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EVOLUTION OF A CONCEPT OF AGRIBUSINESS AND ITS APPLICATION

D. K. Desai*

Introduction

In December 1952, the Harvard Business School launched a programme of studies in agriculture and business. The first study under the programme was undertaken by John H. Davis and Ray A. Goldberg to provide a description in quantitative terms of the character and extent of the existing inter-relationship between agriculture and the industries which supply agriculture and which process and distribute the products of agriculture. In 1957, Davis and Goldberg brought out a study under the title "A Concept of Agribusiness."¹

Agribusiness was defined by them as the sum total of all operations involved in the manufacture and distribution of farm supplies, production activities on the farm; and the storage, processing and distribution of farm commodities and items made from them.²

In the Philippines in early 1966, the University of the Philippines offered an agribusiness programme at the under-graduate level. In 1969 a seminar on Advanced Agribusiness Management was organized in Manila. As a result of this seminar, a course on agribusiness was introduced at the graduate schools of the four leading institutions in the Philippines.³

Drilon expanded the scope of agribusiness by including in co-ordinators of agribusiness structure, government agencies and directors of research and educational institutions.⁴ Goldberg had included in the co-ordinators of the system, managers, government officials, markets, futures trading, co-operatives, associations and educators.⁵

The emphasis in the concept of agribusiness was on the business aspects of the system. The non-business components of the system were mentioned as co-ordinators influencing the business system. Desai attempted to integrate the business and non-business components of the system so that the

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1. John H. Davis and Ray A. Goldberg: *A Concept of Agribusiness*, Harvard University, Boston, 1957.

2. *ibid.*

3. J. D. Drilon Jr.: *Agribusiness Management Resource Materials* (Vol. 1)—Introduction to Agribusiness Management, Asian Productivity Organization, Tokyo, 1971.

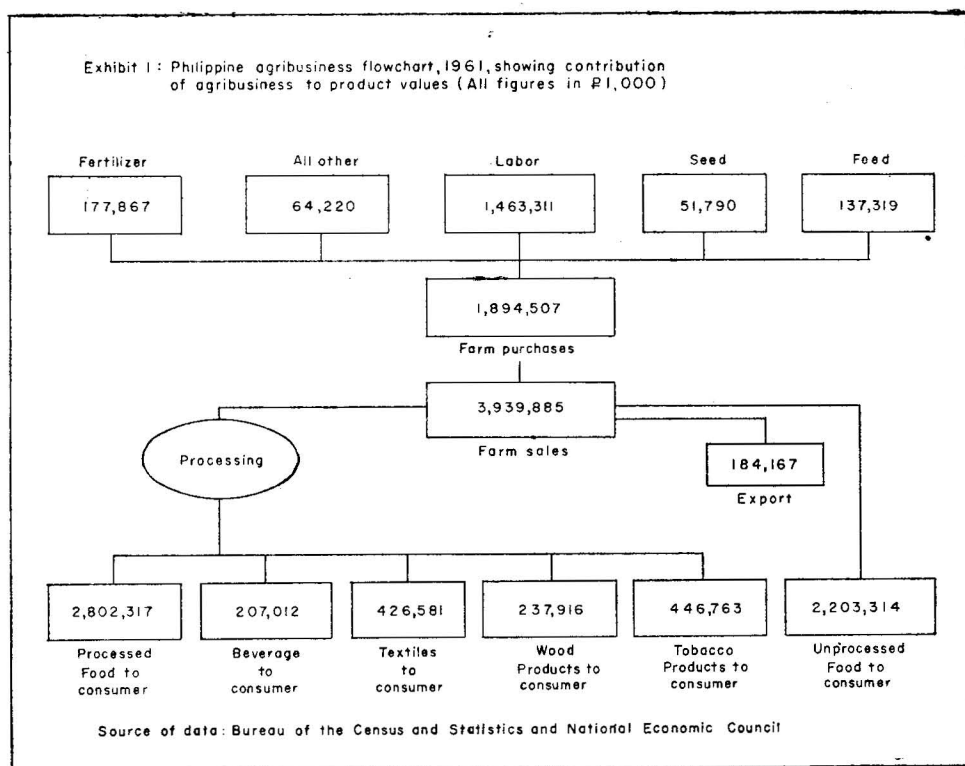
4. *ibid.*

5. Ray A. Goldberg: *Agribusiness Co-ordination : A Systems Approach to the Wheat, Soybean and Florida Orange Economics*, Harvard University, Boston, 1968.

