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Integration in Food and Agricultural Industries— A Perspective

By Allen B. Paul

Though integration has been well worked over by agricultural economists, it still deserves further thought, because of differences in the insight and outlook of people, and partly because integration deals with topics of enduring interest—shifting enterprise combinations. In this paper, the author discusses a few significant facts and ideas about integration that are not widely appreciated and, anyway, do merit restatement since they will help economists to focus on emerging problems. Some of the ideas in the paper were presented at the Western Regional Marketing Workshop for extension workers in agricultural marketing at Salt Lake City in 1961. The comments of Stephen Hiemstra, Martin Kriesberg, Ronald Mighell, William Waldorf, and William Wesson of ERS are gratefully acknowledged.

THE TENOR of much discussion about vertical integration in the food business is that it has been increasing relative to nonintegrated business. For important segments of the food business there is much substance to this view, but for the system as a whole there is considerable doubt.

First consider what census data show about the overlapping activities of food processors, wholesalers, retailers, and assemblers (table 1). Only in the case of wholesaling is there a strong overlap. Together, retailer warehouses and manufacturers sales branches did more than 40 percent of the wholesaling. But firms primarily in assembling, processing, or retailing did 96 percent or more of the assembling, processing, or retailing, respectively.

It may seem surprising that food chains are relatively unimportant processors. While they shipped \$1.1 billion of food from their own plants to their stores in 1958, this amount was only 8.5 percent of their purchases, and only 3 percent of total purchases by all food retailers (12, Ch. 9).¹ Fully half of the dollar volume of these shipments consisted of coffee and bakery goods; the rest was thinly spread over many products (12, Ch.

¹ Italic numbers in parentheses refer to Literature Cited, p. 87.

10). Moreover, a point often missed, the relative importance of shipments from retailer processing plants to their own stores has not risen since 1930 (6, p. 77).

TABLE 1.—*Overlapping activity of food marketing firms, 1954*

Classified by primary activity	Employment in establishments of companies classified in		Total
	The primary activity	Other activities ⁴	
	Percent	Percent	Percent
Assembling of farm products ¹ —	95.9	4.1	100
Food manufacturing ² -----	97.5	2.5	100
Food wholesaling ³ -----	57.7	42.3	100
Food retailing-----	98.1	1.9	100

¹ Includes both food and nonfoods.

² Includes "vegetable and animal oils"; excludes beverages.

