TRENDS IN DIVERSIFICATION, INTEGRATION, CONGLOMERATION

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Supports his belief that the food industry is entering a phase of market structure stability.

Probably the most interesting thing today in the areas of diversification, integration and conglomeration is the observation that there is little change or interest here. After experiencing powerful tendencies for structural change throughout this century, it seems strange to observe a tendency toward structural stability. When structural change is rapid, it is most difficult to appraise that change with objectivity. The main reason for this is because you cannot be quite sure where it is going. The emergence of a general structural stability may afford a unique opportunity to better understand the trends of change we have seen as well as their causes. This experience may enable the development of a conceptual model useful in anticipating future change. These are the objectives I have chosen for this paper.

The Meaning of Structural Change

To start with, we need to have a more developed notion of what changes in industry structure mean. For the past couple of decades, most changes in industry structure were in the direction of bigger and fewer firms. Many people have worked very hard at interpreting such observations as a process of monopolization. They would argue that bigness gave undue market power which gave the larger firms both higher profits and the opportunity for fast growth. It becomes clear that the motivation for structural change is more complex than that when we observe the largest food distribution firm stabilized at less than 10 percent of national sales and having trouble staying in the black.

We have done little to understand the "more complex" set of incentives which cause industry structure to change--or not to change. For a long time, some people have felt that technology and other factors external to the firm have mandated structural change -- the emergence and growth of some kinds of firms and the decline of others. While such a notion seems intuitively plausable, we have never been able to hang much on it. It would be helpful if we could identify both the "external stimuli" and the "structural response".

An account of the introduction of machinery to salmon processing gives an example.

> "Development in processing machinery came rapidly in the 1890s and early 1900s. Probably the most remarkable machine of this early stage was the 'Iron Chink', invented in 1903 by A. K. Smith. Salmon canning had become a major industry in the northwest, but the cleaning and preparation of the fish was a tedious job. Chinese labor had been brought to the area to perform this disagreeable task in the salmon canneries. The amazing 'Iron Chink' mechanized the preparation of salmon. It cut off the head and tail, split

> the fish open, cleaned it, and put it into hot water in one continuous operation, automatically adjusting itself to the variation in size of fish." (2 p.17).

The "Iron Chink" was a stimulus for structural change. It made start up costs high and required high volume to be economical. The structure of salmon canning moved to fewer and larger plants -- the structural response.

While processing machinery mandated a larger optimum size of firms, it did not start a never ending tendency for larger and larger firms. It also had little or no influence on conglomerate growth. Therefore, we might expect the industry to achieve a new structural equilibrium which would remain stable given enough time to make the adjustment. The adjustment period might be long -- a decade or two. In this situation, it may be difficult to identify stimuli and response over a very short period. Industry experience over several decades may, however, display an orderly pattern of stimulus and response.

It might just be possible to classify stimuli historically into useful groupings.

> "From 1900 to 1930, canners continued to make rapid progress in speeding up processing..." (2 p.118).

This three decades took the processing industry from hand operations to perhaps a third or fourth generation level of machine operations. Although the time between 1930 and 1970 may have seen 10 more generations of machine sophistication, the increments of change may be much smaller than the difference between hand and 3-4. The mechanization stimulus may dominate the tendencies for structural change in the first few decades but become secondary to other stimuli in the latter period. In this paper, such an historical grouping of stimuli and responses will be called a stage of development.

Since the food manufacturing industry is inextricably linked with the food distribution industry, they must be viewed together when one is studying structural development. We will look at a dozen decades of development. The process of defining stages is arbitrary and inexact. Yet, I think it may be very useful in understanding structural change. An improved understanding would be useful to business in their planning for the future. It would also be most useful to the public sector -- particularly those who have responsibility for anti-trust policy.

Structural Evolution in Food Manufacturing

Food handling and manufacturing have been transformed by many influences over the past century and sorting out the steps is difficult. In addition, it is difficult to find a starting place because the functions performed within the household a century ago were vastly different. Since market needs of households change through time it is very difficult to compare one period with another. For example, the early miller ground wheat from nearby farms and sold flour and other products to nearby households often including those from whom the wheat came originally. The early butcher was both a manufacturer and a distributor.