managers in the agricultural sector can help in the development of the commercial and non-commercial activities and understand the linkages among these activities. He called this as the agricultural system.⁶

Agribusiness System

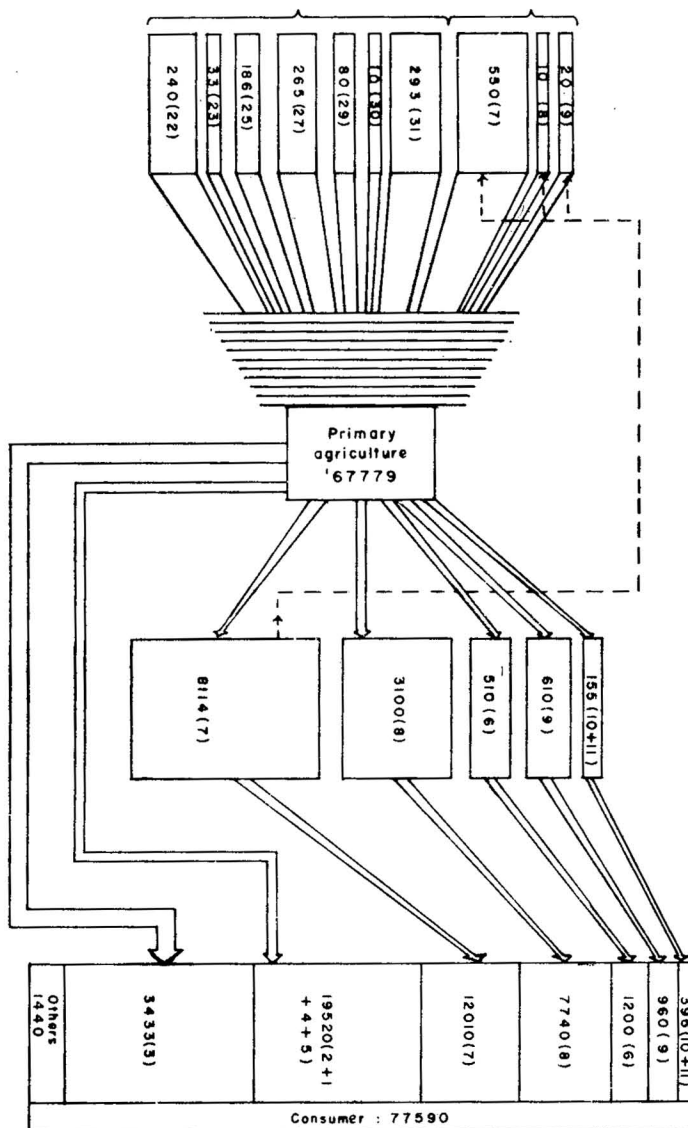
The importance of the concept of agribusiness lies in the fact that it views the whole agribusiness in a systems approach which links different parts in an organic manner. It also defines and differentiates different parts of the system which can be called sub-systems or sectors. For example, in the agribusiness flow chart developed by Davis and Goldberg and presented in a simplified form by Roy, the whole agribusiness system is divided into four sub-systems or sectors: (1) Farm supplies or agricultural supply sub-system; (2) Farming or agricultural production sub-system; (3) Processing or agricultural processing sub-system; and (4) Distribution or agricultural distribution sub-system. The composition and quantification of these sub-systems and the inter-relationship among them are an important contribution of the concept of agribusiness.



6. D. K. Desai, "Planning a Progressive Infrastructure," XVth International Conference of Agricultural Economists, Sao Paulo, Brazil, 1973 (unpublished).

