

The Methodology of Calculation of Trade Margins on Products for Private Consumption

Alexander Elbert*

February 2005

The Central Bureau of Statistics (CBS) encourages research based on its data. Publications of the results of this research are not official CBS publications, and have not undergone the review that official CBS publications must undergo. The opinions and conclusions expressed in these publications, including this one, are the authors' alone, and do not necessarily reflect the opinions and conclusions of the Central Bureau of Statistics. Reproduction of the publication, in part or in whole, requires prior consent from the authors.

The Central Bureau of Statistics – Input-Output Sector, Business and Economic Department

66 Kanfei Nesharim St., corner of Backi St., Givat Shaul; P.O.B. 13015, Jerusalem 95464;
Telephone 02-659 2666, Fax 02-6521340, email info@cbs.gov.il, website www.cbs.gov.il

First and foremost, I wish to express my deepest thanks to Ms. Alba Rivkin, whose courteous and patient guidance made the writing of this publication possible. Valuable comments were also received from the Senior Head of the Business and Economic Department, Ms. Simcha Bar-Eliezer.

Mr. Eitan Ben-Moshe, of the Ministry of Finance, provided important information on the subject of taxation.

I also wish to thank Prof. Faye Duchin, President of the International Input-Output Association; and Mr. Norbert Rainer, the Secretary of Input-Output Association.

Invaluable assistance was gratefully received from Mr. Haim Regev and Mr. Yehoram Elbaz, of the Hebrew University.

Great help was also rendered by all the workers of the Central Bureau of Statistics:

Business and Economic Department: Mr. Bernad Crismariu, Ms. Galia Yohay and Ms. Micol Hirschman

The Consumer Price Index Sector: Ms. Meirav Oren and Ms. Anna Rahmilevich

Prices in Industry Sector: Ms. Ruth Weisner and Ms. Victoria Rochelle

Agriculture Division: Ms. Ilana Dror, Ms. Chana Tovey and Mr. Ze'ev Starnik

Information Services Department: Mr. Mark Ciwiak

Table of Contents

I.	INTRODUCTION.....	5
II.	THE RESEARCH AND ITS RESULTS.....	7
	1. The treatment of margins in professional literature....	7
	2. Databases and their use, for calculating margins.....	9
	A. Description of databases	9
	A1. Trade and Services Survey.....	9
	A2. Price indices.....	10
	<i>Wholesale Price Index of industrial outputs.....</i>	11
	<i>Consumer Price Index.....</i>	11
	A3. Agricultural database.....	13
	B. Calculation methods and their weak points.....	13
	B1. Fruits and vegetables.....	14
	B2. Food, beverage and tobacco products.....	15
	B3. Other manufacturing industries.....	18
	<i>Problems of company classification and sampling..</i>	18
	<i>Separation of imported goods from locally</i>	
	<i>produced goods.....</i>	19
	<i>The chain of goods transfers and calculation of the</i>	
	<i>margin.....</i>	20
	<i>Acquisitions on the Internet from abroad.....</i>	22
	<i>Local acquisitions on the Internet.....</i>	22
	<i>Marketing agents.....</i>	22
	<i>Calculation of margins on newspapers.....</i>	23
	<i>Calculation of margins on fuel products.....</i>	23
	3. Presentation and analysis of the results.....	23
	<i>Deduction of trade agents.....</i>	24
	<i>Imports compared with local manufacture.....</i>	25
	<i>Margin on goods from all suppliers, totaled on all</i>	
	<i>trade segments.....</i>	28
	4. Recommendations for improving data and future	
	operating plans.....	30
III.	SUMMARY.....	31
	Appendix 1. Derivation of the formula for summarizing the	
	rates of margins on wholesale and retail goods.....	32
	Appendix 2. Marketing margins on various trade segments and on	
	imported and domestic goods.....	34
	Appendix 3. The total margins on goods from all sources, agreed on	
	by all trade segments.....	35
	Bibliography.....	37

Diagrams and Tables

<u>Diagram 1.</u> Methods of transferring goods from local production and from imports.....	20
<u>Table 1.</u> Comparing marginal rates by industry, before and after discounts of merchants/agents with a margin above 90%.....	25
<u>Table 2.</u> Differentials between the margin of importing retailers and margins of all stages of the goods transport chain.....	27
<u>Table 3.</u> Regressions to checking the homogeneity of trade margins.....	28

I. INTRODUCTION

At the beginning of the last century Prof. Leontiev, the Nobel Prize winner for economics, suggested a complete and inclusive system for observing the economy. The name chosen for this system was “Input-Output Tables”. These tables make it possible to analyze the connections between all the sectors of the market. It is not for nothing that the international economic institutions today require that countries annually construct supply and use tables (which are based on input-output tables).

One of the essential things for constructing these tables is that there be series of trade margins by use and source industries. These margins are intended to make it possible to translate the tables data from producer prices to consumer prices, and vice versa. The translation requires knowledge of trade and transport margins and taxes.

Therefore, during the last one or two decades, interest in methods of constructing trade margins has greatly increased within the scientific community which deals in development and application of methods for devising input-output tables. There is a particular importance in calculating the margins on production intended for private consumption, since most of the margins are applied to it. A national accounts system needs these marketing margins, in order to calculate the expenditure on private consumption on an ongoing basis.

Both the UN and the European Union have made recommendations, some of them binding, on ways of deriving trade margins. These recommendations are, in fact, a summary of many analyses and much research that have been conducted around the world. And it is not surprising that one of the outstanding researchers of the last two decades on the subject of trade margins, Mr. Norbert Rainer, composed the European recommendations.

In this research project, we set a goal of recommending a method to derive marketing margins on goods intended for private consumption. The derivation process is both expensive and time consuming. The results achieved are usually not final, and require adjustment during the stage of balancing between supplies and uses – a balance which constitutes the core of the procedure for constructing input-output tables.

According to the definition of the UN document (SNA 1993), trade margins are “the difference between the actual or imputed price realized on a good purchased for resale, and the price would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of”. In fact, we are speaking of the difference between the price at which the merchant bought the product, and the price at which the merchant sold the product to another party. The margin can also be defined as the difference between the company revenue (the price at which the merchant sold the product, multiplied by the quantity of the product), and its cost of sales (the price at which the merchant bought the product, multiplied by the quantity of the product).

This paper presents a combination method for determining trade margins in a relatively efficient manner, and which makes sufficient accuracy possible. This method proposes several new ways to process and analyze the available database. It makes it possible to establish a network of trade margins based on knowledge already available at the CBS and other government bodies, without requiring additional

surveys. The proposal is to improve these databases, while achieving greater coordination between the data systems and the various CBS factors.

Generally, the project separates the supply industries of products into three parts: fruits and vegetables; processed food, beverages and tobacco; and other industries. Each of the groups has had the most efficient and appropriate method for calculating margins adapted to it. The trade margins on agricultural goods were constructed using the comparison between consumer prices and farmer prices. Consumer prices were acquired from the Consumer Price Index system, and farmer prices from an agricultural database. Trade margins on processed food were calculated as the difference between the consumer price, and the production price, which was taken from the system of wholesale price index of manufacturing output (Producer Price Index).

Margins on goods from other manufacturing industries were calculated with the aid of the Survey of Trade, Services, Transportation and Communication, which includes commercial companies which are classified at a high enough level of detail (4 digits), so that their commercial activities can be divided by the industries of origin of goods sold. The ratio between output and revenue constitutes the consumer price margin rate, without VAT. The classification of the Trade and Services Survey allowed a distribution between margins on the wholesale segment, as opposed to those on the retail segment. This is part of the international recommendations for constructing trade margins.

Usage of the import records received from Customs makes it possible, among other things, to identify importers at each one of the trade segments, and thus makes it possible to divide margins of imported goods from those not imported. The rule for identifying an importer was that the value of imports of the company, including import taxes, must rise above 51% of the costs of its sales. Therefore, the final margin on all trade segments on imports, from all sources, was calculated as the sum of margins on two trade segments. The method proposed here makes it possible to separate in the retail segment the goods imported by retailer from others; these goods pass through only one trade segment. These goods margins are later added to the final margin, which was calculated on the rest of the goods.

