In the late 1840s the number of brokers (different from commission merchants in that brokers brought together buyer and seller at a single place) had become significant.[22] Division of labor among middlemen in the countryside took longer and required improved transportation and communication. These technological changes amplified the specialization of the grain trade in cities as well.

Technological change in the handling of grain led directly to the homogenization of grain through the development of standard grading. In the early trade, grain was not handled in bulk, but in sacks and barrels. The costs of transshipment was high. Rather than move bulky produce to warehouses for short term storage, sacks and barrels unloaded at St. Louis were often left standing on the levee, where weather affected losses. On the shores of the Great Lakes, however, the increase in the volume of the grain trade led to the use of elevators to reduce storage costs.[23]

Elevators reduced costs because grain was stored in bulk, out of its sacks and barrels. Grain arriving at the elevator was loaded ("elevated") into bins constructed above the wharf or rail line. The bins could then be opened directly over the barge or car contracted to carry it to the next point. However, so long as each receipt of two hundred bushels had to be kept separately from every other receipt of two hundred bushels, elevators could not reach an efficient scale of operation. Grain and its owner needed to be separable to take advantage of bulk storage. Separation required standardization of quality, homogenization of the grain.

The Chicago Board of Trade established its system of grading in 1857. Milwaukee established a system in 1858, Toledo in 1863.[24] After the systematic grading of grain was adopted, warehouse receipts could be used for more than just security on credit. Because the receipts specified a quantity of a commodity with characteristics known to all, the receipts themselves became a commodity. Warehouse receipts became tradable. Trading in warehouse receipts evolved into futures trading through the use of so-called "to arrive" contracts.

The "to arrive" contract was born of the development of railroad networks and the telegraphs along railroad right-of-ways. The telegraph linked western markets to daily changes in eastern prices, and the railroads made it possible to move grain quickly enough to take advantage of movements in price. With the telegraph, a dealer in New York could also purchase directly at the point of production. The long line of credit advances was reduced, and instead "New York commission houses and grain dealers were flooding the rich regions of Ohio, Indiana, and Illinois with eastern bank notes advanced to...western grain merchants, on produce to be shipped east."[25]

The transactions were done on a "to arrive" basis. A move to standardize the form of transaction was being discussed by Chicago merchants as early as 1856, and its development was accelerated as a response to the Panic of 1857:

> Western shippers were unable to buy produce for the reason that they could not draw on their eastern correspondents, as no discount could be obtained even on the most undoubted securities to pay with... This state of things put an effectual check on the movement of the crops, and completely ruined the fall trade. Some three or four weeks previous to the closing of navigation an arrangement was perfected...by which the Banks were to advance currency for the purchase of grain, taking the bills of lading in the name of the Bank, making the advance and sending the grain forward, on account of [the local middleman]. This property was not drawn against and accepted, but when sold, the money was remitted.[26]

Only after the "to arrive" contract was widespread did the Chicago Board of Trade organize itself as a produce exchange. The members of the CBOT formalized the "to arrive" contract, transforming it into the modern futures contract.

After 1865, the ever-increasing volume of grain arriving from the railroads being built to the West led to growth in the number of middlemen in receiving centers like Chicago and Milwaukee. A greater specialization of function and in trade by product was evident as well. In the interior, at towns in the areas where production centered, the railroad led to a proportionally larger increase in the number of middlemen dealing in grain. As discussed above, before the spread of the railroad, a few men at major points had coordinated the bulk of the grain business. The early middlemen purchased grain from producers or from smaller dealers such as country store owners at harvest and held the grain until water navigation resumed in the spring. In the spring, the middlemen bought additional grain from farmers who had held their own crops over the winter. (Farmers with adequate storage may have held out for better prices, or some farmers may not have been able to get grain to market before water navigation ceased in the fall.) For middlemen, holding grain over the winter required adequate financial resources or substantial credit, or both. But with the railroad, produce men became as "thick as potato bugs. Anyone with $250 could purchase a carload of wheat and ship it to Chicago or Milwaukee."[27]

After the railroad was built through, farmers brought grain to the nearest railroad depot for sale to a dealer. The dealer may have been independent, or may have been an agent for a produce merchant at the secondary market. At any rate, it is clear that after the Civil War, grain middlemen traveled around the interior buying up the crop at harvest, and even before.[28] A transaction with the farmer could be made so long as the price was right.