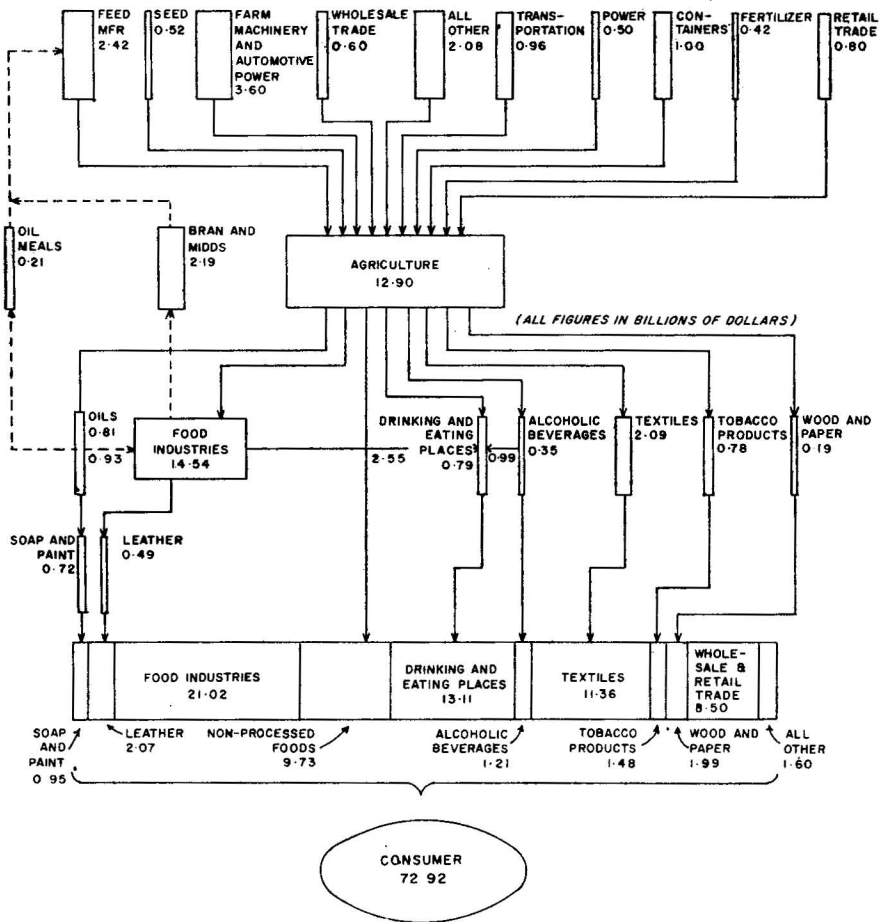
Exhibit 2 : Agribusiness Flow Chart-1961: India

(All figures in millions of rupees.)



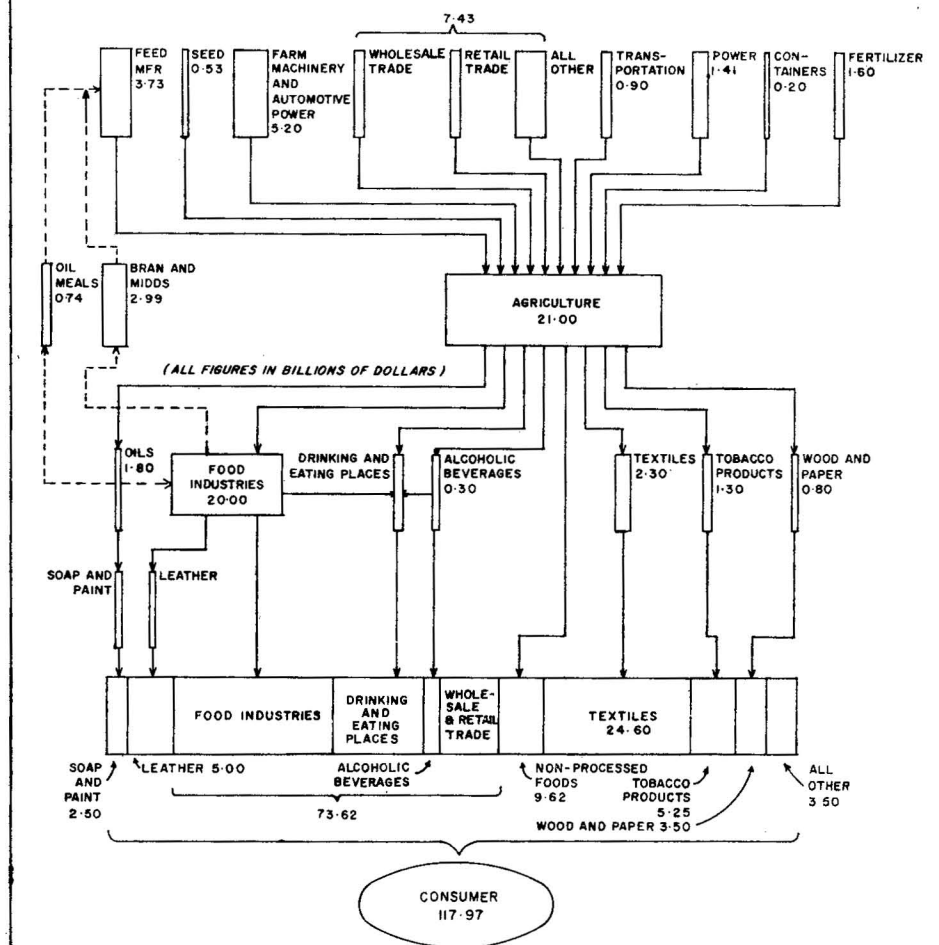
Note : The number in brackets indicate individual industries.

