AN ANALYSIS OF MARKETING CHANNELS AND COSTS OF DISTRIBUTION FOR TURKISH AGRO-INDUSTRY

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I. Introduction

The purpose of this study is to investigate the structure and operation of the marketing channels as well as to analyze the costs of distribution for nine selected agro-industry products; namely, meat, sausage, homogenized milk, tomato paste, canned vegetables, fruit juice, margarine, liquid oils, and concentrate feed.

The study starts with a brief explanation of the factors affecting the structure of the marketing channels so as to provide some conceptual bases for the discussions made regarding the structure and operation of the existing distribution system. The analysis is based on the information and data obtained from interviews with retailers, wholesalers, and manufacturers in the agro-industry. In connection with the description of the marketing channels, the costs of physical distribution for each product was evaluated in the light of the information and data collected.

Finally, an attempt was made to calculate the total cost of inventory holding for the specified agro-industry products. Nevertheless, due to lack of sufficient and reliable data inventory holding cost calculations were restricted to oil products (olive oil, sunflower oil, and margarine) in order to see the amount of inventory holding cost associated with, at least, a sub-industry of the Turkish agro-industry.

II. Distribution Function and Marketing Channels

The basic objective of a marketing system is the efficient distribution of products from their place of production to their place of consumption. For this reason, distribution or marketing channels perform an integral role as components of a firm's marketing strategy. By delivering products to consumers at the right place, at the right time ,and in the right

amounts, marketing channels perform a service to society by generating time, place, and ownership utility[1].

The emphasis in defining the marketing or distribution channels is on ownership and control rather than physical movement. The physical distribution of a product is also an essential element of the overall distribution system. Since distribution channels and physical distribution are often identical, they are examined together in this study. The efficiency of various alternative marketing channels with respect to the distribution function is generally evaluated on the basis of the profibility which each channel produces. The effect of a marketing channel on profit depends on the costs and sales revenues associated with the channel. As such, selection of a marketing channel includes financial considerations and turns out to be a financial decision rather than a marketing decision[2]. From the viewpoint of a marketing decision, the selection of a marketing channel necessitates consideration of three main factors, namely, characteristics of the products, the potential buyers, and competition, as explained below[3].

The characteristics of the products to be distributed have an important bearing on the length of a marketing channel. For instance, in cases of perishable and physically bulky products short channels are preferred so as to reduce spoilage and handling costs, respectively. The shopping habits, size and location of potential buyers also determine the selection of alternative channels. A product must be available in locations where customers shop and expect it to be found. For instance, a mass distribution policy will undoubtedly enhance the total profit expected from the distribution system if the products are purchased largely on an impulse basis.

Additionaly, the degree and nature of competition in a market also affect the selection of marketing channels. Even in some cases the competition factor becomes the only constraint to be considered in selecting a channel. As it is the case in food industry, every possible outlet that carries competitive products must be sought and used. Decisions relating to the selection of marketing channels reflect the degree of intensity for a distribution policy. To distribute products through as many different

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[1] King, William R. **Quantitative Analysis for Marketing Management**, (New York: McGraw-Hill Book., 1976), pp. 512-514.

[2] Lambert, Jr., Eugene W. "Financial Considerations in Choosing a Marketing Channel", in **Marketing Channels**, (eds.) Louis E. Boone and James C. Johnson, (New Jersey: General Learning Press, 1973) p. 202.

[3] King, **op. cit.**, pp. 514-518.

outlets as possible indicates that an intensive distribution policy is followed. At the other extreme is an exclusive distribution policy which is commonly practiced by franchisers.