Standard grading and standardized forward contracts reduced the value of personal reputation. No longer was it possible for a middleman to misrepresent the quality of grain to a buyer in the East. It also became possible for a farmer to compare contracts with a neighboring producer, which was not possible when every sample of grain was treated separately. The personal character of the middleman became less important to the producer; farm gate price became more important. In order for a middleman to offer the best price to producers and still maintain a profitable price spread, he had to abandon the strategy of generalist and become known as an expert in information about the trade in grain only, he had to become more like the middleman in the distribution of manufactured goods.

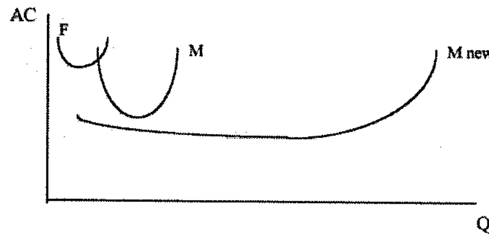
A Model and Testable Hypotheses

Again, it seems that change in the organization of middlemen in the grain trade was accompanied by changes in the importance of personal reputation in the grain trade. The pre-Civil War grain marketing system was held together by personal reputation and trust. Farmers trusted merchant-neighbors with whom they had repeated interaction. General merchants and other middlemen had standing in the community; they had wealth and connections. Over the 1860s and 1870s, standardized quality grading, spreading railroad lines, and the telegraph led to the growth of trading in futures contracts at central commodity exchanges, such as the CBOT. Standard grading and futures contracts changed the trade in grain. Where once efficient trade in grain required that middlemen be trusted in their opinion of quality, now grades of grain were objective. Where once obtaining credit required a personal relationship with middlemen up the line, now the trade in grain was financed through hedging on the CBOT. Trustworthiness was not so important, price was important. Where once each middlemen sought to serve the various needs of a devoted local clientele, now each middleman attempted to develop a reputation as a specialized expert by serving a larger market in a more limited range of services.

To translate these changes into a more formal model, consider figure 1, which depicts the average costs of doing business for a farmer and a middleman in the grain business. Farms had exceptionally high average costs of marketing grain for themselves (shown as average cost curve F); in addition to the direct costs of storage and shipment, farmers usually had to accompany their crops to market, tying up time as well as cash. By contrast, circa 1850, costs to the middleman were lower than to the farmer (average cost curve M). Middlemen had high entry costs (to cover storage, for example), and

FIGURE 1
LONG RUN AVERAGE COST OF MARKETING

Grain: From Farm to Market



Farms (F) have a very high cost of marketing. Circa 1850, costs to the middleman (M) are lower than to the farm, but high entry costs and need for reputation limit efficient scale.

After railroad development and standardization of grain grades, marketing costs are lowered (to M new). Middlemen are not required to provide storage or to have a strong personal reputation.

the need for maintaining multi-faceted relationships with people at both end of the transaction (in order to maintain a good personal reputation) limited efficient scale of operation. Therefore, the average cost curve for middlemen was roughly U-shaped. Middlemen found it cost-effective to do a larger business in grain than individual farmers, but not such a large business in grain as they might do if personal reputation were less important.