After construction of the series of trade margins was completed, a number of analyses were performed on the series. These analyses showed that the rates of the margins derived, were reasonable. Among others, it was seen that the margin rates of retail importers is less than the margin rate on goods which pass through the two marketing segments. It was also seen that the margins charged by wholesalers trading in locally produced products are lower than those charged by wholesale importers.

It was also demonstrated that it is possible to see in the three separate groups of industries that the margins on their goods are different than the trade margins on goods of other industries. It was proved that the margins on processed food products are significantly lower, compared with other trade margins.

In conclusion, this paper presents a way to calculate trade margins based on information which can be found in the Central Bureau of Statistic's databases. The findings which were derived also underwent a basic econometric test, and were found

to be reasonable. However, it should be noted that the most reliable calculation of trade margins will only be possible after construction and final closing of an input-output table.

II. THE RESEARCH AND ITS RESULTS

1. Treatment of Margins in Professional Literature

In the UN recommendations for constructing a system of national accounts (SNA 93) trade margins are defined as “the difference between the actual or imputed price realized on a good purchased for resale, and the price would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of”. From this amount should be deducted the expenditures involved in the physical transfer of the product, from the moment it was bought by the seller and up to the moment in which he sold it. I.e., transport margins.

This definition assumes that the product did not undergo any change from the moment of its purchase by the merchant. However, SNA 93 permits including in the trade margins activities such as sorting and packaging.

It is accepted practice to differentiate between wholesale and retail trade. Wholesale trade is defined by the UN document as the transfer of new or used goods to retailers and industrial, commercial, institutional, professional consumers, or to other wholesalers. However, retail trade is the sale of new or used goods to the public for personal or household use. It should be noted that according to SNA 93, margins shouldn't be derived from the sale of used parts and waste, nor from transactions of transiting goods from one country to another, through a third country.

ESA 95 (The European System of National Accounts) differentiates between two methods of constructing margins: through the supply side, and through the demand side. The first method requires initially dividing between income from wholesale trade and from retail. Afterwards, the income is divided by industry and by product. In determining trade margins, a permanent margin can be assumed for each industry or product, in all uses.

Deriving trade margins through demand is not recommended by ESA 95, due to great problems of data accessibility. Consumers do not usually know the weight of the margin of the price which is charged for the product they purchase. Sometimes consumers don't even know the type of merchant they have bought from. Deriving margins in this manner seems to require knowledge of the weight of purchases from trade for each single component of a transactions table and margin rates by products. It may also be assumed that products for private consumption are purchased from a retailer; whereas products for intermediate consumption, investment and export are purchased from a wholesaler. Note that this paper deals with trade margins only on private consumption.

In general, the ESA 95 recommends using the first option, due to the quality and availability of the required data. However, there are researchers who have shown that

the second option is also possible. Thus, for instance, M. Asensio Pardo, J. M. Rueda Cantuche & A. Titos (2004) claim that while dealing with the Andalusian economy they reached the conclusion that deriving margins is easier when doing so by uses. In their opinion, the disadvantages of constructing margins through supply are in "...uncertainties, such as a weak database, changing shapes of supply of negotiable products, electronic trade, etc."

In calculating by the supply method, the Spanish researchers felt it essential to determine the rate of the margins included in each cell of the uses table. In their opinion these rates depend on two elements: the rate of the margin in a typical product, and the distribution channels of these products (these channels will be described below). Determining the margins in this research project was based on approximately 5,000 commercial companies, divided into those who deal in retail, wholesale and motor vehicles. The difference between sales and their cost results in output, which is, actually, our margin. Dividing the output by sales provides the rate of the margin.

The great contribution of the Andalusian paper was in the identification of the ten channels of product distribution, and the way to calculate the total margin for each channel. In general, these channels can be divided into four types. One type of channel is transferring the product without a margin – direct import or export¹, or direct transfer of a product from the manufacturer to the consumer.

The second type relates to a transfer that includes only one merchant in the chain; when what is usually meant is the purchase of a product by the final consumer, from a wholesaler or retailer who previously purchased the product from a local manufacturer or imported it independently. The third type includes two merchants in the chain – one of whom is a wholesaler and the other a retailer, or both are wholesalers. In the last type of channel, the Spanish researchers identify only one channel, which includes two wholesalers and one retailer. According to them, this channel mainly exists in agricultural products.

In this research project, the assumption is that private consumption makes purchases chiefly through the wholesale and retail channels. The purchase of a private car is the exception in Israel, in which the purchase includes only one segment in the distribution chain. Usually, cars in Israel are sold by agents of the exclusive importers of specific models.

In dealing with agricultural products, we will avoid the problem of the three segments (if it even exists in Israel), by comparing prices – a method which will be presented shortly.

In addition, when we continue dealing with margins for other uses (intermediate uses, investment and export) we will adopt, in most cases, the recommendation of the European document, and assume the existence of only one segment in the chain; i.e., transfer through a wholesaler.

¹ Direct import is import by a company in a manufacturing or services industry for its own use. Direct export is the export of goods by their manufacturer.

In the document “Service Industries in the Canadian Input-Output Accounts”, the researchers of the Canadian Central Bureau of Statistics, similar to the recommendation of SNA 93, divide trade into wholesale and retail. They are aware of the problem of deriving margins according to a product, and therefore the products are assigned the average margin of the enterprises that deal in them. These researchers also emphasize the difference in margins on the company level: a large wholesaler can acquire a product at a lower price than a small retailer.

Norbert Rainer’s paper of 1986 also proposes to divide the two types of trade. But he proposes to be very careful, and not generalize commercial activities in wholesale, and vice versa. This danger is particularly present when trade margins are derived on the basis of a Trade and Services Survey, because a wholesaler can sell certain quantities at retail as well, or a retailer – at wholesale. Furthermore, certain manufacturers can deal concurrently in trade; although in Israel, large manufacturers usually establish trading companies. But the possibility can’t be ruled out, that they may deal in trade without establishing a company for that purpose.

An additional point that the above article emphasizes is the uniqueness of the margin for each type of goods, while dividing them between wholesale and retail. The derivation of the final margins is conducted in a hierarchy sequence – first the known margins (the regulated goods), then margins by comparing the prices of the manufacturer and the consumer, and finally – all the others are dealt with. In Israel the final work on margins is conducted during the construction of input-output tables.

As can be seen, many researchers have devoted and continue to devote their attention to the subject of calculating margins. There is no consensus among them regarding one way only of doing so; however, in recent years a certain path has begun to be laid, mainly thanks to the UN and European Union manuals. In this paper additional strata will be added, which may improve the accuracy and efficiency of calculating trade margins.

2. Databases and their use, for calculating margins

A. Description of databases

The purpose of this research project is to use existing databases, while adjusting them slightly for our purposes. Following are the sources of information we used: the Trade and Services Survey, the agricultural database, prices from the Wholesale Price Index and Consumer Price Index.

A1. Trade and Services Survey

Every year trade and services surveys are published by the Economic Business Statistics Department. The Trade and Services Survey 2000¹ was used for this research project. This survey was applied to a sample that included approximately 4,900 companies. Of these, 1800 companies were in the wholesale and retail trade: the motor vehicle and motor parts trade, and the retail fuel trade (Division 50) included

¹ The Trade and Services Survey 2001 was in its final stages of processing, at the time.

approximately 254 companies; the retail trade (Division 51) included 963 companies; and the retail trade (Division 52) included 615 companies. 1,800 companies constitute a little over 2% of all trading companies listed in the economy, with the highest cover being the retail trade – approximately 4.5%. However, this number does not reflect the total cover of the turnover of the trade industry.

We feel obliged to point out that the survey includes most large companies, whereas small and medium companies were sampled by a probability sampling, with the goal of providing an accurate probability of their weight in the survey population. Therefore, activity indices (such as income) of all sample companies are multiplied by the relevant weighting factors, and then totaled at the industry level, to make it possible to derive the index of the entire industry population.