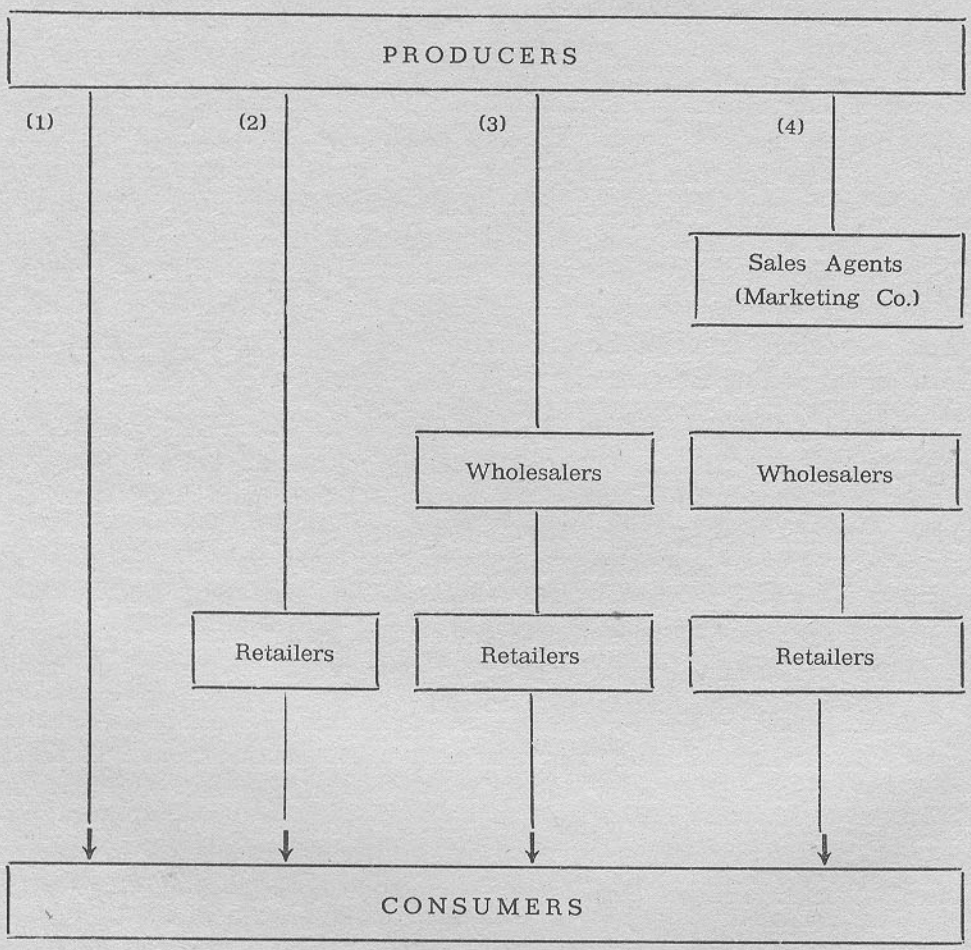
III. Structure of Marketing Channels and Costs of Distribution

The distribution system or structure of the marketing channels for the agro-industry products examined in this study takes different forms according to the nature of products, characteristics of buyers, and the degree of competition in the market. In case of perishable products, short channels are used to reduce spoilage costs. For instance, homogenized milk and sausages are directly delivered to retail outlets (i.e., grocers) by producers. For canned food and standardized products where spoilage and weight loss do not occur in short periods of time, wholesalers take place in marketing channels. Margarine, processed vegetables, tomato paste, liquid oils are example of this case. Large producers even extends their marketing channels by establishing their own sales agents in the form of marketing companies.

In general, the examination of the structure of marketing channels for agro-industry products in Turkey reveals four basic channel forms as shown in Figure 1. Additionally, the costs of physical movement through these channels (i.e., physical distribution), as the pay for the services rendered by intermediaries, in the forms of sales margins and credit terms are given in Table 1. Referring to Figure 1 and Table 1, the structure and costs of marketing channels for the selected agro-industry products can be explained separately for each product group as follows.

Meat, Sausage, and Milk : Due to the nature of these products the length of marketing channels is kept very short. Producers deliver their products directly to retailer outlets as shown in Figure 1 by channel number 2. In some cases where consumers purchase in bulk, producers deliver directly to consumers. That is, as shown by channel number 1, intermediaries (i.e., retailers in the channel) are omitted. Deliveries to

Figure 1: **Structure of Marketing Channels for Selected Agroindustrial Products**



Channel 1: Concentrate feed, meat, and milk in case of institutional consumers.