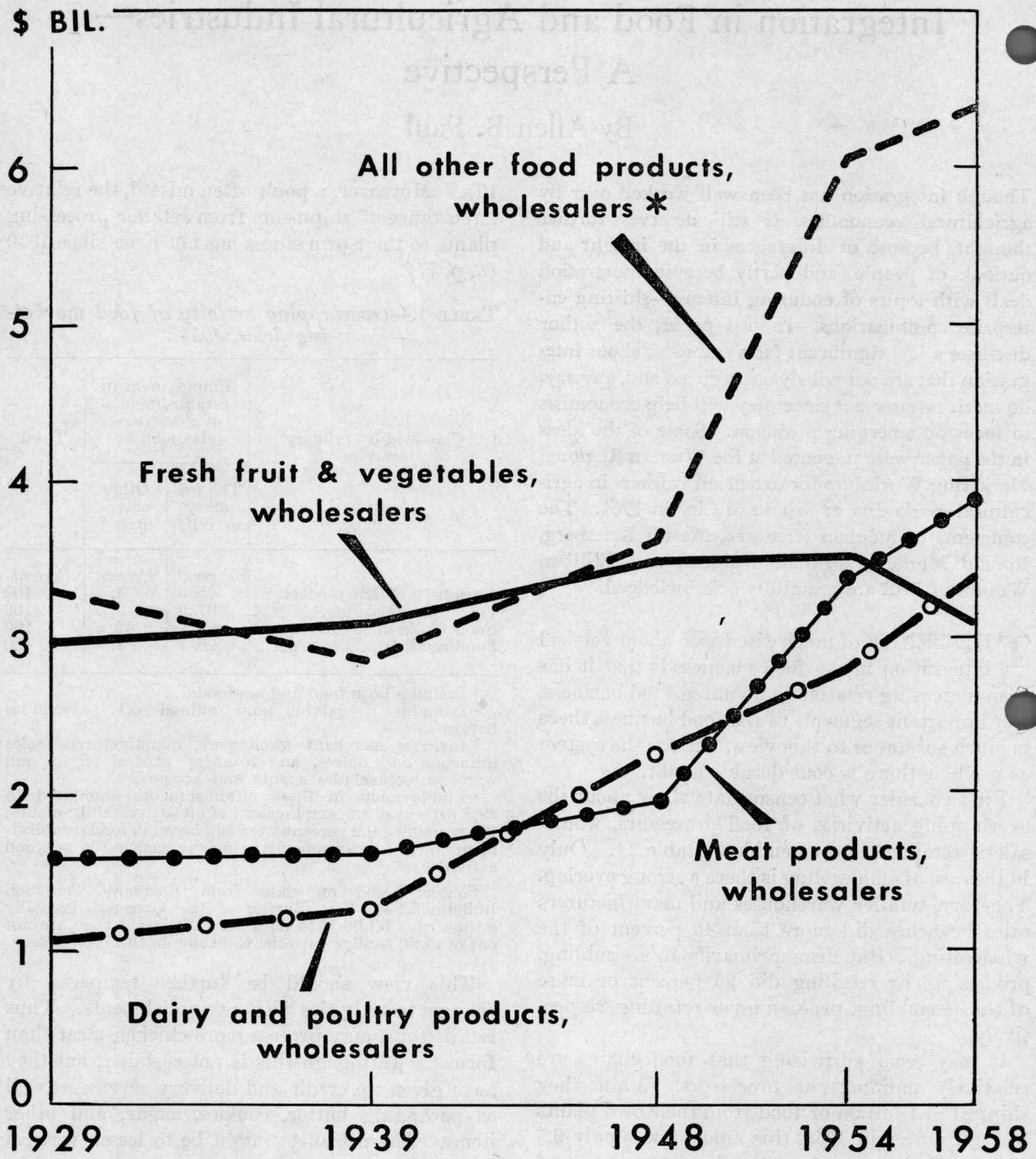
³ Includes merchant wholesalers, manufacturers' sales branches and offices, and retailers' central offices and warehouses; excludes agents and brokers.

⁴ Employment in these establishments amounted to 99.8 percent of the employment of all such establishments; the remaining 0.2 percent were employed in food establishments owned by companies primarily engaged in nonfood activities.

Source: Based on data from *Company Statistics*, Bulletin CS-1, U.S. Bureau of the Census. Partially estimated. While 1954 data are a little old they are not out of date; similar patterns will show in the 1958 data.

This view should be further tempered by changes in activities within establishments. Thus retail stores may process more chicken meat than formerly (although this is not certain), but they have given up credit and delivery service as well as packaging butter, cookies, sugar, and other items. The net effect might be to lessen vertical integration.

Sometimes the increase in retailers' private labels and their buying on specification are regarded as an increase in vertical integration in marketing. One must beware of drawing unwarranted implications. An essential feature of vertical integration is the fact that it broadens the area in which



* INCLUDES CANNED FOODS, FROZEN FOODS, CONFECTIONERY, FISH AND SEAFOOD, BAKERY PRODUCTS, FLOUR, RESTAURANT SUPPLY, SUGAR, AND OTHER SPECIALTY PRODUCT WHOLESALERS.