Exhibit 3: Agribusiness flow chart: 1947



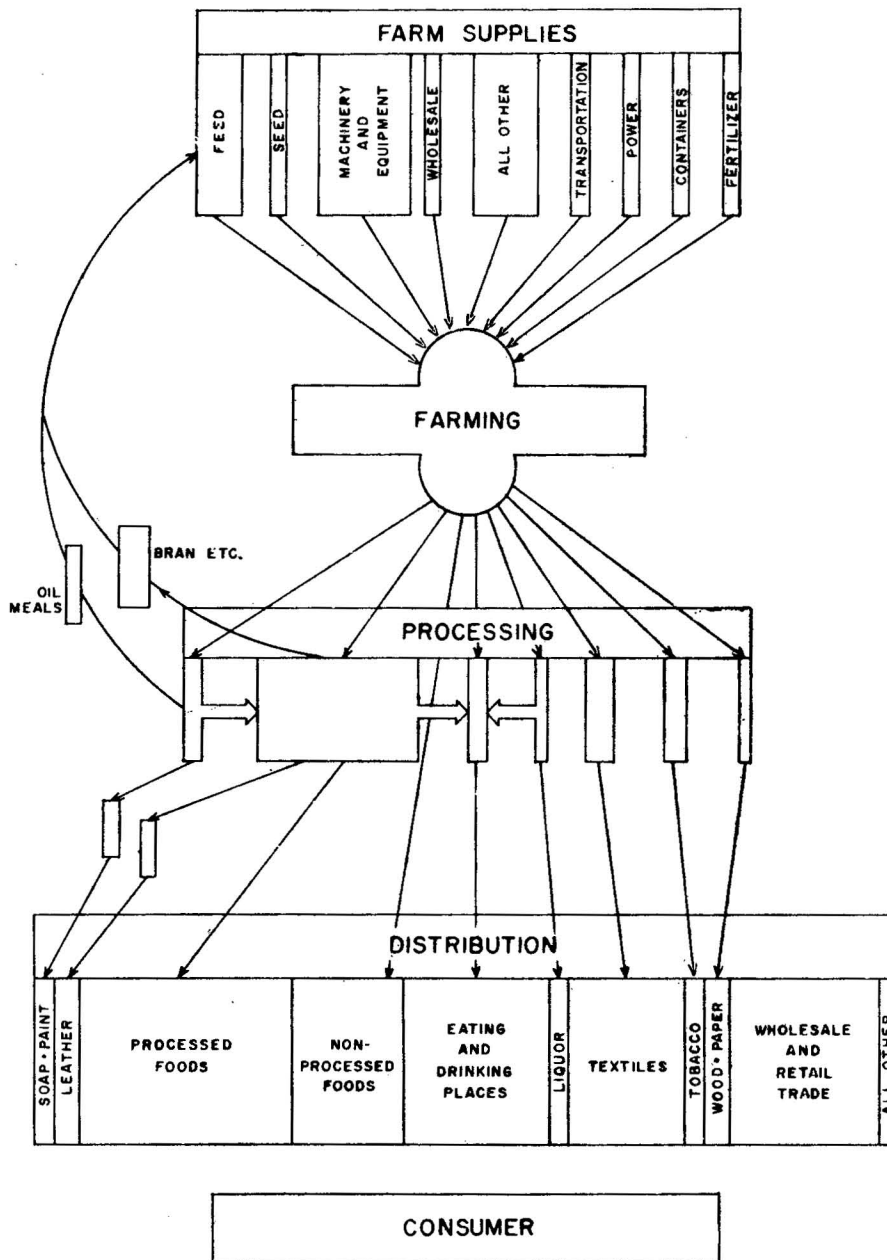
Source: U.S. Bureau of Labor Statistics, Division of Interindustry Economics, October 1952