Channel 2: Meat, sausage, milk, concentrate feed, fruit juice.

Channels 3 & 4: Tomato paste, canned vegetables, margarine, liquid oils.

Table 1: **Sales Margins to Intermediaries by Products** (October 1986)

Products	Ex-Factory Price	Credit Term	Sales/[1] Margin	Wholesale Price	Credit Term	Retail Sales Margin	Retail Price
1 kg	TL.	Days	%	TL.	Days	%	TL.
Meat	1,380				21	19.5	1,650
Sausage	2,000				31	35	2,700
— box. 1/2 kg	230				7	13	260
— bot. 1/2 kg	125				7	12	140
Tomato paste	430	31	4.5	450	31	22	550
Canned veg.	400	61	10	440	45	20	530
Fruit juice	81.25				31	23	100
Margarine	702	15	4	730	7	9.5	800
Liquid oils							
— Olive oil	925	45	4	960	45	20	1,150
— sunflower oil	565	45	4	590	45	19	700
Concentrate feed	75	31	—	75	—	3	77

[1] Sales margins or commissions for wholesalers are calculated on the basis of wholesale and ex-factory prices as the percentage of ex-factory prices, while those of retailers are calculated on the basis of retail and wholesale prices as the percentage of wholesale prices. For example, the wholesalers' sales margin or commission for tomato paste is:
$(450 - 430)/430 = 4.5\ \%$. The retailers' sales margin is: $(550 - 450)/450 = 22\ \%$

factories, hospitals, schools, and military establishments are some examples of this type of distribution.

Deliveries of these products are made by producers through their own personnel and transportation vehicles. For example, meat which is generally distributed under the control of E.B.K. (Meat and Fish Institution) is delivred to retailers (butchers) through specially equipped EBK vehicles after the orders have been processed. At this point, it should be pointed out that EBK is not directly engaged in buying and selling meat. It just provides slaughtering and transportation facilities to commissioners (brokers) who are entitled to buy livestock and sell meat according to the regulations imposed by EBK. However, EBK charges the owners of livestock 25 liras per kilo (live weight) for slaughtering, warehousing, and transportation services rendered. Commissioners sell the meat in the premises of EBK to retailers and customers purchasing in bulk. After the purchasing transactions are completed, EBK delivers the meat at the retailers' and customers' addresses through their special vehicles.

Sausage and milk distribution is also similar. When the orders are received the producers deliver their products through their own vehicles

to retailers and customers purchasing in bulk. Usually, producers' salesmen periodically visit retail outlets either to sell their products rightway, that is selling without receiving orders, or to receive orders so as to fill them in the next few days.

As can be noticed, transportation and material handling costs of distribution in any case are incurred by producers. The only cost of distribution that is transferred to retailers is that of inventory holding cost which is payed out by producers indirectly in the forms of sales commissions or discount and terms of credit sales.

As indicated in Table 1, credit sales terms and sales margins for each product are quite different. The differences seem to be reasonable if one considers the spoilage and weight loss characterestics of each product. For example, looking at sales margins or commissions, sausage seems to be favorable since it offers retailers a 35 - percent sales margin or commission in addition to a 31-day credit term. However, weight loss in this product always occur in a short period of time. Moreover, spoilage risk is also pertinent to this kind of porducts. On the other hand, in cases of meat and milk where weight losses do not occur but product spoilages happen sales margins are so determined that they can take account of the duration of spoilage period. As seen in Table 1, the sales margin and credit term for meat are 19.6 percent and 21 days, while those of milk are 12 or 13 percent and 7 days, respectively. The explanation for these differences in favor of meat is that spoilage duration of meat is shorter than that of milk. In other words, meat is more perishable than milk. This characteristics of products accounts for the differences in sales advantages.

Concerning the distribution policy followed by producers of meat, sausage, and milk, it can be stated that because of customers' shopping habbits and competition in the market almost all producers prefer an intensive distribution policy. That is, any retailer who wants to sell these products is entitled to do so. However, terms of credit sales are dependent on the credibility of retailers. The credit terms indicated in Table 1 are those that are generally practiced.