The non-capital income of all trading companies that appear in the sample covers almost 52% of the turnover resulting from weighting of all trade industries; with the highest cover in Division 50 (approximately 57% of the weighted turnover); and the lowest cover in the retail trade (approximately 43% of the weighted turnover). The explanation for this gap is probably to be found in the fact that the level of centralization of the commercial activity in the vehicle and fuel trades is much higher than that of the wholesale trade.

The Trade and Services Survey was constructed on the basis of Income Tax reports of sample companies, with the information being verified from other sources, such as VAT and National Insurance files. After a rigorous assessment these files enter the system and their data are processed and summarized by the weighting methods described above.

The main elements of the survey, which are relevant to this research, are non-capital income, cost of sales and output, i.e., non-capital income less sales costs. As stated, output is the margin of trade and its weight out of the total non-capital income represents the weight of the margin. The Trade and Services Survey of 2000 was used for this research. The assumption is that margins remain more or less stable over time. This survey serves in calculating trade margins of all manufacturing industries, except for food industries. The reasons shall be presented below.

A2. Prices Indices

An additional source of information is a price system devised by the Central Bureau of Statistics for purposes of calculating a Consumer Price Index and a Wholesale Price Index of Manufacturing Output¹. As shall be explained, the difference between these two types of prices constitutes the complete margin of distribution and transport.

Both indices are published on a monthly basis.

¹ Israeli term

Wholesale Price Index of Industrial Outputs

The first index is, in fact, **the Producer Prices Index**¹. The index measures the “...rate of *change* in the prices of products sold, as they leave the producer (2004)” Producer Price Index Manual. Therefore, the goal of calculating the index is to accurately reflect not the market price, but the changes it undergoes over time.

In Israel this index is based on a sample of approximately 800 establishments and 6,500 products. It does not include the diamond industry. In most cases, the index is collected on the 20th of each month. However, food producers report their prices during the entire month. In some cases, the average price is transmitted at the end of the month or the beginning of the next.

Choosing the establishments participating in the calculation of the index is based on a sample of industrial indices. During the sampling process, first to be used are the large establishments² of the industry (at the 3-digit level). Afterwards, medium and small plants are also included, according to – among other factors – the ease of obtaining information about them. The minimum cover for those conducting the sample is 60% of the industrial turnover. It should be noted that in the course of conducting the project, establishments whose main production is intended for export are removed from the sample.

After determining the sample, the establishments are requested to list their products, and specify the production value of each type of goods. The products of all the manufacturers are divided between typical industries of origin. A 3-digit industry divides into an additional 3 sub-levels: products, items and observations. E.g., white cheeses (group of products) – “Cottage” cheese (item) – cottage cheese of a specific company, with a 3% fat level and bought at some supermarket (observation). Weighting each datum within each one of these 3 sub-levels is determined according to the reports of establishments regarding their production of relevant products.

Consumer Price Index

The Consumer Price Index was used to a great extent. This index calculates “...*the changes* in the prices of goods and services that households consume” (2004) Consumer Price Index Manual. According to a more accurate Israeli definition: “.....the Consumer Price Index calculates the change in the price of a consumption basket of the group of consumers to which it refers” Consumer Price Index - 1992.

The upper level of the index pyramid is represented by the aggregated index, which divides into 10 groups of products. Of these, only 4 groups were used: food; fruits and vegetables; education, culture and entertainment; miscellaneous. The first group includes approximately 286 items; the second - approximately 92 items; the third – 245; and the fourth – 116. Each item includes observations, which are differentiated from each other by weight and type of packaging, model, name of manufacturer, the

¹ International term

² The size is determined by the weight of the establishment's turnover, out of the total turnover of the industry.

shop in which it was sampled, etc. Thus, for instance, more than 6,500 observations a month are included in the group of products “Food”.

The total consumption value of the entire index basket is adjusted to 1,000. Each item receives its own weight. The weights of all the items are determined by the Family Expenditure Survey. As of 1997 this survey is conducted on an annual basis, and includes approximately 6,000 urban and smallholders’ cooperatives’ households: big and small; with all levels of income; employees, self-employed and unemployed. In fact, the survey includes most (95%) of the country’s consumers. During the investigation, which continues for approximately two weeks in each of the chosen households, each of the family’s ongoing expenditures is recorded, while taking into account the date of full payment but not of the use of the article.

The sample of consumption categories includes mainly items whose weight is above one-thousandth; but if no item with this weight is found, it is exchanged by an item with a smaller weight but with price fluctuations similar to the missing item. The chosen categories cover approximately 95% of the basket. As mentioned above, each item includes a number of observations. These are chosen by the interviewers during their visit at the enterprise. The criterion for the choice is whether the product is the most sold at a specific company. In cases where the sample product’s distribution is halted, they try to choose a product with a miniscule difference of characteristics compared with the missing product. Only if they fail to find such a product, do they choose a product with very different qualities.

The price recorded for each product is “...the full price, in cash, with no haggling, which the consumer is required to pay...”, with the product being in good condition and for sale. The reductions included in the index are those, which are given both to the general population and to specific population groups. However, it does not include reductions in the form of presents, prizes or lotteries. The index also does not include credit reductions which arise out of transactions in payments. This is particularly significant in periods with a high interest rate. The collection of these prices is carried out in each company every month, on a fixed date.

Sampling the companies in the survey is done using the VAT file, according to the classification of the industries and by turnover. For each enterprise chosen to be in the sample, a list is constructed of 5 similar companies that can replace him, in case there are problems with collection. The sample includes approximately 1,900 companies, of which approximately 600 report their prices by telephone (especially the services industries) and the rest by the interviewers during their visit to the store.

The companies are differentiated by – among other things – their location and their type. The types relevant to this research (the food and fruits and vegetables industries) are markets, stores and food chains. Each type within the item receives a weight of its own, which reflects the sales weight of a specific product by a given type of company. The probability of an enterprise located in a certain city rises with the rise in weight of that same city in the total national consumption. The sample included enterprises from 50 localities, which have a population of 10,000 residents and over.

Agricultural Database

An additional resource used for this research project is the Agricultural Database, which was made available by the Agricultural Division. The data used is from 2003.

The Central Bureau of Statistics gathers data on both field crops and livestock. In this project only data on field crops¹ was used. A comparison between the consumer price discussed above, and the cost to the farmer, produces the margin.

The information about field crops was derived from two factors: the Training and Professionalism Department of the Ministry of Agriculture, and the Organization of Field Crop Growers. Both these organizations transmit annual data on prices and quantities, and at the Central Bureau of Statistics the most suitable are chosen after comparing the two. The Plant Council², Agrexco, wholesale markets and industrial establishments provide data on fruits and vegetables. For some of the crops, data are transmitted monthly. In most cases prices are received directly from the above providers of information. In rare cases they are inferred from the quantities and output values transmitted.

After determining the databases for deriving margins, it was attempted to assess the weaknesses of these databases in helping achieve the research goals.

B. Calculation methods and their weak points

This paper proposes **a combined method** for calculating trade margins. The reason is that each economic sector is unique, and therefore the methods of dealing with it must be adjusted for this uniqueness.

Calculating the margins in growing fruits and vegetables is accomplished by comparing the consumer price with the one paid to the farmer. The margins in other food, beverage and tobacco industries are derived from a comparison of the consumer price against the wholesale prices of the industry output. Other industries acquire their margins according to the Trade and Services Survey. Using this survey in the food industries was not possible, because there is the greatest difficulty in these industries to separate the trade data by the source industries of the goods being traded. Trade industries in food and in fruits and vegetables include food chains, grocery stores, etc. The list of goods sold in these companies is extremely long. Dividing the data of economic activity at the level of goods is impossible, since the Trade and Services Survey is based on financial reports of the trade companies, which do not contain such details.

Following are the methods in detail, with an analysis of the problems that can be seen in each of the methods presented.

¹ Mostly fruits and vegetables.