FIGURE 1.—Sales volume of U.S. specialty food wholesalers, 1929–58, expressed in 1958 prices.

a central administrative decision can determine resources will be used. When a processor agrees to fabricate to a retailer's specifications, this fact itself is not evidence that the processor's decision on how to commit his resources is dictated by the retailer. Many suppliers who have a range of acceptable alternatives would be very much surprised to be told that they have lost jurisdiction over their affairs. Some of them partially finance the retailer. The greater truth is that, in the aggregate, the valuations of a larger number of market interests determine how the resources are used. It is only when the value of a supplier's assets is inimitably bound up with a specific buyer's operations, i.e., where there is a gap in the market valuation process, that the implication is warranted. Such cases are not obvious.

Most of the vertical integration in food marketing firms occurs in wholesaling. During 1958, chains bought \$13 billion and affiliated wholesalers \$5 billion of goods from manufacturers and assemblers (12). These were almost half the wholesale value of goods sold through all food stores. It is an impressive figure and warrants attention to buying practices of these organizations.

Yet such figures by themselves may obscure our perspective. About a quarter of the food purchased by consumers is provided by restaurants, schools, boardinghouses, hospitals, commissaries, or directly by growers or processors (11, p. 72). Thus, the volume moved by integrated wholesale-retail organizations may be more nearly a third than a half of the total civilian commercial food supply.

Then, too, the many independent, specialized food wholesalers still form the largest single factor in food wholesaling. This is not widely appreciated. Table 2 shows the relative volume of these wholesalers in 1939 and 1958 alongside the relative volume of general-line wholesalers, agents and brokers, manufacturers branches, and chain-store warehouses.

It is often overlooked that while transactions of mass buying organizations have grown greatly, so has the entire food market. Not only is there room for specialized wholesaling businesses; an expanding food market seems to depend on them. This may seem strange to those who have witnessed the decline of city terminal markets and merchant receivers and distributors.

TABLE 2.—Percentage distribution of food sales through different wholesale outlets, United States, 1939 and 1958

Outlet	1939	1958	Difference
	<i>Percent</i>	<i>Percent</i>	
Retail chain warehouses.....	15.1	¹ 19.4	+4.3
Manufacturers sales branches and offices.....	21.0	18.2	-2.8
Agents and brokers.....	22.4	18.8	-3.6
General-line wholesalers.....	16.2	14.6	-1.6
Cooperative and voluntary.....	6.0	9.1	+3.1
Other.....	10.2	5.5	-4.7
Specialty-line wholesalers.....	25.2	29.1	+3.9
Total.....	100.0	100.0	-----

¹ Preliminary. Beyond this amount, chain organizations buy products from local suppliers that are not billed through their warehouses.

Source: Based on Bureau of Census data. Data adjusted to conform with reclassifications.

Who are the independent merchants? They handle almost every line of goods and they sell to almost everyone. Retailers, wholesalers, institutions, processors, and exporters depend on their services in varying degrees. They go about their work largely unrecognized and unsung.

The physical volume handled by such merchants by principal commodity lines from 1929 to 1958 is shown in figure 1.² With one noticeable exception, volume increased substantially in each major line. Willard Williams described the business of specialized wholesalers in the meat trade (15). Others handle frozen foods, eggs, canned goods, dairy products, confectionery, and a host of other lines.

The major exceptions noted are fresh fruit and vegetables. The volume moving through merchant specialists barely increased from 1929 to 1948, after which it leveled off and then declined. The 1958 volume was no higher than that of 1929.

This fits in with the procurement practices of large food retailing organizations described by William Folz (2). Evidently, the alternative marketing system for fresh produce may not have provided adequate methods of accomplishing the

² Census sales data (adjusted for changes in coverage between years) deflated by appropriate indexes of wholesale prices.

services expected by large retailers and they organized their enterprise on an integrated basis to provide them.

This raises some interesting questions about the future of these arrangements:

Under what conditions, if any, could independent enterprises arise to provide the services now provided by the chains for themselves?

Or will even closer ties between chains and growers occur?

Are the conditions of production and harvest unique?

Are there basic weakness in standards, grading, inspection, and informational services that might be remedied?

What influence might marketing order regulations exert on how marketing services are organized?