Tomato Paste, Canned Vegetables, Margarine, and Liquid Oils : The general form of the marketing channel for these products is channel number 3 as shown in Figure 1. That is, these products reach consumers through wholesalers and retailers. Consumers purchase these products from retailers (i.e., grocers) that in turn purchase from wholesalers. Needless to say that wholesalers obtain these products in bulk from the producers. In cases of large producers or producers that are part of a

holding company and producing a group of related products, there is generally established a marketing company which takes place between the producer and wholesalers in the marketing channel. If this is the case, wholesalers purchase from the marketing company which acts as a sales-agent on behalf of producers.

As can be concluded from the above given explanations, the structure of the marketing channel for these products is determined according to consumers' shopping habbits and competition in the market. The length of the channel is extended without any consideration to the nature of products since spoilage and weight loss costs are almost none. Additionally, extra transportation costs associated with the bulk of the product volume are at a minimum rate that can be neglected for selecting a shorter channel. Therefore, the main motive for producers is to enter the competitive market through as many wholesalers and retailers as possible. That is, to follow an intensive distribution policy so as to transfer fixed capital requirements and inventory holding costs to intermediaries. Sales margins and credit terms of sales for each intermediary in relation to the product specified above are also shown in Table 1.

With the exception of margarine, the retail commission or sales margins and credit terms of sales are similar for this group of products. This, in turn, indicates the most generally practiced sales pattern of retail trade in Turkey. As a governing rule of retail trade in Turkey, retailers work on a 20-percent sales margin and a credit term of sales varying between 31 and 45 days. Rates above and below these margins depend on negotiations and market conditions.

Concerning the exception of margarine it can be stated that margarine consumption in Turkey is presently at its peak level due both to the insufficient production of leading products and high price of its main substitute in Turkish kitchen, namelly, butter. Although newer producers have entered the market for margarine with lower prices and more attractive retail sales commissions about 15-20 percent compared to that of 9.5 percent of the leading margarine brands taken as the appropriate sample in this study, their sales levels are not sufficient enough to increase sales advantages for wholesalers and retailers. Due to high sales rates of leading margarine brands the producers themselves determine the retail price of margarine and give retailers only a 9.5 percent sales margin or exactly $800 - 730 = 70$ liras per kilo. That is, margarine prices are constant at wholesale and retail levels in the market.

On the other hand, excluding canned vegetables, the wholesale commission margins and credit terms for this group of products are similar

and concide with the common pattern observed in wholesale trade in Turkey. The favorable sales advantages of canned vegatables in terms of sales commissions and credit terms on behalf of wholesalers seem to be due mainly to the relatively low sales rate of this product. As stated by wholesalers and retailers, canned vegetable consumption in Turkey is presently not at the desired level since Turkey is an agricultural country where fresh vegetables are aboundant throughout the year and thus consumers prefer fresh vegetables. Moreover, if needed, consumers preserve vegetables in some traditional ways. As such, in order to abstain from the fixed costs associated with the distribution function and to reduce their inventory holding costs or to transfer them at least partly to wholesalers, the producers of canned vegetables offer wholesalers attractive sales commissions and credit terms, as seen in Table 1.

Finally, it should be indicated that transportation and material handling costs associated with deliveries from producers to wholesalers are incurred by producers, while those for the deliveries from wholesalers to retailers are paid by wholesalers. All producers and most of wholesalers own transportation vehicles and personnel for deliveries. Thus, wholesale commission margins include transportation and material costs.

Concentrate Feed : It is quite interesting to note that the factors determining the structure of marketing channels do not seem to be very relevant in this case. If we consider the effects of these factors, the marketing channel that needs to be selected should be the channel designated by number 3 in Figure 1 (ie., producers-wholesalers-retailers). However, on the contrary, most of concentrate feed is distributed directly to customers purchasing in bulk. That is, no intermediary is taken in to the channel. The customers purchase in bulk directly from the concentrate feed plants. Some times the orders of customers are delivered by the feed plants through their own vehicles at the expense of customers. Although the sales conditions vary according to the customers' credibility, the most often practiced credit term is 31 days.