Exhibit 4: Agribusiness flow chart: 1962



Source: Derived by the author with the co-operation of the U.S. Department of Agriculture by extrapolation for the 1958 U.S. Department of Labor Interindustry Study released in 1964.

Exhibit 5 : Agribusiness - its nature and importance



Source: Agribusiness flowchart (Courtesy, Department of Agricultural Economics and Agribusiness, Louisiana State University, Baton Rouge, La)

Agribusiness Flow Charts

Drilon prepared Philippines agribusiness flow chart, 1961 (Exhibit 1). According to this flow chart the contribution of agribusiness to Gross Domestic Product (GDP) was probably close to 40 per cent of the total.⁷ Desai developed an agribusiness flow chart, 1961, for India from input-output table for 1961⁸ (Exhibit 2). It showed that the contribution of agribusiness to the gross output of the economy was 41.44 per cent.⁹

The important aspect of Davis and Goldberg's work on agribusiness was the quantification of the inter-relationship among various components of the agribusiness system. They depicted it through the technique of a flow chart. Through the comparisons of the agribusiness flow charts for 1947 and 1962 for the United States (Exhibits 3 and 4) Goldberg showed how the contributions of various components of the agribusiness system changed from 1947 to 1962. The off-farm segments of agribusiness expanded much more rapidly than the farming segment. Farm purchases increased by some 63 per cent from 1947 to 1962 whereas farm sales increased only by 23 per cent during the same period. Food and fiber processor sales to wholesalers and retailers increased some 50 per cent and consumers increased their purchases by 62 per cent.¹⁰ Roy presented a simplified agribusiness flow chart for the U.S. and gave the annual estimates for the year 1966.¹¹ (Exhibit 5).

Comparison of Agribusiness between Developing and Developed Countries

To understand the importance of agribusiness in developing countries, the examples of India and Philippines are given and then the comparison is made with the agribusiness in the U.S. Table I gives the details of the structures of agribusiness in India, Philippines and the U.S.

In India farm purchases constituted only 1.42 per cent of the total consumer expenditure on agricultural products in 1961. The most important sector in the agribusiness was the farming sector. A substantial portion of agricultural produce was sold to the consumers without any processing. It will be seen from Exhibit 2 that out of 77,590 million rupees of consumer expenditure on food and fiber products, the expenditure of 55,290 million rupees (71.25 per cent) was on unprocessed foods.¹² Hence the value

7. J. D. Drilon, Jr. : Agribusiness Management Resource Materials (Vol. 1)—Introduction to Agribusiness Management, *op. cit.*, pp. 18-19.