² A union of the fruits, vegetables, citrus fruit and flowers councils.

B1. Fruits and Vegetables

For deriving margins on the sale of **fruits and vegetables**, the difference between the price to the consumer and the price at which the farmer sold his produce to the wholesaler was used. Both prices do not include VAT, since that is not levied on fruits and vegetables. As can be understood, the first price is taken from the Consumer Price Index system, and the second from agricultural databases.

The consumer price used is the average price for an item. It did not appear to be necessary to achieve a higher level of detail – the observation level – since the agricultural database (against which the comparison is conducted) does not go into greater detail. On principle, there is no real problem with that, since at the item level the products are fairly homogeneous (e.g., cucumber, tomato, persimmon or watermelon). Moreover, certain items are defined in a very detailed manner: Shamouti and Valencia oranges, for example. However, despite all the above, the fact that a certain bias may still be created by our system cannot be ignored.

As stated, margins were calculated for each item/product separately. These items were classified by original industries (the industries in which they were meant to be produced). Afterwards, these margins were grouped by industry, and weighted by the production value of each item in its original industry. This value was received from an agricultural database. This weighting is correct, since both the prices and the quantities obtained from agricultural databases represent those that were directed to food; i.e., for sale in the country for private consumption. The assumption inherent here is that the fruits and vegetables that reach the table of the Israeli consumer do not come from imports but from local production. According to the estimates of the supply table for 2002, the weight of imports out of all economic sources in producer prices in agriculture, whose produce is earmarked for private consumption, is less than 12%.

It should be noted that the quantities taken for weighting were deducted from the depreciation; i.e., from the quantities of produce which were spoiled. These depreciation weights serve the National Accounts Department in calculating private consumption of fruits and vegetables. It is also necessary to adjust the price at which the farmer sold his goods to the buyer. Actually, there was a need to raise this price and thus reduce the margin. The assumption inherent here is that the dealer includes in his price for his goods, the cost of the produce that was spoiled. For example, if the farmer sold the dealer a kilo of tomatoes for NIS 5, and 20% of the produce became spoiled while with the dealer. That means that the goods from which the dealer can earn income cost him more; the price of a kilo of tomatoes was, in fact, worth NIS $6.25 = 5 / 0.8$. If the dealer later sold the consumer his goods at NIS 7 a kilo, the margin that can be deemed right is worth NIS 0.75, not NIS 2. According to the data received from National Accounts, in most cases the weight of the depreciation ranges from 10 to 20 percent.

One of the great advantages of the proposed system for deriving margins on fruits and vegetables is that the price to the consumer is weighted on all types of stores, including markets. The Trade and Services Survey, however, obtains the results of activity in the markets as an imputation from the data of the national accounts. Therefore, this survey does not serve the purpose not only from the aspect of the

difficulty of distributing the data by original industry, but also because of the difficulty relating to data in one of the trade segments.

One of the additional problems in deriving margins is rooted in the fact that the consumer price – naturally - does not include reductions that the consumer received as a result of haggling. And this is definitely relevant to fruits and vegetables, especially those sold in markets. The Consumer Price Index also has no solution for reductions through presents, prizes or lotteries. On the other hand, the Trade and Services Survey does provide a solution for this issue, since reductions resulting from these sorts of discounts are reflected in the profit-and-loss spread. Credit reductions are also not represented in the consumer prices, but they do appear in the expenditures paragraph (financing expenses) in the Trade and Services Survey.

An additional problem that might arise is that of different dates of collecting the two types of prices; although in times of low inflation this problem should be minor (and this is indeed relevant to Israel in 2003, especially when speaking of an annual average).

The margin calculated is not the net trade margin, but rather includes the transport elements. Our experience has shown that this margin is insignificant compared with the trade margins.

The main problem of calculating according to the proposed method is that it is impossible to differentiate between wholesale and retail trade, which is part of the international recommendations for constructing input-output tables.

Only in the flower trade was there success in separating them, because there both the wholesale and the final margins were available. A comparison was made between the consumer price and the producer price (a method which will be presented in the next chapter), in order to calculate the final margin. The problem encountered in the flower industry was the low number of parallel observations of both types of prices. The wholesale margin was derived from the Trade and Services Survey.

Despite all the above, the chosen method is perceived to be the best for calculating margins in the industries of growing fruits and vegetables.

B2. Food, beverage and tobacco products

In order to calculate margins on food products, a comparison is drawn between the consumer price and the producer price. The difference between the two prices should produce the margin. Using the Trade and Services Survey is not possible in this case, as also happens in the industries of growing fruits and vegetables.

As in B1, this margin also includes the transport margin. In addition, several other problems that appeared in the previous chapter, also apply to this one. Among these are: the problems of reductions due to haggling or credit sales, presents, prizes, etc.; the problem of different data collection dates; the impossibility of calculating margins on imports; non-differentiation between wholesale and retail margins.

The “Producer Price Index Manual (2004)” recommends sampling companies from a census, or at least from a company registry. The Business Registry was established at the Central Bureau of Statistics only a short while ago. Till now sampling the enterprises for devising a producer price index was based mainly on the enterprises sample that is used in calculating manufacturing indices¹, with certain additions from other sources of information. The changeover to sampling by the Business Registry may well significantly improve the selection of companies and the quality of the sample.

The sampling method that emphasizes large companies may well give rise to under-representation of small companies. This may well distort the accuracy of the prices, especially when there is no use made of the Business Registry.

The goal of price indices is to accurately reflect the changes occurring in them, rather than the prices themselves. Therefore, a situation may arise of under-representation of certain products – the changes in their prices are represented by products with a similar change curve. However, there is a need for sufficiently good representation of products within original industries, for the purpose of deriving margins. Since for purposes of deriving margins comparisons are made between prices from two sources, there is an essential need for a sufficient quantity of identical products in two systems. That requires dropping to the level of observation in consumer prices, since an item such as yogurt is produced by various companies and in different tastes. In the sale of beverages, for example, care should be taken to compare quantities of bottles sold: a six-pack of beer compared with a six-pack of beer, not with single bottles. Since the entire food industry usually includes a large quantity of items, making the process of deriving margins more efficient requires reducing the list of these items. Therefore, this list includes items with a relatively high weight compared with the rest of the items in the industry.

The calculated margins apply to each item (item or group of observations) separately. There was a need to group them into the industrial level. The weighting coefficient chosen was the weight of each item in the total consumer price index. As explained above, that reflects the importance of consumption of the designated product within the general consumption basket. Therefore, weighting the margins on goods for private consumption by this index seemed the right road to take. The comparison on the item level was possible mainly in the meat industry, where there is ample representation for homogeneous products. In many other industries, such as the various milk products, ready-made food, etc., there was a need to compare groups of observations of consumer prices with observations of producer prices.

Before calculating the margin observations of consumer prices must be grouped, because there is a separation of types of company in which the product is sold: market, store, special store, food chain, etc. For each type of item there is a unique division among these types of companies. Therefore, the weighted price must first be calculated by types of store, and only then be compared with the producer prices.

¹ This sample is based on National Insurance Institute files

Both the producer and consumer prices used include VAT, because prices recorded for purposes of calculating the consumer price index include VAT. Since the margin is calculated as the weight of the difference between the consumer price and the producer price, out of the consumer price, then the VAT – which is a relative value – is reduced. The percentage of the uniform VAT to the producer and the consumer is written as t , the consumer price without VAT as P_c , and the producer price as P_p . Therefore, the prices used are: $t * P_p$ and $t * P_c$. The relative margin is:

$$(t * P_c - t * P_p) / t * P_c = t * (P_c - P_p) / t * P_c = (P_c - P_p) / P_c$$

Thus, it is clear that the relative margin is free of VAT.