Perhaps the most useful way to begin the classification system of food manufacturers is to separate the traditional small business food handler or processor from the much larger firm which resulted as an accommodation to the opportunities of trade. While there are many steps or thresholds in the ability to trade in food commodities, the advent of rail transportation was probably the most dramatic threshold in the U.S. food industry experience. For this reason, Stage 1 is identified as the traditional small business food packer or processor prior to

1870. These small businesses often did the entire marketing cycle: procurement, processing and sale to the final consumer. This simple structure served the urban population and competed with the rural households for business in primary food handling operations. The focus of competitive activity was very directly centered on cost and efficiency.

Stage 2 is identified as the period between 1870 and 1915. During this period rail transportation opened up great opportunities for inter-regional trade in food products. In addition, the growth of population centers and consumer income increased the demand for foreign produced products. The structure of food manufacturing during this period changed in those commodities that were affected most by trade. The networks of rail transportation made mid-Western cities like Chicago and St. Louis important centers of livestock slaughter. Milling industry became centralized with the emergence of large organizations taking advantage of trading opportunities. On the other hand, dairy products and produce items were retained by small businesses operating from local procurement areas.

While there was some influence upon market structure during this period coming from the application of mass handling methods, it was not the major influence. This may be illustrated in the case of the livestock slaughter industry. While mass handling methods were applied in this industry, the scale economies associated with these operations did not require the intensity of centralization which developed. As truck transportation began to enable the location of plants nearer the source of production, these new plants were much smaller than the previous centralized ones.

In addition to slaughter operation and millers, importers of coffee and tea as well as tropical fruit became important institutions in the food handling and manufacturing business. These organizations formed the first big business structure in the food industry and played a role in future events both in manufacturing and distribution. Some of these firms were among the first industries in the U.S. economy affected by anti-trust legislation put into affect around the turn of the century. The challenge of devising public policy which enables the power vested in a big business structure to be used constructively but yet avoid the detrimental societal implication of this structure has continued to this day.

Stage 3 in this sequence has been chosen to include a period in which machine methods and factory type operations replace hand operations (8 ch.4). This is identified as the stage of mass handling methods and includes the time period between 1915 and 1945. During this period the share of U.S. labor force employed in agriculture dropped from 36 to less than 8 percent (9). The general focus of competitive activity was on efficiency and cost reduction. The commercial food system was winning its competitive struggle with the household. At the beginning of this period many households performed an extensive array of food processing functions. Canning and preserving activities were commonplace even in urban households. By the end of this period, the commercial system processed and preserved the great bulk of the food supply of the nation.

The development of a factory type processing system involved the application of a great array of machinery (2 ch.4-8). Machines for shelling peas and peeling apples and performing many other food processing operations commercially came into application. The influence of two world wars in addition to the demands of household stimulated this automation activity. The type of structure which emerged from this operation was regional food processing plants. Scale economies associated with the mechanical apparatus required these plants to be of a size very

large compared to any antecedents. The scarce labor of world war two accompanied by the strong demand for volume production tended to complete this transition away from small local food handling operations to large plants of substantial technical sophistication.

Marketing activities tended to be cost and efficiency in orientation with the exception of a national brand system in special areas. National brands were the important method of marketing for speciality crops such as dried fruit or other products which could not be supplied regionally. In addition, the meat industry which had become very concentrated in the railroad era continued to develop and use national brands on its products. Liquid dairy products continued to be a very regional matter although cheese and other manufactured products tended to be unavailable locally or regionally. National brands developed for these products distributed from the dairy surplus production area.

The 20 years following world war two has been identified as the "Stage of the Marketing Revolution". Several influences combine to make marketing activities move to quite a different direction and tone (1 p. 24-25). The widespread availability of refrigerator and frozen food storage capacity in the household enabled new dimensions of food processing. The rapid rise in consumer income created a demand for the food processing system to take over much of the food preparation activities previously done in the household. The emergence of T.V. advertising both vastly increased the opportunity to explain new products to consumers and vastly raised the cost of developing and introducing new products. These influences did not affect all of the network of regional processors. Some continued to process food products on a cost and efficiency basis and move them into outlets which competed and functioned on that basis. On the other hand many of the regional processors found the marketing revolution an important influence which affected them very directly.

