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CONCENTRATION AND MERGERS IN U.S. WHOLESALE GROCERY MARKETS

by

John M. Connor

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Dept. of Agricultural Economics

Purdue University

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by
John M. Connor
Dept. Of Agricultural Economics, Purdue University
West Lafayette, Indiana 47907-1145
connor@agecon.purdue.edu

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Abstract

This report analyzes a large sample of U.S. grocery warehouse operators in 54 well defined grocery marketing areas. Almost all grocer retail chains with more than 40 supermarkets and $500 million in retail sales in 1990 are vertically integrated into wholesaling. More than four-fifths of the market areas display high levels of sales concentration (four-firm concentration greater than 60 percent). The 1992 merger between Super Value and Wetterau violated federal merger enforcement guidelines in at least four market areas, and several more horizontal mergers between merchant grocery wholesalers have been consummated since then.

Keywords: Grocery wholesale trade, food retail trade, market concentration, mergers and acquisitions, vertical integration, antitrust policy, food distribution, geographic market definition.

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John M. Connor
Dept .of Agricultural Economics, Purdue University
West Lafayette, IN 47907-1145
connor@agecon.purdue.edu
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Introduction

For decades economists have attempted to study and understand the market structures of the U.S. food processing and distribution industries. Compared to the other stages of the U.S. food system, the market structure of the grocery wholesaling industry is the least documented. The most comprehensive study of the U.S. food system devoted a mere 2.3 percent of its text pages to the grocery wholesaling industries (Marion *et al.*). The Bureau of the Census has published concentration data on the food manufacturing industries on a regular basis since the 1940s, and market shares from for-profit grocery information services has increasingly become available (IRI). In grocery retailing, regional research groups have commissioned at great expense special tabulations of sales concentration ratios across statistical metropolitan areas, the latest for the year 1987 (Franklin and Cotterill). Concentration ratios have repeatedly been discovered to have strong explanatory power when linked to various measures of market performance (e.g., Connor *et al*., Cotterill, Binkley and Connor). The proper measurement of market sales concentration is essential for the wise enforcement of U.S. merger laws. The merger guidelines now is force for the major federal antitrust agencies specify the use of pre-merger and post-merger concentration ratios as the principal criteria for deciding whether to investigate proposed mergers in any industry (U.S. Justice Department). The number of U.S. grocery wholesalers acquired *by* other U.S. grocery wholesalers averaged about 20 per year in the 1970s (Marion *et al.*: 349). The rate nearly doubled in the 1980s and early 1990s. (ERS). More importantly, several mergers during 1992-1996 involved leading wholesalers.

Very few published studies of grocery wholesaling concentration exist. The U.S. national Commission on Food Marketing studied wholesaling within various commodity subsectors, but produced no comprehensive examination of the industry as a whole. The last precise investigation was an unpublished analysis of a special tabulation of the 1972 Census of Wholesale Trade prepared by USDA economists and reported in Marion *et.al.* (Page 348). This study found that the four-firm sales concentration ratio (CR4) for general-line food wholesalers ranged from 58 to 89 percent and averaged 73 percent across 14 grocery marketing areas (GMA). The GMAs were defined for such large metropolitan areas as Boston, Cleveland, Seattle, and San Francisco. Each GMA was composed of from two to four census MSAs. Concentration ratios were also calculated for wholesalers specialized in selling meat, produce, confectionary, or the like. Average CR4s for the specialty wholesalers were typically much lower than for the general-line wholesalers.

Although a pioneering study for its time, the USDA special tabulation suffers from several limitations. In particular, the sample of 14 GMAs was chosen for convenience rather than statistical representativeness, and the USDA analysis was confined by certain rigid classification practices of the U.S. Bureau of the Census.[1] The limitations of the USDA study highlight two major problems facing would-be studies of wholesaler market structure. The first issue is that there are difficulties in identifying which types of wholesale operations are in more or less direct rivalry with one another. Grocery warehouses are owned and operated by four fairly distinct types of companies. First, most large and many medium-sized grocery chains operate warehouses that are filled with goods purchased directly from food processors (or in the case of fresh produce, wholesale packers or growers). In addition, most smaller chains and some "independent" (non-chain) retailers operate small warehouses that satisfy a portion of their storage requirements while relying on other wholesalers for the bulk of their wholesale purchases. Second, there are merchant wholesalers, firms that store and deliver products purchased from growers, packers, or manufacturers. Some of the merchants are specialized in one line of business (meat, dairy, beverages, etc.) And some are general-line merchants (sell several lines of groceries). The fourth type of wholesale distributor are manufacturers that vertically integrate forward by operating their own sales and distribution centers. These manufacturers' sales branches generally sell to integrated retailers or to merchant wholesalers. A fifth kind of grocery wholesaler does not operate a warehouse; agents and brokers sell food products for processors on a commission basis. Like manufacturers' sales branches, agent and brokers tend to sell to integrated retailers or to merchant wholesalers, while the latter two types tend to sell and deliver directly to retail establishments each wholesaler type offers different mixes of services to client. The complexity induce by these four or five types of wholesalers makes market structure analysis of grocery wholesaling particularly messy.

A second knotty analytical issue is the proper geographic delineation of wholesale grocery markets. The consensus among economists who have studied the issue is that neither the nation as a whole nor units as small as MSAs.[2] National markets do exist for many manufactured food products (but most are subnational), and federal court decisions have affirmed that the MSA is a relevant geographic market for grocery retailing. The MSA may not be a useful building block for identifying appropriate geographic markets for grocery wholesalers. General-line wholesalers generally shipped most of their products to stores within 200 miles of the warehouse, but occasional shipments occur to clients up to 400 miles away, particularly in sparsely populated areas of the country. In a 1982 study of general-line wholesale establishments, the average distance of the *farthest* store served was 271 miles. Information on actual shipping patterns from warehouses to stores would be essential to proper market delineation. Even with such information, market borders cannot be drawn with the utmost precision or certainty. Rather, the resulting geographic definitions would most likely remain probabilistic constructs or "fuzzy sets," with gaps between markets for areas that fall into no identifiable or unique shipping zone.

Objective

The purpose of this paper is to calculate and analyze the degree of market sales concentration in 1990 among general-line grocery wholesalers in properly defined local U.S. markets. Market concentration measures the number and size distribution of independent sellers in the same industry. High concentration results when the number of significant sellers is small or their market shares are unequally distributed. The primary focus of this paper is on wholesalers that distribute directly to

grocery stores; manufacturers sales branches, wholesale agents, and brokers are outside the scope of this report. Consideration of geographic market definition is a necessary step in the accurate measurement of sales concentration, so an entire section of this report is devoted to the topic. The second purpose is to evaluate the effects on concentration of the largest merger among grocery wholesalers in decades, the 1992 Super Valu-Wetterau merger.

Data Sources

The principal data source is confidential "Participant Information Guides: prepared by SAMI analysts for their own internal use. SAMI (Selling-Areas Markets, Inc.) was the major and almost sole rival to A.C. Nielsen Company in the business of selling data on grocery brands market shares in the 1970s and 1980s. Unlike Nielsen, SAMI employed "warehouse withdrawal" data to develop market-by-market estimates of retail grocery market sales, volumes, and prices. Beginning in 1965, SAMI contracted with grocery warehouse operators to send magnetic tapes to SAMI's operations center every four weeks. The tapes contained item-by-item shipments of grocery products from specific warehouses to specific retail stores. By the 1980s the number of participating warehouses exceeded 600 nationwide, and the SAMI sample accounted for nearly 90 percent of total grocery shipments in 54 GMAs. The operations center consolidated the product shipments data using a common product coding system and made projections of non-sample sales. Over the 25 years SAMI was in business, total sales to food manufacturers and other clients accumulated to $5 to $10 billion.[3] Food companies clearly regarded SAMI data as accurate and useful for marketing decisions.

Grocery wholesalers sell their products to two major retail outlets: food stores and foodservice establishments. Neither the SAMI data nor most of the Progressive Grocer *Guidebook* cover shipments to foodservice outlets. SAMI's product tracking services were entirely focused on retail grocery and drug stores.[4] The *Guidebook* may list wholesalers that sell a minor portion of their shipments to foodservice operators, but all the retailers listed as potential buyers are grocery retailers. Neither source lists Sysco Corp., which is by far the largest wholesaler supplying foodservice outlets (Marion *et al.*).

The SAMI data cover wholesale shipments to operators grocery of supermarkets, convenience stores, and mass-merchandise department stores. Grocery supermarkets include conventional supermarkets, warehouse stores, combination stores, and super stores (Connor and Schiek). The presence of convenience store chains in the SAMI data is signaled by a listing for Southland Corporation, the parent company for the 7-eleven chain, which operates a couple of small warehouses. The *Guidebook* also lists wholesalers that serve convenience stores and other smaller grocery stores. Finally, SAMI had the participation of at least one large discount department store chain with warehouse shipment activity centered in Missouri and nearby states. Progressive Grocer lists no mass-merchandise retailers either as distributors or retail buyers.

This study uses several pieces of information gleaned from the Participant Information Guides. Each SAMI operator and warehouse is identified by name and a unique code number. Super Valu and its subsidiaries were given company code "0002", and A & P was assigned code "0015." In addition, if one company shipped groceries to stores in a given market from two or more facilities, each facility is usually identified by type of product or location. For example, in the Portland, Maine market, the Wetterau company shipped to stores in the market from two locations identified as

"Wetterau/Portland" and "Wetterau/Keene." Next to each warehouse is the percentage of the sample's retail sales supplied by each warehouse. In August 1990, Wetteraus' Portland warehouse accounted for 4.9 percent and its Keene, NH warehouse accounted for 1.9 percent of total participants' sales in the Portland market. Finally, the Guides indicate which of five product lines were being shipped into the market by the warehouse (dry grocery, meat, other refrigerated foods, frozen foods, and HBA). Thus, one can see that Progressive Distributors supplied 6.4 percent of Portland's groceries and that its sole warehouse shipped only HBAs. On a separate sheet, SAMI analysts estimated within a 10 percentage point range the coverage of SAMIs' sample for each of the five grocery product lines in each of its markets. In Portland, SAMI participants accounted for 85 to 95 percent of all dry groceries sold in the market.

The SAMI data were cross-checked by consulting Progressive Grocer's *1991 Marketing Guidebook*, the 24th edition of this reference handbook. The *Guidebook* uses information on 90,000 grocery stores to develop profiles of retail chains with at least $50 million in sales and wholesalers (merchants, brokers, and rack jobbers) of like size supplying the chains. Information on sales, store types, and locations is given for nearly 300 retail companies. For nearly 100 wholesale merchants, the Guidebook lists warehouse locations, physical sizes, products handled, and sales. Sales are estimated for about one-fifth of the companies, but the methods of estimation are not revealed. For a few companies (especially foreign owned ones like National Tea), no sales estimates are provided.

Cross checks with the SAMI lists indicate that about 10 percent of the retailers and merchant wholesalers that meet Progressive Grocer's size criteria are missing from the *Guidebook*. Sales by geographic "divisions" of retailers and merchants (operations that generally correspond to GMAs) are provided sporadically. Many HBA wholesalers listed by SAMI are missing in the Guidebook. There are signs of carelessness in preparation of the guidebook: city names are misspelled, pages are out of order, and sometimes company sales in a GMA exceed the total national sales of company by a substantial margin. There is no discussion of how sales estimates are made nor limitations of the data presented in the *Guidebook*. Consequently, this report favors the SAMI data as more accurate and employs the *Guidebook* as a secondary source of information.

Methods of Analysis

The starting point is the sample market shares provided in the SAMI worksheets. There are 696 market shares given, an average of 13 per GMA. These shares measure the retail value of 1990 shipments from a warehouse to grocery stores located in the GMA. Most of the warehouses are physically located inside the GMA as well, but about one-fourth of the warehouses are located in adjacent market areas. Warehouses supplying only HBAs are especially likely to be located outside the GMAs of the stores they supply. The SAMI sample market shares are converted to retail sales figures using SAMIs own data on grocery sales (see Appendix A) and further multiplied by the SAMI coverage ratio (shown in Table 1 below). Thus, the dollar figures represent retail-value wholesale shipments to stores in the SAMI-defined GMA.

Progressive Grocer data was added for major retailers or wholesalers that were not SAMI participants. Sales of non-participants were adjusted downward to reflect the smaller geographic coverage of Progressive Grocer's GMAs as compared to SAMI's GMAs (see next section for a discussion). The Progressive Grocer data provided an additional 72 market shares, making the total

number of share observations 768. The number of Progressive Grocer sales shares varied from zero (for 13 GMAs) to four; the average shares estimated from the *Guidebook* was 4.9 percentage points. The total coverage from both sources is shown in Table 4 below. The *Guidebook* was also used to classify the wholesale operators by type (retailer, cooperative wholesaler, voluntary wholesaler, and proprietary wholesaler) and to estimate total national sales of the companies. Total sales across GMAs were compared with total national sales.

Market Definitions

The grocery marketing areas (GMAs) defined by SAMI were designed primarily on the basis of the shipping patterns of grocery warehouses. Wholesalers and retailers that managed grocery warehouses (called "operators" or "participants" by SAMI) provided information on the location of the warehouses and shipments to individual stores of all types of grocery products (frozen and refrigerated foods, dry groceries, and health and beauty aids). Some participants operated several warehouses in a single GMA, and some participants supplied stores in the GMA from warehouses outside the GMA.

It is clear from the confidential "Participant Information Guides" maintained by SAMI analysts that GMAs were delineated so as to minimize the extent of "leakage" while at the same time increasing the number of GMAs for sale to clients. SAMI revenue was positively related to the number of well defined GMAs for which reliable brand market shares could be calculated. Regional manufacturers could purchase information for just their selling areas or potential expansion areas and national manufacturers would pay more as the number of useful GMAs rose. However, because it relied on wholesale shipping information, SAMI could not increase the number of GMAs indefinitely or even match the number of Statistical Metropolitan Areas (SMAs) in the United States. As the number of GMAs increased, the extent of cross-GMA grocery shipments also increased, which greatly complicated the calculation of accurate GMA market shares.[5] Therefore, the SAMI GMAs represent a compromise between providing fine geographic detail and aggregation to minimize leakage across GMA boundaries. Maps of the 54 GMAs are shown in Appendix B.

Historically, SAMI first began selling GMA data on three large metropolitan areas in the Midwest and Houston, Texas (Table 1). Within four months five more large cities had been added to SAMI's offerings, including New York and Boston. During 1967, SAMI added nine more large cities, some of them located in the South and far West. By the end of 1968, SAMI offered local grocery information on 25 of the largest U.S. cities that accounted for about 70 percent of U.S. grocery sales.

These first 25 GMAs were fairly straight-forward choices, partly because their sizes gave SAMI a very large share of total U.S. grocery sales and partly because they were geographically cohesive. The early SMAs had a high degree of *coverage* by SAMI participants and a low degree of *leakage* from outside the GMA boundaries. For example, 97 percent coverage of the Minneapolis GMA was obtained from warehouse-withdrawals supplied by merely six SAMI participants; moreover, of that 97 percent sample, at most 0.3 percentage points consisted of shipments into Minneapolis from warehouses outside the GMA.[2] Most of the other early SAMI markets also attained high levels of coverage and low degrees of import leakages: Detroit, Milwaukee, Boston, New York, Philadelphia, Buffalo, Atlanta, Chicago, Seattle, Denver, and Phoenix are examples. Each of these

cities tend to be economically dominant metropolitan areas with few other large cities within a 100 mile radius. A couple of exceptions are worth noting. The Baltimore/Washington GMA had less than 60 percent coverage, but it is apparent from the SAMI participant guides that the main reason was SAMI's failure to sign up the area's leading retail operator, Giant Foods. Had SAMI been able to obtain Giant's warehouse of shipments' data, its coverage would have approached 90 percent. The Indianapolis case if different. Indianapolis lies 160 miles from Chicago, 122 from Fort Wayne, 114 from Cincinnati, 97 from Louisville, and 242 from St. Louis. Each of these surrounding cities have large grocery warehouse operators. SAMI was able to secure the participation of the four largest operators within the Indianapolis market and the cooperation of several major operators that imported groceries into the Indianapolis market from warehouses in Fort Wayne; Chicago; Desloge, Missouri; Evansville, Indiana; Lima, Ohio; and two other locations outside the GMA. Despite the large coverage of inside operators (almost 90 percent) and eight outside warehouses, SAMI coverage of retail sales in Indianapolis was less than 75 percent in 1990 because several operators in Michigan, Illinois, and Ohio were not part of the SAMI system. Although the Indianapolis case is exceptional among the SAMI markets, it demonstrates the difficulty that SAMI had in trying to expand geographical coverage in more densely populated areas of the United States.

With 25 markets accumulated in three years, creation of additional market areas proceeded much more slowly after 1968. From 1969 to 1973 only five more markets were added to SAMI's list. Some were relatively easy choices: The Cincinnati market covered most of central and southern Ohio (though how far south the border should be drawn may be arbitrary). The Birmingham and northern Florida markets also appear to be well defined. However, the Memphis/Little Rock market definition must have required some close decisions about whether to include Springfield, Missouri or Jackson, Mississippi (both were excluded).

From 1974 to 1985, SAMI added three markets each year (except 1975 and 1978-1980). Again, many of these markets appear to be well defined because they contain dominant metropolitan areas relatively isolated from other competing metropolitan centers of commerce. San Antonio, Salt Lake City, Spokane, and Wichita markets fit this description. Other markets covered entire states or major portions of states separated by natural geographic barriers: the Norfolk/Richmond market covered most of Virginia except the Washington area. The Oklahoma City, Nashville, and Louisville markets are similarly coextensive with state boundaries; Spokane covers Washington State east of the Cascade Mountains. The SAMI markets added in the late 1970s and early 1980s considerably expanded the coverage of the South and many rural areas, yet even by 1985 many gaps remained in SAMI's geographical coverage. The gaps include most of Appalachia, the Ozarks, south Georgia and the Florida panhandle, Nevada and a huge area of the northern High Plains (Appendix B). SAMI apparently decided that its clients were relatively uninterested in areas dominated by low income households or undergoing depopulation.

Some of the GMAs added by SAMI during the early 1980s appear to be somewhat arbitrarily delineated, but one must bear in mind the excellent shipping data that SAMI analysts had from their participating operators. Amon the problematic market areas are Portland, Maine (may be part of Boston); Scranton, Pennsylvania (part of Baltimore); Peoria, Illinois (part of St. Louis); Quad Cities (part of Chicago to the east or Omaha/Des Moines to the west); and perhaps Shreveport/Jackson (could be part of the Memphis or Dallas GMAs).