A special process is used when deriving the margins on beverages. A number of years ago a deposit law was passed in the Israel Knesset to encourage recycling of beverage bottles. Under this law, the price of a soft drink bottle up to 1.5 liters is increased by NIS .25, and the price of a beer bottle of 500 ml. and over is increased by NIS 1.20. These sums are included in the price at the sales point by the producer. After returning the empty bottle to the store, the consumer receives the sum of his deposit back. The merchant transfers the empty bottles to the producer of the drink, and receives the sum of the deposits back from him. Since in reality not all consumers return their bottles, a certain amount of unreturned deposits accumulate. These are transmitted by the producers to a special fund of the deposit law. This means that according to the law, no amount of the deposits should be left in the hands of the producers or merchants. Therefore, this amount should be deducted from the calculation of the margin. Since it is a fixed sum, it is reduced in the numerator (since both prices include it), but must be deducted from the consumer price in the denominator.

Calculating the margins on trade in cigarettes requires special attention. In addition to VAT, two types of purchase taxes are levied on cigarettes: a tax of a relative rate of 58% of the consumer price, and a permanent tax in the sum of NIS 1.1 per package. Therefore, in dealing with cigarettes of domestic manufacture, the consumer and producer prices were calculated first. Afterwards, the above taxes were deducted from these prices, and then the margins were calculated. For purposes of calculating the margins on imported cigarettes, there was no possibility of using comparisons of indices. Therefore, the total purchase tax on imported cigarettes was divided by the quantity of these cigarettes. The total C.I.F. value, excluding taxes, was derived from import data. This value, too, was divided by the quantity of imported cigarettes. Adding the purchase tax per package to the C.I.F. value per package, results in NIS 9.9. The average consumer price on imported cigarettes, less VAT, results in NIS 13.3. The difference between this price and NIS 9.9 constitutes the margin on a package of imported cigarettes. The margin on domestic production is 27.3, and on imports is 25.6. The margin is weighted by the quantity of cigarettes consumed in part of 2004 (the period for which there are data). The weighted margin is 26.1%. It should be noted that the margin was calculated as a weight of the consumer price, without VAT. If necessary, this tax can be added.

In conclusion, it should be emphasized that the quality and efficiency of the work in calculating margins would be improved if there were a greater correlation between prices from two sources; since in many cases it is not easy to find identical goods.

B3. Other manufacturing industries

In other manufacturing industries calculating the margins was mainly based on the Survey of Trade and Services 2000. Only in a number of industries manufacturing paper products and fuel, was the margin calculated by the comparison of prices presented in the two paragraphs above.

Problems of company classification and sampling

The system of calculating margins using the trade and services survey means dividing the output (non-capital income less cost of sales) by non-capital income. This ratio constitutes the margin ratio. The purpose is to divide these margins by the original industries in which the groups of negotiable goods were produced.

The trade and services survey gathers information by trading companies at the level of three-digit ISIC classification, and therefore the data of economic activity has been grouped accordingly. At this level of classification it is impossible to divide economic activity by the original industry of the goods; e.g., Industry 512 – “Wholesale trade of household goods” includes trade in furniture, household electricity and gas appliances, detergents and cosmetics, pharmaceutical goods, toys, etc. Therefore, to allow dividing of produce, which was sold in these trade industries, according to the industries of origin¹, we have to classify our trade industries by 4-digits ISIC classification. And therefore all the trading companies in the survey were paralleled with the Business Registry², in order to reach the level of a four-digit classification (class).

The problem is that sampling of enterprises for the trade and services survey is based on classification at the three-digit level, and that resulted in the fact that not all four-digit industries are represented in the survey.

In some cases, there is still no one-to-one correspondence between a trade industry and an original industry. There are three problematic situations. The first is when a particular division trades in groups of products that are produced in different original industries. One of the solutions for this is attributing an identical margin rate (which has been calculated in the trading industry) to the appropriate original industries. However, although it does happen that such a trading industry includes companies that deal in products from various original industries, but each company deals in groups of products from one original industry. That makes it possible to distribute the margins of the industry by this key (in addition to four-digit division), so that certain margins will be attributed to the relevant original industries.

The second problem arises when various trading industries sell groups of goods from the same original industry. In this case, the problem is overcome by attributing the margins of those industries to the same original industry. Weighting the margin is done while trying to accurately reflect the weight of these groups of goods with the industry.

¹ Original industries in Israel are at the three-digit level, which is also the level at which input-output tables are constructed.

² Business registry classifies each company by 4-digits ISIC classification.

A combination of the two above problems represents the third case. The solution to it is also a combined one.

In addition, classification of the merchants in the trade and services survey is conducted according to the main activity, or in this case, by the goods (or group of goods) most traded in by this company. For example, if a wholesaler trades both in pharmaceuticals and in cosmetics and toiletries; if the main value of goods sold by that company is from cosmetics, that company is classified in the cosmetics class (5212). In the opposite case, it will be classified in 5210. The problem is that dividing the output, income and margins of the same company is neither simple nor unequivocal; especially when the profit and loss report does not divide the company income between these two sales activities. In extreme cases, this problem is solved individually.

As noted above, the use of these methods of calculation in agriculture and food is not possible, because the products of a food chain or even a grocery store are produced in many industries – many more than can be dealt with in solutions to the first problem. In fact, it is necessary to attribute almost identical margins to all these industries.

The trade margins calculated are, as stated, separate for the wholesale and retail trades. Connecting the margin rates of these two segments of trade, less their multiple, produces the final rate of margin of the consumer price (for an explanation of the method for deriving the formula, see Appendix 1).

It should be noted that the great advantage of using the trade and services survey is that it is possible to calculate the margins on not only locally produced goods, but also on imported ones. The importance of imports is especially high in manufacturing industries, except for food industries.

Separation of imported goods from locally produced goods

It should be mentioned that there is a way to differentiate between margins on imported goods and those on goods produced in the country. For purposes of separating the margins a rule was formulated: every merchant whose imports, including taxes, are higher than 51% of the value of his sales costs, is defined as an importer. However, in exceptional cases, additional companies were also defined as importers – actually, their dealings were defined as trade in imported goods. And what are they? A group of companies can include both wholesalers and retailers. In the Customs records this group's imports can be listed entirely on the name of one of the companies in the group, and thus cause the C.I.F. value of the import – including taxes – to rise above the value of the cost of sales. On the other hand, another company in the group – it can be a retail company or a wholesaler – will have no import listing at all. According to the 51% rule, this type of company will not be recognized as dealing in imported goods, and the margin will be calculated and recorded as a margin on locally produced goods. In order to find a solution for this situation, the whole list of companies with this problem was reviewed, and the list of those considered exceptional cases was compiled by hand. This has still not solved the entire problem; since it is possible that import of a value not exceeding 51% of the value of cost of sales is recorded on one of the wholesale companies within the group.

This means that there is a great chance that the retailer of the group trades in these goods, and even receives them from his partners without a real margin.

The chain of goods transfers and calculation of the margin

After the division described above, the margins that resulted required appropriate aggregating, which required understanding the way the goods pass until they reach the consumer.

Diagram 1 – Ways of transferring locally produced and imported goods

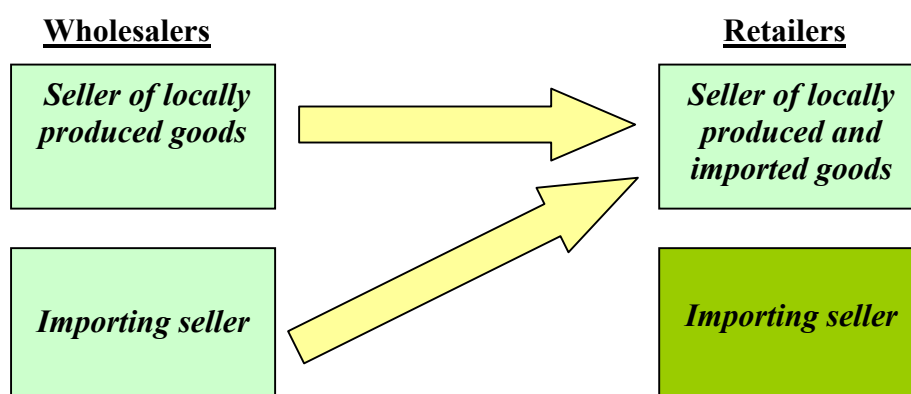


Diagram 1 presents the channels through which the goods pass. First of all, there is the division between imports and local manufacture in the wholesale trade. This division was performed, as stated, according to the 51% rule, mentioned above. All those classified in the Business Registry as wholesalers (whether they sell imported or locally-produced goods), are intended to sell the majority of their products for private consumption through retailers, and not directly to the consumers. Therefore, as a result of the division of retailers according to the rule of 51%, two groups of retailers emerged:

- 1) A group of companies selling both locally-produced goods and goods imported by wholesalers
- 2) A group of companies who sell goods imports independently

The margin of the first group of companies can not be divided, because the method used makes it possible to identify imported goods only when it crosses the borders of the State of Israel; i.e., passed through Customs and was recorded there. Therefore, this margin includes retailers' margins both on goods produced in Israel and on goods imported by wholesalers.