On the other hand, customers' need of small amounts of concentrate feed is met through retailers who purchase with the same sales conditions from the factories as stated above. That is, retailers are not offerred any price discounts. However, retailers sell concentrate feed with a 3 percent increase over the ex-factory price, which is just enough to meet transportation and material handling costs incurred by retailers. As such, intermediaries in the marketing channel of concentrate feed do not have any sales advantages, except a 31-day credit trem if the retailers sell in cash the feed purchased on credit. In this case, one might wonder why

retailers engage in distributing concentrate feed. The main reason seems to be that retailers want to supply their customers with a variety of products since their retailing activities rest on other products such as wheat, barely, and some other kinds of animal feed.

It should be indicated that up to a year ago the sales commissions margin given to retailers was 7 percent. The reason for the present case might be explained as follows. First, customers purchasing in large amounts repetitively prefer purchasing from factories to take advantage of credit sales, whereas retailers can not provide the same advantage at the same cost. Secondly, to a certain extent sales departments of factories located close to customers practice retail sales as well. The third and the most important reason is that customers receive a 20 percent tax refund over the total value of the concentrate feed they used, if they prove it with the invoices from the licenced producers or retailers. However, since most of the retailers engaging in distribution of concentrate feed are not licensed, customers prefer purchasing directly from the factories. Therefore, the marketing channel of concentrate feed takes generally the form of direct distribution.

Consequently, as explained in the preceding pages, the investigation of the structure and operation of the existing distribution system for the specified agro-industry products reveals three basic forms of marketing channels. The first channel is the form of direct distribution, where producers deliver their products directly to consumers as observed in the cases of bulk purchases of meat, sausage, milk, and concentrate feed. The second channel form is the most common one where retailers take place between producers and consumers as the only intermediary in the distribution system. Most of meat, sausage, milk, and partly concentrate feed is distributed through this form of marketing channel. The first and the second forms of marketing channels account for the total distribution of meat, sausage, milk, and concentrate feed. Excluding corcentrate feed, the essential factor limiting the length of the marketing channels for distributing these products is the nature of products, i.e., spoilage and weight loss characteristics, while those for concentrate feed are mostly bulk purchases and tax refund application of the government to subsidize livestock production. Additionally, due to the compatitive characteristic of the market for this group of products the producers follow an intensive distribution policy to reach as many consumers as possible.

In case of the products where the risks of spoilage and weight loss are not concerned, producers extend the length of the marketing channel with the intention of entering the competitive market through various outlets and to a certain extent abstaining from investing in fixed assets

and transferring inventory holding costs to intermediaries. Therefore, tomato paste, canned vegetables, margarine, and liquid oils are distributed through wholesalers and retailers. Moreover, large companies or those that are part of a holding company producing a gorup of related product lines even further extend the marketing channel by establishing marketing companies as sales-agents to distribute their products to wholesalers. The distribution policy practiced in this third form of the marketing channel is still intensive distribution policy which is imposed by the competitive characteristic of the market.

Whatever the form of the channel is, transportation and material handling costs of distribution are incurred by those who deliver the products, except the deliveries of concentrate feed where delivery costs are paid by whoever purchases the product.

The costs of physical distribution are incurred by producers either directly as in the case of providing transportation and material handling services to wholesalers and retailers or indirectly in terms of sales commissions and credit sales offerred to the intermediaries. Thus, sales commissions margins and terms of credit sales provided to wholesalers and retailers generally encompass the share of these intermediaries in undertaking the inventory carrying costs plus their service charges for distributing the product of producers since damages and losses occuring in physical distribution are always met by producers.

In conclusion, among the four basic components of distribution cost three of them, namely, transportation, material handling, and damage costs are incurred by producers directly; whereas the inventory carrying costs are partly transferred to intermediaries in the forms of sales commissions margins and terms of credit sales. In other words, it would be misleading if one considers the sales commissions margins as the only premium given to intermediaries for their marketing services and their shares in inventory carrying costs, as usually perceived by the intermediaries of agro-industry products. Thus, the terms of credit sales should also be evaluated as a premium to intermediaries in order to see the real sales advantages provided to intermediaries. For this reason we need to convert the terms of credit sales given in Table 1 to some sort of sales margins which might be called as "credit term sales margins".