8. D. K. Desai, Indian Institute of Management, Ahmedabad, 1966 (unpublished).

9. *ibid.*

10. Ray A. Goldberg : Agribusiness Co-ordination : A Systems Approach to the Wheat, Soybean and Florida Orange Economics, *op. cit.*

11. Ewell Paul Roy: Exploring Agribusiness, The Interstate Printers and Publishers, Inc., Danville, Illinois, 1967.

12. As the data on value added by rice processing were not available, rice is included in unprocessed foodgrains. In reality the expenditure on rice should appear as expenditure on processed foods.

added by the farmers through farm production, and wholesalers and retailers engaged in supplying unprocessed farm produce to the consumers and to the processors formed the largest proportion (85.92 per cent) of the total consumer expenditure. The value added by the processors through processing and the

TABLE I—COMPARISON OF THE STRUCTURES OF AGRIBUSINESS BETWEEN INDIA, PHILIPPINES AND THE UNITED STATES

Agribusiness sub-systems	India ^a 1961		Philippines ^b 1961		The U. S. ^c 1962	
	Amount (million Rupees)	Per cent	Amount (million Pesos)	Per cent	Amount (million Dollars)	Per cent
I. Agricultural supply sub-system						
Purchases such as fertilizers, chemicals and farm machinery	1,107	1.42	279	4.29	21.0	17.80
II. Agricultural production sub-system						
Value added by farmers through agricultural production and wholesalers and retailers for dis- tributing unprocessed farm produce to consumers, proces- sors and exporters	66,672	85.92	3,660	56.24	14.9*	12.62
III. Agricultural processing sub-system						
Value added by receivers, handlers, wholesalers and pro- cessors and retailers	9,811	12.66	2,568	39.47	58.6†	49.67
IV. Agricultural distribution sub-system						
Value added by wholesalers retailers and food stores ..					23.5 "	19.91
Total consumer expenditure ..	77,590	100.00	6,507	100.00	118.0	100.0

Sources : a. D. K. Desai : footnote reference 8.

b. J. D. Drilon Jr. : Agribusiness Management Resource Materials (Vol. 1), *op. cit.*

c. Ray A. Goldberg : Agribusiness Co-ordination : A Systems Approach to the Wheat, Soybean and Florida Orange Economics, *op. cit.*

* The question of distribution of unprocessed agricultural products does not arise.

† Includes only processing.

wholesalers and retailers by distributing the processed goods to the consumers formed only 12.66 per cent of the total expenditure. The Indian situation shows that when agribusiness is not well developed, the farming sector dominates the scene. The economy is dominated by subsistence phase and the forces of round-about production, processing and distribution have not yet developed strength.

In Philippines, the situation of agribusiness in 1961 was somewhat different than that in India. The farm purchases formed 4.29 per cent of the total consumer expenditure on food and other agricultural products. Fertilizer use in Philippines was proportionally higher than in India in 1961. The value added by the farm production sector, and wholesalers and retailers for supplying unprocessed agricultural products to the consumers and processors and exporters formed 56.24 per cent of the consumer expenditure. The processors and wholesalers and retailers of the processed products contributed 39.47 per cent of the total consumer expenditure. The higher contribution of agricultural processing sector to the total consumer expenditure than in India is explained mainly because the staple food of Philippines is rice and the value added by rice processing is included in the Philippines agricultural processing sub-system whereas it is not included in the Indian agricultural processing sub-system.

In the U.S.A. in 1962, the farm purchases formed 17.80 per cent of the consumer expenditure on food and fiber products. The value added by the farm production sector formed only 12.62 per cent which was the minimum among the contributions by various sectors in the agribusiness. The value added by receivers, handlers, wholesalers and processors formed 49.67 per cent of the total consumer expenditure, which was the highest contribution among various sectors. The value added by wholesalers, retailers and food stores for supplying the food and fiber products to the consumers formed 19.91 per cent of the consumer expenditure which was the second highest among contributions by various sectors in the agribusiness. The agribusiness of the U.S. shows that in the developed economy the primary farm production sector becomes less important than the processing and distribution sectors. Farm production is more dependent on farm purchases. This kind of development has its implication on employment. In India in 1961 more than 70 per cent of the work force was employed in primary farming whereas in the U.S. only 7 per cent of the total work force was employed as farm workers in 1966.

Dynamics of Agribusiness in the U.S.