This period saw a great consolidation among regional processors in many lines. The essence of this movement was a consolidation which enabled the national or near-national firm to emerge. These firms developed marketing programs which included nationally advertised products, innovations (in terms of convenience foods) and a national sales force. The merger movement in the dairy industry is probably one of the more documented examples of this transition because it was the subject of anti-trust litigation.

Often public policy oriented people were concerned at the tendency of consolidation with food processing -- the loss of regional firms and their replacement by large and powerful national organizations. The general nature of the concern was associated with the observation that all of these marketing activities cost money. The products of these national firms cost more than the economy oriented products of the regional processors. As it turned out, however, these premium products only succeeded in competition with the economy oriented products when they offered advantages in terms of convenience or some other quality which the consumer wanted. The competitive reaction against these premiums was the increased emphasis on private label food products developed and distributed by the large powerful food chain mass distributors. The presence of a purported "premium" product tended to develop a much stronger focus on the private label economy alternative (1;3).

The influence of the marketing revolution on the size structure of firms is probably more dramatic than any of the other influences save perhaps the railroad era in the late 1800's. The high cost of product development and introduction made national level competition almost a necessity. At the same time the large

marketing overheads were much more spreadable than any fixed cost of food processors in earlier times. These spreadable overheads tended to create an incentive for conglomerate growth. That is to say, once the national distribution system and brand images were developed a food manufacturer could take on an additional line or type of food product and benefit from better utilization of his marketing and distribution overheads. For these reasons we have seen not only a horizontal consolidation of regional activities but the affiliation of national structures in one commodity or product type with additional and increasing numbers of other related product groups.

The implication of these rather large food industry firms for public policy and consumer welfare have not been completely sorted out. Anti-trust enforcement agencies have been rather universally dubious about their value. On the other hand examples of anit-trust policy and litigation have more taken the nature of slowing down or constraining the consolidation process rather than reversing it. Other examples have featured corrective advertising or other efforts to set rules of behavior rather than reversing the structural trends.

The period following 1965 has been identified as a period of balanced growth (3). The basis of this classification is the expectation that some firms will become part of a conglomerate and compete in a national market for product innovation while other firms will continue to operate regionally. The regional firms will supply a stream of products which will be marketed to the consumer under a distribution firm label and will emphasize cost and efficiency. While some influence may emerge in the future to disrupt this balance, it seems to be stable and functional at the present time. This sequence of food manufacturing stages is illustrated along with a similar sequence for food distribution in Figure 1.