In order to find out these margins, the opportunity cost of the working capital tied up in one unit (1 kg) of a product is calculated on the basis of the annual current interest rate (50 %) and the duration of credit terms given. Based on this premis, credit terms sales margins were calculated for both wholesale and retailsale levels as shown in Table 2.

Table 2: **Sales Margins from Terms of Credit Sales by Product**

Products	Wholesaler			Retailer			Overall Total Sales Margin
	Term Margins	Sales Margin	Total	Term Margins	Sales Margin	Total	
	(a)	(b)	(c)	(a)	(b)	(c)	%
Meat				2.0	19.5	21.5	21.5
Sausage				2.5	35.0	37.5	37.5
Milk							
box				0.5	13.0	13.5	13.5
bottle				0.5	12.0	12.5	12.5
Tomato paste		4.5	4.5	2.5	22.0	24.5	29.0
Canned veg.	1.75	10.0	11.75	3.75	20.0	23.75	35.50
Fruit juice				2.5	23.0	25.5	25.5
Margarine	0.62	4.0	4.62	0.5	9.5	10.0	14.62
Liquid oils							
Olive		4.0	4.0	3.75	20.0	23.75	27.75
Sunflower		4.0	4.0	3.75	19.0	22.75	26.75
Concentrate							
Feed	2.5		2.5		3.0	3.0	5.5
Average	**1.62**	**5.3**	**5.23**	**2.23**	**17.8**	**19.84**	**22.69**

As seen, the credit terms sales margins, on the average, have an effect of 1.62 percent on the direct sales commission margins at the wholesale level and 2.23 percent at the retailsale level.

The last column of table 2 shows the overall sales commission margins at the wholesale and retail levels. The overall total average, as seen, is 22.69 percent. Excluding the 5,5 percent of the total of sales commission margins for concertrate feed to calculate the overall total average of the food industry for the selected products, we obtain a figure of 24.4 percent. This can be assumed the overall average of the pysical distribution cost of the food products specified in table 2. Based on the sample products taken and furter assumming that this 24.4 percent rate is the cost of physical distribution for the food industry in Turkey, we may be able to compare it with the total average cost of the physical distribution in U.S.A. food industry, which is around 29, 6 percent.

These figures represent the cost of physical distribution for each product since these overall sales commission margins encompass the costs

of inventory carrying, transportation, material handling, damages and service changes by intermediares. The physical distribution costs vary from product to product according to the nature of product and competition in the market. As noticed, the largest physical distribution costs are associated with canned vegetables (35 %) and sausage (37.5 %) because of thelow sales rate of canned vegetables and the spoilage and weight loss risk of sausages, as explained previously.

On the other hand, the lowest physical distribution cost is that of concentrate feed. However, as explained earlier, the distribution cost of concentrate feed (5.5 %) does not include transportation and material handling costs since this product is delivered to customers at their oven expense. For example, concentrate feed factories located near Ankara charge customers 1.5 liras per kilo for transportation and handling services when they deliver the product through their own vehicles. For this reason, this cost should be added to the distribution cost of 5.5 percent to obtain the real cost of physical distribution for concentrate feed. Recalling that the ex-factory price of this product is 75 liras per kilo we find a rate of 2 percent for transportation and handling cost factor. Thus, raising the real distribution cost of concentrate feed from 5.5 to 7.5 percent.

The physical distribution cost of the agro-industrial products given in table 2 includes all cost factors of physical distribution, namely, costs of inventory carrying, transportation, material handling, and service changes by intermediaries. At this point, it should be stated that due to lack of necessary data it is impossible to separate the rate of each cost factor of physical distribution.