When standardized grain grading became the norm, personal reputation lost its earlier importance. The need for multi-faceted relationships no longer limited efficient scale. Moreover, the costs of entry were reduced; it became possible to do business in carloads of grain collected locally and shipped directly to market. Average costs for middlemen fell, and average costs were likely to be constant, up to a very large quantity, above which the cost of storage again caused average cost to rise.[29]

Breaking up the story into its constituent parts, the changing role of reputation in the grain trade suggests the following for the structure of the grain trade overall and for the characteristics of the individual middleman:

• *Geographic Distribution of Middlemen.* When personal reputation dominated, prior to the widespread use of standard grading and forward contracts, middleman operations in grain likely were evenly distributed across the rural Midwest. After standardized grain grading became the norm, a middlemen likely took advantage of the economies of scale by operating a larger business out of a town or city. So over the course of the latter half of the nineteenth century, the geographic distribution of middlemen likely became more uneven, with few middlemen in the countryside and many in relatively urban settings.

• *Other Economic Activities of Middlemen.* When personal reputation dominated, a middlemen had the incentive to improve his reputation by increasing the number of

interactions he had with local producers, as discussed above. The interactions may have been of personal or economic nature. As a consequence, it is likely that more middlemen circa 1850 also operated farms, retail shops, manufactories, or other businesses.

• *Specialization in Exchange of Certain Commodities.* Middlemen were generalists circa 1850; they were likely to have dealt in a variety of goods in order to increase the number of interactions with each producer, which would in turn increase the return on investment in personal reputation. Standardization of the grain grade reduced the need to do business in many types of produce. The number of middlemen who did business in grain only probably increased over the course of the century.

• *Age of Middlemen.* A good personal reputation takes many years to build. By contrast, learning the ropes of a limited number of agricultural markets may be relatively easy. Very likely, then, middlemen circa 1850 were older (on average) than middlemen operating circa 1880.

• *Geographic Persistence.* Because building personal reputation takes years of repeated interaction, a middleman circa 1850 was likely to have been a long-standing member of his community. By comparison, after grain standardization, it should have been relatively easy for an expert middleman to establish a business in a new location. So, the persistence rate among middlemen circa 1850 probably exceeded the persistence rate of middlemen circa 1880.[30]

None of these hypotheses, and the many others that can be formed using the model, can be tested with data currently available. There is a need for further research to provide evidence with which to test with care these micro-level hypotheses. It is possible, however, to draw a few tentative conclusions with data currently available.

Middlemen by the Numbers

Careful surveys of the number of firms operating as middlemen and the costs of the services of middlemen were not made prior to World War I. The U.S. decennial censuses did not cover the distribution sector until 1939.[31] The Bureau of Labor Statistics did not collect data on the sector until after World War II. What we do know about middlemen before World War I is limited to data on occupation from the population censuses and to scattered extant records of middlemen themselves. We are fairly certain that the fraction of the labor force engaged in distribution (middlemen and their employees) has been on the increase since at least the mid-nineteenth century. The percentage of the labor force engaged in distribution rose from 6.1 percent in 1870 to 8.6 percent in 1900, and to 14.4 percent in 1940. In 1870 there was 1 person distributing commodities for every 11.5 people engaged in the production of commodities. In 1900, the ratio had fallen to 1:7.3, and in 1940 the ratio was down to 1:3.1.[32]

These are aggregate figures. No micro, firm-level sample of middlemen has been collected to date. The most comprehensive sources of microeconomic data for the nineteenth century Midwest are the Atack-Bateman and Bateman-Foust samples of the

manuscript censuses of population, agriculture, and manufacturing. As helpful as these samples have been to scholars in a wide variety of fields, they cannot address questions about the development of the grain trade, or the service sector generally. They are missing the key sector.[33]

The most complete primary sources for data on the service and distribution sector are the extant statewide directories of business. Business directories list the names and locations of firms, including the firms of middlemen. The directories were published regularly for states in the Midwest after about 1840 for the states in the Old Northwest, and after about 1850 for states West of the Mississippi River. The state *Gazetteer and Business Directories*, published by R. L. Polk and George W. Hawes, constitute the most complete set of state directories. Other series are found, piecemeal, in several libraries and archives.