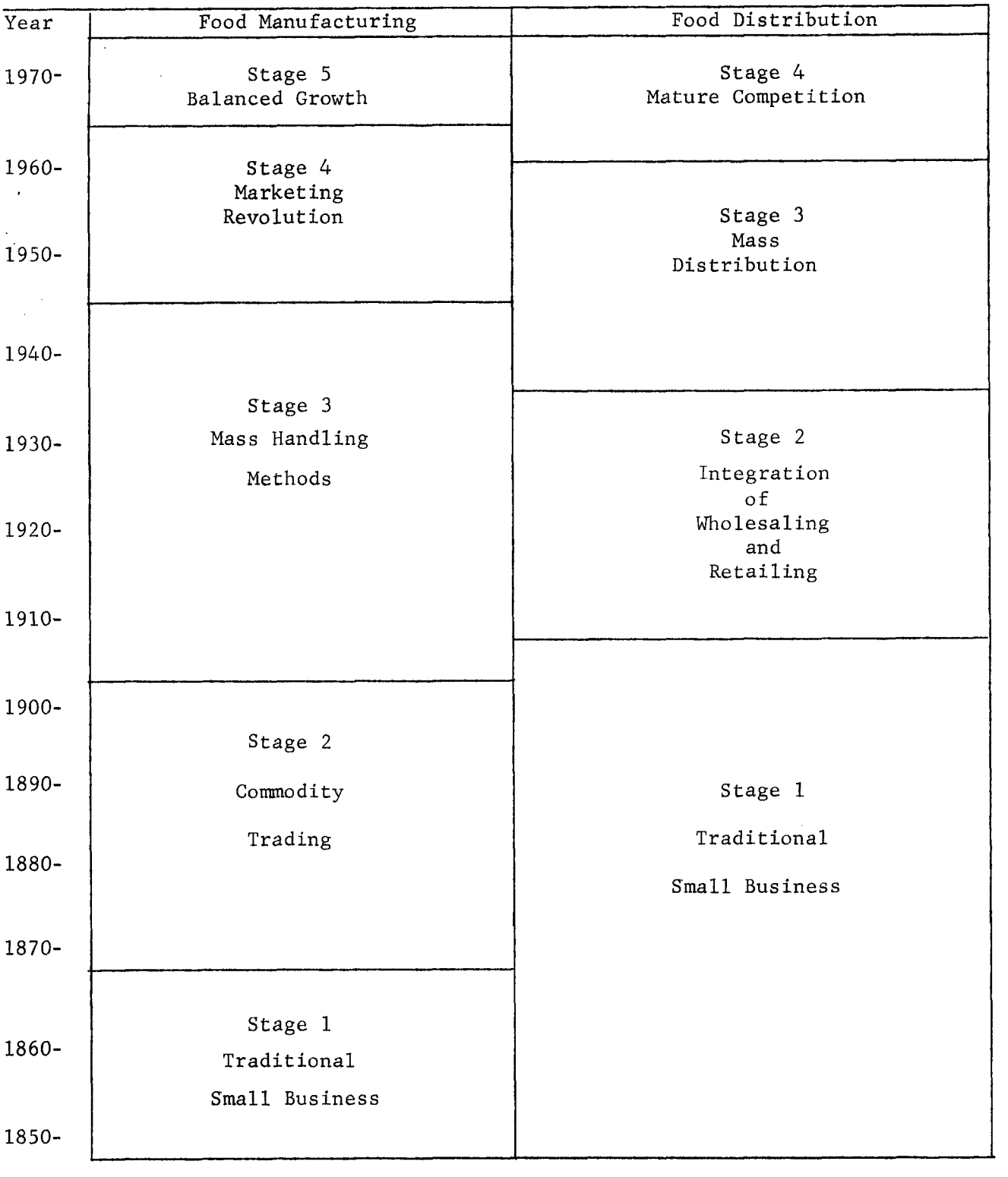
Stages in the Distributive Structure

The changing distribution structure in food industries is one of the more curious and interesting developments in market structure generally. Although the transition process began later and seems to have reached maturity earlier, this structural evolution merits particular attention. The most important reason for this is that bigness in the distribution sector has vastly different implications in terms of the type of competitive activity one might expect to result and also in the implication for society as compared with bigness in manufacturing. Of course, most of what economic theory leads one to suspect as results flowing from bigness pertain to the manufacturer. This is quite logical and not surprising because bigness tended to emerge in manufacturing levels of economic systems. In fact bigness in distribution levels is only of fairly recent origin and generally unclassified in terms of economic theory.

If one looks at the wholesale and retail firms and arrangements between 1900 and 1910 in the U.S., the observed pattern would be only slightly different from what might have been observed a century earlier. On the other hand, however, great transformation occurred in the distribution system in the four or five decades following 1910. In view of this situation, we have defined Stage 1 as continuing until 1910 and identified it as the period of the traditional small business wholesaler and retailer.

Both of these businesses tended to be family owned and operated. The retail establishment was specialized by type of product handled such as the butcher, bakery or dry groceries. They served the immediate locality around them and location was extremely important in their success. They were a very simple organization in terms of real estate. One's dwelling could be converted into a shop in a couple of days or vice versa. The spectrum of services extended to consumers

Figure 1. Stages of Food Industry Development, U.S. 1850-1970.



was broad and rather flexible. Credit and delivery was not at all uncommon. Quantity purchased would be small and repeated frequently -- almost daily. Price competition was not as important as the location and spectrum of services. In addition, the very small quantities in the transaction tended to de-emphasize price as the focus of competition.

The wholesaler was quite organized in the supply system of dry groceries. The butcher and greengrocer in many cases had a less organized supply system. The greengrocer often obtained his supplies at a wholesale auction market. A great many different types of arrangements were developed to supply the butcher in different areas.