However, as indicated above the cost of transportation and handling for concentrate feed is 2 %. Similar data is available in distribution of meat. For example, E.B.K. practices charging livestock owners 25 liras per kilo of the live weight for services rendered. Given that presently the live weight price is about 800 liras per kilo we get a 3.12 percent rate for the services provided, which in turn can be taken as the rate for transportation and material handling cost factors of physical distribution. Although concerning longer marketing channels where intermediaries exist no statistical data is available, wholesalers and retailers state that the cost associated with transportation and material handling is between 3 and 5 persent of ex-factory prices, depending on the product.

Consequently, as the foregoing examples and explanations indicate we can infer that the total cost of transportation and material handling for agro-industry products in Turkey is between 2 and 5 percent, depending on the nature of products, thus leaving a margin between 19 and

22 percent for the remaining two cost factors of physical distribution, namely, inventory cost and service charges by intermediaries. Unfortunately, it is not possible to spell out the rates for each of these two cost factors of physical distribution. However, an attemt will be made in the next section to calculate the total inventory holding costs associated with oil products, where data is available, at the sector level.

IV. Inventory Holding Costs for Oil Products

Although it was the purpose of this study to calculate the inventory holding costs for all specified agro-industry products, sufficient and reliable data was not available to carry out computations. Therefore, inventory holding cost calculations were limited with oil products. Computations were carrier out on the basis of mothly production and consumption rates as well as the foregone interest income associated with the funds invested in inventories. Table 3 gives the monthly distribution of consumption for oil products. On the othar hand, the total production volumes of olive oil, sunflower oil, and margarine in 1985 are reported to be 110000; 290000; and 353000 tons, respectively.

Table 3: **Mohtly Percentage Distribution of Consumption For Oil Products (%)**

	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Olive Oil	9.3	9.2	11.7	8.0	8.3	7.9	10.7	7.1	6.9	6.8	6.0	8.1
Sunflower Oil	7.0	8.7	9.0	6.9	8.1	7.6	8.9	8.7	6.1	9.3	10.9	8.8
Margarine	9.0	8.4	10.6	6.7	6.7	6.4	7.5	7.5	6.7	9.7	10.5	10.3

Source: **The State Institute of Statistics, The Consumption Survey of Urban Households,** 1978-79.

Based on the above given figures of the State Institute of Statistics and interviews with the producers concerning production seasons of oil products, monthly distribution of oil production and sales for each product was obtained as shown in Table 4, which is given for margarine. At this point it should be indicated that agro-industry products are produced when raw materials are available and are consumed throughout the year. While some of the inventories built up are held by the manufacturers, the others are held by intermediaries in the distribution system. In our calculations no distinction is made as to who is holding the inventories.

Table 4: Mohtly Distribution of Margarine Production and Sales (Thousand tons)

Months	Production[1]	Sales[2]
January	35.3	31.77
February	35.3	29.65
March	35.3	37.42
April	35.3	23.65
May	35.3	23.65
June	35.3	22.59
July	35.3	26.48
August	—	26.48
September	—	23.65
October	35.3	34.24
November	35.3	37.06
December	35.3	36.36
Total	353.0	353.00

[1] Production is assumed to be evenly distributed through the year with the exception of August and September which are the harvest months for raw materials.

[2] Monthly sales distribution is calculated by multiplying the percentage figures in Table 3 by the total margarine production of 353000 tons.

Starting from October as the beginning month of production season, cumulative inventory levels by month and increases in inventories for each month are calculated for margarine on the basis of Table 4 and are presented in Table 5 below. As seen from Table 5, inventories are built up in October, February, April, May, June and are used up in the other months.

Table 5: Cumulative Distribution of Margarine Inventory Levels by Month (Thousand tons)

Month	Cumulative Inventory Level	Increases in Inventory Level for Each Month
January	1.77	0.0
February	7.42	5.65
March	5.30	−2.12
April	16.95	11.65
May	28.60	11.65
June	41.31	12.71
July	50.13	8.82
August	23.65	−26.48
September	0.0	−23.65
October	1.06	1.06
November	−0.70	−1.06
December	−1.76	−(a)

(a) Stockouts in November and December were not considered as inventory turnovers.