The directories are particularly good sources of data on middlemen. Middlemen had strong incentives to obtain listings and advertisements. The directories explicitly aimed for completeness. The 1866 edition of the *Missouri Gazetteer and Business Directory* contains a preface to the listings giving an apology for delayed publication. The publisher, R. L. Polk, states that the canvass of businessmen took longer than he anticipated because his agents conducted the survey with "utmost thoroughness so as to include every proprietor in the State."[34]

The most basic of the hypotheses are confirmed by the preliminary data from Illinois directories. The number of middlemen in the grain trade increased from 267 in 1855 to 2,436 in 1880.[35] The increase represents a change from approximately one grain middleman per 5,000 Illinois citizens in 1855 to one grain middleman per 1,200 people in 1880. There was approximately one middleman for every 525 farms in Illinois in 1855, but about one middleman for every 105 farms in 1880. There was one middleman for approximately every 62,000 bushels of wheat and 323,000 bushels of corn produced in Illinois in 1855, but one middleman per 21,000 bushels of wheat and 134,000 bushels of corn in 1880.[36]

Likewise, the number of different headings under which middlemen in the grain trade listed their services increased. In 1855 only 18 of the merchants described themselves as specialists in the grain trade; they were "Flour and Feed Dealers." The remaining 249 (93 percent) chose instead the labels "Commission Merchant," "Commission and Forwarding Merchant," or "Auction and Commission Merchants." By contrast, fewer than 32 percent of middlemen chose to list their firms under general labels in 1880 directory. Instead, middlemen described themselves more precisely as "Grain Dealers" (51 percent of middleman firms), "Flour and Feed Dealer" (13 percent), "Grain Broker" (1 percent). Clearly, the middlemen operating in Illinois in 1880 were more specialized in both function and commodity than their counterparts in 1855 had been.

Only name and location of business operation are available from the directories. Additional information on nativity, age, family, literacy, interstate migration, and other economic activities must be gathered from the manuscripts of the decennial censuses.[37] The names of proprietors of firms engaged in the agricultural trade in the North Cen-

tral states will be linked to the manuscripts of the population, agricultural and manufacturing censuses. The complete data set will allow me to characterize changes in the types of middlemen, to map the geographic distribution of middlemen, and to discover changes in the demographic and economic profile of middlemen.

No other sector of the developing American economy has been both so important and so neglected as the service sector. This project aims to create the first micro-level data set available for study of the service sector, with an emphasis on the portion of the sector serving agriculture. The data will complement data currently in the public domain that describes the population, and agriculture and manufacturing sectors. The research forthcoming from the project will complement studies of the distribution of manufactured goods that use other types of documentary sources. Taken as a whole, the project will offer an entirely new view of the American economy at a critical time in its development.

Notes

1. Thanks to the National Science Foundation (SES 96-23063) and the Hagley Foundation for financial support. Thanks to Jeremy Atack, Lance Davis, Rodney Davis, Farley Grubb, Brad Hansen, Robert Gallman, Judith Klein, Morton Rothstein, Richard Stout, and participants in the D.C. Area Economic History Seminar (February 1998) for helpful discussions. Thanks to Peter Lindert, Greg Clark, and the staff of the Agricultural History Center at UC-Davis for their hospitality and assistance. Undergraduate research assistance was supervised by Tad Blacketer, Michael Bonilla, and Thomas Scheiding.

2. William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: Norton, 1991).

3. On the wider importance of middlemen in the developing U.S. economy, see Morton Rothstein, "Antebellum Wheat and Cotton Exports: A Contrast in Marketing Organization and Economic Development," *Agricultural History* 40, no.2 (Spring 1966), p. 99: "The major source of capital for non-farm enterprises was ultimately in the agricultural sector, and the middlemen were leading agents in extracting that capital...In the grain trade, division of functions and market innovations reduced the middlemen's risks...grain merchants seemed far more willing and able to invest their earnings in alternative forms of economic activity and in the same locality where the funds were earned [as compared to Southern cotton merchants]."