In the grocery business the wholesaler was a very significant and important institution. In addition to supplying food products to the retailer, he dispensed advice and technical know-how along with equipment and credit in many cases. The wholesalers gross margin might have run in the neighborhood of 8 to 10 percent of product value. The delivery and service arrangements between wholesaler and retailer were most inefficient and retail volumes were tiny and scattered through a great deal of space. Retail margins might have been in the region of 25 percent which makes a combined wholesale/retail gross margin in the region of 33 percent of the consumers dollar.

This traditional system was interrupted by a new influence centered around the integration of wholesaling and retailing operations. Although experimentation with this phenomenon began way back in the 1800's, its development occurred primarily in the space of time between 1910 and 1935. The imputus of this transformation came not from the retail or wholesale sector of the industry but rather from the manufacturer and importer level. As Stage 2 of the manufacturing sector developed large and powerful firms, they began to put some order and logic into the physical functions which they performed. It was a great frustration that these more orderly firms felt when they tried to move their products into public consumption through the chaoticly disorganized and inefficient distribution system. The great Atlantic and Pacific Tea Company and the Kroger Baking and Grocery Company, today two of the largest food distributors, suggests the nature of origin of this transforming influence (1;6).

Stage 2 has essentially two distinct phases in which this integrative operation was carried out by different types of organizations. We may use Phase 2A to identify the emergence of food chains and 2B to identify similar integrative arrangements which took place among independent affiliated groups. The food chains were the initiators. The early food chain involved the operation of a central wholesaling arrangement and many retail outlets which were physically indistinquishable from the independent outlets with which they competed. The spectrum of services offered however were quite different. Credit and delivery were dispensed with in the chain store operation and the focus of competitive activity was centered directly on price. The activities of the wholesale and the retail operation were made compatible. The logistics were rationalized in an effort to reduce cost. The essence of this rationalization process was the elimination of salesmans calls and the combination of wholesale delivery routes. In addition, the wholesale unit itself was dramatically streamlined and made more efficient.

The nature and variety of products handled was also streamlined. Instead of receiving shipments from many suppliers the new chain store wholesale supply system provided virtually all the products sold in the chain retail outlets. Gross margin in the streamlined chain store operation tended to be about 20 percent including the cost of wholesale services (5.p.539). This institutional transformation

therefore had reduced the distribution margin by more than a third. These figures may somewhat understate the difference in price between chain stores and non-chain stores because the stream of products coming to the chain stores were lower in costs at the wholesale and manufacturer level. A and P operated 8 manufacturing plants in 1920 but increased this to 70 by 1930 (1.p,11). Costs were reduced as manufacturing, wholesaling and retailing operations were integrated. In view of these cost advantages it is not surprising that the competitive interaction between a chain store, its competitors and the consumer centered on price.

It was on the basis of this advantage that chain stores in the relatively short period between 1910 and 1930 managed to acquire one third of the national grocery market. While this proportion does not seem particularly large or frightening, it made a great impact on the food distribution system. The rural areas were less accesible to the chain operations partly because of their distance and partly because food was distributed in the general store -- an area in which the chain store had no relative advantage. The result of this uneven concentration of chain store activities meant that in some urban areas, where chain stores were particularly adaptable, their market share rose above 50 percent. This rapid transition in institutional arrangements had widespread effects. The clamour of small business men who were displaced by this process was translated into laws discriminating against chain stores in approximately 35 states. All of these laws have since been repealed.

Another consequence of this influence was Phase 2B. In response to the obvious advantages possessed by chains, independent operations began to take steps to copy the chain organizational arrangement. This was done by forming groups of independent actors which operated in much the same way as the chains. Some groups were formed at the intitiative of the retail merchants themselves. These were called cooperatives. A cooperative group of progressive retailers would set up their wholesaling supply services on the pattern developed in chain stores. The style of service used successfully by chains were copied by these cooperatively ran integrated wholesale -- retail groups.

On the other hand progressive wholesalers from time to time saw their market slipping away to either chain stores or cooperative groups and responded by establishing what was called a voluntary chain. In this arrangement the wholesaler affiliated himself with the larger and stronger retail customers and set up terms of trade and procedures matching or following those identified as successful in chains and cooperative groups. Although these groups (cooperatives and voluntaries) were later getting started their success was substantial. By 1960 the national sales share of the groups approximately matched that of the food chains.