The 54 GMAs delineated by SAMI during 1985-1990 tend to correspond closely to other commercial grocery data services. Progressive Grocer's *Marketing Guidebook* divided the entire continental United States into 51 GMAs in 1990. The *Marketing Guidebook* has been published annually for about 30 years. Like SAMI, the *Guidebook* is aimed at the salespeople and marketing planners of grocery manufacturers who want to identify the major buyers of grocery products in each region. The major distributors with facilities in each GMA are identified according to their share of GAM retail sales; moreover, like SAMI, the *Guidebook* also identifies out-of-market distribution centers. While Progressive Grocer does obtain some proprietary data from distributors (size and location of warehouses, number of trucks, number and types of stores served), it does not have regular access to shipping destinations. (The state locations of stores is sometimes available, but not all distributors reveal even this much). The *Guidebook* GMAs tend to follow state lines wherever possible.

There is a fairly close correspondence between the geographic definition of the SAMI and Progressive Grocer GMAs (Table 2). In general, where they overlap the SAMI markets are contained *within* the Progressive Grocer markets. Of the 54 SAMI markets, 35 are virtually coextensive with Progressive Grocer markets. In addition, eight Progressive Grocer markets essentially were split in two by 16 SAMI markets (the former are Boston, Baltimore, Milwaukee, Chicago, St. Louis, Memphis, Charlotte, and Columbia). Only three SAMI markets (Jacksonville, San Francisco, and Omaha) were split by six Progressive Grocer GMAs. Finally, three Progressive Grocer markets have no correspondence to SAMI markets; the three (Billings, Fargo and Springfield, Missouri) fall in the empty intermarket areas between SAMI markets. Therefore, in summary, with three exceptions, all the other 51 SAMI markets are encompassed by 42 Progressive Grocer markets; three SAMI markets correspond to three pairs of Progressive Grocer Markets.

The SAMI GMAs also correspond quite closely to the retail grocery markets defined by the A.C. Nielsen company (Table 2). The Nielsen markets were apparently designed from retail sales information and consideration of Areas of Dominant Influence (ADIs). Again there is a close correspondence between the SAMI and Nielsen markets. Nielsen splits the SAMI Cincinnati market into a Columbus and Cincinnati portion; SAMI's Omaha market is likewise split east from west; and the SAMI Jacksonville market is divided into three Nielsen markets (Jacksonville, Orlando, and Tampa). There are four more such examples of SAMI markets split by Nielsen. The most interesting case is SAMI's Quad Cities market, which Nielsen places in its large Omaha - Des Moines area, but Progressive Grocer judges its part of the Chicago GMA.

To summarize, the geographic definitions of GMAs by SAMI, Nielsen, and Progressive Grocer are quite similar. The SAMI areas are delineated to minimize "exports" from and "imports" into each GMA, a market concept that comports with economists' concepts of a market. The SAMI approach allows for large intermarket areas, whereas Progressive Grocer places every U.S. county into one GMA. In general, the Progressive Grocer GMAs are equal to or larger than SAMI's, whereas Nielsen's are smaller or the same in size. The overall impression is of great geographical similarity of U.S. grocery-products markets. Retail sales in the 54 GMAs in 1990 accounted for 75.4 percent of total U.S. grocery sales (Table 1).

Ownership Types

Warehouse operators fall into two major classes: retail grocery chains buying for their own stores and merchant wholesalers. There are a few integrated retailers that sell wholesale to other retailers in their markets or slightly outside them, and likewise a few wholesalers own and operate some grocery stores, but his classification is almost always clear-cut. Among the merchant wholesalers, there are three forms of ownership. Cooperative wholesalers are actually owned by the small chains and independent retailers that they serve. Voluntary wholesalers are not owned by the retailers they serve, but the retailers are contractually affiliated for long periods of time with these wholesalers, usually by contract. Both cooperative and voluntary wholesalers typically operate general-line warehouses. The remaining merchant wholesalers are a miscellaneous group, containing both general line and specialty wholesalers. Many of these wholesalers are rack jobbers (tobacco, candy, and magazines), HBA specialists, or other food specialists. Table 3 shows the breakdown of grocery warehouse operators by ownership type for the 54 SAMI market areas. Integrated retailers account for as little as 0.1 percent of GMA sales (Minneapolis) or as much as 84 percent (Denver). Except for Michigan (where Spartan and Meijers are strong) and Chicago, the Midwest generally displays low retailer shares. Most GMAs south of the Midwest also share this characteristic. Most Atlantic coastal GMAs display a marked prediction for retailer integration.

Cooperative wholesalers are important players in only a few GMAs. In the Northeast, southern New England, eastern New York state, and eastern Pennsylvania stand out. In the Midwest, cooperative activity is centered in Chicago and Milwaukee (where Roundy's has a leading position) and in the states of Kansas, Nebraska, and Missouri. In the South, significant penetration of cooperatives is found only around Memphis and northern Texas. Three large cooperative wholesalers operate in Salt Lake City (Associated Foods), Seattle (Associated Grocers), and Los Angeles (Certified). Very few GMAs have more than one cooperative grocery wholesaler.

Voluntary wholesalers also have uneven distribution across the United States. They dominate grocery wholesaling Pittsburgh, parts of Ohio, Minnesota, northern Wisconsin, and a couple of GMAs in Texas and Oklahoma. However, in most GMAs, voluntary wholesalers have the greatest share among the merchant wholesalers in practically all of the GMAs.

About 5 percent of wholesale grocery activity in the typical GMA cannot be classified by type. This "unknown" category includes retailers and wholesalers too small to be listed in Progressive Grocer's *guidebook*. It also includes many merchant wholesalers specialized in fresh produce, meat, poultry, and seafood. SAMI was not interested in collecting data on these types of merchant wholesalers because the majority of such products are not branded by manufacturers.

Integrated Retailers

Grocery chain retailers that have large enough retail operations in a grocery marketing area (GMA) typically are heavily invested in grocery warehouse assets. Backward vertical integration by retailers is motivated by both the prospects of greater operational efficiency and for strategic reasons. Exclusive retailer ownership of warehouses resolves several differences that may arise between a retailer and an independent wholesaler.[7] The most profitable business decisions for the wholesaler may result in suboptimal profits for the retailer (and vise versa). Generally speaking, retailers would

desire more frequent deliveries to stores than is optimal for the wholesaler to provide; more frequent replenishment of store shelves would permit retailers to increase the number of items stocked in the stores (multiple facings of popular items can be reduced) and reduce the risk of outages. Retailers might prefer more deliveries at night or in the early morning hours for the convenience of its customers, but wholesalers might find such a shift would be a difficult challenge in labor relations. Retailers would like wholesalers to stock a mix of items that precisely matches their customers' preferred groceries, but wholesalers must balance the needs of several retail clients with differing customer bases. When new warehouse facilities or significant expansions are being planned, a retail client would like the investment to occur close to the economic centroid of its own retail operations, but an independent wholesaler will expand in a direction and a pace that fits best its expectation of the future locations of all its likely retail clients. Another investment decisions involves integrated electronic inventory-ordering systems; a system adopted by a wholesaler may not have the technical features that are ideal for each of its retail customers. Once adopted, such computerized systems may be incompatible with the systems adopted by alternative supplies, thus reducing the bargaining power of the retail client. Most large wholesalers offer private label products, but the label is controlled by the wholesalers. That is, the quality of the products is largely a wholesaler decision. More importantly, unlike the store brands of the largest retailers, the controlled brands cannot be offered exclusively to just one retail client. Finally, warehouse ownership by retailers may be a tool for horizontal rivalry among retailers in a GMA. Investment in a large, dedicated warehouse facility represents a concrete, highly visible symbol of commitment to a market. Part of the investment costs are sunk costs that cannot be recovered should the owner exit the GAM. Moreover, a retailer may intentionally build "ahead of demand;" that is, a warehouse might contain excess capacity. Both sunk costs and excess capacity can discourage potential entrants from moving into a GMA or can serve to discipline an existing weak rival into a less aggressive pricing stance. In brief, direct warehouse ownership can solidify the market shares of integrated retailers.

Appendix Table 1 contains a list of the 121 grocery retailers known to have 1992 U.S. sales of at least $250 million. Sales are estimated by Progressive Grocer in some cases; a few companies above this size limit may be missing, but the list is reasonably complete.[8] These 121 companies were listed irrespective of the extent of their wholesale integration. One operator of "supercenters" or department stores, Wal-Mart, is also included. A few wholesalers with extensive retail operations are listed as well, e.g., Penn Traffic, Super Valu, and Holiday Companies. Only the retail grocery divisions of these diversified companies are included.

Nearly all of the top ten grocery chains were fully integrated in general-line grocery products in 1990. There are few exceptions. Kroger owns the Fry's chain based in Phoenix: Fry's operates a 1,000,000 square foot warehouse complex in Phoenix that supplies stores in Arizona that have retail sales there of more than $1 billion. However, Fry's has made a foray into the San Francisco GMA, where it had a 2 percent local market share. Because its San Francisco sales are not large enough to justify building a warehouse in northern California, Fry's is supplied by the huge cooperative wholesaler, Certified Grocers of Los Angeles. This appears to be exceptional, as Kroger's other operations appear to be fully integrated. Another exception to the general rules appears in the wholesaling of frozen foods, HBAs, and housewares. Some large frozen food specialty wholesalers supply major chains: Burris supplies Giant in Washington, DC and Southeast Frozen supplies Grand Union in Atlanta. HBAs are sometimes supplied by specialized wholesalers, like Rawson Drug on the West Coast, but most of the leading retailers appear to have special warehouses for HBAs that

deliver to large sections of the country. A&P delivers HBAs and housewares from New Jersey HBA warehouse all the way to New Orleans and Atlanta.

Leading U.S. retailers have substantial investments in warehouses, truck, and trailers., The nine largest companies own facilities that aggregate to at least 3.5 million square feet of space. Kroger, the largest U.S. grocery retailer in 1990, operated at least 24 grocery warehouses with nearly 10 million square feet of storage space. These data may actually undercount warehouse space because Kroger, Safeway, A&P, Winn-Dixie, and some others are reluctant to reveal warehouse sized (but not locations) to Progressive Grocer; this report estimates the sizes of these warehouses from other information.[9] Retailers below this top group are not nearly so shy about revealing warehouse sizes, and nearly all the merchant wholesalers are candid about their buildings. Altogether there were 26 U.S. grocery retailers that owned at least 1 million square feet of warehouse space. Southland Corporation, operator of the largest U.S. convenience store chain (7-Eleven), owns six warehouses that span the Continent, but these warehouses supply only HBA items to their stores.

The size of warehouses owned is closely correlated with the number of stores served, especially when the number of stores is converted to a conventional-supermarket-equivalence figure (Appendix Table 1). Some integrated retailers own as little as 1500 square feet of warehouse space for each supermarket-equivalent (e.g., American Stores) and some as much as 5000 square feet (Food Lion), but 2000 or 3000 is more typical.

With a couple of exceptions, the top 50 retailers are fully integrated into grocery wholesaling.[10] By "full integration" is meant sole ownership of warehouses for produce, other refrigerated foods, and all other groceries except perhaps frozen foods, housewares, HBA items, and candy-magazine racks.

Retailers with 1990 sales of $400 million but below $1 billion present a more mixed picture (see Retailers No. 53 to 97). Slightly less than half of this middle-sized group are fully integrated, about one-fourth are partially integrated, and the remaining one-third are unintegrated. By "partial" or "tapered" integration is meant ownership of substantial warehouse capacity (at least 100,000 $ft.^2$) together with purchases of groceries from merchant wholesalers. In fact, only 19 of the 121 largest retailers report partial integration, with this arrangement most common among firms with $600 to $800 million in retail sales and 100 to 200 supermarket-equivalents. Virtually all of the tapered-integration cases involve single GMAs with large dollar sales or geographic spread (NYC, San Francisco, El Paso, and Phoenix). Convenience store chains tend to engage in tapered integration.

The largest cases of nonintegrated retailers occur in New York City, a GMA well supplied with merchant wholesalers. There are five nonintegrated retailers with sales of $500 to $700 million, but they operate only 16 to 27 stores (or 26 to 79 supermarket-equivalents) and have market shares of less than 3 percent of the New York GMA. In other cities, the largest nonintegrated retailers have from 16 to 44 stores (40 to 80 supermarket equivalents) and less than a 3 percent share. When retailers generated less than $400 million in sales or operated fewer than 30 stores (40 supermarket-equivalents), they appeared to be nearly always nonintegrated. A dozen exceptions to this rule are listed at the bottom of Appendix Table 1. Some of these small integrated retailers may be misclassified; they may be wholesalers with minor interests in retailing.

To summarize, there are three types of vertical integration by grocery retailers. Full backward integration into grocery wholesaling is characteristic of nearly all retailers with 1990 retails sales of at least $1 billion and the *preferred* option for retailers with at least $500 million in sales and more than 30 supermarkets. Very few retailers with sales of less than $400 million or fewer than 40 supermarkets own or operate significant grocery warehouses (those with 100,000 square feet of space or more).[11] Tapered integration is a relatively unusual strategy followed by large convenience-store chains and supermarket chains with sales of $400 to $800 million in sales.

Merchant Wholesalers

General-line grocery merchant wholesalers deliver a broad range of grocery products to retailers that are too small to operate profitably their own warehouse. That is, merchants wholesalers' clients are typically small grocery chains that operate less than 30 or 40 supermarkets or nonchain grocers. When one client becomes so large that it can efficiently become integrated, the loss of that business can be financially painful. An example of such an event was Albertson's decision to drop Super Food Services as its supplier in 1994. Albertson's operated 75 large supermarkets in the Tampa area in 1993 and had been adding about two new stores per year in the early 1990s. Albertson's purchased and remodeled a large warehouse near Tampa for its own use, thereby causing Super Food Services to lose one-third of its revenues. Therefore, there are sound business reasons for merchant wholesalers to attempt to diversify their client base by acquiring a large number of small and medium-sized accounts.

Appendix Table 3 contains a reasonably complete list of the 64 largest U.S. merchant wholesalers in 1990-1992. Each firm had annual sales of at least $200 million at wholesale (corresponding to $250 to $500 million in retail grocery sales). Each company operates one or more grocery warehouses containing at least 300,000 square feet of storage space.

The big four wholesalers operate extensive, multi-regional warehouse networks with total capacities of from 6 to 13 million square feet. Super Valu's warehouses are the largest on average (about 550,000 square feet), and its newest facilities are being built at around 800 to 900,000 square feet. Scrivner operates the smallest warehouses (about 300,000 square feet on average), and Fleming is not far behind (about 400,000). Nash Finch operates very small facilities in four regions, but all other merchant wholesalers own and operate five or fewer warehouses that deliver in cohesive areas comprising a few states. Wakefern, for example, operates four New York City warehouses that serve only New York and three adjacent GMAs. Penn Traffic Co. is pretty much confined to parts of three states (NY,PA, OH). From its strong base in Los Angeles, Certified Grocers ships only a minor portion of its groceries to parts of the San Francisco GMA. In fact, only ten U.S. wholesalers have significant shares (say 2 percent or more) of at least four of the 54 GMAs. All others supply less than four GMAs.

Other Wholesalers

There are two curious listings int he SAMI Participant Guides. First, in 23 SMAs an obviously generic category entitled "mass merchandisers" (company no. 0149) is listed. This term normally refers to discount department stores such as Wal Mart and K Mart, both of which have significant food and nonfood grocery sales. Total retail sales of these mass merchandisers was $789

million (an average of $34 million per GMA) or approximately 0.2 percent of total U.S. grocery store sales. In the 23 GMAs into which the mass merchandisers' warehouses shipped, they accrued an average market share of 1.2 percent; the range was from 0.1 percent to 4.4 percent. The GMAs with significant mass merchandiser presence most highly concentrated in Missouris and all adjacent states except Illinois; specifically, the mass merchandisers' shares are 2 percent or higher in the St. Louis, Kansas City, Whicita, and Shreveport/Jackson GMAs. Surrounding this core area is a ring with a secondary concentration of mass-merchandiser presence; the ring loops mainly to the southeast and southwest of Missouri. There are nine GMAs with 1 to 2 percent market shares for mass merchandisers: Nashville/Knoxville and three GMAs to the south; Omaha/Des Moines, Oklahoma City, and three GMAs in Texas. This geographic pattern is consistent with the retail sales pattern of Wal Mart around 1990.

The second puzzling SAMI listing is a likewise generic entry "General merchandise distributors" (no. 0129), some with further descriptors such as "eastern division," "mid-American division," "southern division," and "western division." The 13 GMAs with such a listing had average sales of $39 million and average market shares of 0.8 percent. These distributors sold only HBA items. Interviews with former SAMI analysts revealed that SAMI tried to take into account the activities of "diverters," wholesalers engaged in long-distance geographic arbitrage. These entries probably represent known sales activities of major diverters.

Sales Concentration

The degree of sales concentration in a given grocery marketing area (GMA) is of interest primarily to two types of businesses - food manufacturers and grocery retailers. IN order to enter a new geographic market, a food processor must approach the buying committee of a grocery warehouse operation and obtain a favorable decision from the committee in order to have the product added to the warehouse's inventory.[12] If the product is adopted by a wholesaler, chances are that some or all of the wholesaler's clients will place the product on their retail shelves. If the product's sales are satisfactory, other retailers and wholesalers will demand the product as well, thus boosting the product's market share in the GMA. But convincing a buying committee is no easy matter unless the manufacturer has a sterling track record with new product introductions or is prepared to unleash a significant advertising or promotion campaign. Grocery warehouses can be very large (in excess of one million square feet of floor space), but even the largest carry only a limited number of items. If wholesaler concentration in a GMA is high, a food company's broker or sales representative has relatively few opportunities to make a sale.

Grocery retailers contemplating entry into a given GMA also are concerned about the degree of wholesaler concentration. Only the largest retailers can afford to build a new grocery warehouse and the 30 or more stores that would be served by the warehouse. Shipping warehoused products from an adjacent GMA where the company already many have a wholesale facility will typically entail transportation costs or delays that will place the entrant at a cost disadvantage relative to established retailers in the target GMA. Thus, a would-be entrant must utilize existing warehouse facilities in the target GMA, at least until the retailer has built enough stores to make vertical integration efficient. Existing warehouse facilities operated by merchant wholesalers are the primary choice set because integrated retailers are unlikely to want to assist a new rival in becoming cost competitive in the GMA. Another group of retailers also has an interest in wholesaler concentration: existing retailers

too small to vertically integrate into full scale wholesaling operations. Many small grocery chains own small warehouses (less than 50,000 square feet or so), but these facilities cannot carry the 15, 000 or more items stocked in modern supermarkets. Thus, a GMA with only five or six merchant wholesalers from the point of view of nonintegrated retailers.

Because wholesaler concentration affects the entry conditions of food manufacturers and potential large-scale retailer entrants and affects the bargain position of established retailers, grocery wholesaler concentration is a public policy issue as well. One purpose of the antitrust laws is to preserve a workable level of competition in well delineated markets. Horizontal mergers in the grocery wholesaling industry were common in the late 1980s and early 1990s, and these mergers may have resulted in levels of sales concentration at the appropriate local geographic level that increased the potential for unilateral or multilateral market power.[13] The concentration data that follow can shed some light on this critical public policy issue.