4. In many ways the project is a response to Professor Rothstein's challenge, which has gone unmet for more than 30 years ("Antebellum Wheat and Cotton," p. 99): "We need to know more about the structure and organization of regional and local markets."

5. Glenn Porter and Harold C. Livesay, *Merchants and Manufacturers: Studies in the Changing Structure of Nineteenth-Century Marketing* (Baltimore: Johns Hopkins Press, 1971 (reprint1989)), and Alfred D. Chandler, Jr., *The Visible Hand: The Managerial Revolution in American Business* (Cambridge, MA: Harvard Univ. Press, 1977).

6. Chandler, *The Visible Hand*, especially pp. 20-24 and pp. 209-214. Chandler considers the earliest period of the grain trade to be market coordinated.

7. A terrific read on the interplay of modern politics and multinational business is Dan Morgan, *Merchants of Grain* (New York: Penguin Books, 1980). His brief historical introduction is equally helpful.

8. Receipts of grain and flour at Buffalo exceeded receipts at New Orleans in 1838. See Thomas Odle, "Entrepreneurial Cooperation of the Great Lakes: The Origin of the Methods of American Grain Marketing," *Business History Review* 38(1964), p. 441. See also Emory R. Johnson et al., *History of Domestic and Foreign Commerce of the United States*, vol. I. (Washington DC: Carnegie Institution of Washington 1915, reprinted 1922), p. 230; John G. Clark, *The Grain Trade in the Old Northwest* (Urbana: Univ. of Illinois Press, 1966), pp. 55-59; William F. Switzler, "Report on Internal Commerce of the United States," *House Exec. Docs.* 50 Cong., 1 Sess., No. 6, Part 2 (1888).

9. Clark, *The Grain Trade*, pp. 61-63.

10. Clark, *The Grain Trade*, p. 85. The discussion in this paper concerns only trade in wheat, the main cash grain of the Midwest during this time period. The canal at Chicago brought forth the first major marketing of corn, and the value of the corn trade at Chicago exceeded the value of the wheat trade in 1851-52. Israel D. Andrews, "Reports on Trade and Commerce of the British North American Colonies and Upon the Trade of the Great Lakes and Rivers, *Senate Exec Docs.*, 32 Cong., 1 Sess., No. 112 (1853), p. 218., Clark, *The Grain Trade*, p. 90.

11. The farmers of Knox County, Indiana, stated that "the uncertainty of the time of shipment, and the short period during the season, have prevented the merchants of this country embarking as regular dealers in the produce business. The consequence has been, the farmers have, much to their injury, been compelled to ship their own products..." *Senate Documents* 28 Cong., 1 Sess., No. 241, p. 3, quoted in Odle, "Entrepreneurial Cooperation," p. 441.

12. The most complete description of these merchants appears in Lewis E. Atherton, *The Pioneer Merchant in Mid-America*, "The University of Missouri Studies," XIV (Columbia, MO: University of Missouri Press, 1939). Also see Fred M. Jones, *Middlemen in the Domestic Trade of the United States, 1800-1860*, "Illinois Studies in the Social Sciences," XXI (Urbana: University of Illinois Press, 1937).

13. Jones, *Middlemen in the Domestic Trade*, pp. 20-23, lists commission charges given in court records and advertisements. Harold D. Woodman, *King Cotton and His Retainers* (Lexington: University of Kentucky Press, 1968) details cotton factors; also see Mort Rothstein, "Antebellum Wheat and Cotton Exports."

14. Manufacturers became increasingly disenchanted with the customary terms of credit, based as they were on the crop year, as railroads and forward integration reduced their own distribution costs. See Chandler, *Visible Hand*, and Porter and Livesay, *Merchants and Manufacturers*.

15. Judith Klein raised the intriguing question: who provided the sacks? Sacking was expensive and would have been a large part of the marketing cost. I have not yet found a clear reference.