Questions like these merit attention as one tries to understand why existing arrangements have arisen and what one might expect of the future.

Something of the nature of the independent food merchant sector is shown in table 3. The 30,021 merchants in business in the United States during 1958 are classified by commodity line and employment size.

Horizontal integration in food marketing deserves some attention here. The term is used in different ways. Some limit its use to the acquisition of competitors. Others apply it to all means of horizontal expansion, including building on to an existing plant. In any case, the public questions about the subject are questions about efficiency and progress versus monopoly. I shall not deal with questions of operating efficiency except to note that the question of monopoly does not stand by itself. Would it be better, for example, to have one modern-type milk or bread plant serving an area, or several old-type plants?

The general question of whether monopoly in food industries has increased or decreased is unresolved. Our knowledge is not satisfactory. For example, two studies of food processing by well-known economists, presented in 1960, covered the same period. One concluded that characteristics of the food industry "have changed only slightly and certainly not in the direction of significantly increased concentration" (1). The other concluded that there is "fairly strong circumstantial evidence of high and growing market power in an economic sense" (4). Both cannot be right.

Part of the difficulty arises from differences in handling data. However, a fundamental d

TABLE 3.—Number of merchant food wholesalers in the United States, 1958*

Type of merchant	Number of establishments with paid employees numbering—					Total
	0 to 3	4 to 7	8 to 19	20 to 49	50 or more	
I. General-line:						
Voluntary and crop.....	39	50	144	230	210	673
Cash-carry.....	267	73	24	6	1	371
Other.....	52	121	538	364	134	1,209
II. Specialty-line:						
Dairy.....	1,662	646	513	198	48	3,067
Poultry.....	1,048	461	400	147	26	2,082
Confectionery.....	1,153	517	334	89	20	2,113
Fish and seafood.....	771	350	314	131	25	1,591
Meat.....	2,138	974	903	368	76	4,459
Fresh fruit, veg.....	3,211	1,300	1,183	475	122	6,291
Restaurant, hotel.....	380	232	221	89	26	948
Bakery products.....	512	182	119	47	8	868
Canned foods.....	392	255	252	92	14	1,005
Flour.....	82	48	52	11	1	194
Frozen foods.....	414	252	283	142	37	1,128
Soft drinks.....	815	188	131	38	7	1,179
Sugar.....	36	19	15	10	1	81
Other.....	1,539	590	434	166	33	2,762
Total.....	14,511	6,258	5,860	2,603	789	30,021

*U.S. Census of Business, *Wholesale Trade*, Vol. III.

culty arises because industries generally are not classified on the basis of a meaningful measure of output. The output of the firm consists of services; to measure the market jurisdiction of a firm it is necessary to determine its relative importance in markets for such services. For analytical purposes, an industry should be constituted in terms of some economically homogeneous set.

For example, if a firm is specialized in processing soybeans, its output of services is largely the milling plus ancillary services in milling beans into crude soybean oil and meal. The best available measure of this output is "value added," as defined by the Census (14). The firm's value added divided by the total value added by all oilseed processing services supplied *in the same market* would be its share of the total. Presumably the output contributed by most but not all soybean processing and some but not all cottonseed, linseed, and peanut crushing plants would be entered. The industry would be constituted on the basis of the elasticity of substitution of one processor's services for another's, as affected by difference in time and place as well as by the versatility of equipment. But if a firm processes soybeans, mixes feed, and refines oil, for example, its total value added must be apportioned among at least three different markets for its productive services, and its contribution to the total output in each must be reckoned separately. In case of feed-mixing services, many markets probably would be distinguished (because of the transport barrier) and the contribution of the firm to each should be determined separately (7).

Agriculture

To many people, integration means contract farming. Much of the excitement over such changes in agriculture is warranted. While the literature is already large, studies are currently underway to learn more about them (5). The following comments are confined to a few points that seem pertinent.