Stage 3 involves the transformation of the retail unit itself and was applied in the U.S. food distribution system between the years of 1935 and 1960. While the imputus for Stage 2 came from outside food distribution and focused on the supply system behind the store, the imputus for Stage 3 came from within the food distribution system and its focus was the retail store itself. The supermarket was born out of the frustration of the depression of the 1930's as well as the pressure of the price competition coming from the new food chains. The imputus for this innovation came from the independent retail merchant. This independent merchant saw the heavy emphasis going to price competition and did what he could do to his function to respond. He applied the principle of reducing costs through volume of sales. He found that by massing large amounts of goods and automating the sales transaction with the adoption of self service, the cost could be substantially reduced.

This arrangement was made possible by the increasing prevailance of automobiles. The early supermarkets were set up in areas outside of town where the space was less expensive and involved the notion of "one stop shopping". This meant that the greengrocer and the baker and the butcher and the dairy store were all integrated into one shopping situation. Since the nature of services performed (the incorporation of perishables into the grocery store) changed substantially, it is difficult to compare the gross margins with the margins obtained in the earlier chain store grocery outlet. Data suggests that the gross margin dropped from approximately 20 percent in the early 30's to something in the neighborhood of 15 percent by the early 50's (5.p.539). This 25 percent reduction in the cost of food distribution probably understates the influence of the supermarket because at the same time margins were reduced on the retailing unit it extended its services to include traditionally high margin perishable items particularly meat and produce.

The supermarket was a great success with the consumer. It happened to fit the demographic development of the post war period namely the expansion of suburbs as well as the increased number of automobiles available to households. It also suited the food processing sector's increasing emphasis on offering a variety of new and different products. For these reasons the chain stores, which were traditionally less interested in the retail level than in the pre-retailing logistics operations, were forced to adopt supermarkets to remain competitive. The adoption process lasted for many years. Even though the industry was moving with substantial haste in responding to the acceptance of supermarkets, there were many years in which more supermarkets were desired than were available. This created a sellers market and rather soft competition during the late 40's and early 50's. Every store opening was a big success and supermarkets tended to be profitable whether they were well managed or not. They could compete successfully against their weaker and inferior competitors without being particularly well tuned or aggressively operated.

By 1960 the vastly increased number of supermarkets available begin to compete with each other. Only about 10 percent of the market was served by the traditional unaffiliated independents. Sales per square foot in supermarkets began to decline and supermarkets which were not located advantageously, designed properly and managed with some intelligence begin to fair rather poorly (6.p. 224). These conditions ushered in Stage 4 which we call mature competition.

In Stage 4 it is rather more important that food distribution firms understand their competitive advantages and make use of them because competition is much more intense than during the supermarket adoption period. This intensity of competition has prompted an alignment of institutions in the food manufacturing-distribution complex which is somewhat intriguing (3). The competitive strategy most appropriate to the skills and structural capabilities of the largest food chains involves the price competition which can be supported by their superior pre-retailing organizations and activities. This is a tightly organized and disciplined operation which has a heavy emphasis on private label products. As from the very outset, the modern food chain integrates the logistics and the physical operations back even to the manufacturer. This may be in retailer owned manufacturing facilities, very typical in bread and milk, or it may be through contractural arrangements with the regional food processor who did not merge during the marketing revolution and preferred to continue producing goods on a cost and efficiency basis.

The small independent retailer cannot match the food chains organization and discipline. It has a structural disadvantage in terms of costs and price for this reason. On the other hand, it is very flexible and able to change products and promotion arrangements with much greater facility than the large disciplined chain organization. This feature makes it a particularly attractive outlet for the experimental products and marketing razzmatazz of the large national brand food manufacturer.

While there are obviously numerous cross currents and exceptions to this process of specialization, this emerging pattern seems to be the most useful characterization of mature competition in the food industry. It is not appropriate to say that one part of the food distribution system is more innovative than another, it is more appropriate to observe that the large organization tends to have advantages in innovation affecting the cost, whereas the smaller organization tend to be a natural environment for offering the great variety of new and experimental products flowing from the laboratory and research capability of the large food manufacturers.

We might note that the price competitive private label channel involving the large food distributor tends to be the minority channel. Smaller retail organizations which do not have the size to efficiently operate a private label program of any substance or cost advantage are very numerous and certainly represent the majority of food sales. Many small and medium sized chains fall into this group. With income rising and the consumer desiring to spend less time on the household activities there is certainly a demand for new products. This demand seems to be the primary reason that the large organizations with the cost advantage have not run the small distributors off the street.