16. Similar problems of non-homogeneity are present in the markets for wool and cotton. There is a need for a comparative history of the trade in wool, cotton, and grain.

17. The inadequacy of sales by sample are discussed in *Senate Executive Documents*, 60 Cong., 1 Sess., No. 116, p. 1.

18. Relevant work on game theoretic approaches to reputation includes Kreps and Wilson (1982), "Reputation and Imperfect Information," *Journal of Economic Theory* (27), pp. 253-79 and Milgrom and Roberts (1982), "Predation, Reputation, and Entry Deterrence," *Journal of Economic Theory* (27), 280-312. An application to reputation theory to medieval trade organization is Avner Greif (1989), Reputation and Coalitions in Medieval Trade: Evidence on the Maghribi Traders," *Journal of Economic History*, 49(December 1989), pp. 857-82.

19. Clark, *The Grain Trade*, pp. 119-120; also see Odle, "Entrepreneurial Cooperation," p. 446, and Charles Kuhlman, *The Development of the Flour-Milling Industry in the United States* (Boston and New York: Houghton Mifflin Co., 1929), p. 70.

20. Clark, *The Grain Trade*, pp. 119-120. Also see Thomas Odle, "The American Grain Trade of the Great Lakes, 1825-73," *Inland Seas* (Spring 1953), pp. 54-56.

21. Rothstein, "Antebellum Wheat and Cotton," p. 95. See also, Odle, "Entrepreneurial Cooperation," p. 444-45, and "Great Lakes Grain," *Inland Seas*, VIII (Fall 1952), pp. 177-192. This paralleled the specialization of commission merchants in southern cities; see Jones, "Middlemen in the Domestic Trade," p. 19.

22. Jones, "Middlemen in the Domestic Trade," p. 27.

23. In the 1840s elevators were also in use at eastern ports on the Great Lakes. See Odle, "Entrepreneurial Cooperation," p. 445.

24. A complete history of grading rules and legislation is provided in Lowell D. Hill, *Grain Grades and Standards: Historical Issues Shaping the Future* (Urbana: University of Illinois Press, 1990). The process of establishing grain grades is an interesting one, but beyond the scope of this paper. Here I am mainly interested in the effect standardized grading had on the transactions and organization of middlemen.

25. Clark, *The Grain Trade*, p. 166.

26. *Annual Statement of the Trade and Commerce of Buffalo for 1857* (Buffalo, 1858), quoted in Odle, "Entrepreneurial Cooperation," pp. 447-48. Odle notes that the short-horizon "to arrive" contract (made for 30 days or fewer) was used as early as 1848 (when telegraph communications were initiated), but did not become common until rail transport made them executable year-round (p. 452).

27. J.W. Spencer and J.M.D. Burrows, *The Early Days of Rock Island and Davenport,* Milo M. Quaife, editor (Chicago: ,1942), p. 271, quoted in Clark, *The Grain Trade*, p. 257.

28. Clark, *The Grain Trade*, pp. 257-58. Some authors have alleged that the traveling dealers were coercive—the dealers were known to point out the large opportunity cost of selling locally, which was to haul the grain to market on one's own. See Paul W. Gates, *The Farmer's Age: Agriculture 1815-1860* (New York: Holt, Rinehart, and Winston, 1960), p. 414, for example.

29. To complete the comparison to the trade in manufactured goods in the introduction: Product differentiation would drive average costs of marketing up for middlemen, who would have to keep track of the differences between products and pass that information along to consumers. The cost of marketing differentiated products would then be relatively lower for the firm, leading the firm to integrate forward into distribution as Chandler and Porter and Livesay document.

30. An abbreviated list of related papers on geographic mobility includes Joseph Ferrie, "The Wealth Accumulation of Antebellum European Immigrants to the U.S., 1840-1860," *Journal of Economic History*, 54, no.1, pp. 1-33; Richard Steckel, "Poverty and Prosperity: A Longitudinal Study of Wealth Accumulation, 1850-1860," *Review of Economics and Statistics* (74), pp. 275-85; for an extended bibliography see Mary Eschelbach Gregson (1996), "Population Dynamics in Rural Missouri, 1860-1880," *Social Science History* (Spring 1997), pp. 85-110.