Let us mark the margin of the first group as R_D and the second group's margin as R_I . Concurrently, the margin of a wholesaler who deals in locally produced goods will be marked as W_D and the margin of a direct importer as W_I . The weighted margin of

each industry wholesaler is called W . The total margin on all marketing segments is: on imported goods – M_I , on locally produced goods – M_D , and on those that come from both sources – M .

In order to calculate M_D , it is assumed that in the retail-marketing segment the margins both on locally produced goods and imported ones are almost identical. In the case of locally produced and imported blouses of identical quality, under perfect competition conditions the price to the consumer should be identical. When the retailer will purchase these blouses from a wholesaler he, in theory, will demand an identical price for the locally produced and the imported one. As a result, the margin that is created in the retail segment is identical to both types of goods. Therefore, it is correct to define the margin M_D as:

$$(1) M_D = W_D + R_D - W_D * R_D$$

According to the structure of the chain of goods transfer it can be understood that when calculating the margin on imports, the margins of two different types imports should be calculated separately: imports by wholesalers and imports by retailers. The margin on goods imported by retailers is calculated automatically from the trade and services survey. The margin concluded on two of the trade segments on imported goods imported by wholesalers is also possible – with the help of an assumption of identical margins on locally produced and imported goods in the retail segment (see treatment of margins on locally produced goods). However, the real problem lies in the limits of the ability to weight between the two types of margin; since it is impossible to know the weight of the turnover of goods imported by a retailer in the total turnover of the retailer who trades both in them and in locally produced goods. As a result of that difficulty, it was decided to refrain from calculating the margin on imported goods.

And now the stage of deriving the total margin on imports and on local production has arrived. There is no need here for assuming an identical margin in the retail segment (see explanation above). In order to calculate the total margin on locally produced and imported goods, the margin of importing retailers is added to the margin of all those selling locally produced goods and goods imported by wholesalers. The second margin is calculated as the sum of the total wholesale margin (W) on all types of goods, and the margin of non-importing retailers. The weighting between the first margin and the second one, is conducted with the help of the weight of the turnover of retailers of both types (p_{R_I} is the weight importing retailers). The formula for calculating the above margin is, therefore:

$$(2) M = (W + R_D - W * R_D) * (1 - p_{R_I}) + R_I * p_{R_I}$$

In conclusion, it should be emphasized that the division of margins between local production and imports is legitimate mainly in the wholesale trade segment. On the other hand, calculating a separate margin on locally produced and imported goods on all trade segments becomes problematic, for – as shown in the analysis presented above – deriving the retail margin on imports constitutes a considerable problem.

It should be noted that the possibility of transferring the goods through a retailer, without passing through a wholesaler, exists in trade in locally produced goods, as well. Dealing with this situation is much more difficult, since in many cases it is impossible to identify the companies, due to the fact that there is no available point of recording the sale of goods from the producer/manufacturer to a specific merchant. This type of trade problem is especially common in food chains, which are not dealt with by the CBS, because the method of deriving margins on food products is by comparing prices. In the few cases of products of other industries, it is possible to identify certain chains and provide special treatment, as was done in imports.

A number of additional issues, which arise when using the proposed method, will be dealt with below.

Acquisitions on the Internet from abroad

The development of purchasing on the Internet makes possible today the direct import of certain goods by private consumers. Goods such as books and videotapes can be ordered directly from abroad. Israeli citizens (both tourists and business people) bring with them goods which have no margin, on their return home. This may also influence the behavior of local merchants, who are faced with competition on one or another level, from foreign merchants. The value of imports of this type is not specified in supply tables by original industry, but rather is completely included in the industry as tourism import. No margin is derived on this sum, of course; and the problem described above is thus solved.

Local acquisitions on the Internet

Electronic trade (trade through the internet) is gaining strength in Israel, as well. Two sales methods have been identified:

- 1) Direct sale to the consumer by a wholesaler or retailer, through his own website
- 2) Sales by the same companies, through the website of a company dealing only in maintaining the website

In both cases the sales will be reflected in the margins, since these are based on profit and loss reports. In the second case, although the Internet company through which the goods are sold will be classified in the service industry, but the sales conducted through it will be recorded in the books of the company actually trading in them. The company's ties to the Internet provider will also be reflected in these books. Therefore, in each of these cases, there is no real danger that the Internet activity may harm the calculation of trade margins.

Marketing agents

In addition to the problems noted above, there is also the issue of agents, which in the international classification belong to the trade industries. These agents do not own any goods, and their output is equal to their income. Companies of this type deal mainly in negotiating between various trade and production factors. From the above, it is

obvious that the margin that will be derived will be worth 100%. In order to prevent the distortion in the calculation, those companies acting as agencies were eliminated from the data.

Calculation of margins on newspapers

An unusual treatment is accorded to Industry 221 (Publishing of periodicals and publishing n.e.c.), in which there was the possibility of calculating more accurate margins by using the method of comparing prices described above. When calculating the margin on newspapers, a margin of 0 was given to those newspapers which are delivered directly to consumers. The weight for these goods is found in the consumer price index system.

Calculation of margins on fuel products

The calculation of margins in the fuel industry (230) is based on monthly data for 2004, which were published by the Fuel Board of the Ministry of National Infrastructure. There was a possibility of receiving prices at the refinery rate, and the regulated consumer price with types of fuels (95 and non-lead 96 octane). The excise element was deducted from the consumer price (a fixed sum per fuel unit), which is updated quarterly by the Fuel Board. Weighting the two prices was done according to the quantities sold, as reported by the Fuel Board. In Group 230 the assumption is made that these two goods represent the main part of the goods (by the sales value) sold to the consumer. Among the other goods which reach private consumption, mention should be made of diesel fuel for heating and carbon gas. The data available did not have an accurate division of these two types of goods according to their uses (private or intermediate consumption). However, even if it is assumed that all these goods (fuel for heating and carbon gas) went to private consumption, their weight within the total quantity of goods of Group 230 (Manufacture of Refined Petroleum and its products) does not rise above 20%; i.e., the weight of gasoline reaches approximately 80%.

In conclusion, each of the methods described above has its weak points, not one is perfect; but they are the best means available to tackle the complicated issue of calculating trade margins. Following are the results received.

3. Presentation and analysis of the results

The margins calculated during this research project will be updated and adjusted on the final closing of the input-output table. According to international recommendations, trade margins are to be regarded as one of the less accurate elements. Therefore, the process of balancing between supplies and uses makes it possible to add or deduct one amount or another (not arbitrarily, of course) from the margins. This is the process the margins derived at the Central Bureau of Statistics underwent, for the purpose of devising an input-output table. Since the margins calculated at present have not yet undergone the final closing, there is no possibility

of comparing the margins of this research against the 1995 margins appearing in the input-output table.

It must be emphasized that the margins presented in Appendix 3 were calculated by different methods and for various years. The margins on agricultural products were calculated for 2003; on food products – for 2004; and on products from all the rest of the industries – for 2000. The assumption is that trade margins, which represent the structure of a company's business activities, do not change at a high rate; i.e., do not change in the short term. It was not possible to calculate all the margins for one year, because: 1) the latest trade and services survey available in 2004 was for 2000; 2) prices in agricultural industries for 2004 were subject to great fluctuations, and therefore a biased margin might have been derived; 3) margins in food industries were calculated according to the most up-to-date prices available (January to September, 2004). Therefore, the comparisons between data within the series (presented below) must be treated with the appropriate reservations.