Warehouse Numbers

Appendix Table 1 lists the number and size of grocery warehouses located within each GMA by type of owner: integrated retailer or merchant wholesaler. The location and size of warehouses run by specialty wholesalers is generally not known, so in this case the number of specialized wholesalers in the sample that are *shipping to* the GMA is given; their size is in dollars of retail sales, not square footage. These data on specialized wholesalers are far from complete, whereas data on the other two types generally comprise a very large share of total sales. The number of specialized wholesalers' warehouses contains a good deal of double counting, but there is not double counting of the other warehouses. In any case, the number of warehouses shown is at best a minimum: only the warehouses of companies with at least 2 percent of sales in each GMA are known to be in the sample; in some cases these companies publically report only their square footage; or they report operating several warehouses in one location when the warehouses are in fact housed under one roof or grouped together in one warehouse complex. In short, floor space is a superior indicator of warehouse capacity in a GMA.

The United States has at least 40,000 grocery warehouses, but in the SAMI sample, the 54 GMAs contain at least 600 general-line grocery warehouses (Appendix Table 1). This total does not count most of the retailer-owned warehouses that specialize in HBAs or housewares, general-line warehouses located outside the GMAs (Alaska, Hawaii, Nevada, most of the northern High Plains, central Pennsylvania, and other extra-GMA areas), nor grocery warehouses operated by food manufacturers or specialty wholesalers. Despite these omissions, the 600 warehouses handled at least 90 percent of the storable grocery products delivered to the 54 GMAs' grocery stores in 1990-1992, or about 68 percent of total national shipments.

Assuming that the sample covers about 80 percent of capacity, U.S. integrated retailers operated general-line grocery warehouses with a total of 150 million square feet of storage capacity, and merchant wholesalers about 125 million square feet, for a U.S. total of almost 275 million square feet. Across the GMAs, sample general-line warehouse capacity varies from 11 million square feet in New York City to zero in the Quad Cities on the Iowa-Illinois border. That is, the Quad Cities GMA is supplied almost entirely by facilities located in the surrounding GMAs (Des Moines, Chicago, St. Louis, and Minneapolis), further evidence that this GMA may be poorly defined. The Charleston,

WV GMA has only three significant warehouses located within or on the edge of its borders, so it is another dubiously defined GMA. Peoria is a third GMA supplied mainly by imported groceries.

Warehouse space in a GMA is closely related to the sales size of the market, but the correlation is not perfect (*cf.*, Table 1 and Appendix Table 1). New York City has $24 billion in retail grocery sales, of which approximately $19.5 billion comes from stores served by SAMI participants (those located within the GMA and a few located outside). Stores in NYC served by participants generated about $1,400 per year for each square foot of general-line warehouse space; if one discards warehouses outside the GMA, the sales/ft.^{2} rises to $1,930. If, as is likely the case, shipments into the GMA are about the same size as exports from warehouses inside the GMA, the latter figure is more accurate. Retail sales associated with general-line warehouses in Los Angeles amount to $2,400/ft.^{2}, but the comparable figure for San Francisco is only $1,500. San Francisco's warehouses export considerable merchandise to Nevada, Northern California, and other areas outside the SAMI GMA. Chicago is even lower at $1,130 per square foot. Denver, a relatively export-oriented GMA, generates $1,500/ft.^{2} For import-oriented Charleston, WV the figure is $1,900/ft.^{2}

The average amount of retail sales across the United States in 1990 was approximately $1,660 per square feet of warehouse space.[14] Variation across markets can be explained by the extent of net exports from the GMA and by various efficiency factors (warehouse turnover and utilization, grocery store density, and transportation network efficiency). In export-oriented GMAs like San Francisco and Chicago, GMA sales understate the true retail sales of served stores (and vice versa for net import GMAs like Charleston, WV). Efficiency factors can be revealed by examining store sales across warehouses within self-contained GMAs or groups of GMAs. A casual examination of six such groupings reveals that leading integrated retailers generally have the highest wholesale efficiency (high sales per square foot). In Los Angeles, for example, Lucky's and Von's both generate more than $3,000 of retail sales per square foot of warehouse space; H.E. Butt leads in San Antonio as do Albertson's and Smith's in Salt Lake City. In most regions, leading voluntary wholesalers attain sales per square feet of $1,200 to $1,500, but in some markets such as San Antonio, the figure drops to the $800 range. Lower ranking voluntary merchants drop to as low as $300 in sales. Cooperative wholesalers can be quite efficient (Associated in Seattle, Certified in Los Angeles, and Associated in Florida), but as a group rank third in their markets. The fact that merchant wholesaler generally serve a smaller average store mix than leading chains probably explains much of the disparity in sales efficiency.

Company Numbers

One measure of market sales concentration is the number of sellers of a given product or service. While there are thousands of grocery wholesalers in business in the United States, non carry on their activities in all parts of the United States. According to the SAMI data base, the largest merchant wholesaler in the United States is Fleming with 1990 wholesale sales of about $12.5 billion. Yet, this grocery wholesaler operates in only 28 of the 54 SAMI GMAs. The second largest, Super Valu ($11 billion sales) covers 25 GMAs, of which only 13 overlap with Fleming. Likewise, American Stores, the nation's largest grocery retailer ($22 billion in retail sales) has significant sales in only 15 of the 54 SAMI market areas. The second largest retailer, Kroger ($19 billion) has significant grocery warehouse shipments to 23 GMAs but meets in only two of them (Peoria and

Dallas) with American Stores. These facts reinforce the necessity of examining concentration at the local market level.

Table 4 contains 1990 sample data on the number of warehouses and companies operating warehouses in each of the 54 SAMI markets. The coverage of the sample is shown in the last column of the table. On average, sample coverage (measured by the retail grocery sales of the stores served by the warehouses) is quite high. Of the 54 markets, 27 of them (50 percent) have coverage of at least 90 percent, and 44 GMAs (81 percent) have at least 80 percent sample coverage. Almost all of the data are derived from confidential SAMI worksheets, but supplementary data on nonparticipants is taken from Progressive Grocer (1991) and adjusted to SAMI market definitions.[15] Very few leading merchant wholesalers or integrated retailers are omitted from the sample. Except for the few GMAs with low average, it is highly unlikely that any company with a 2 percent market share or more is omitted from the sample. Total U.S. and GMA company sales data were used as a cross-check on the SAMI market sales data.

The total number of grocery warehouses varies considerably across markets.[16] New York has by far the largest number of warehouses (42); in 1990, the average sample warehouse shipped groceries worth $464 million at retail. By contrast, the Greenville/Spartanburg/Ashland market gets by with only six warehouses covering 87 percent of this South Carolina market; the average warehouse shipped goods with a $280 million retail sales value. In general, it is the largest metropolitan areas that have the most grocery warehouses: Boston, Philadelphia, Cleveland, Baltimore/Washington, New Orleans, and San Francisco each have at least 20 large warehouses. However, some very large cities have few grocery depots: Minneapolis has only seven, Miami only 11, Denver only 9, and Houston only 13.

Many of the sample warehouses supply products to all five major grocery department: dry groceries (food and nonfood), meat, other refrigerated foods, frozen foods, and health and beauty aids (HBAs). In Boston, for example, eight of the establishments are "full-service" warehouses; a couple sell everything except meat or frozen foods; seven do not sell HBAs, whereas four warehouses handle HBA products exclusively. There are scattered examples of warehouses that ship only meat or only frozen foods, but these are exceptional cases. Almost every GMA contains a few warehouses selling only HBAs, and these HBA warehouses are typically located *outside* the GMA. That is, because HBA products are relatively expensive compared to shipping costs, HBA suppliers typically ship greater distances than foods and other groceries. In short it is difficult to generalize about the mix of products a given warehouse will stock, but only a minority of them are "full-service" (five department) types. The most common product mix is dry groceries combined with two or three other food departments.

In any case, a retailer trying to locate a supplier of products for only *one* department (e.g., just frozen foods) will typically be able to secure supplies from nine or ten warehouses, not from the 15 or 20 warehouses of all kinds. Moreover, in most GMAs there are companies that operate multiple warehouses, so the choices among wholesale companies is more restricted than the number of warehouses would imply. For example, Grand Union is a retailer that supplies the New York GMA with about 5 percent of its retail groceries. However, Grand Union's stores receive their products from no less than five warehouses scattered around the metropolitan area, each with a unique product mix. This is an extreme but not unusual example that is found in other GMAs and

among smaller wholesalers. Market Wholesale Company, with only $350 million in annual sales, ships into the San Francisco GMA from four warehouses in three different cities.

The sixth and seventh columns of Table 4 count the number of sample wholesale companies supplying a GMA in 1990. The 42 warehouses in New York are owned by just 20 companies, of which seven are integrated retailers and 13 are merchant wholesalers. For most GMAs, the number of independent merchant wholesalers is in the range of three to six (but some of these sell HBAs exclusively). The huge Los Angeles/San Diego GMA is extreme case because there are only two merchant wholesale companies of any size: one very small HBA supplier and one cooperative offering a full spectrum of groceries to about 16 percent of the retail grocery market. The rest of the market (accounting for 70 percent of retail sales) is tied up by integrated retailers. The remaining 14 percent of the Los Angeles market is supplied by non-sample wholesalers too small to be separately identified.

Sales Concentration Ratios

Market shares can be used to identify markets with dominant firms or groups of leading firms that are so large that noncompetitive pricing or output conduct can become feasible. Table 5 shows the market shares of the four leading wholesale grocery operators in the 54 SAMI markets. In addition, for all companies in the sample a truncated Hirfindahl-Hirshman Index (HHI) is calculated.[17] The number of companies and sample size is shown in Table 4. Because the sample coverage is so large, omitted companies have small shares unlikely to affect the calculation of the HHI. In the first five columns both integrated retailers and merchant wholesalers are mixed together; the last two columns take into account concentration among merchant wholesalers only.

The market share of the leading firm tends to cluster around 30 percent in most GMAs. However, in seven GMAs the market share of the leading firm is greater than 40 percent, a level often believed to offer scope for dominant-firm behavior. The seven GMAs are Portland, Maine (Hannaford Bros.); Grand Rapids (Spartan); Minneapolis (Super Valu); Wichita (Kroger); Houston (Grocer Supply Co.);San Antonio (H.E. Butt); and Denver (Kroger). Five of the seven market leaders are retailers.

New York, Boston, Cleveland, Dallas, and three adjacent GMAs in the deep south have the smallest leading-firm shares. Two of the three southern GMAs (Memphis/Little Rock and Shreveport/Jackson) are somewhat problematic cases. Other industry sources suggest that the two should be combined or that certain borderland cities (Shreveport, Springfield, Missouri) might be placed elsewhere. Similarly, there is disagreement about whether Mobile, Alabama should be part of the New Orleans GMA or grouped with other Alabama cities. There is not enough information to settle these and other fine points concerning GMA limits.

In a few markets, there is a pattern of two leading firms with large shares followed by a third-ranking firm with very small shares. Portland (ME), Grand Rapids, Chicago, and Norfolk/Richmond are examples. Where both leaders are rivals, such a structure could encourage duopoly-type behavior.

The four-firm concentration ratios (CR4s) for these GMAs are mostly quite high. In many industrial-products markets, empirical studies often infer that a CR4 of 60 percent or higher offers

the leaders considerable opportunity for oligopolistic behavior, while a CR4 of 40 percent or less is of little competitive concern. Of the 54 GMAs, 44 are highly concentrated markets. None of the wholesale grocery markets have low concentration (CR4<40 percent), though New York and the three deep south markets just discussed come close. Concentration is especially high among the South Atlantic states and those west of the Mississippi. These areas are the GMAs that have experienced the greatest population growth since the 1940s.[18] and that ten to be surrounded by areas of very low population density. Why these characteristics might foster wholesaler concentration is something of a puzzle.

The sixth column of Table 5 contains the sample firms' HHI. The HHI and CR4 are highly correlated across the 54 GMAs (r = + 0.89). The critical levels of HHI used for merger enforcement are 1000 and 1800, though these are to some extent arbitrary. Only six GMAs have 1990 HHI levels below 1000; three of these GMAs are the three problematic "Deep South" markets whose borders may be drawn too generously. New York again displays low concentration; Cleveland and Indianapolis are borderline cases. Perhaps the most striking fact is that 18 of the 54 GMAs already exceed the dangerous 1800 level, and several others are quite close. Again, most of the South Atlantic and far west GMAs are relatively highly concentrated.

The final calculations of CR4 and HHI utilize only merchant wholesalers. Two measures of sales concentration among merchant wholesalers are presented in Table 5. The CR4 is calculated on the assumption that all wholesalers not in the sample are merchants and that none of the omitted firms is in the top four. Because integrated retailers are omitted also, the CR4 for merchants must be greater than or equal to the CR4 for all warehouse operators. In GMAs with few retailers in leading positions, the two CR4s will be close (observe Minneapolis, for example), but generally the CR4 for merchants is 5 to 10 percentage points higher.

The HHI for merchant wholesalers utilizes only information in the sample. In 1990, every GMA had an HHI in excess of 1000. The lowest observed HHI is for New York City. There are 12 merchant wholesalers in the sample, the largest being Wakefern with only about 12 percent of wholesale grocery sales in the GMA. Besides New York, only 12 other GMAs have HHI indexes below 1800, the upper threshold level for merger investigations. Several GMAs have very high HHI ratios, generally signaling the presence of dominant wholesalers. In Syracuse, a subsidiary of Penn Traffic Co. dominates the merchant wholesaler segment with nearly two-thirds of the local market; a Scrivner affiliate languishes in distant second place with one-fifth of the market. But such dominance is unusual in the Northeast, the Great Lakes States, and much of the South. In Minneapolis, Virginia, the Carolinas, Georgia, Houston and most of the Far West (Mountain and Pacific states) local domination of the merchant wholesaler segment is the rule. In Minneapolis, Super Value and Scrivner rule in a virtual duopoly, sharing more than four-fifths of the total wholesale market. Other examples of GMAs dominated in 1990 by merchant wholesalers include:

- Richfood controlled 63% of Norfolk/Richmond
- Harris-Teeter has 87% of merchant sales in Charlotte
- Merchants Distributors monopolizes Greenville, SC
- Super Valu is the sole major merchant in Atlanta
- Super Food Services has over half of Jacksonville
- Super Valu controls 70% of Denver's small merchant segment

- The Associated Foods Cooperative Monopolizes Salt Lake City
- Fleming is the only significant merchant in Phoenix
- Associated Grocers dominates merchants in Seattle
- Certified Grocers is nearly the only merchant in Los Angeles

Company Market Shares

The examples just given above reinforce a point made previously: even the largest integrated retailers and merchant wholesalers are unevenly distributed across only portions of the United States. The leading warehouse operators tend to have high market shares in one or a few GMAs, weaker positions in a few adjacent markets, and vast stretches of the country with no presences. Table 6 shows the estimated GMA shares for the ten largest grocery retailers in the United States, measured in local retail grocery sales. A few GMAs may be omitted where the company operates so few stores that its share is less than 2 percent (and usually less than 1 percent) of the GMA.

American stores operates markets under many local brand names: Star in Boston, Acme in Philadelphia, Jewel around Chicago, Alpha Beta in Texas, Buttrey in Spokane, and Lucky Foods in California. It is the first or second-ranking retailer in each of those metropolitan areas. On average, American Stores has a 10 percent share of the 13 GMAs shown in Table 6. Safeway Stores has higher average shares in four distinct area: Washington, D.C.; Denver; Phoenix; and all of the West coast markets except Los Angeles. Kroger is by far the most geographically diverse grocery retails in the United States, with significant recorded shares in 23 GMAs. Kroger operates in a huge band across middle America from an eastern border that runs from Pittsburgh to Savannah to a westward point in Colorado; except for Houston, Kroger has no presence in the Southwest or Pacific states. The geographic spread of A & P is far more spotty; it owns leading supermarket chains in Detroit and Milwaukee, but operates mixtures of supermarkets and small box stores in 11 other disconnected GMAs. Winn-Dixie operates in 15 GMAs from central Virginia down to Miami and around the Gulf Coast states as far west as Dallas. Food Lion overlaps Winn Dixie in seven GMAs in the South Atlantic region.

All the remaining integrated chains operate in Cohesive, more restricted regions. Albertson's is located in two Texas cities and in all nine GMAs in the far West. Supermarkets General sells in five Northeastern GMAs; Publix is restricted to Florida; and Von's is found only in the Los Angeles area. Thus, only six or seven U.S. grocery chains operate outside more than one of the eight regions shown in Table 6. In fact, four of the GMAs are bereft of stores of any of the top ten chains.

The extent to which the leading chains have intra-market contracts is surprisingly low (Table 7). Kroger and Safeway meet in only *one* GMA (Denver, where they share 70 percent of the market). Moreover, Kroger has only one minor contact point with American Stores in the Peoria GMA. Even A & P has surprisingly little market overlap with the big three firms, and such contacts that exist mostly involve A & P's box-stores, which may not directly compete with the other firms' supermarkets. Winn-Dixie does have a large number of contact points with both Kroger (eight overlaps) and Food Lion (sever), of which three are common to all three chains. Avoidance of contact points is a strategic option of diversified firms that is called forbearance (Mueller, Scott).

Market shares of ten large merchant grocery wholesalers are shown in Table 8. One or more of the top four merchants operate in all but four of the 54 GMAs in the sample; two or more are found in 31 of the 54 GMAs; and three or more overlap in nine of the 54 markets. The largest merchant (Fleming) ships groceries in or to 30 GMAs, slightly more than half of the sample. The six wholesalers below the big four operate in an average of only five GMAs. All of the wholesalers below the top four have contiguous territories; indeed, the ninth largest (Certified Grocers) operates in only one state (California). The top four merchant wholesalers tolerate gaps int heir territories. For example, Wetterau serves Massachusetts, northern New England, and Pennsylvania but has no significant business in New York State. Of the top four, Super Valu appears to have the strongest local market positions with an average of 13 percent of the 25 GMAs in which it operates. Scrivner, Penn Traffic, Roundy's, and Nosh-Finch control only 6 to 8 percent of their average GMA.

Table 9 calculates contact points for the top ten wholesalers. Unlike the integrated retailers in Table 7, the major wholesalers show little evidence of avoiding each others' territories. Fleming, Super Valu, and Scrivner each overlap one of the others in a high proportion of the markets; triple overlaps are quite uncommon, but pairs are not. Penn Traffic, Roundy's, and Nosh-Finch also tend to meet one of the big three quite frequently.