Contracts are means of dividing up enterprise and separately transferring the parts. Over the last four centuries, man has devised ingenious schemes for this. Agriculture, as we are now witnessing, is an active testing ground. Present arrangements to farm include leasing, partnership, and corporate organization, as well as special joint-account, forward-delivery, and service agree-

ments. The possible ways of distributing enterprise responsibility in such a setting have no apparent limit (9, p. 316).

The importance of such arrangements is that when resources are collected into a larger bundle, from different owners, greater productivity is possible: Specialization, economies of scale, and application of new technology all become heightened.

Particular arrangements arise from historical circumstance. Great new possibilities in production—like the opening of a new territory, the discovery of a new process, or an unprecedented demand for output—attract capital through existing institutions. But innovations occur if the institutions cannot serve the purpose. The less dramatic but widespread possibilities of reducing costs by increasing scale of existing operations also draw capital.

The reservoirs of venture capital are broad; agriculture traditionally has been its own principal source but it has also drawn much outside capital. Conversely, much agricultural capital has entered various farm supply and marketing services through cooperative pooling and other means. Construction and machinery interests promoted every other cannery in Wisconsin in the pre-World War I era, taking first liens on the vegetable packs. Vegetable growers usually had residual claims on the annual proceeds after all expenses and tolls were deducted. It was the only feasible way a plant could be built in some communities. If the venture did not work, the loss hurt but did not destroy. The growers usually did not give up much to grow vegetables.

Today fresh sources of venture capital have entered farming. Broilers are the prime case but others are in evidence. Nonfarm capital investment in farming is not new, although the present applications are. The vast expansion of grain and cotton production during the last half of the 19th century, and the vast expansion of soybean and irrigated cotton in this century were financed in part by the unseen speculator in commodity markets.³ Production of Maine potatoes and late onions for winter storage has been similarly financed for a number of years (8, 13). Eastern

³ For many years before development of full-fledged organized futures trading in soybeans, soybean oil, and soybean meal, a sizable "cash" forward market was the principal way that "outside" speculation occurred.

wholesale dealers financed, on a large scale, every truck crop region of importance which had to ship any considerable distance to market starting about the turn of the century (10, p. 60-74).

Excepting fresh milk and fresh fruit and vegetables for processing (wherein technical conditions warrant the assurance of market outlets through advance agreements), there are few permanent reasons for the present contractual arrangements. The production and financing advantages, however great they may be, can prove transitory. Technical knowledge is transferable; so are the alternative sources of capital. A particular organization for commodity production will survive as long as it satisfies the basic problems of production and investment as well or better than other arrangements.

For example, when the hazards of price change are large, individuals will seek some accommodation. William O. Jones, writing in 1951, showed that over the course of years California lettuce shipping gravitated to those dealers that put their venture on an actuarial basis; i.e., shipped lettuce 52 weeks of the year. They in turn contracted with growers to produce under large-scale, low-cost conditions at guaranteed minimums, plus a share of profits (3). Similar methods or organization in the cattle feeding industry and in other industries are evident. It enables low-cost methods of production to be followed. Profits are made on narrower "markups" but on larger volumes in each phase of the business—i.e., in having the commodity produced as opposed to producing the services entering into the commodity.

Finally, the business adaptations cited here occur in a market where there is a relatively free play of supply, demand, and price. Regulation of one or more of these would affect the economic bases for such business arrangements and perhaps other kinds would become more appropriate.

Some Implications

How does one identify a marketing problem? Among other things, one is influenced by an image of the marketing system and what the future holds for it. One cannot be sure his own image is correct and germane because agricultural production and marketing is one of the most complex schemes of man and our knowledge of it is incomplete. I have tried to convey, on the basis of available evidence, a reasonable image of the sys-

tem. Assuming it is reasonable, what would it mean to anyone who is concerned with the functioning of the system?