The following analysis of the results received does not compare them with results from previous years. Only after the method presented here is applied, and margin calculation becomes a part of routine procedures, will a seasonal data series – which can be used in comparisons – be created.

Deduction of trade agents

First and foremost, a significant improvement was noted as a result of neutralizing companies with margin rates over 90% (this subject was dealt with above). The assumption was that these are those companies which do not own goods, and therefore have no costs of sales. Table 1 presents a list of industries in which the most outstanding decrease in margin rates has occurred. In addition, these are industries in which the total weighted non-capital incomes are over NIS 1 B.

The significance of the adjustments is especially great in industries of wholesale marketing: in food (5105), with income of NIS 8 B; in pharmaceuticals (5124), with income of NIS 3.3 B, and a one-third drop in the margin percentage; in machines and agricultural equipment (5150), with income of NIS 5.9 B; and in machines and office equipment (5152), with income of NIS 5.4 B. In the retail trade as well, in clothing products (5221), with almost NIS 5 B in income, a drop of 3.4% in the margin of the above income means a decrease in the margin value of approximately NIS 170 M. Summing up the adjustments of margin rates in the industries presented in Table 1, results in a decrease of absolute margins in the amount of NIS 1.6 B. This constitutes approximately 2.4% of the total output of the trade industry, after deduction of the above companies.

Table 1. Comparing marginal rates by industry, before and after discounts of merchants/agents with a margin above 90%

No. Of Industry	Description of Industry	After Deduction	Before Deduction
5102	Wholesale trade of fruit and vegetables	23.0	27.7
5105	Wholesale trade of food products	18.9	23.1
5120	Wholesale trade of furniture	27.6	29.1
5124	Wholesale trade of pharmaceutical goods	17.6	25.3
5130	Wholesale trade of fuel and fuel products	16.2	18.9
5133	Wholesale trade of chemicals	27.4	29.5
5150	Wholesale trade of agricultural machinery and equipment, and their parts	34.4	37.7
5151	Wholesale trade of industrial machinery and equipment, and their parts	36.6	38.0
5152	Wholesale trade of office machinery and equipment, and their parts	27.3	30.0
5158	Wholesale trade of machinery and equipment, and their parts n.e.c.	38.7	44.2
5202	Retail sale of fruit and vegetables	16.8	18.6
5221	Retail sale of clothing articles	34.3	37.8
5228	Retail sale of textiles, clothing and footwear, n.e.c.	47.7	60.2

Imports compared with local manufacture

As can be seen in the explanations above, it is appropriate to put a special emphasis on comparing margins of retailers who import their goods by themselves, with margins of retailers who deal in locally-made and imported goods which they purchase from wholesalers.

Under conditions of perfect competition between retailers, the consumer price of similar goods of the same quality should be equal among all the merchants. As has been shown, the goods may reach the final consumer through a chain of retailers and wholesalers or directly through the retailer. If it is assumed that competition also exists at the stage of purchasing the goods from a local manufacturer or a foreign dealer, then the goods should also be purchased at an identical rate at this stage, as well. This should result in the general margin rate on goods from the moment of purchase from the manufacturer or a foreign element being identical among all the merchants; i.e., the importing retailer achieves a margin on both trade segments, since his margin is equal to the final margin on the same goods taken by both wholesaler and retailer.

However, in reality, perfect competition does not exist. There may be advantages to size and regional (even neighborhood) monopolies in some of the manufacturing industries. The bargaining power of big merchants at various stages of the trade chains may significantly reduce their purchase costs. Despite these reservations, there is a possibility of using this theoretical framework as a tool for analyzing the real situation.

As can be seen, there is sufficient space for maneuvering margins among importing retailers, although their expenses may be relatively high compared with the expenses of other kinds of wholesalers and retailers; since they must deal with two fields – both importing and retail trade. However, there should be an advantage to size in administration expenses, for example. Therefore, the margin of an importing retailer should be lower than the margin on goods which have undergone both trade segments, but higher than that of each trade segment separately. This, in fact, is the assumption which it is hoped will be supported by the data presented below.

When it is a company with a business turnover of medium size or less, its ability to bargain with foreign dealers is smaller; and it may then purchase a product from a factor abroad at a higher price than that paid by a wholesaler or retailer that is a large importer. This should reduce the trade margin. In addition, it is not unlikely that the importing retailer will try to draw the public by offering more attractive prices, since his maneuvering space is meant to be greater than that of other retailers. This action can reduce the margin of the importing retailer.

An analysis of the data supports the assumptions (data are presented in Appendix 2). It became evident that in the overwhelming majority of industries, the margin taken by the importing retailer is lower than that derived on goods that passed through a wholesaler and a retailer. The average difference between the two types of margins is equal to 12.26% of the margin of the importing retailer, with a standard deviation of 9.72% (Table 2). The statistical *t* is equal to 8.74; which means that the difference in favour of the importing retailer is a distinct difference. Differences, which were particularly high (over 20%), were recorded on non-metallic mineral products, on metallic products and on furniture. This occurred due to very low margins (relative to the average) that the importing retailers took. However, the difference in margins drops to under 10% on a number of textile products (such as carpets), on cosmetics, paper and plastic, computers, electric appliances, telecommunications equipment (such as telephones and fax), and on optic tools and photography equipment. It has, indeed, been discovered that the average margin among importing retailers is approximately 38%, with a standard deviation of 10%; whereas the goods that underwent all the trade segments had a margin equal to 50.51%, with a standard deviation of 6.7%; i.e., there is a wide distribution of margins derived by importing retailers.

There has also been support for the assumption that importing retailers have higher margins than the margins taken at each trade segment: importing wholesalers and those selling locally produced goods, and retailers who sell goods purchased from wholesalers. In all these cases, the statistical *t* stands out at the level of 5% and less.

The phenomenon which has come to light is of a close proximity between the margins of importing retailers and those selling goods purchased from wholesalers, compared

with the margins of the two types of wholesalers. The average difference is the lowest – 6.35%, with a standard deviation that is not significantly different from that of the rest of the cases. Therefore, the statistical t is the lowest one. It would appear that the significance of this finding is that the importing retailer's main expenses are trade expenses, not expenses on his dealings in importing goods.

Table 2. Differentials between the margin of importing retailers and margins of all stages of the goods transport chain.

Statistical Indices	Importing retailers' margin, less:			
	Final margin of wholesalers and retailers on locally produced and foreign goods ¹	Margin of wholesaler selling locally produced goods	Margin of wholesaler who does import	Margin of retailer's goods purchased from wholesaler
Average	-12.26	14.06	8.77	6.35
Standard deviation	9.72	10.89	9.94	10.82
Statistical t	-8.74	8.94	6.12	4.06

Note: Calculation on 48 observations

1) This margin doesn't include importing retailer's margin

In addition, a comparison was made between the margins of importing wholesalers and that of wholesalers dealing in locally produced goods. The analysis indicated that the margins that the latter enjoy are pronouncedly ($t=3.77$) lower than those of the former. The average difference is 5.3%. The difference is especially big – over 10% and even 20% – in clothing, plastics, cosmetics and furniture.

It may be that the explanation for this difference lies in exposure of the Israeli economy to the “third” countries imports (Elbert, 2004). It can be seen that the difference is found in textile industries, and stands out even more in the clothing industries. Goods from these industries were greatly exposed to foreign imports during the last decade. In plastics and furniture the exposure was also not small. It is assumed that the explanation for the difference lies in the following. In competitive conditions in many industries in Israel it can be assumed that the prices to retailers on goods at the same level of quality and brand name will be close. However, production costs of many commodities (clothing, for example) are high in Israel, compared with production costs of goods coming from China. Today's import taxes are very low – up to 12% on finished goods (Elbert, 2004). As a result, the difference found between the price at which the product is sold to a retailer and that paid by the wholesaler on imports (including taxes) is higher than the difference between the sale price to the retailer and that of a wholesaler purchasing the product from a local manufacturer. Of course, additional research is required to confirm this claim.