Merger Analysis

Current federal horizontal merger-enforcement guidelines promise an investigation and possible legal action if the level and increase in sales concentration in an appropriately defined market are above certain limits (Department of Justice). In brief, if a market's Hèrfindahl-Hirshman Index (HHI) of concentration reaches levels above 1800 after a merger and the increase in HHI is 100 or more points, then the merging firms are told to expect a court challenge by the Department of Justice or the Federal Trade Commission. However, if the post-merger HHI reaches 1000 to 1800 points or if the change in the HHI is between 50 and 100 points, then a more complex set of considerations comes into play. Further analysis of entry conditions, probable financial failure of one of the merger partners, and likely efficiencies resulting from the merger must enter the mix of criteria to be applied in the decision to challenge a specific merger. In the case of many mergers, the antitrust agencies apply the dubious "5 percent" rule. Economic models are used to predict the price effects of the merger. If post-merger prices are predicted to rise by 5 percent or more, then the merging firms must divest themselves of assets in the affected market areas.

Mergers 1992-1996

On October 29, 1992, Wetterau, Inc. became a wholly owned subsidiary of Super Valu Stores, Inc., and the new entity was renamed SUPERVALU, Inc.[19] At the time the merger was proposed, Super Valu and Wetterau were the second-largest and fourth-largest grocery merchant wholesalers in the United States. IN 1992, the new combined firm, SUPERVALUE, became approximately equal in sales size to Fleming Companies, the largest U.S. grocery wholesaler. Both leaders are more than twice the size of the third-ranking firm, Scrivner. This section examines the changes in GMA concentration that resulted from the merger.

Trade sources speculate that the 1992 Super Valu-Wetterau merger was the spark that kindled numerous similar flares-up in the industry, including several merger negotiations and

proposals that were not consummated. That is, several wholesalers and integrated retailers merged or attempted to merge as defensive moves in response to Super Valu's aggressive expansions, including another large acquisition in 1994 of Sweet Life Foods. Sweet Life, a voluntary merchant wholesaler headquartered in Windsor Locks, Connecticut, had 1990-192 sales of $1 billion spread over three Northeastern GMAs (Albany, Hartford, and Boston). With an average market share of 9 percent and warehouse capacity of 1.36 million square feet, Sweet Life was probably the leading merchant wholesaler in the three markets at the time (C&S was about equal in 1990 but probably surpassed Sweet Life by 1994). SUPERVALU closed one of Sweet Life's warehouses in Massachusetts, laying off 450 workers. This acquisition allowed Super Valu to expand quickly to the Northeast; except for Pittsburgh, Super Valu had previously had no presence in this region. In 1996, Super Valu also expanded into southern California for the first time when it purchases the operations of the Sav-U-Foods chain.

In 1994, six more large mergers took place. The largest was Fleming's acquisition of Scrivner from its German owner Franz Haniel & Cie. at a cost of $1.09 billion. Fleming was the number-one merchant wholesaler at the time and Scrivner was number three. Both had their headquarters in Oklahoma City. The immediate effect was to increase Fleming's sales by nearly 50 percent overnight. The two companies overlapped in no less than *ten* GMAs (see Table 8). Barring unannounced divestitures, the new Fleming company in 1994 operated in at least 39 of the 54 SAMI markets, coming closer to becoming the first national grocery wholesaler than any other company in history; its average market share in the 39 markets jumped to an impressive 17 percentage points. However, in late 1994 at least three warehouses were closed by Fleming in Alabama, Texas and Minnesota. A merger of this size often proves difficult to digest. By 1996, the trade press was reporting that Fleming was experiencing a number of difficulties: declining sales, low profits, and numerous retailer suits against it.

Another large merger occurred in mid 1994 when Richfood of Mechanicsville, Virginia bought Rotelle, a Philadelphia frozen-foods wholesaler. Richfood is the dominant general-line wholesaler in Virginia, with at least 30 percent of the Norfolk/Richmond GMA. Richfood's wholesale sales increased from $1.3 billion to $1.7 billion as a result of the merger; moreover, Richfood now operating in four GMAs, rather than just two. In late 1995, Richfood made another large acquisition when it paid $320 million to purchase Super Rite Foods, a large voluntary wholesaler in Harrisburg, Pennsylvania, with wholesale-retail sales of about $1.0 billion. As a result of both mergers, Richfood became the fourth largest merchant wholesaler in the United States and the leading wholesaler in the Atlantic Seaboard with sales approaching $3 billion. However, these mergers also proved difficult for Richfood to absorb, causing earnings to fall in 1996.

Merger talks were held between Affiliated Foods Cooperative of Norfolk, Nebraska and United A-G Cooperative in Nebraska in 1994, but no agreement was reached. The two cooperatives had about $750 million in combined sales. Also in 1994, abortive merger discussions were held between Roundy's (Wisconsin) and Spartan Stores, Inc. of Grand Rapids, Michigan. Combined sales were almost $5 billion at the time and highly concentrated in Wisconsin and Michigan.

Some important mergers took place among integrated retailers in the early 1990s. Ralph's the third largest Los Angeles retailer, was permitted to merge in 1994 with another large California retailer, Food 4 Less, the fourth largest retailer in Los Angeles. Combined retail sales in 1994 were

about $5 billion, placing the company right behind number-one Von's in the L.A. market (market shares were about 22 to 24 percent, respectively. Yucaipa Companies, the parent of both Ralph's and Food 4 Less, then acquired the Dominick's chain in 1995, which gave Yucaipa about 20 percent of the Chicago market. Yucaipa's $7 billion in sales made it the nation's 8th or 9th largest grocery retailer in 1995. Ahold, owner of several large grocery chains, mor than doubled its market share in the New York City GMA by buying Mayfair Supermarkets for $180 million in 1995. In the same year, another foreign company, Loblaw's of Canada, withdrew from U.S. grocery retailing by selling its National Tea subsidiary to Schnucks for $215 million. Schnucks' purchase of 85 stores in the Midwest pushed its already leading market position in St. Louis (30 percent of the GMA) to a dominant one (about a 40 percent share). Schnucks also gained a substantial foothold in the Chicago market but, strangely, was required to divest 28 National Tea stores in the New Orleans area (where Schnucks had no presence) to Schwegmann's (a long established New Orleans retailer). Another horizontal merger occurred in 1995 when Harvest Foods purchased Rand's. Both of these companies operated large general-line grocery warehouses in Little Rock, Arkansas.

In 1996, a major horizontal merger between integrated retailers joined Stop & Shop with Purity Supreme. These companies were first and third, respectively, in the Boston/Providence GMA and now control about one-third of this large market and one-third of this large market and one-third of the Hartford GMA as well. Prior to the merger Stop & Shop owned four grocery warehouses (1.03 million square feet) and Purity two (0.58 million square feet).

Finally, in November 1996, a large-scale merger took place between two merchant wholesalers. Nash Finch, the eighth largest U.S. wholesaler, acquired Super Food Services, Inc. for about $500 million in debt. Super Food Services generated nearly $2 billion in wholesale grocery sales in the two Florida GMAs from its large Orlando warehouses. Nash Finch has about $2.5 billion in national sales, but its territory extended to the southeast only as far as Georgia and the Carolinas. Super Foods may have been under financial stress because of the loss of one-third of its Florida business when it lost its Albertson's account in Florida around 1994; Albertson's purchased and remodeled an 820,000 square foot warehouse in Plant City, Florida to serve its growing retail business in the Tampa area.

Effects of Super Valu-Wetterau

Table 8 shows the percentage market shares of Super Value, Wetterau, and eight other merchant wholesalers in 1990. The two companies were active in 33 of the 54 GMAs, but they overlapped in only six of these 33 markets. That is, in 28 of the 33 markets, there was no known change in sales concentration among *actual* rivals in the market (Table 10). It is still possible that Super Valu was one of the leading *potential* entrants in one or more of the markets where Wetterau was the sole active seller (and vice versa for a Wetterau entry). Identifying the most likely potential entrants is no simple task. Information on unutilized capacity in adjacent markets and internal market-expansion plans may be necessary to make a confident identification of potential entrant. However, even a casual examination of the geographic patterns of the two businesses shows considerable potential entry in several Midwestern markets. Super Valu's large warehouses in Xenia, Ohio and Fort Wayne, Indiana could have become a springboard for expansion into Wetterau's two Michigan markets; indeed, SUPERVALU added 20,000 square feet of warehouse space in Fort Wayne in 1993. Conversely, Wetterau's huge Pittsburgh warehouse or smaller West Virginia facility

could have invaded the Ohio markets served by Super Valu. Likewise, Wetterau was well placed to expand from its powerful Louisville base into parts of Super Valu's Tennessee territory, and it could have pushed a bit north from its St. Louis warehouses into Super Valu's Iowa markets (it was already serving central Illinois from there). In sum, Wetterau and Super Valu bordered each other along a curve almost 1,000 miles long, but this frontier was treated as more of a Maginot line than a place for skirmishing.

In six GMAs, both companies had significant sales prior to the merger and, hence, concentration markets, sales concentration among the merchant wholesalers was well over the 1800 mark after the merger (indeed, it was above 1800 *before* the merger in all GMAs save Indianapolis. The HHI increases averaged nearly 1300 points, again well above the 100-point threshold. In all six overlap markets one of the two merged companies was already the largest merchant wholesaler prior to the merger, so the merger merely solidified an already solid position. After the merger, the new, larger SUPERVALU company was the first or second leading wholesaler in no less than 23 of the 33 GMAs where it operated in 1992-1993.

It is difficult to imagine what rationalizations were proffered by the companies in defense of their merger. Even if the wholesalers claimed that they would be in direct competition with integrated retailers, in at least four of the six overlap markets the post-merger HHIs and changes in HHI met the government's own merger criteria (Indianapolis and Charleston, WV may not have qualified). One can only imagine that the GMAs adopted for analysis must have been much larger than those used by the industry itself (thereby lowering the implied market shares of Super Valu and Wetterau) or that antitrust officials believe that only two or three sellers are sufficient to ensure active competition.

Insight into current merger enforcement standards for distributers is provided by the FTC's response to the proposed 1997 acquisition of Office Depot by Staples. These companies together account for approximately 80 percent of U.S. sales of office supplies and equipment sold through "office superstores" (Wilke and Pereira). The FTC voted to block the merger in March, 1997, even though superstores accounted for only about 7 percent of the 1996 retail office-supplies market. Key elements in FTC thinking were that the superstore segment is sufficiently distinguished from other office-supplies retailers that it forms a separate retail market; that while entry is easy in retailing generally, entry is difficult in the superstore segment; that the superstore segment had already seen the number of chains decline by more than 85 percent since 1988; and that claimed cost savings from the merger were outweighed by price increases of about 5 to 15 percent in metropolitan areas where only one of the two companies are present (as compared to the case when both are in active rivalry). In addition, the FTC was concerned because the acquired company (Office Depot) was the price leader in this market and because some planned expansions by both of the merged companies would be cancelled as a result of the merger. Ironically, at one point in the negotiations, the FTC offered to permit the merger if the two leaders sold only 62 stores (4 percent of the two companies' sales) to the remaining third office superstore company, Office Max. Had this sale gone forward, the office superstore segment would have been left with two companies, one with 1100 stores and $10 billion in sales, the other with 600 stores and $3 billion in sales.

It is likely that the Super Valu-Wetterau merger was permitted because the antitrust agency's economic models did not show price increases of more than 5 percent in the six overlap GMAs.

However, it is poor logic to apply this 5 percent rule outside retail markets. The 5 percent rule is arbitrary, but it may be justified as a threshold price change that final consumers may notice. In the grocery retailing industry, gross margins are about 20 percent and profits about 1 percent of sales. If a wholesaler were to raise its prices by 5 percent, their customers would incur *losses* of 4 percent of sales *ceteris paribus*. Even a 0.5 percent increase in wholesale prices would cut retailer prices in half. The "5-percent rule" is too crude in the first place, but is it clearly inappropriate in grocery wholesaler mergers.

Conclusions

This study describes and analyzes a sample of more than 600 large grocery warehouses owned by integrated retailers and merchant wholesalers. The sample covers 90 percent of sales to grocery retailers in 54 wholesale grocery market areas (GMAs) defined by the Selling-Areas Marketing, Inc. (SAMI) company. Confidential SAMI documents permit the calculation of the most comprehensive and precise list of estimates of concentration among grocery wholesalers in the early 1990s. The geographic boundaries of the 54 GMAs are found to be nearly all well defined and largely consistent with the definitions used by A.C. Nielsen and Progressive Grocer. Both SAMI and Nielsen tend to define GMAs that minimize leakages from warehouses inside the GMA boundaries as well as shipments into the GMAs from wholesale establishments outside. Areas that minimize trade across boundaries comport with empirical economic concepts of well-defined markets. All three companies agree that the United States has between 50 and 60 GMAs, though among some of the smaller GMAs there is not complete agreement on the inclusion or exclusion of certain metropolitan areas.

The mix of types of warehouse operators varies enormously across GMAs. Voluntary wholesalers dominate many GMAs in the Midwest, Texas, and Oklahoma. Cooperative wholesalers never have dominant shares in their GMAs, and very few GMAs are served by more than one sizable voluntary wholesaler. Voluntaries are most prominent in Wisconsin, Kansas, Nebraska, Missouri, and around Memphis. Integrated retailers dominate wholesale activity in Denver, Chicago, Michigan, and most Atlantic coastal GMAs. Virtually all of the 50 largest grocery chains are fully integrated into general-line grocery wholesaling; these retailers had 1990 sales of $1 billion or more. Full integration is also common among retailers in the $500 to $900 million sales range, but a slight majority of this size class engaged in partial or tapered integration. Warehouse integration was rare among grocery retailers with fewer than 40 supermarkets generating less than $500 million in sales or those with less than 3 percent of GMA sales. Thus, these figures represent the thresholds for supermarket operators to consider backward vertical integration; for convenience store chains the thresholds are somewhat lower.

Warehouse sales efficiency varies considerably across GMAs and across types of warehouse operators. The United States has almost 275 million square feet of general-line grocery warehouse space, of which at least 80 percent is accounted for in our sample of 600 warehouses. The average large U.S. warehouse generated $1,660 of retail grocery sales annually per square foot, but the average ranged from $1,100 to $2,500 across GMAs. Integrated retailers generally achieve the highest sales productivity within given GMAs (as high as $3,000) and cooperative wholesalers the smallest (as low as $300). Average store size served appears to explain most of these differences.turkey

Grocery wholesaling is mostly highly concentrated within U.S. GMAs. Of the 54 markets in the sample, 44 are highly concentrated (CR4 > 60 percent) and none are unconcentrated (CR4 < 40 percent). The Hirschman-Herfindahl Index also indicates that 48 have concentration levels high enough to warrant an investigation by federal antitrust agencies should a significant horizontal merger take place (HHI > 1000).

The concentration figures just mentioned assume that all warehouse operators are sellers in the relevant market. However, a case can be made that integrated retailers only rarely would consider offering wholesaling services to a rival retail organization in the same GMA. That is, from the point of view of a newly entering grocery retailer, especially one not spreading out from an adjacent GMA, linking up with an existing merchant wholesaler may be the only feasible option. If this is so, then concentration ratios calculated only among merchant wholesalers is a meaningful exercise. Except for New Orleans, the CR4 for merchants is in the highly concentrated range (CR4 > 60 percent). All GMAs have a merchant HHI above 1,000, and 42 of the 54 GMAs have HHI values greater than 1,800. In almost one-third of the GMAs, one merchant wholesaler dominates all other merchants.

In October 1992, the second-largest and fourth-largest U.S. merchant grocery wholesalers merged without opposition from federal antitrust authorities. After the Super Valu-Wetterau merger, many other such mergers were attempted or consummated. An analysis of the 1992 merger finds that sales concentration increased significantly (1,300 HHI points on average) in six GMAs, and in four of six GMAs the HHI was above 1,800 prior to the merger. These six cases clearly violated the 1992 federal merger enforcement guidelines, yet the merger was not opposed. This episode and other subsequent mergers demonstrate that federal antitrust policy is willing to permit the creation of duopolies in any local distribution market where the effect of the merger is predicted to raise prices by less than 5 percent. Applying such an arbitrary rule in a very low-margin industry such as grocery wholesaling is dubious indeed. With average profit rates of about 1 percent on sales, a 5 percent price increase would amount to a *500 percent* increase in profits, *ceteris paribus*. In the equally low-margin grocery retailing industry, even a 0.5 percent increase in wholesale prices would be noticed immediately, never mind a 5 percent increase.

Table 1: SAMI Grocery Marketing Areas, 1966-1990.

Year Reporting Began	SAMI Issue Number[a]	Market Name	SAMI 1990 Participant Coverage[b]	Market Retail Grocery Sales[c]
			Percent	*$ Million*
1966	1	Minneapolis	97	4211
	1	Detroit	91	6051
	1	St. Louis	87	3525
	1	Houston	87	6199
	2	Milwaukee	92	3508
	2	Pittsburgh	84	4964
	3	Boston	89	9830
	3	Indianapolis	66	3045
	4	New York City	80	24093
1967	5	Baltimore/Washington	59	10704
	5	Philadelphia	88	10554
	5	Buffalo/Rochester	90	4185
	6	Los Angeles/San Diego	86	21400
	9	Cleveland	75	5165
	11	Miami	87	6459
	11	San Francisco	76	13471
	15	Atlanta	96	5197
	15	Kansas City	79	2807
1968	18	Charlotte, NC	91	3410
	20	Chicago	86	9844
	21	New Orleans	60	5413
	22	Seattle	86	4693
	24	Dallas	74	7004
	28	Denver	97	3872
	29	Phoenix	89	5254
1969	39	Cincinnati	87	6531
1970	41	Jacksonville/Tampa	89	10311
1971	65	Birmingham	82	2916
1973	85	Memphis/Little Rock	63	3712
	85	Syracuse/Rochester	91	3166

Table 1: (Continued)

1974	101	Portland, OR	88	3409
	101	Omaha	86	3068
	101	Oklahoma City/Tulsa	85	3857
1976	123	Norfolk/Richmond	85	4116
	123	Nashville/Knoxville	96	3765
	123	San Antonio	73	5580
1977	141	Salt Lake City	81	2685
	141	Raleigh/Winston/ Greensboro	86	3833
	143	Albany/Schenectady/ Troy	72	3047
1981	190	Charleston, SC/ Savannah	83	1516
	190	El Paso/Albuquerque/ Lubbock	81	3723
	190	Grand Rapids/Kalamazoo	75	2501
1982	203	Hartford/Springfield	94	3889
	203	Louisville/Lexington	79	2504
	203	Spokane	91	1812
1983	214	Wichita	80	1223
	214	Charleston/Huntington WV	80	1908
	214	Quad Cities	85	1418
1984	229	Scranton	83	1340
	229	Greenville/Spartanburg	87	1934
	229	Peoria/Springfield	85	1738
1985	240	Portland, ME	89	2541
	240	Green Bay	91	1747
	240	Shreveport/Jackson	61	3215

Source: SAMI Participant Information Guides.