31. The 1840 census did ask enumerators to records the number of commission houses in their district. The published number of commission houses of all kinds is 2,881 nationally; more than 40 percent of commission houses operated in the cities of New York and New Orleans. The uses of this count are limited, however, because there was not an individual enumeration of these commission houses. Moreover, the enumerators probably included all sorts of middlemen in the numbers, and because the enumerators were not given clear instructions with regard to this question, it is very unlikely that the data were collected in a consistent manner. See *Compendium of the Census of 1840*, p. 360, and Jones, "Middlemen in the Domestic Trade," p. 29. Some state legislatures (especially in the south) sporadically imposed taxes on middlemen, but again there is no consistency.

32. "Commodities" includes agriculture, forestry, fishing, mining and manufacturing. Harold Barger, *Distribution's Place in the American Economy since 1869* (Princeton: Princeton University Press, 1955), especially table 2 and pp. 5-6. Also see tables of occupations in the compendia of the U.S. Census for the various years, but note that the data are not reported in a consistent format. Barger also concluded that productivity in distribution (as measured by output per man hour) increased from 1870-1950, though not as quickly as productivity in manufacturing and agriculture; and that the ratio of the cost of distribution to retail prices rose between the mid-nineteenth century and World War I, and then leveled off through World War II. Barger does not try to estimate the effect of vertical integration on distribution (see p. 25), so his estimate of the output and productivity of middlemen are biased. More research is needed here.

33. The Bateman-Foust (1860) and Atack-Bateman (1850, 1870, 1880) samples of rural farms and households and the Bateman Foust (1860) and Atack-Bateman (1850, 1870, 1880) samples of manufacturers. The census instructions to enumerators read: "All kinds of mercantile, commercial, or trading business, where no specific article is produced or manufactured, but which are confined to dealing and exchange of articles of merchandise or manufacture, *are not to be included in this schedule* (italics in original, Census Office, Department of the Interior, Eighth Census—1860, *Instructions to Marshalls; Instructions to Assistant Marshalls,* (Washington, DC: George W. Bowman, 1860), p. 25, item 2.; n.b. Carroll Wright, *The History and Growth of the United States Census,* (Washington, DC: GPO, 1900), misquotes the instructions, excluding the *not*, p. 313.) Only occupations are usable, and as noted, the occupation data cannot inform questions regarding firms.

34. *Missouri Gazetteer and Business Directory* (St. Louis: R.L. Polk, 1866), p. ix.

35. *Montauge's Illinois and Missouri State Directory, 1854-55* (Chicago: Platt, Montague and Co., 1854); *Montauge's Illinois—The Northern Counties for 1855* (Chicago: Platt, Montauge and Co., 1854); *Illinois State Gazetteer and Business Directory* (Chicago: R.L. Polk and Co., 1880).

36. Production and population data for 1880 are from the published census reports, for 1850 the data are an interpolation of the 1850 and 1860 census data. See http://fisher.lib.virginia.edu/cgi-local/censusbin/census for a web browser version of the data available through the ICPSR. For additional data see U.S. Census Office, *Seventh Census of the U.S.* (Washington, DC: GPO, 1854); *Report on Agriculture of the United States in 1860* (Washington, DC: GPO, 1864); *Report on Population of the United States in 1860* (Washington, DC: GPO, 1864); and *Compendium of the 10th Census* (Washington, DC: GPO, 1883).

37. The North Central states for which directories are available are Iowa, Illinois, Indiana, Kansas, Missouri, Nebraska, Ohio, Michigan, Minnesota, and Wisconsin. Of special interest, of course, will be Minnesota, home of the great American grain movers, the Cargills and the Peaveys.