Increases in inventory level for each month given in the last column of Table 5 also mean inventories turned over from the previous month to the next one. In Table 6, movements of inventory turnovers are followed up through the year for each month by taking the month corresponding to the beginning of production season as the start point (i.e., October). Then, the time period for the amount of inventory held during the year is calculated for the inventories in each month according to FIFO principle of inventory evaluation. Finally, based on the amount of inventories specified in column 4 of Table 6, ex-factory price of margarine, and current annual interest rate of 50 percent the foregone interest income associated with inventory carrying is calculated in column 6 of Table 6. As such, this total amount of foregone income is assumed to be the total cost of inventory holding for margarine at the industry or sector level.

Table 6: **Monthly Inventory Turnovers and Inventory Periods For Mrgarine**

	Inventory Increases	Maximum Inventory Level (End of April)	Inventory Decreases	Inventory Amounts	Inventory Period (FIFO)	Inventory Carrying Cost (000 TL)
	(..... Thousand Tons .....)					
From. Oct to Nov.	1.06			1.06	1 month	31,005
From. Nov. to Dec.			−1.06			
From Dec. to Jan.	stockout					
From Jan. to Feb.	0.00					
From Feb. to March	5.65			5.65	1 month	165,263
From March to April		3.53	−2.12	3.53	6 months	619,515
From April to May	11.65			15.18	5 months	2,220,075
From May to June	11.65			26.83	4 months	3,139,110
From June to July	12. 71			39.54	3 months	3,469,635
From July to Aug.	8.82			48.36	2 months	2,829,060
From Aug. to Sept.			−26.48	21.88	1 month	639,990
From Sept. to Oct.			−23.65			
Total						**13,113,653**

The total costs of inventory holding for olive and sunflower oils were calculated in the same way. However, since the calculation procedure is the same, only the total costs of inventory holding for these two products are given below in Table 7.

Table 7: **Inventory Holding Costs for Oil Products**

Product	Total Inventory Cost (000 TL)
Margarine	13,113,653
Olive Oil	14,049,500
Sunflower Oil	54,705,200
Industry (Sector) Total	81,868,353

V. SUMMARY AND CONCLUSION

The analysis of the distribution system for agro-industry products reveals the fact that the structure of the marketing channels is determined according to the nature of products, characteristics of potential buyers, and competition in the market. In other words, in cases where the product is a perishable one the length of the channel is kept short so as to reduce spoilage and weight loss costs. Meat, sausage, and milk are distributed through such channels.

On the other hand, for the products that do not bear spoilage risk the structure of the marketing channels is formed on the basis of customers' characteristics and competition in the market. That is, indirect distribution policy is preferred in order to enter the competitive market and to abstain from investing in fixed assets as well as to transfer inventory holding costs to intermediaries, such as wholesalers and retailers. Thus, a longer channel form emerges to distribute tomato paste, fruit juice, canned vegetables, margarine, and liquid oils. Additionally, even is some cases where producing firms are part of a holding company that produces a group of related products, the so-called marketing companies are taken in to the marketing channel to act as sales-agents on behalf of producers to distibute products from the firms to wholesalers.

The operation of the marketing channels and sales commission margins as well as credit terms of sales are also determined according to the nature of products and competition in the market. For the products that have high risks of spoilage and weight loss, sales advantages given to intermediaries are more favorable. That is, the higher the risk associated with distribution the greater the sales advantages for intermediaries. For products that have a high sales rate, sales advantages given to intermediaries are reduced by producers as much as possible. Although sales commission margins given to intermediaries vary from product to product, a relatively constant rate is practiced for any intermediary wishing to

distribute agro-industry products. However, credit terms of sales given to an intermediary depends on the sales rate of products and credibility of the intermediary. In cases of products that have a low sales rate, producers offer intermediaries relatively longer credit terms.

Finally, the calculation of the total inventory holding cost, which were restricted to only oil produts due to lack of sufficient and reliable data, shows that at the industry level the total cost of inventory holding for margarine, olive oil, and sunflower oil was about 82 billion Turkish liras in 1985 with the October 1986 prices; which is about 6 percent of the total value of the oil products specified.