[a]An "issue" covers exactly 28 days (roughly a lunar month) and 13 issues comprised almost one (solar) year. The first SAMI issue covered the four weeks ending October 7, 1966 and the last issue (No. 315) ended November 2, 1990.

[b]From SAMI estimates of their coverage of the four major departments of grocery stores for issue 310. The midpoint of the SAMI range was weighted by U.S. retail sales in each of the four departments.

Table 2: Grocery Market Area Definitions, 1990.

SAMI Market	Nielsen Major Market[b]	Progressive Grocer Markets[c]	Areas of Dominant Influence[d]
New England:			
1. Portland/Concord	Boston	Boston	Bangor, Portland +2
2. Boston/Providence	Boston	Boston	Boston, Providence +1
3. Hartford/Springfield	Same	Same	Hartford, Springfield
Mid Atlantic:			
1. Albany/Schen./Troy	Same	Albany	Albany +3
2. Syracuse	Same	Albany	Watertown, Syracuse, Utica, Binghamton +4
3. Buffalo/Rochester	Same	Same	Buffalo, Rochester, Erie, Elmira
4. New York	Same	Same	New York
5. Scranton	Baltimore	Baltimore/Washington	Scranton +1
6. Philadelphia	Same	Same	Philadelphia +3
7. Baltimore/Washington	Baltimore, Washington	Baltimore	Baltimore, Washington, Harrisburg, and Salisbury +1
Great Lakes States			
1. Pittsburgh	Same	Same	Pittsburgh, Clarksburg +5
2. Charleston/Huntington	None	Same	Charleston, Bluefield +4
3. Cleveland	Same	Same	Cleveland, Youngstown +1
4. Cincinnati/Columbus/ Dayton	Cincinnati, Columbus	Same	Columbus, Dayton
5. Detroit	Same	Same	Detroit +3
6. Grand Rapids/Kalamzoo	Same	Same	Grand Rapids, Traverse City, Lansing +1
7. Indianapolis	Same	Same	Indianapolis, Lafayette +2
8. Milwaukee	Same	Milwaukee	Milwaukee, Madison +1
9. Green Bay	Milwaukee Green Bay +2	Milwaukee	Marquette, Wausau,
10. Chicago	Same	Chicago	Chicago, South Bend
11. Peoria/Springfield	St. Louis	St. Louis/Peoria	Peoria, Springfield +2
Plains States (W. No. Central):			

Table 3: U.S. Grocery Wholesalers Ownership Types, by Market Area, 1990

1. Minneapolis/St. Paul	Same	Same	Minneapolis, Mankato +1
2. Quad Cities	Omaha/Des Moines	Chicago/Quad Cities, Des Moines	Quad Cities, Ottumuwa, Cedar Rapids +3
3. Omaha/Des Moines	Omaha, Des Moines	Omaha, Des Moines	Omaha, Des Moines +2
4. St. Louis	Same	St. Louis/Peoria	St. Louis +4
5. Kansas City	Same	Same	Kansas City, St. Joseph, Topeka +2
6. Wichita	None	Same	Wichita +2
South Atlantic States:			
1. Norfolk/Richmond	Same	Same	Charlottesville, Richmond, North Hampton, Norfolk +2
2. Raleigh/Greensboro	Raleigh-Durham	Charlotte	Raleigh, Greensboro +3
3. Charlotte, NC	Same	Charlotte	Charlotte +3
4. Charleston/Savannah	None	Columbia, SC	Charleston, Savannah
5. Greenville/Columbia	None	Columbia, SC	Greenville-Spartanburg-Asheville +1
6. Atlanta (not So. GA)	Same	Same	Atlanta +5
7. Jacksonville/Orlando Tampa (not Tallahassee)	Jacksonville, Orlando, Tampa	Jacksonville/ Tallahassee, Tampa	Jacksonville, Gainesville, Orlando, Tampa +4
8. Miami	Same	Same	West Palm Beach, Ft. Myers, Miami
Other Southern States:			
1. Louisville/Lexington	Same	Same	Louisville, Lexington +4
2. Nashville/Knoxville	Same	Same	Nashville, Knoxville, Bowling Green +6
3. Birmingham/ Montgomery	Same	Same	Birmingham, Huntsville, Tuscaloosa, Montgomery +1

Table 3: U.S. Grocery Wholesalers Ownership Types, by Market Area, 1990

4. Memphis/Little Rock (not Jackson, MS)	Memphis, Little Rock	Memphis	Memphis, Jonesboro, Little Rock +5
5. Shreveport/Jackson	Memphis	Memphis, Dallas	Greenwood, Jackson, Shreveport, Monroe +6
6. New Orleans	New Orleans/ Mobile	Same	Mobile, Hattiesburg, Biloxi, Baton Rouge, New Orleans +1
7. Oklahoma City/Tulsa (not Springfield, MO)	Oklahoma City/Tulsa	Oklahoma City, Springfield, MO	Oklahoma City, Tulsa +2
8. Dallas	Same	Dallas (not Shreveport)	Dallas-Ft. Worth +4
9. Houston	Same	Same	Houston +1
10. San Antonio	Same	Same	San Antonio, Austin, Victoria, Laredo, Corpus Christi, Brownsville +1
Mountain States:			
None	None	Billings, MT	NA
1. Denver	Same	Same	Denver +2
2. El Paso/Albuquerque/ Lubbock	None	Same	Amarillo, Lubbock, El Paso, Odessa, Albuquerque
3. Salt Lake City/Boise	Same	Same	Boise, Twin Falls, Pocatello, Salt Lake City
4. Phoenix	Same	Same	Flagstaff, Phoenix, Tucson +1
Pacific States:			
1. Spokane	None	Same	Spokane, Yakima +1
2. Seattle/Tacoma	Same	Same	Seattle-Tacoma +1
3. San Francisco (not Reno, NV)	San Francisco, Sacramento	San Francisco, Fresno	San Francisco, Sacramento, Monterey, Fresno +1
4. Portland, OR	Same	Same	Portland, Eugene, Bend, Medford
5. Los Angeles/ San Diego/ Las Vegas	Los Angeles, San Diego	Same	Los Angeles, Santa Barbara, Bakersfield, Palm Springs, San Diego, El Centro +1

[a]54 markets defined by wholesale shipping patterns, covering about 75% of U.S. territory and 89% of grocery wholesale sales.
[b]From Progressive Grocer *Marketing Guidebook 1991*.
[c]53 markets defined by wholesale shipping patterns, covering 100% of U.S. territory; 51 in continental U.S.
[d]Arbitron ADIs represent metropolitan areas that correspond to newspaper distribution areas or radio-television broadcast areas. See Appendix A for details. The number of partial ADIs is given after the plus sign.

Table 3: U.S. Grocery Wholesalers Ownership Types, by Market Area, 1990

SAMI Market Area	Share of GMA Retail Grocery Sales				
	Integrated Grocery Retailers	Voluntary Wholesalers	Cooperative Wholesalers	Other Merchant Wholesalers	Unknown[a]
New England:			*Percent*		
Portland ME	69.0	10.1	2.9	6.1	11.0
Boston	64.5	20.6	10.6	0.9	3.3
Hartford	43.8	19.3	11.8	24.5	0.6
Mid Atlantic:					
Albany	50.1	6.7	10.9	5.8	26.4
Syracuse	51.5	38.1	0.0	2.9	7.4
Buffalo	45.1	37.4	5.6	2.0	10.0
New York	35.5	17.4	25.0	2.0	19.0
Scranton	52.8	26.9	15.4	2.7	2.1
Philadelphia	45.9	17.4	15.1	13.0	6.6
Baltimore/Washington	63.6	28.3	0.0	2.0	6.0
Great Lakes States:					
Pittsburgh	22.8	65.0	0.0	0.0	12.9
Charleston, WV	37.3	24.7	0.0	0.0	28.0
Cleveland	26.3	52.1	0.0	1.0	20.8
Cincinnati	40.6	46.2	0.0	0.6	8.6
Detroit	60.7	31.4	0.0	6.0	2.4
Grand Rapids	70.7	13.0	0.0	0.3	16.1
Indianapolis	42.6	23.5	3.0	2.9	28.0
Milwaukee	27.0	31.7	37.4	1.5	2.3
Green Bay	11.3	70.3	9.1	0.3	9.0
Chicago	61.1	16.0	16.0	3.0	3.7
Peoria	35.2	59.4	0.0	0.3	5.1

Table 3. (continued)

West North Central States:					
St. Louis	49.5	33.5	9.7	0.0	7.3
Quad Cities	59.2	25.5	0.0	0.3	15.0
Omaha	30.4	41.6	23.6	0.3	4.2
Minneapolis	0.1	97.0	0.0	0.0	2.9
Kansas City	18.3	20.9	39.2	0.8	21.0
Wichita	49.5	17.7	14.2	0.6	18.0
South Atlantic:					
Norfolk	44.4	40.0	0.0	0.6	15.0
Raleigh	69.3	15.6	4.2	2.1	8.6
Charlotte, NC	77.1	11.3	2.3	0.4	9.0
Greenville, SC	71.6	14.3	0.0	1.0	13.0
Charleston, SC	72.9	19.2	0.0	0.8	7.0
Atlanta	79.7	15.4	0.0	1.2	4.0
Jacksonville	76.8	10.6	5.6	0.8	6.2
Miami	63.8	15.9	7.0	1.5	12.0
Other Southern Markets:					
Louisville/Lexington	55.1	22.7	8.8	6.1	7.3
Nashville/Knoxville	60.1	36.0	3.0	0.0	1.0
Birmingham	62.1	16.6	9.9	0.2	11.2
Memphis/Little Rock	27.9	19.4	18.6	2.5	31.6
Shreveport/Jackson	37.1	27.9	0.0	0.0	35.0
New Orleans	46.4	5.5	7.9	2.2	38.0
Oklahoma City	23.2	43.8	18.5	0.9	13.2
Dallas	55.8	16.5	11.8	0.3	18.9
Houston	34.3	46.8	0.0	2.1	6.7
San Antonio	58.3	15.3	0.0	0.7	25.7
Mountain States:					
Denver	84.0	12.9	0.0	0.0	3.0
El Paso/Lubbock	40.9	19.4	22.4	0.6	15.8
Salt Lake City	45.3	8.4	31.0	1.1	14.2
Phoenix	51.4	39.2	0.0	0.5	9.0
Pacific:					
Spokane	67.6	17.9	8.2	0.0	6.3
Seattle	39.2	19.5	29.1	0.2	12.0
Portland, OR	42.2	18.7	26.7	0.5	12.0
San Francisco	53.6	13.8	8.1	8.8	16.8
Los Angeles	80.3	0.0	15.3	0.3	4.2

[a]Portion of GMA not covered by sample companies. Does not include manufacturers' sales branches or brokers; only includes integrated retailers or merchant wholesalers selling to grocery stores.

Table 4: Number of Grocery Warehouse Participants, by Market Area, August 1990.

SAMI Market Area	Warehouses Supplying[a]					Companies[b]		Sample's Sales Coverage
	Dry	Refrig.	Froz.	HBA	Total	Retail Grocery	Whsl. Merchant	
	Percent							
New England:								
Portland/Concord	7	7	7	5	9	3	7	89
Boston/Providence	18	17	17	18	25	9	6	97
Hartford/Springfield	11	10	10	9	16	5	6	98
Mid Atlantic:								
Albany/Troy	9	9	7	10	13	5	6	74
Syracuse	8	9	9	9	14	6	4	93
Buffalo/Rochester	9	9	10	8	10	3	5	90
New York	18	15	13	13	42	7	13	81
Scranton	7	7	7	5	10	5	6	98
Philadelphia	11	9	11	9	23	5	10	93
Baltimore/Wash.	10	8	12	10	20	7	5	94
Great Lakes States:								
Pittsburgh	9	8	8	6	13	3	6	88
Charleston,WV	7	7	7	4	8	2	4	62
Cleveland	14	13	13	11	21	6	6	79
Cincinnati	13	13	13	12	16	4	8	91
Detroit	11	10	10	10	14	5	5	98
Grand Rapids	9	9	8	7	10	4	6	84
Indianapolis	9	9	9	8	13	3	7	72
Milwaukee	8	7	7	8	10	3	5	97
Green Bay	7	7	7	8	8	2	6	91
Chicago	14	13	13	13	17	4	9	96
Peoria	7	7	7	7	12	4	6	95
West North Central:								
St. Louis	9	9	9	7	12	4	5	93
Quad Cities	6	6	6	8	9	4	4	85
Omaha	10	10	10	9	13	3	8	96
Minneapolis	5	5	5	5	7	1	4	97
Kansas City	7	7	6	5	10	3	5	79
Wichita	9	9	9	5	12	4	5	82

Table 4: continued

South Atlantic:								
Norfolk/Richmond	7	6	8	6	12	4	4	85
Raleigh	13	12	13	11	18	6	9	91
Charlotte, NC	7	7	8	7	11	6	3	91
Greenville, SC	5	5	5	4	6	4	2	87
Charleston, SC	11	11	12	11	14	6	5	93
Atlanta	11	10	10	10	19	7	3	96
Jacksonville	15	15	16	12	19	7	3	96
Miami	7	7	8	7	1	4	5	88
Other South:								
Louisville	11	11	12	8	17	4	8	93
Nashville	12	12	12	13	16	5	6	99
Birmingham	11	11	12	10	15	6	5	89
Memphis/Little Rock	9	10	9	8	12	4	5	68
Shreveport/Jackson	12	11	12	10	17	7	2	65
New Orleans	13	13	14	10	20	6	7	62
Oklahoma City	10	11	10	4	14	4	5	87
Dallas	12	13	12	11	17	11	5	81
Houston	8	7	7	8	13	6	6	93
San Antonio	11	9	10	10	17	7	6	74
Mountain States:								
Denver	6	6	6	7	9	3	3	97
El Paso/Lubbock	10	11	10	9	15	6	6	84
Salt Lake City	8	8	8	8	11	4	3	86
Phoenix	8	6	6	6	10	6	2	91
Pacific:								
Spokane	8	8	8	6	10	5	2	94
Seattle	7	7	7	5	9	3	5	88
Portland, OR	9	7	7	8	11	3	5	88
San Francisco	16	12	14	11	22	8	6	83
Los Angeles	12	11	11	10	15	9	2	96

Sources: SAMI *Participant Information Guides* (Issue 311) and Progressive Grocer *Marketing Guidebook* (1991).
[a]Number of in-sample establishments, most inside the GMA, some outside it.
[b]Number of in-sample companies operating sample establishments.

Table 5: Sales Concentration of Grocery Wholesalers, by Local Grocery Markets, 1990.

Market Area	Leading Firms' Shares[a]						Merchant Wholesale[b]	
	1	2	3	4	Top 4	HHI	Top 4	HHI
New England:								
Portland, ME	45	23	6	6	79	2630	87	2046
Boston	18	13	12	11	54	1089	84	1870
Hartford	24	15	14	9	62	1424	70	1389
Mid Atlantic:								
Albany	25	22	11	5	63	1281	65	1590
Syracuse	29	21	12	8	70	1616	89	5061
Buffalo	23	22	21	14	80	1692	90	2947
New York	13	12	9	7	42	612	62	1142
Scranton	28	21	15	15	79	1665	93	2642
Philadelphia	24	12	12	11	58	1086	73	1446
Baltimore/Wash.	30	17	13	7	68	1546	88	2769
Great Lakes States:								
Pittsburgh	25	22	19	6	74	1615	79	2281
Charleston, WV	31	19	6	4	60	1382	62	2401
Cleveland	18	15	12	9	55	928	71	1463
Cincinnati	30	19	15	9	73	1647	83	2477
Detroit	25	19	16	11	71	1519	90	3206
Grand Rapids	42	24	4	3	73	2420	76	1589
Indianapolis	20	19	10	7	56	981	66	1284
Milwaukee	32	18	14	13	76	1875	93	2914
Green Bay	28	19	17	11	75	1645	83	1990
Chicago	30	20	9	7	65	1531	73	1593
Peoria	28	15	13	12	68	1467	90	2861
West North Central:								
St. Louis	28	21	18	7	74	1658	85	2622
Quad Cities	28	25	15	9	78	1777	85	3267
Omaha	26	17	14	8	64	1428	73	1601
Minneapolis	47	35	10	6	97	3473	97	3473
Kansas City	37	15	9	6	67	1754	78	2740
Wichita	41	12	12	8	72	2016	76	2069

Table 5. (continued)

South Atlantic:								
Norfolk/Richmond	31	30	10	5	76	2004	85	4408
Raleigh	36	16	10	8	69	1793	71	1778
Charlotte, NC	35	16	13	11	76	1921	91	5666
Greenville, SC	31	17	16	14	78	1765	87	6607
Charleston, SC	19	19	14	9	60	1209	91	3084
Atlanta	34	17	14	8	73	1812	96	6829
Jacksonville/Tampa	31	29	9	8	78	1996	86	3251
Miami	38	24	12	6	80	2246	84	2524
Other Southern Markets:								
Louisville/Lexington	30	17	9	9	65	1520	76	1651
Nashville/Knoxville	37	11	10	9	67	1837	87	2174
Birmingham	29	17	10	9	65	1414	85	2091
Memphis/Little Rock	17	16	13	6	51	794	64	1388
Shreveport/Jackson	16	13	12	11	52	728	65	2171
New Orleans	15	12	8	8	43	546	58	1291
Oklahoma City	20	20	17	12	69	1284	77	1748
Dallas	14	12	11	11	48	802	81	2547
Houston	43	19	13	9	84	2513	92	5149
San Antonio	45	7	6	6	63	2181	73	1878
Mountain States:								
Denver	46	25	13	9	93	2977	97	5694
El Paso/Lubbock	29	16	13	10	67	1419	81	2087
Salt Lake City	31	22	21	6	80	1938	81	4854
Phoenix	39	19	17	8	83	2250	91	8061
Pacific:								
Spokane	28	23	18	11	80	1834	94	5000
Seattle	29	25	16	10	80	1846	88	3641
Portland, OR	25	21	13	12	71	1487	87	2995
San Francisco	20	20	14	8	62	1142	80	2274
Los Angeles	25	24	15	13	78	1705	98	9253

Sources: SAMI *Participant Information Guides* (Issue 311) and Progressive Grocer *Marketing Guidebook* (1991).
[a]Includes all sample wholesaling companies.
[b]Includes only merchant wholesalers in sample. Market shares take into account portion of market not covered by SAMI data.

Table 6: Market Shares of Ten Leading Grocery Retailers,by Market Area, 1990.