A Look at Some Data

Several studies have recognized the tendency toward conglomerate growth in food processing (4;10). These were mostly done during the very active merger period of the late 1960s. Table 1 suggests that the level of merger activity in the manufacturing sector has slowed considerably since that time. Food manufacturing is no exception. The widespread pressure of merger activity suggests causes much more general than those discussed for the food industry. It is possible that the marketing revolution was a widespread phenomenon. It is also possible that merger activity was accentuated by a fad for conglomerates. My general conclusion is that due to fads and more basic reasons, we have moved to a basically conglomerate structure in food manufacturing. It is also my conclusion that this structure will remain stable for awhile.

Looking to the distribution sector, data are even less available and up to date. The Food Commission data are the most recent that I can find. Table 2 shows diversification or conglomeration tendencies in food distribution. Although the food distributor is highly specialized to food, there is somewhat of a trend away from the usual supermarket business -- into drug stores and general merchandise discounting. I would not be surprised to see more up to date figures indicate a continuation of this trend.

Vertical integration was about stabilized in the 1960's (Table 3). I understand a forthcoming study by the Federal Trade Commission will bring these figures up to date. The best information I have would lead me to expect retailer owned manufacturing to become a slightly smaller part of total volume.

Table 1. Acquisitions in Manufacturing and Mining, U.S., 1963 to 1971.

Year	Acquisition of Large Concerns[a/]			Food and Kindred Products
	Horizontal	Conglomerate	Total	
	-------Assets in Dollars-----			-----# of Concerns-------
63	1,242	1,906	3,149	b/
64	994	1,733	2,728	b/
65	769	3,076	3,845	86
66	612	3,559	4,171	69
67	1,588	7,503	9,091	95
68	1,416	11,882	13,297	133
69	2,989	8,364	11,353	155
70	1,162	5,184	6,346	109
71	530	2,015	2,544	85

a/ Assets of 10 million dollars or more.

b/ Not available.

(U.S. Bureau of the Census, Statistical Abstract of the U.S., 1972. Washington, D.C. 1972., p. 484).

Conclusions

After decades of structural change, we are coming into a most uncomfortable era -- stability. It seems likely that the basic shape of industry which we will live with for a while is before us. Of course, there will be new stimuli. Many hypothesized future structures have been elaborated (7). On the other hand, I expect the present "balanced growth and mature competition" stage of development has accommodated the major forces of change of this century. The rate of future change is likely to be slow and undramatic. It may be very difficult to live with stability. We may look back at the turbulent times of change and unstability as the "good old days".

Table 2. Total Sales of 20 Leading Grocery Retailers.[1/]

	1958		1963		1964	
	Companies	Sales	Companies	Sales	Companies	Sales
	Number	Millions of Dollars	Number	Millions of Dollars	Number	Millions of Dollars
Total sales	20	15,842	20	19,821	20	20,791
Food store sales	20	14,910	20	17,883	20	18,556
Sales outside food stores as percent of total		5.9		9.8		10.7
Food departmental sales in nonfood stores	1	1	10	133	10	202
Retail sales of non-store food outlets	4	104	3	94	3	95
Sales to affiliated food retailers sponsored by company	1	34	6	141	6	156
Sales to other food retailers and food wholesalers	8	265	12	618	12	652
Other retail establishments sales	2	4	12	299	12	413
Other domestic sales	11	64	11	78	10	88
Total foreign sales	3	460	3	575	3	628
Estimated sales of affiliated food retailers	1	56	6	256	6	283

1/ Rank based on food store sales of each year.

Note -- Figures may not add due to rounding.

Source: (6.p.30)

Table 3. Food Manufactured as a Percent of Food Store Sales of 40 Largest Chains, 1954 - 63.

	Value of Food Manufactured as a Percent of -		
	Food Store Sales (retail value)	Wholesale Value of Food Store Sales	Wholesale Value of Food Store Sales of Manufactured Food Products
1954	9.8	11.5	18.0
1958	8.4	10.1	16.4
1963	8.2	10.1	17.8

Source: (5.p.78)

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