It would mean that most problems of marketing are not very different today from those of the past—they just appear in modern dress. The enduring features of the market include specialization of production, proliferation of small business alongside large business, and their interaction in the struggle for survival and growth. There invariably are market imperfections and monopoly elements, differential impacts from technological change and trade dislocations, and insistent pressures to reduce costs by enlarging scale. Remaining invariably is the central role of market valuations and prices in coordinating economic activity and man-made institutions in which such activity occurs.

The new dress in which the enduring features appear captures our imagination. New techniques and products and new kinds of specialization in production have appeared, and both old and new operations are conducted with novel kinds of enterprise arrangements. This is what many people mean when they speak of the growing trend toward vertical integration. People should be concerned with them. One might reasonably expect further growth of the market economy, together with new technology, to cause such changes in production and business organization to continue.

But others see this matter differently. They fix attention almost exclusively on the expansion of integrated businesses. Such pictures, though incomplete, may not be inconsistent with the one sketched here: A growing market permits considerable expansion of integrated businesses before they increase relatively. Also, important parts of the agricultural marketing system have had more integration, both absolutely and relatively.

A conflict in views would arise only if one holds that, on balance, resources are now being directed more largely by administrative decision than by market valuation. The most extreme image holds that the entire production process, from farmer to retailer, will become coordinated exclusively by business administrators. Such conceptual systems would not escape the problem of competitive valuation because a scheme for simulating market valuations would have to be installed

in place of the real thing. It is difficult to visualize the conditions in the food industry in which this scheme could become successful.

Under the present image, the problems that may be identified include (1) updating institutions for the conduct of modern business—i.e., the commodity grades, inspections, information, price reporting, contract security, rules, regulations, and public laws respecting the conduct of trade, use of patents, acquisition of competitors, and so forth; and (2) giving assistance to smaller firms who might make successful adaptations to changing conditions.

These are continuing problems of an expanding market economy but they are no less important on this count. Many people are aware of various needs in farming and marketing. For example, frequent reference is made in the literature to needed farm adjustments to buyer requirements, improved methods of paying for quality, better production planning, more efficient scheduling of deliveries, needed developments in financing, and so forth. Also much attention is given to minimizing unfair competition, to helping small business adjust and, to a lesser extent, to serviceable patent laws and regulations. The critical matter is to think these problems through in terms that will be relevant to future conditions.

A major problem in the food economy today is that market adjustments depend as much as ever on prices but prices do not have as clear a meaning as they might. Geoffrey Shepherd noted that the decentralization of marketing generally reduced marketing costs but that it created problems of pricing and he called for "steps to bring market grades to the highest possible level of detail and accuracy, and disseminate market news on a decentralized basis comparable with decentralization of the marketing of physical product" (11, p. 59).

The problem of pricing is complicated further by tendencies for exchange to involve economic quantities that do not correspond well with physical products. The meaning of price becomes blurred when considerations of finance or promotion are joined with physical commodities, when selected services built into products (rather than products) are bought and sold, and when joint accounts substitute for open market transactions between parties. The endless change in types of economic packages entering into transactions

makes it more difficult to establish a feasible reporting system.

These are recurring difficulties. Working closely with firms, sometimes one can recommend workable improvements. At other times one can only interpret the meaning of occurrences around him in terms of larger forces and thus raise the general level of understanding.

Finally, the importance of improved market arrangements can be restated in larger terms. National economic growth requires continued reduction in costs within the economic system. It is the only important means of growing available to us. The principal way costs can be reduced is by specialization, i.e., the further division of work-tasks, standardization of processes, and the further application of machine methods. The increase in specialization is governed by the extent of the market. There is no known limit to either.

An expanding market implies that it must have been tolerably well coordinated for growth to have occurred. Yet the process of growth is a source of shock that causes unusual gains and losses and creates waste which might be avoided. It puts pressure on people to reexamine the areas in which their comparative advantage would show, even though they already are committed to a definite course of action. It creates the need for each to become more aware of his latent capacities, developing opportunities, and the possible ways of filling them. One of the most useful services is to provide people with the information they need to make major decisions intelligently.

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