SAMI Market Area	Company									
	Am. Stores	Kroger	Safe-Way	A&P	Winn-Dixie	Albert-son's	Ahold	Publix	Von's	Food Lion
	Percent									
New England:										
Portland, OR	9.4	---	---	---	---	---	---	---	---	---
Boston	---	---	---	---	---	---	1.3	---	---	---
Hartford	---	---	---	1.4	---	---	13.7	---	---	---
Mid Atlantic:										
Albany	---	---	---	---	---	---	2.7	---	---	---
Syracuse	---	---	---	---	---	---	6.0	---	---	---
Buffalo	---	---	---	---	---	---	23.3	---	---	---
New York	1.3	---	---	6.2	---	---	2.2	---	---	---
Scranton	---	---	---	---	---	---	---	---	---	---
Philadelphia	23.8	---	---	7.1	---	---	---	---	---	---
Baltimore/Washington	2.6	---	17.5	5.8	---	---	---	---	---	---
Great Lakes States:										
Pittsburgh	---	3.4	---	---	---	---	---	---	---	---
Charleston, WV	---	31.0	---	---	---	---	---	---	---	---
Cleveland	---	1.4	---	---	---	---	---	—	---	---
Cincinnati	---	30.5	---	---	---	---	---	---	---	---
Detroit	---	0.7	---	24.0	---	---	---	---	---	---
Grand Rapids	---	---	---	---	---	---	---	---	---	---
Indianapolis	---	19.5	---	---	---	---	---	---	---	---
Milwaukee	---	---	---	14.0	---	---	---	---	---	---
Green Bay	---	---	---	---	---	---	---	---	---	---
Chicago	29.9	---	---	1.5	---	---	---	---	---	---
Peoria	8.4	15.4	---	---	---	---	---	---	---	---
West North Central:										
St. Louis	---	2.1	---	---	---	---	---	---	---	---
Quad Cities	5.2	---	---	---	---	---	---	---	---	---
Omaha	---	---	---	2.6	---	---	---	---	---	---
Minneapolis	---	---	---	---	---	---	---	---	---	---
Kansas City	---	5.5	---	---	---	---	---	---	---	---
Wichita	---	40.6	---	---	---	---	---	---	---	---

Table 6: continued

South Atlantic:										
Norfolk/Richmond	---	---	4.9	5.2	3.7	---	---	---	---	30.6
Raleigh	---	5.8	---	1.7	15.6	---	---	---	---	36.6
Charlotte, NC	---	---	---	1.7	15.6	---	10.5	---	---	36.6
Greenville, SC	---	---	---	---	17.4	---	30.9	---	---	7.7
Charleston, SC	---	9.0	---	---	8.5	---	14.4	---	---	18.7
Atlanta	---	34.1	---	5.4	16.6	---	3.6	---	---	---
Jacksonville/Tampa	---	---	---	---	31.1	---	---	29.3	---	2.0
Miami	---	---	---	---	23.9	---	---	38.5	---	---
Other Southern Markets:										
Louisville/Lexington	---	30.2	---	---	17.5	---	---	---	---	---
Nashville/Knoxville	---	36.7	---	---	3.3	---	---	---	---	9.3
Birmingham	---	4.1	---	---	17.4	---	---	---	---	---
Memphis/Little Rock	---	15.6	---	---	---	---	---	---	---	---
Shreveport/Jackson	---	12.6	---	1.5	3.6	---	---	---	---	---
New Orleans	---	1.2	---	4.1	15.4	---	---	---	---	---
Oklahoma City	0.4	---	---	---	1.5	---	---	---	---	---
Dallas	0.2	---	---	---	7.6	4.9	---	---	---	---
Houston	---	19.5	---	---	---	---	---	---	---	---
San Antonio	---	3.9	---	---	---	5.0	---	---	---	---
Mountain States:										
Denver	---	45.7	24.6	---	---	13.5	---	---	---	---
El Paso/Lubbock	0.5	---	---	---	---	8.0	---	---	---	---
Salt Lake City	---	1.8	---	---	---	21.8	---	---	---	---
Phoenix	---	21.3	16.6	---	---	1.8	---	---	---	---
Pacific:										
Spokane	---	---	23.0	---	---	11.2	---	---	---	---
Seattle	2.8	---	25.0	---	---	9.6	---	---	---	---
Portland, OR	---	---	21.1	---	---	9.0	---	---	---	---
San Francisco	19.9	2.2	20.2	---	---	3.3	---	---	---	---
Los Angeles	25.4	---	---	---	---	6.3	---	---	23.8	---
U.S. Average Shares	10.0	15.9	17.2	6.1	13.3	8.6	10.9	33.9	23.8	20.0

[a]Share of warehouse shipments into GMA by company measured by retail sales of the stores served not necessarily the same as retail sales share.

Table 7: Contact Point Analysis for the Ten Leading U.S. Grocery Retailers, 1990.

Company (GMAs)	American Stores	Kroger	Safe-way	A&P	Winn-Dixie	Albert-son's	SMG	Publix	Von's	Food Lion	Average
					Percent[a]						
American Stores (13)	---	8	23	31	15	31	23	0	8	0	15
Kroger (25)	8	---	12	20	32	20	0	0	0	12	12
Safeway (8)	33	11	---	22	11	67	0	0	0	11	17
A&P (14)	31	38	15	---	46	0	0	0	0	23	17
Winn-Dixie (15)	13	53	7	40	---	7	0	13	0	47	20
Albertson's (11)	45	27	55	0	9	---	0	0	0	0	15
Ahold (10)	20	20	20	40	40	0	---	0	0	30	17
Publix (2)	0	0	0	0	100	0	0	---	0	50	17
Von's (1)	100	0	0	0	0	0	100	0	---	0	22
Food Lion (7)	0	43	0	43	100	0	0	14	0	---	22

Source: Table 6

--- = not defined

[a]The denominator is the total number of GMAs in which the left column companies operate. There are 54 GMAs.

Table 8: Market Shares of Ten Leading Grocery Wholesalers, by Market Area, 1990

SAMI Market Area	Company									
	Flem-ing	Super Valu	Scrivner	Wett-erau	Wake Fern	Penn Traffic	Roundy's &Scot Lad	Nash Finch	Cert. Grocers of L.A.	Assoc. Whsl. Grocers
	Percent[a]									
New England:										
Portland, ME	---	---	---	6.1	---	---	---	---	---	---
Boston	---	---	---	8.5	---	---	---	---	---	---
Hartford	---	---	---	---	5.0	---	---	---	---	---
Mid Atlantic:										
Albany	---	---	---	---	10.9	1.6	---	---	---	---
Syracuse	---	---	9.0	---	---	29.1	---	---	---	---
Buffalo	---	---	14.1	---	---	2.5	---	---	---	---
New York	---	---	---	---	12.5	---	---	---	---	---
Scranton	---	---	2.2	9.8	---	---	---	---	---	---
Philadelphia	10.7	---	---	6.8	11.6	---	---	---	---	---
Baltimore/Washington	---	---	7.1	2.0	---	---	---	---	---	---
Great Lake States:										
Pittsburgh	---	25.4	3.9	22.3	---	---	---	---	---	---
Charleston, WV	3.7	1.9	---	19.1	---	6.3	---	2.1	---	---
Cleveland	8.5	---	---	---	---	---	4.2	---	---	---
Cincinnati	---	15.1	2.0	---	---	8.8	1.7	---	---	---
Detroit	---	---	---	18.3	---	---	---	---	---	---
Grand Rapids	---	---	---	3.0	---	---	0.8	---	---	---
Indianapolis	0.2	10.2	---	6.3	---	---	6.7	---	---	---
Milwaukee	17.7	12.3	5.7	---	---	---	31.7	---	---	---
Green Bay	3.1	27.8	3.5	---	---	---	3.5	---	---	---
Chicago	---	5.4	2.3	---	---	---	4.6	---	---	---
Peoria	2.9	27.9	12.6	12.1	---	---	4.0	---	---	---

Table 8: (Continued)

West North Central:										
St. Louis	5.7	7.1	---	20.6	---	---	---	---	---	---
Quad Cities	---	9.1	1.7	---	---	---	---	14.7	---	---
Omaha	5.5	13.8	7.7	---	---	---	---	10.8	---	---
Minneapolis	---	46.6	34.1	---	---	---	---	6.4	---	---
Kansas City	15.5	---	---	5.4	---	---	---	---	---	---
Wichita	12.2	---	3.4	---	---	---	---	2.1	---	---
South Atlantic:										
Norfolk/Richmond	0.7	---	---	---	---	---	---	---	---	---
Raleigh	0.3	---	7.4	---	---	---	---	2.9	---	---
Charlotte, NC	---	---	4.4	---	---	---	---	2.1	---	---
Greenville, NC	---	---	---	---	---	---	---	---	---	---
Charleston, SC	---	---	---	6.6	---	---	---	---	---	---
Atlanta	---	14.1	1.2	---	---	---	---	---	---	---
Jacksonville/Tampa	0.5	---	---	1.9	---	---	---	---	---	---
Miami	11.8	---	---	---	---	---	---	---	---	---
Other Southern Markets:										
Louisville/Lexington	5.8	6.2	---	9.0	---	---	1.7	---	---	---
Nashville/Knoxville	10.6	---	3.8	10.4	---	---	---	---	---	---
Birmingham	1.1	5.7	2.2	---	---	---	---	---	---	---
Memphis/Little Rock	16.7	2.7	---	---	---	---	---	---	---	---
Shreveport/Jackson	16.3	11.7	---	---	---	---	---	---	---	---
New Orleans	1.7	3.7	---	---	---	---	---	---	---	---
Oklahoma City	20.1	---	17.0	---	---	---	---	---	---	---
Dallas	10.7	---	---	---	---	---	---	---	---	---
Houston	12.6	---	---	---	---	---	---	---	---	---
San Antonio	2.8	---	6.6	---	---	---	---	---	---	---

Table 8: continued

Mountain States:										
Denver	---	9.4	---	---	---	---	---	3.5	---	---
El Paso/Lubbock	16.1	2.0	---	---	---	---	---	1.3	---	---
Salt Lake City	5.8	2.6	---	---	---	---	---	---	---	---
Phoenix	39.2	---	---	---	---	---	---	---	---	---
Pacific:										
Spokane	---	17.9	---	---	---	---	---	---	---	8.2
Seattle	1.5	16.0	---	---	---	---	---	---	---	29.1
Portland, OR	5.9	12.8	---	---	---	---	---	---	---	1.9
San Francisco	13.8	---	---	---	---	---	---	---	7.8	---
Los Angeles	---	---	---	---	---	---	---	---	15.3	---
U.S. Average Shares	9.0	11.3	5.9	9.9	10.0	9.7	6.5	4.5	11.6	13.1

[a]The share of warehouse movements into a GAM, measured by retail sales of stores served. Some warehouses located outside the GMA.

Table 9: Contact Point Analysis for the Ten Leading U.S. Grocery Wholesalers, 1990

Company (GMAs)		Flem-ing	Super Valu	Scriv-ner	Wet-erau	Wake-fern	Penn Traffic	Roundy's	Nash Finch	Cert. Groc.	Assoc. Whsl.	Average
Fleming	(30)	---	57	33	23	3	3	20	10	3	7	16
Super Valu	(25)	68	---	44	20	0	8	24	16	0	100	31
Scrivner	(20)	50	55	---	20	0	20	15	20	0	0	20
Wetterau	(14)	50	36	29	---	7	7	29	0	0	0	18
Wakefern	(4)	25	0	0	25	---	25	0	0	0	0	8
Penn Traffic Co.	(6)	17	50	67	17	17	---	17	0	0	0	21
Roundy's	(8)	75	75	38	50	0	13	---	0	0	0	28
Nash-Finch	(6)	50	83	67	0	0	0	0	---	0	0	22
Certified Grocers of Los Angeles	(2)	50	0	0	0	0	0	0	0	---	0	6
Associated Whsl. Grocers	(3)	67	100	0	0	0	0	0	0	0	---	19

Source: Table 8

--- = not defined

[a]Share of warehouse shipments into GMA by company measured by retail sales of the stores served. Not necessarily the same as retail sales share.

Table 10: Market Concentration Effects of the 1992 Super Valu-Wetterau Merger, by GMA.

Grocery Marketing Area[a]	Market Rank in 1990[b]		Market Rank In 1992[b]	HHI Sales Concentration		
	Super Valu	Wett-erau		1990	1992	Change
Portland, ME	---	1/3	1/3	2046	2046	0
Boston	---	2/7	2/7	1870	1870	0
Scranton	---	3/5	3/5	2642	2642	0
Philadelphia	---	4/7	4/7	1446	1446	0
Pittsburgh	1/1	2/2	1/1	2075	4008	1933
Charleston, WV	3/5	1/2	1/2	4408	4869	461
Cincinnati	2/3	---	2/3	2477	2477	0
Detroit	---	1/2	1/2	3206	3206	0
Grand Rapids	---	3/5	3/5	1589	1589	0
Indianapolis	1/3	2/5	1/3	1024	2202	1178
Milwaukee	3/5	---	3/5	2914	2914	0
Green Bay	1/1	---	1/1	1990	1990	0
Chicago	3/5	---	3/5	1593	1593	0
Peoria	1/1	3/4	1/1	2861	4364	1503
Quad Cities	2/4	---	2/4	3267	3267	0
St. Louis	2/4	1/2	1/1	2961	4545	1584
Omaha/Des Moines	2/3	---	2/3	1601	1601	0
Minneapolis	1/1	---	1/1	3473	3473	0
Kansas City	---	3/5	3/5	2740	2740	0
Charleston, SC	---	2/7	2/7	3084	3084	0
Atlanta	1/3	---	1/3	6829	6829	0
Louisville	3/7	1/3	1/3	1943	3000	1057
Nashville	---	2/3	2/3	2174	2174	0
Birmingham	3/6	---	3/6	2091	2091	0
Memphis	4/7	---	4/7	1388	1388	0
Shreveport	2/3	---	2/3	2171	2171	0
New Orleans	2/6	---	2/6	1291	1291	0
Denver	1/4	---	1/4	5694	5694	0
El Paso	5/6	---	5/6	2087	2087	0
Salt Lake City	3/5	---	3/5	4854	4854	0

Table 10: (continued)

Spokane	1/3	---	1/3	5000	5000	0
Seattle	2/3	---	2/3	3641	3641	0
Portland, OR	2/3	---	2/3	2995	2995	

Source:

[a]List contains all 23 GMAs in which one or both of the companies had significant market shares, usually more than 1 percent and almost always more than 2 percent.

[b]First position is the rank among merchant wholesalers only; after the slash in position among all warehouse operators, including integrated retailers. The first number is the most relevant for competition analysis.

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Endnotes

1. The 14 GMAs were apparently chosen because MSA boundaries seem to correspond to *a priori* notions of what constituted a proper geographic market boundary. The Census Bureau tends to over classify specialty wholesalers (see Marion *et al:* 365). Moreover, MSA boundaries are drawn to represent population centers that form cohesive labor markets (as revealed by commuting patterns), not necessarily reasonable wholesale trading zones.

2. In 1989, the Census Bureau defined 334 Metropolitan Statistical Areas (MSAs), many of which were further grouped into 20 very large consolidated Metropolitan Statistical Areas (CMSAs). MSAs were formerly called SMSAs (Standard Metropolitan Statistical Areas).

3. SAMI was bought by Time, Inc., in the early 1970s and was eventually resold by Arbitron. Because SAMI was late to develop a retail scanner service, it was overtaken by Information Resources, Inc. (IRI) in the late 1980s. SAMI ceased operations in December 1990 and was liquidated in March 1991. Most of SAMI's data was donated to Purdue University at that time and placed in an archive in the Krannert Library.

4. The drug store service had SARDI as its acronym. In the 1970s, SAMI attempted to develop a product tracking service for foodservice items, but coverage never extended beyond about six GMAs. The experimental service never drew sufficient interest from foodservice and food manufacturing clients to become profitable.

5. SAMI employees said that a considerable effort was required to correct for inter-GMA shipments of wholesaler-diverters. Few, if any, of their participants would admit to engaging in diverting and retailers themselves were reluctant to admit purchases from diverters.

6. Leakage from warehouses located in the GMA of interest to areas outside the GMA cannot be determined from the SAMI guidelines, but SAMI could always expand the number of stores on the fringe of the GMA so as to minimize outward leakage. Such expansion would be limited by increased imports from other SAMI GMAs.

7. This problem is referred to as the "principal-agent" problem in the economic literature. This problem is most apparent in the case of merchant wholesalers but also applies in the case of cooperative wholesalers to a lesser extent.

8. Major retailers drop in and out of various editions of the *Marketing Guidebook*, so multiple editions were consulted. The SAMI Participant Guides also provided names of retailers that met the size criterion.

9. Numbers of truck and trailers are sometimes given when square footage is not. Occasionally, numbers and types of stores, local sales revenues, and information on companies of comparable size, type of business, and location are used as reference points.

10. Giant Food's (No. 13) arrangement with Super Rite was apparently dropped in 1991 or 1992. Food 4 Less (No. 22) had just purchased new stores in California. Retailers 29, 35, and 46 are partially integrated. Retailers No. 41 and 49 are fully integrated in one GMA but not in another.

11. Many small chains own warehouses smaller than 100,000 square feet, but these tend to be used for produce or short term storage of dry groceries.

12. The only alternative is direct manufacture-retailer delivery or direct consumer marketing, but these methods account for less than one-fifth of the sales these methods account for less than one-fifth of the sales of consumer-ready foods in the United States.

13. The Department of Justice - Federal Trade Commission merger guidelines state that a post-merger Herfindahl index of 1800 or more will likely trigger an investigation; only an index level below 1000 is unlikely to meet with agency opposition.

14. Total U.S. grocery sales in 1990 were $369 billion, but the general-line grocery warehouses listed in Appendix Table 1 are believed to cover only about 80% of U.S. warehouse capacity.

15. On average, the market shares of wholesalers omitted from the SAMI sample accounted for 4.8 percentage points of GMA retail sales. The largest single omission was Giant Stores in Washington, DC (35 percent share). Sales data on SAMI omissions are estimated from Progressive Grocer data.

16. By "number of warehouses" is meant the number of establishments supplying grocery products in the sample. Most are inside the GMA, but some ship from outside the GMA boundaries. Several are counted more than once. Perhaps it is easier to think of the number as the number of distinct *zones* to which a single warehouse ships.

17. The CR4 is the sum of the shares of the top four companies. The HHI is the sum of the *squares* of the percentage market shares. A monopoly has an HHI of 10,000, whereas an unconcentrated market has an HHI close to zero.

18. Recall that the depopulated portions of the northern High Plains are not covered by SAMI markets.

19. Information on mergers and acquisitions is taken from ERS (1996) and a Lexis-Nexis search of articles appearing in *Supermarket News, Progressive Grocer,* and other trade magazines.