The agribusiness accounted for about \$150 billion in 1966 but it formed about 20 per cent of the total GNP. In the annual personal consumption expenditure of about \$450 billion, the agribusiness segment represented

about 34 per cent comprising primarily of expenditures for food, clothing, shoes, beverages, cigarettes and eating out. The structure of agribusiness has changed considerably during the twenty years from 1947 to 1966 in the U.S. The total volume of business of the agribusiness segment expanded more than double from 72.9 billion dollars in 1947 to 150 billion dollars in 1966 (Table II).

TABLE II—STRUCTURAL CHANGES IN AGRIBUSINESS IN THE U.S.

(Amount in billion Dollars)

	1947 ^a		1962 ^a		1966 ^b	
	Amount	Per cent	Amount	Per cent	Amount	Per cent
I. Farm purchases sector (farm purchases)	12.9	17.69	21.0	17.80	32.0	21.34
II. Agricultural productive sector						
Value added by farmers for producing agricultural products	16.4	22.50	14.9	12.62	16.0	10.66
III. Agribusiness processing sector						
Value added by receivers, handlers, wholesalers and processors	33.6	46.10	58.6	49.67	50.0	33.33
IV. Agribusiness distribution sector						
Value added by wholesalers, retailers and food stores ..	10.0	13.71	23.5	19.91	52.0	34.67
Consumer purchases of food and fiber products	72.9	100.00	118.0	100.00	150.0	100.0

Source : a. Ray A. Goldberg. Agribusiness Co-ordination: A Systems Approach to the Wheat, Soybean and Florida Oranges Economics, *op. cit.*, p. 10.

b. Ewell Paul Roy : Exploring Agribusiness, *op. cit.*, p. 10.

With the doubling of the total expenditure on the agribusiness segment, a significant structural change had taken place. The share of the farm purchases increased from 17.69 per cent in 1947 to 21.34 per cent in 1966, an increase of 20.63 per cent. The highest increase was in the agribusiness distribution sector. The percentage contribution increased from 13.71 per cent in 1947 to 34.67 per cent in 1966, an incredible increase of 152.88 per cent. The share of the agribusiness processing sector slightly increase from 46.10 per cent in 1947 to 49.67 per cent in 1962, but within four years it

lost its dominance and the distribution sector gained in importance. The American consumer is becoming more and more convenience-oriented. The consumers in the United States spent about 34 per cent of their total disposable income on agribusiness products. The allocation of these expenditures was as follows :

Item	Percentage of agribusiness expenditures							
Food	61.7
Clothing	16.5
Alcoholic beverages	8.8
Tobacco products	5.9
Furniture and home furnishing	4.4
Shoes	2.1
Floral products	0.6
Total	100.0

Source : Ewell Paul Roy : Exploring Agribusiness, *op. cit.*, p. 112.

In recent years the eating habits have changed considerably. Eating places have gained considerably in their share of the food market, because more people travel and thus eat out, more women are employed and increasing incomes provide means for people to eat outside the home.¹³ Besides food sales, agribusiness retailing has expanded. The increase in income and the tendency of the American consumer to buy convenience has expanded the share of the agribusiness distribution sector considerably.

The contribution of agricultural production sector remained at the same level (16 billion dollars) between 1947 and 1966 and in terms of relative importance, its share declined from 22.50 to 10.66 per cent of the total consumer expenditure on agribusiness goods and services. The U.S. farmers are so efficient that though they formed only 7 per cent of the working force they produced more than enough to support the other 93 per cent of the working force for off-farm jobs and also produced large agricultural surpluses for exports. Some economists believe that if the U.S. farmers and agribusinessmen were allowed to produce what they are capable of producing, much of the world would not want for food, clothing and shelter.¹⁴

Conclusion

The concept of agribusiness makes us to view the food and fiber sector of the economy in its proper perspective. It has used the systems approach

13. Ewell Paul Roy : Exploring Agribusiness, *op. cit.*

14. Ewell Paul Roy : *op. cit.*

which tries to differentiate different sectors of the system and builds an inter-relationship. The more developed is the system, the better differentiated are the sectors of the sub-systems and the inter-relationships are strong and more formalized. In the developing economy the sectors are not properly differentiated and the inter-relationships among various sectors are more fused. For example, it is possible for the agricultural production sector to supply directly to the consumers without going through the agricultural processing and distribution sectors.