APPENDIX A
TABLES

Appendix Table 1: Number and Size of Grocery Warehouses in 54 Sample GMAs, 1990

Market Area	Integrated Retailers		General Merchants		Specialty Merchants	
	No.	Size	No.	Size	No.[a]	Size[a]
		'000 ft.²		*'000 ft.²*		*$ mil.*
New England:						
Boston	12	3846	4	1473	3	88
Portland, ME	3	1335	4	779	2	154
Hartford	7	2111	3	1482	1	NA
Mid Atlantic:						
Albany	5	1350	5	1591	1	29
Syracuse	5	846	8	1166	1	40
Buffalo	4	1024	4	1322	1	83
New York	20	5278	13	5465	5	817
Scranton	4	2198	8	2537	1	37
Philadelphia	4	1789	3	1128	5	1109
Baltimore/Wash.	10	3446	5	836	3	436
East North Central:						
Pittsburgh	2	400	16	4283	0	0
Charleston, WV	2	710	1	306	0	0
Cleveland	6	2475	10	3107	2	50
Cincinnati	5	4192	8	2742	2	42
Detroit	4	1350	6	1769	0	0
Grand Rapids	13	3892	2	521	1	8
Indianapolis	6	1236	5	1499	1	12
Milwaukee	9	836	5	2617	1	52
Green Bay	0	0	6	2374	1	5
Chicago	9	4784	6	3950	4	303
Peoria	0	0	2	1243	1	5
West North Central:						
Minneapolis	0	0	7	4532	0	0
Quad Cities	0	0	0	0	0	0
Omaha	3	1420	8	3306	1	8
St. Louis	2	1170	8	4487	2	61
Kansas City	1	675	6	1991	1	22
Wichita	2	700	5	1270	1	7

Appendix Table 1: Number and Size of Grocery Warehouses in 54 Sample GMAs, 1990

South Atlantic:						
Norfolk/Richmond	3	1299	5	2505	2	25
Raleigh	3	2335	10	2563	1	20
Charlotte	5	2779	3	1220	0	0
Greenville, SC	4	3214	4	162	1	20
Charleston, SC	3	710	5	789	2	11
Atlanta	10	3199	4	1433	1	60
Jacksonville/Tampa	11	7306	7	3784	1	83
Miami	3	3052	4	2457	1	96
Other Southern:						
Louisville/Lexington	3	2050	4	1051	1	6
Nashville/Knoxville	5	2718	4	1000	0	0
Birmingham	5	3271	5	1522	1	5
Memphis/Little Rock	2	1400	5	1476	0	0
Shreveport/Jackson	2	1446	3	1385	0	0
New Orleans	8	2301	2	841	1	62
Oklahoma City	2	1700	6	1808	0	0
Dallas	15	5012	3	1724	1	5
Houston	5	1575	3	2156	1	22
San Antonio	7	2421	4	1608	2	16
Mountain States:						
Denver	7	1658	2	1020	0	0
El Paso/Lubbock	2	1631	5	2314	0	0
Salt Lake City	3	688	4	1532	0	0
Phoenix	8	3185	1	1300	1	112
Pacific:						
Spokane	1	1200	2	355	0	0
Seattle	1	1200	5	1829	0	0
Portland, OR	6	2768	5	2012	0	0
San Francisco	13	7365	7	2915	2	143
Los Angeles	19	6070	4	3003	1	55
Total U.S.	292	120,673	274	100,834	---	4114

[a]The size in square footage is unknown for these frozen foods, HBA, housewares, foodservice, and rack jobbers but may be about one-fifth of the dollars shown (in thousands).

Appendix Table 2: Wholesale Integration by U.S. Grocery Retailers, 1990

Company		Retail Sales			Stores[a]		Wholesale Operations		
Rank/Name	Location	1990	1992	1994	Total 1992	Super-Markets	Market Areas	Ware-houses[c]	GMA Share[d]
		Billion dollars						*'000 ft.²*	*Pct.*
1. Kroger	Cincinnati, OH	22.1	22.1	23.0	2215	3672	23[b]	9828(24)	15.9
2. American Stores	Salt Lake City, UT	22.2	19.1	18.4	925	5274	12[b]	7351(15)	10.0
3. Safeway Stores	Oakland, CA	14.9	15.2	15.6	1105	2141	9[b]	5485(6)	17.2
4. A&P/Aldi	Montvale, NJ	---	11.6	10.3	1202	1776	13[b]	7217(22)	6.1
5. Winn-Dixie	Jacksonville, FL	9.7	10.3	11.1	1166	1800	15[b]	9356(13)	13.3
6. Albertson's	Boise, ID	8.2	10.2	11.9	651	1741	11[b]	3485(6)	8.6
7. Food Lion	Salisbury, NC	5.6	7.2	7.9	1012	1012	7[b]	5474(5)	20.0
8. Publix	Lakeland, FL	5.8	6.3	8.7	416	1060	2[b]	4515(5)	33.9
9. Ahold Intl.[e]	Netherlands	4.5[E]	5.9	6.5	506	670	10[b]	3515(6)	10.9
10. Von's Companies	Arcadia, CA	5.3	5.6	5.0	346	566	1[b]	1464(3)	23.8
11. Southland Corp.	Dallas, TX	8.4	7.4	6.7	---	---	Baltimore, Jacksonville, Miami, Dallas, Houston, L.A.	---	1.6
12. Pathmark (Supermarkets General)	Woodbridge, NJ	6.3	4.3	4.0[E]	147	441	Hartford, NYC, Philly	1132(4)	9.7
13. Giant Foods	Landover, MD	3.1	3.1	3.7	156	368	Baltimore [Super Rite][j]	1371(4)	35.0
14. Stop & Shop	Quincy, MA	3.1	3.4	3.8	120	262	Boston, Hartford, NYC	1031(4)	13.8
15. H.E. Butt	SanAntonio, TX	2.9	3.2[E]	4.7[E]	213	471	Houston, San Antonio	1440	32.0
16. Circle K		---	3.1	3.7					
17. Fred Meyer	Portland, OR	2.5	2.9	3.1	72	216	Seattle, Spokane, Portland	1742(2)	13.8
18. Ralph's	Compton, CA	2.7[E]	2.8	5.0	160	160	Los Angeles	356	15.3
19. Grand Union	Wayne, NJ	3.0	2.8	2.4	252	384	Albany, Syracuse, NYC, Atlanta	1316(8)	13.8
20. Bruno's	Birmingham, AL	2.4	2.7	2.8	256	570	Atlanta, Birmingham, New Orleans	1542(2)	14.3

Appendix Table 2: (Continued)

21. Super Valu (Cub Division)	Minneapolis, MN	—	2.7[E]	---	264	456	Cincinnati, Indianapolis, Chicago, Minneapolis, Denver	5326(5)	---
22. Smith's	Salt Lake City, UT	---	2.6	3.0	121	359	El Paso, Phoenix, Salt Lake City	258	9.4
23. Food 4 Less[g]	La Habra, CA	1.4	2.5[E]	0.8	249	249	Los Angeles [+Certified of LA]	171	11.1
24. Meijer	Grand Rapids, MI	1.5[E]	2.3[E]	3.9[E]	80	238	Detroit, Grand Rapids	1800(10)	24.7
25. Hy Vee	Chariton, IA	2.0	2.3	2.5	160	220	Quad Cities, Omaha	1105(3)	30.1
26. Hannaford Bros.	Scarborough, ME	1.7	2.1	2.3	95	175	Portland ME	735(2)	50.3
27. Spartan Stores	Grand Rapids, MI	2.0	2.1[E]	2.2	556	623	Detroit, Grand Rapids	1875(2)	34.1
28. Penn Traffic[h]	Johnstown, PA	2.0[E]	2.1[E]	3.3	184	309[E]	Albany, Syracuse, Buffalo, Cincinnati, Charleston WV	2322(4)	14.3
29. Giant Eagle	Pittsburgh, PA	1.5	2.7[E]	2.0	134	134	Pittsburgh [+OK, Tamarkin]	400	23.1
30. Dominick's	North Lake, IL	2.0[E]	2.0	2.4[E]	101	173	Chicago	1200	22.7
31. Stater Bros.	Coulton, CA	1.5	1.8	1.6	108	108	Los Angeles	900	6.1
32. Shaw's	E. Bridgewater,MA	1.7	1.8	2.1	81	243	Boston	460(2)	14.2
33. De Moula's	Tewksbury, MA	1.1	1.4	1.6	50	66	Boston	700(2)	12.4
34. Schnuck Markets	St. Louis, MO	1.1	1.4[E]	1.2[E]	63	155	St. Louis	600(2)	31.8
35. Save Mart	Modesto, CA	1.5	1.3	1.1[E]	94	158	San Francisco [+Westpac]	220	---
36. Weis Markets	Sunbury, PA	1.3	1.3	1.6	141	169	Scranton, Philladelphia, Baltimore	1348(2)	3.9
37. Harris-Teeter	Mathews, NC	1.2	1.3	1.6	135	135	Raleigh, Charlotte, Charleston, SC	615(2)	10.3
38. National Tea	Hazelwood, MO	1.1	1.2[E]		92	198	St. Louis, New Orleans	837(2)	16.8
39. Kash N' Karry	Tampa, FL	1.0	1.2[E]	1.1	116	224	Jacksonville	625	9.2
40. Jitney Jungle	Jackson, MS	1.0	1.2	1.2	100	166	Memphis, Shreveport	915	12.0
41. Randall's[m]	Houston, TX	0.9	1.2	2.5	48	142	Houston [+Fleming]	895(3)	10.0
42. Marsh	Indianapolis, IN	1.1	1.2	1.3	259	101	Cincinnati, Indianapolis	606(3)	29.7
43. Wegman's	Rochester, NY	---	1.1[E]	1.8[E]	45	135	Syracuse, Buffalo	450	18.4
44. Golub Corp.	Schenectady, NY	1.0	1.1	1.2	85	163	Albany, Syracuse	667(2)	19.1
45. Eagle Food Ctrs.	Milan, IL	1.1	1.1	1.0	107	105	Chicago, Peoria, Quad Cities	834	17.2
46. Raley's	W. Sacramento, CA	1.1[E]	1.1[E]	1.8[E]	64	179	San Francisco [+Westpac]	381(2)	4.5

Appendix Table 2: continued

47. Wal-Mart	Bentonville, MO	0.4[E]	1.1[E]	7.0[E]	47	141	21 GMAs 500 mi. from Springfield, MO	704	1.2
48. Brookshire Grocery	Tyler, TX	0.9[E]	1.1[E]	1.1[E]	95	129	Dallas, Shreveport	1093(2)	2.3
49. Ingles	Black Mountain, NC	1.0	1.1	1.2	171	173	Greenville, Atlanta [+Merchants Distributors]	450	13.1
50. Purity Supreme[i]	N. Billerica, MA	1.5	1.0[E]	0.9	58	108	Boston, Hartford, Portland ME	580	13.5
51. Tom Thumb[m]	Dallas, TX	0.9[E]	1.0[E]	acqd	62	142	Dallas	650	19.1
52. Delchamp's	Mobile, AL	1.0	1.0	1.1	116	268	Birmingham, New Orleans Shreveport	790(2)	8.9
53. Furr's	Albuquerque, AZ	1.0[E]	0.9[E]	0.9[E]	78	94	El Paso [+Fleming]	900	35.5
54. Homeland	Oklahoma City, OK	0.8[E]	0.8	0.8[E]	113	339	Oklahoma City, El Paso	1300	12.8
55. Minyard's	Coppell, TX	0.7	0.7	0.8	79	163	Dallas [+Big Tex]	190(2)	15.4
56. Smitty's	Phoenix, AZ	0.8	0.7[E]	0.6[E]	28	84	Phoenix [+Fleming]	1000	3.4
57. Quality Foods Intl.	Los Angeles, CA	0.7	0.7[E]	0.6	88		Los Angeles, San Francisco	369(3)	2.0
58. Village Super Mkt.	Springfield, NJ	0.7	0.7	0.7	25	49	[Wakefern]	0	0
59. Hughes	Irwindale, CA	0.5[E]	0.7[E]	0.8[E]	51	81	Los Angeles	300(2)	2.2
60. Farm Fresh	Norfolk, VA	0.7	0.7	0.9	55	165	Norfolk [+Richfood]	200(2)	4.9
61. King Kullen	Westbury, NY	0.7	0.7	0.7	47	101	NYC [+White Rose]	296(2)	1.9
62. Foodarama	Freehold, NJ	0.7	0.7	0.6	26	26	[Wakefern]	0	0
63. Red Food Stores	Chattanooga, TN	0.6	0.7	---	64	130	Nashville	583	7.3
64. Shoppers Food Whs.	Lanham, MD	0.4	0.7	0.7[E]	35	35	Baltimore/Washington	96(2)	0.5
65. ABCO Markets	Phoenix, AZ	0.7	0.6	0.6	75	167	Phoenix -[+Fleming]	100	2.9
66. Scott Grocery[f]	Wilkes-Barre, PA	0 6	0.6	---	7	11	Scranton	250	2.2
67. Fiesta Mart	Houston, TX	0.5	0.6[E]	0.6	29	85	[Grocers Supply]	0	0
68. Bashas'	Chandler, AZ	0.5	0.6[E]	0.6[E]	54	66	Pheonix	450	8.8
69. Seaway Food Town	Maumee, OH	0.5	0.6	0.6	47	81	Cincinnati	670	4.4
70. K-VA-T Food	Grundy, VA	0.5	0.5	0.6	60	86	Nashville, Louisville, Raleigh [+Mid-Mountain Foods]	525	2.3
71. Mayfair	Elizabeth, NJ	0.6	0.5[E]	0.6	31	73	[Twin City]	0	0
72. Appletree[n]	Houston, TX	1.0[E]	0.5[E]	0.1[E]	97	97	Houston, San Antonio	400	10.1
73. Big Y Foods	Springfield, MA	0.4	0.5		30	30	Hartford [+C&S]	110(2)	1.8

Appendix Table 2: continued

74. Big V Supermarkets	Florida, NY	0.6	0.5	0.7[E]	27	79	[Wakefern]	0	0
75. Food Giant	Sikeston, MO	0.3	0.5	0.3[E]	86	90	[Fleming]	0	0
76. Inserra	Mahwah, NJ	0.4	0.5	0.5[E]	16	44	[Wakefern]	0	0
77. Food Barn	Kansas City, MO	0.6	0.5[E]	0.4[E]	43	123	Kansas City, Wichita [+Assoc. Wholesale Grocers]	675	10.3
78. Schwegmann's	New Orleans, LA	0.4	0.5[E]	0.5[E]	16	48	New Orleans	250	2.6
79. U.R.M. Stores	Spokane, WA	0.5	0.5[E]	0.5	200	184	Spokane	483	30.6
80. Quality Food	Bellevue, WA	0.3	0.5	0.6	36	36	[Westpac]	0	0
81. Brookshire Bros.	Lufkin, TX	0.5[E]	0.5[E]	0.5[E]	61	79	Houston	130	1.1
82. Red Apple	NewYork, NY	0.5	0.5[E]	0.2[E]	88	88	[Krasdale, White Rose]	0	0
83. Fred Albrecht[l]	Akron, OH	0.5	0.5	0.5[E]	39	60	Cleveland	700	7.5
84. Harvest Foods	Little Rock, AR	0.5	0.5[E]	0.4[E]	54	76	Memphis, Shreveport	700	7.0
85. Almacs	Providence, RI	0.6	0.5[E]	0.4[E]	44	44	[Wetterau]	0	0
86. United	Lubbock, TX	0.4	0.4	0.4[E]	42	42	[Fleming]	0	0
87. Victory Markets	Utica, NY	0.5	0.4[E]	0.7[E]	81	90	Syracuse [+C&S]	396	22.6
88. Nob Hill	Gilroy, CA	0.3	0.4	0.4[E]	26	26	[Fleming]	0	0
89. Fareway Stores	Boone, IA	0.3	0.4	0.5[E]	56	56	Quad Cities, Omaha	600	3.5
90. Thriftway	Cincinnati, OH	0.4	0.4	---	23	69	Cincinnati [+Superfoods]	200	2.3
91. Wuest's	Seguin, TX	0.5	0.4	0.0[E]	17	10	San Antonio	100	0.8
92. Ukrop's	Richmond, VA	---	0.4	0.5[E]	51	57	[Richfood]	0	0
93. Canned Foods	Berkeley, CA	0.3	0.4	0.4	78	234	San Francisco	250(2)	1.2
94. Melmarkets	Garden City, NY	0.3	0.4	0.4[E]	16	28	[Twin County]	0	0
95. Trader Joe's	S. Pasadina, CA	0.3	0.4	0.6	52	52	Los Angeles	150	0.8
96. Holiday Companies (Fairco Wholesale)	Bloomington, MN	0.3	0.4	0.5	319	307	Milwaukee, Green Bay Minneapolis, Quad Cities, Omaha	1406(4)	4.4
97. Genuardi	Norristown, PA	0.3	0.4	0.5	28	25	Philadelphia	---	---
98. Lowes Food Strs.	Winston-Salem, NC	0.3	0.3[E]	0.4[E]	52	52	[Merchants Distributors]	0	0
99. Foodland	Honolulu, HI	0.2	0.3	0.4	28	40	[Fleming]	0	0
100. Gooding's	Altamonte Sprgs., FL	0.2	0.3	0.3[E]	17	43	Jacksonville [+Wetterau]	30	0.5
101. Waremart[k]	Boise, ID	0.2	0.3	0.5[E]	18	54	Spokane, Portland OR, Salt Lake City	520(2)	2.1

Appendix Table 2: continued

102. Dierbergs Markets	Chesterfield, MO	0.3[E]	0.3[E]	0.3	14	40	[Supervalu]	0	0
103. Hyper Shoppes	Milford, OH	0.3	0.3	0.5	7	35	[Supervalu]	0	0
104. Thomas & Howard	Spartanburg, SC	---	0.3[E]	---	275	63	Greenville [+unknown]	47	---
105. M&E Food Mart	Nederland, TX	0.2	0.3	0.2	38	48	Houston [+Grocers Supply]	---	2.4
106. D&W Food Ctrs.	Grand Rapids, MI	0.4	0.3[E]	0.4	22	22	[Spartan]	0	0
107. Megafoods Stores	Mesa, AZ	0.2[E]	0.3	0.5[E]	23	69	[Fleming]	0	0
108. Pueblo Intl.	Pompano, FL	0.3[E]	0.3[E]	0.3[E]	10	30	Miami [+Fleming]	125	---
109. Kings Super	W. Caldwell, NJ	0.3	0.3	0.3[E]	19	19	[White Rose]	0	0
110. Haggen	Bellingham, WA	0.2	0.3	0.4	11	29	[Supervalu]	0	0
111. Ball's Food	Kansas City, KS	0.2	0.3	0.4	17	45	[Asso. Wholesale Grocers]	0	0
112. Keith Uddenberg	Gig Harbor, WA	0.3	0.3	0.3	24	62	[Asso. Grocers]	0	0
113. Stanley Stores	Bay City, TX	0.3	0.3	0.2[E]	31	63	[Grocers Supply]	0	0
114. Consumers	Springfield, MO	0.4[E]	0.3	---	26	62	[Fleming]	0	0
115. Houchens	Bowling Green, KY	0.3	0.3	0.3	79	51	[Wetterau]	0	0
116. Gerland's	Houston, TX	0.3[E]	0.3	0.2	21	59	[Grocers Supply]	0	0
117. Super Discount	Lithia Springs, GA	0.2[E]	0.3[E]	0.3	9	27	[Supervalu]	0	0
118. Byrd Food	Burlington, NC	0.2	0.3	0.2[E]	45	45	Charlotte [+Scrivner, Richfood]	300	---
119. Jerry's	Edina, MN	0.2	0.3	0.3	13	21	[Supervalu]	0	0
120. Niemann	Quincy, IL	0.2	0.3	0.3	20	39	[Supervalu, Wetterau]	0	0
121. Sav-A-Lot (Wetterau)	St. Louis, MO	---	0.3[E]	---	360	72	Approx. 16-20 GMAs From MO to NJ to FL to TX.	720(6)	---
Smaller retailers with some integration:									
J.H. Harvey	Nashville, TN	0.2	0.2	0.3[E]	38	38	Nashville	125	---
John Groub	Seymour, IN	0.2	0.2[E]	0.2	29	37	Indianapolis	430(2)	3.5
B&B Cash Grocery	Tampa, FL	0.2	0.2	0.2[E]	56	30	Jacksonville	225	1.9
Cala Foods	Hayward, CA	0.2	0.2	---	23	23	San Francisco [+Certified Grocers of LA]	370(3)	1.7
Big Bear	San Diego, CA	0.2	0.2	---	25	24	Los Angeles	165(2)	1.0
Heinen's	Warrensville, OH	0.1	0.1	0.1[E]	11	19	Cleveland	360	2.5
Fisher Foods	Canton, OH	0.1	0.1	0.1[E]	6	6	Cleveland	70	1.9

Appendix Table 2: continued

H.G. Hill	Nashville, TN	0.1	0.1	0.1	14	14	Nashville	208	3.1
Autry Greer	Pritchard, AL	0.1	0.1	0.1	41	41	New Orleans	116	1.9
Shop N' Save	Grand Prairie, TX	0.1	0.1	0.1	30	6	Dallas	180(2)	0.7
Fedco	Santa Fe Springs, CA	0.1[E]	0.1[E]	0.1	9	9	Los Angeles	420	0.3
Dixie Saving Stores	Chattanooga, TN	0.1	0.1	0.1	120	40	no GMA	302	---

[E] = Estimated

--- = Not available or not applicable

[a]This column lists conventional-supermarket equivalents. Conventional supermarkets are counted as one; convenience and limited-assortment stores are weighted 0.2; and large stores (super, combination, warehouse, etc.) a weight of 3.0.

[b]See Table 6 for a list of grocery marketing areas (GMAs).

[c]Square footage of warehouses owned and operated by the retail company. The number of separate warehouses is given in parentheses where known, but not all companies report the number of facilities. If integrated, name of GMA is shown; if partially integrated name of wholesaler appears after the plus sign in the square brackets; if unintegrated, only name of wholesaler appears in square brackets.

[d]The average share of GMA retail sales represented by the retailers' *wholesale* activity. If the retailer supplies only a portion of its wholesale products (partial or "tapered" integration), then only that portion is counted. The total market shares in each GMA are divided by the number of GMAs listed in the column to the left. Some smaller shares are estimated. See also Table 6.

[e]Owned and operated Top's, Bi-Lo, First National, and Giant Foods of PA. Giant Foods is partially supplied by Super Rite Foods.

[f]Scott Grocery appears to derive most of its sales from wholesaling activity.

[g]Food 4 Less purchased about 130 supermarkets from the Alpha Beta division of Amercian Stores in 1991. Store and warehouse information refers to 1991-1992 situation. Its Falley's division in Kansas City is not integrated.

[h]Penn Traffic Co. owns a voluntary wholesaler (P&C Food Markets, Syracuse) and retailers in Pittsburgh (Bi-Lo, Riverside), Columbus (Big Bear), and Buffalo (Quality Markets).

[i]Purity Supreme was reported in some sources to be owned by American Stores in 1990, but was sold to Freeman & Spogli around 1992.

Appendix Table 2: continued

[j]By 1993, after acquisition of Giant by Sainsbury's, Super Rite was no longer listed as a supplier.

[k]In 1992, Supervalu sold its Salem, Oregon warehouse to Waremart, Inc. and simultaneously purchased a minority share in Waremart.

[l]Also operates a foodservice distribution business.

[m]Randall's acquired Tom Thumb (formerly Cullum Cos.) in 1993.

[n]In bankruptcy 1991-92. When Chapter 11 ended (11/92) Appletree owned only 50 supermarkets.

Appendix Table 3: Warehouse Operations of U.S. Merchant Grocery Wholesalers, 1990.

Company		Wholesale Sales[c]			Warehouse Operations[d]		
Rank/Name	Location	1990	1992	1994	Grocery Market Areas	Size	GMA Share
		Billion dollars				*'000 ft.²*	*Percent*
1. Fleming Companies	Oklahoma City, OK	12.0	12.9	15.8	31[b]	13420(33)	9.0
2. Super Valu	Minneapolis, MN	11.1	12.6[a]	16.6	23[b]	11520(21)	11.3
3. Scrivner	Oklahoma City, OK	5.4	6.2	acqd	20[b]	5964(21)	5.9
4. Wetterau	Hazelwood, MO	5.3	5.0[a]	acqd	17[b]	7151(22)	9.9
5. Wakefern	Elizabeth, NJ	3.2[E]	3.6	3.7	4[b]	2500(4)	10.0
6. Penn Traffic Co.	Johnstown, PA	2.7	2.8	3.3	7[b]	2332(4)	9.7
7. Certified Grocers	Los Angeles, CA	2.3	2.8	1.9	2[b]	3003(4)	11.6
8. Roundy's	Pewaukee, WI	2.3	2.5	2.5	9[b]	1895(5)	6.5
9. Nash Finch	Minneapolis, MN	2.2	2.4	2.8	8[b]	2006(8)	4.5
10. Associated Grocers	Kansas City, KS	1.9	2.4	2.6	3[b]	1151(3)	13.1
11. Spartan Stores	Grand Rapids, MI	1.9	2.1[E]	2.2	Detroit, Grand Rapids	1875	26.5
12. Super Food Services	Dayton, OH	1.7	1.6	1.1	Cincinnati, Detroit	916	12.2
13. Grocers Supply[f]	Houston, TX	1.2[E]	1.4[E]	1.5[E]	Houston, San Antonio, Dallas	2114(3)	17.9
14. Super Rite	Harrisburg, PA	0.8	1.3	1.5	Scranton, Philadelphia	632	8.4
15. C&S Wholesale	Brattleboro, VT	0.7	1.3	1.8	Boston, Portland, Hartford, Albany	625	7.1
16. Twin County	Edison, NJ	1.0[E]	1.2[E]	1.1	New York City	900	7.5
17. P.J. Schmitt	Akron, OH	1.1[E]	1.1[E]	---	Pittsburgh, Buffalo, Cleveland	1668	10.8
18. Associated Grocers	Seattle, WA	1.0	1.1	1.1	Spokane, Seattle	1151	13.1
19. Richfood	Mechanicsville,VA	1.0	1.1	1.5	Norfolk, Raleigh	1900	15.7
20. Foodland Distributors	Livonia, MI	0.7	1.1[E]	0.9	Detroit	943	19.1
21. Riser Foods	Bedford Hts., OH	0.9[E]	1.0	1.1	Cleveland	450	18.5
22. Sweet Life Foods	Suffield, CT	0.9[E]	1.0[E]	acqd	Boston, Portland, Hartford, Albany	1357	5.2
23. United Grocers	Portland, OR	0.8	0.9	1.0	Portland, OR	842	24.7

24.Associated Food Stores	Salt Lake City, UT	0.7	0.8	0.8	Salt Lake City	656	31.0
25.Merchants Distributors	Hickory, NC	0.6	0.7[E]	0.8[E]	Raleigh, Charlotte, Greesville	850	14.3
26.White Rose	Farmingdale, CT	0.9[E]	0.7[E]	1.0	New York City	665	8.8
27.Market wholesale	San Rafael, CA	0.4[E]	0.7	0.5	San Francisco	625	6.6
28.Certified Grocers Midwest	Hodgkins, IL	0.6	0.6	0.7	Chicago	1200	9.3
29.Key Food Stores Coop.	Brooklyn, NY	0.6	0.6	0.6	New York City	500	5.0
30.B. Green	Baltimore, MD	0.5	0.6[E]	---	Batimore	836	13.3
31.Affiilated Foods	Amarillo, TX	0.5	0.5	0.7	Dallas, El Paso	1400	10.0
32.Piggly Wiggly Carolina	Charleston, SC	0.5[E]	0.5[E]	0.6[E]	Charleston SC	475	18.2
33.U.R.M. Stores	Spokane, WA	0.5	0.5[E]	0.5	Spokane	483	27.8
34.Schultz Sav-O-Stores	Sheboygan, WI	0.5	0.5	0.4	Green Bay, Milwaukee	432	12.2
35.Affiliated Foods Coop.	Norfolk, NE	0.4	0.5	0.5	Omaha	750	5.8
36.Krasdale Foods	White Plains, NY	0.4[E]	0.5	0.5	New York City	400	3.8
37.Fairway/Fairco	Minneapolis, MN	0.6	0.5[E]	---	Minneapolis, Omaha, Quad Cities	836	5.1
38.Affiliated Foods SW	Little Rock, AR	0.5	0.5	0.5[E]	Memphis	325	12.6
39.Certified Grocers of FL	Ocala, FL	0.5	0.4[E]	---	Jacksonville	900	4.2
40.Central Grocers Coop.	Franklin Park, IL	0.3	0.4	0.4	Chicago	523	6.7
41.Associated Wholesalers	Robesonia, PA	0.3	0.4	0.4	Scranton, Baltimore	1169[e]	8.0[e]
42.Copps	Stevens Point, WI	0.3[E]	0.4	0.4	Milwaukee, Green Bay	302	9.8
43.Lewis Bear Co.	Pensacola, FL	0.3	0.4	---	(None)	---	---
44.Piggly Wiggly AL	Bessemer, AL	0.3	0.4	0.4	Birmingham	528	8.9
45.Affiliated Food Stores	Keller, TX	0.8	0.3	---	Dallas	1000	10.3
46.United A-G Cooperative	Omaha, NE	0.3	0.3	0.2	Omaha	525	16.8
47.Buzzuto’s	Cheshire, CT	0.3	0.3	0.3	Hartford	245	3.9
48.Tarmarkin	Youngstown, OH	0.3[E]	0.3[E]	---	Pittsburgh, Cleveland	450	9.3
49.Camellia	Norfolk, VA	0.2	0.3	0.2[E]	Norfolk	330	9.9
50.Associated Food Stores	Jamaica, NY	0.2	0.2	0.1	New York City	500	0.9
51.Associated Grocers	Baton Rouge, LA	0.2	0.3	0.3	New Orleans	465	7.9
52.Affiliated Food Stores	Tulsa, OK	0.2	0.3	0.3	Oklahoma City	547	11.8
53.Mid-Mountain Foods	Abington, VA	0.2	0.3	---	Raleigh, Louisville, Nashville	525	2.0
54.James Ferrera & Sons	Canton, MA	0.2	0.3	0.3	Boston	420	1.4

55.Allied Grocers Coop	Windsor, CT	0.3	0.2	---	Hartford	300	6.7
56.Asso. Grocers of FL	Miami, FL	0.3	0.2[E]	0.2	Miami	450	5.8
57.Cardinal Foods	Columbus, OH	0.2	0.2[E]	---	Cincinnati	375	6.0
58.Hale-Halsell	Tulsa, OK	0.2	0.2[E]	0.2	Oklahoma City	330	6.7
59.C.B. Ragland	Nashville, TN	0.2	0.2	0.2	Nashville	325	9.5
60.Affiliated of FL	Tampa, FL	0.2	0.2[E]	0.2[E]	Jacksonville	350	1.4
61.Asso. Grocers of AL	Birmingham, AL	0.2	0.2	0.2	Birmingham	401	9.9
62.Affiliated Food Dist.	Scranton, PA	0.2	0.2	---	Scranton, Baltimore	1169[e]	8.0[e]
63.Mitchell Grocery	Albertville, AL	0.2	0.2[E]	0.3	Birmingham	320	5.6
64.Olean Whlsl. Grocery	Olean, NY	0.2	0.2	0.2	Buffalo	350	5.6

[a]In late 1992, Wetterau became part of Super Valu. Wetterau's estimated separate sales are shown for 1992, but Super Valu's 1992 sales are consolidated, post merger sales.

[b]See Table 8 for details on the GMAs of the ten leading wholesalers.

[c]Sales mostly from Progressive Grocer, but adjusted upward if SAMI data indicate. Cut-off is approximately $200 million in annual sales.

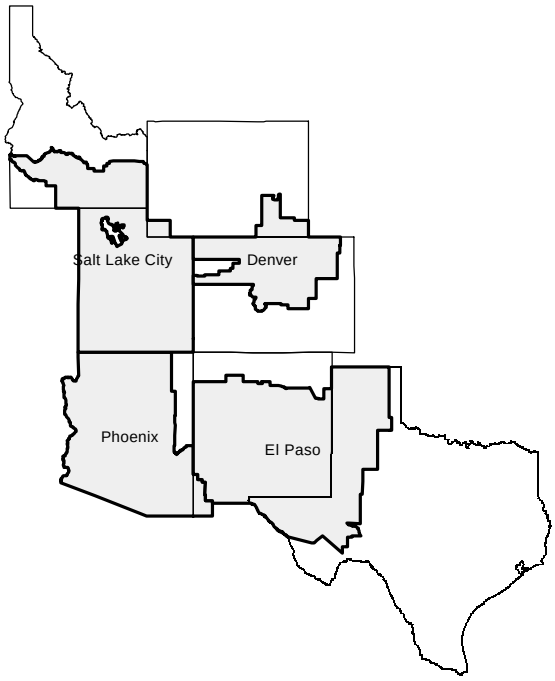
[d]SAMI markets cover about 80% of U.S. retail grocery sales. Share is measured by retail sales of stores served in the SAMI GMAs.

[e]Associated and Affiliated were legally independent companies but apparently jointly operated their warehouses.

[f]Ownership is unclear. GSC Enterprises of Sulfur Springs, Texas owns Grocers Supply Co. Of San Antonio ($703 million sales and a 700,000 ft.^{2} warehouse) and claims to supply 5000 stores in 8 states. Grocers Supply Co. of Houston has a large warehouse serving 1300 stores in TX and LA but is estimated to have larger sales than GSC. SAMI codes for the two companies differ.

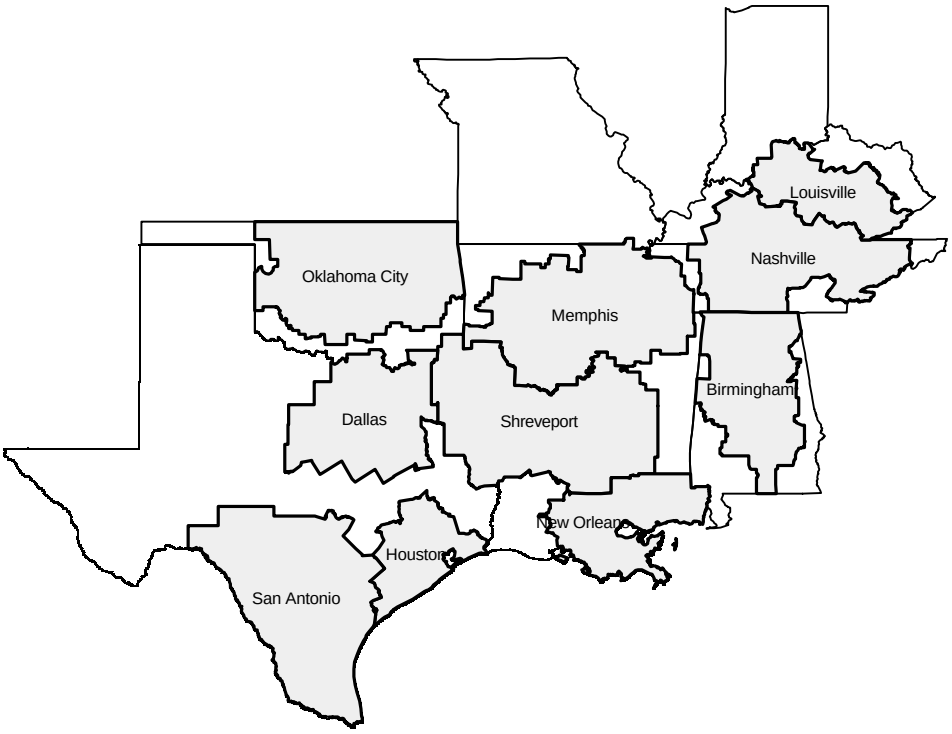
APPENDIX B
MAPS

Mountain Region SAMI GMAs

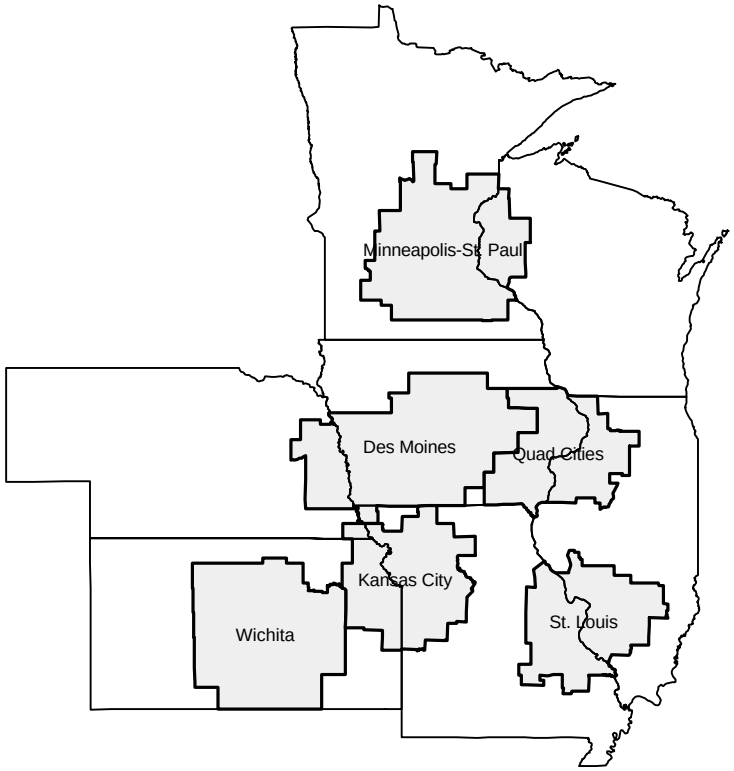


Pacific Region SAMI GMAs

Southern Region SAMI GMAs



West-North-Central SAMI GMAs



South Atlantic SAMI GMAs