¹ This margin does not include importing retailers' margins

Margin on goods from all suppliers, totaled on all trade segments

Before beginning to analyze the final results, it must be remembered that the margins that were calculated for agriculture and processed food also include, in most cases, transport costs; so that the calculated margin should be biased downwards. The average final margin on goods from all manufacturing industries is 41.5%, with a standard deviation of approximately 12.2%.

Appendix 3 presents margins that are broken down to the three-digit level. Based on these data, regressions were run with dummy variables, with the aim of confirming the existence or non-existence of groups with homogeneous margins. The assumptions were that these groups may be found in products of agriculture; food, beverages and tobacco; textiles and clothing; and maybe even chemicals and plastics.

Table 3. Regressions to checking the homogeneity of trade margins.

Dummy Variables	Regression 1	Regression 2	Regression 3
Constant	34.61 <i>(15.80)</i>	34.61 <i>(15.85)</i>	42.86 <i>(33.41)</i>
Fruits and vegetables, food, drinks and tobacco	8.84 <i>(3.09)</i>	8.25 <i>(3.04)</i>	
Fruits and vegetables			7.06 <i>(2.28)</i>
Food, drinks and tobacco			-17.82 <i>(-6.95)</i>
Textile, clothing and footwear	7.55 <i>(2.04)</i>	8.14 <i>(2.26)</i>	8.14 <i>(2.84)</i>
Chemicals and plastics	-2.57 <i>(-0.67)</i>		
F	6.58	9.71	26.23
R²	0.19	0.19	0.49
R_{adj}	0.16	0.17	0.47
Observations	86	86	86

Notes: 1) in parenthesis can be seen values of *t*

2) *fruits and vegetables – industries 020-094, food, drinks and tobacco – 140-163, textiles, clothing and footwear – 170-192, chemicals and plastics – 243-258*

The first regression included 3 dummy variables: textiles and clothing, agriculture and food, beverages and tobacco, chemicals and plastics. The resulting regression produced a statistically significant F; significant coefficients of dummy variables in agriculture and food, and in textiles and clothing; but an insignificant coefficient of

dummy variable for chemicals and plastics. The meaning of this is that there are no unique margins derived on chemical and plastic products, compared with the rest of the manufacturing and food products studied.

After deducting the dummy variable from chemicals and plastics, we have a regression with a more significant F and a slight improvement in **R adj**. But it was clear that there was room for improvement. To that purpose, an internal division was made between agriculture and food, beverage and tobacco, and Regression No. 3 was applied to 3 dummy variables: agriculture; food, beverage and tobacco; and textiles and clothing. The result was a much higher F and R², and significant coefficients for each of the dummy variables as well as for the constant.

From Regression No. 3 it can be seen that the margins on agricultural products and textile and clothing are higher than the average of all the industries; whereas on processed foods, beverages and tobacco the margins are lower than the average in the market.

One of the possible explanations for agriculture's low margins is high preservation and spoiling expenses on goods, and the low bargaining power of farmers when facing the big wholesalers who exist in the industry. I.e., farmers sell their goods at relatively low prices, whereas merchants sell the product to the consumer at a high price, and thus raise the margin. The wastage that remains with the merchants cannot be returned, as opposed to the situation in foods; milk and bread products, for example, can be returned if their due date has passed. In addition, these products many times undergo at least two segments of trade – wholesale and retail (compared with processed food products, for instance). It is appropriate to also note a technical reason, which is that in agriculture the price checked by the Consumer Price Index is the price on Grade A goods, whereas the data on farmers used in this research is intended to include all grades of goods.

Food, beverage and tobacco products, however, are manufactured by large companies, whose bargaining power when facing marketing chains, and even more so small grocery stores, is particularly great. Noa Yadlin (2005) had found that although both large and small producers sell their goods to marketing chains at a relatively similar price, the price to the consumer on the goods of small producers is approximately 30-50% higher than the price on the goods of large producers. This fact lowers the margin when there are many large producers in the industry. And this exactly is what was proved in the research conducted by Galia Yohai (2005), who calculated concentration rates in a variety of Israeli industries. The concentration was defined as the weight of sales to the local market by three large producers, out of total sales to the local market (from both local production and competitive imports). Her tests showed that there was 42% concentration rate in the food industries, and 53% in beverages and tobacco, in 2000. The average concentration in manufacturing is 28%. In addition, processed food goods in many cases go through only one segment of the sales chain – direct sale from the producer to the retailer.

It is also interesting to note that according to the trade and services survey the margin charged by large food chains is 25-30%, whereas the margin charged by small merchants is approximately 15%.

An examination of the data in Appendix 3 shows that very low margins – approximately 7.7% - are charged on newspapers (Group 221). This is due to the phenomenon of subscribers, who are not charged any margin for the newspapers, because it reaches the reader by newspaper messenger. The spread of this phenomenon lowers the margin to such a low level.

In conclusion, the values of margins calculated seem to be reasonable. As stated above, these margins are updated during the closing stages of devising the input-output tables. Only margins derived at this stage are final margins.

4. Recommendations for improving data and future operating plans

In order to improve the results of the calculation, there is a need for greater coordination between the systems of wholesale price indices and consumer price indices. This will make an easier calculation possible, and increase the number of goods in each industry for which a margin is derived.

A switch to sampling businesses in the trade and services survey at a four-digit level may increase the representation of various businesses. This will make it possible to calculate at a more detailed level than that used above, since in some of the cases it is possible to divide even a four-digit industry into more detailed groups of companies.

Conducting a survey of marketing chains would make it possible to divide the output of companies among various products. The data available today is general data on all goods sold by the chains. It may be that a chains survey could be established on the basis of – among other things – information from the consumer price index, in which, for example, each product has its weight in chains, stores and markets recorded.

In light of the developments in the field of sales through the Internet, locally and abroad, more emphasis should be put on researching these activities.

Calculating the margins on all types of goods in the same year will make the margin series more accurate. When the need arises to devise a new input-output table, it would be appropriate that the series of margins used be updated to the year of the table; and only a new input-output table will make it possible to construct the final margins series.

Interesting research can also be performed on the data calculated above. Among others, it would be interesting to examine the correlation between the size of the margins and the concentration rate of merchants in various trade industries. An examination of the influence of the concentration of manufacturers in various industries on the margins of the goods in these industries may produce fascinating results. This research project only performed a preliminary examination of the subject, since the goal of the research was to devise a method for deriving trade margins in an accurate and efficient manner.

III. SUMMARY

This paper presents a method to calculate margins on goods intended for private consumption. The final results of the calculation are presented in Appendix 3. The method chosen is a combined method, which chooses a method appropriate to each relevant group of goods.

The margins on fruits and vegetables and on the rest of the agricultural products were calculated by comparing prices from the consumer price index system with prices of the farmers, which were obtained from the agricultural database managed by the CBS. The comparison is for 2003. These margins also include transportation margins. In addition, the price used for calculating the price index is the price on Grade A goods, while the farmer price includes goods of all grades. This fact should increase the margin; however, the results obtained seem reasonable. Through the use of dummy variables, these results were compared with results in other industries, and were found to be correct.

The margins on processed food products were derived by comparing prices from the consumer price index system and those obtained from the system of the wholesale price index of the manufacturing output. The comparison is for 2004. These margins too, include transportation margins, in most cases. As in agricultural prices, here too there are weaknesses of one type or another in the proposed method. But an examination of the series showed that its data are significantly lower than the margins in other industries. As explained above, this result is supported by other findings.

Marketing margins on other goods were calculated using the trade and services survey for 2000. The margins obtained at the beginning were grouped according to trade industries. It was not an easy task to group them according to the original industries of goods that the merchants of those industries sold.

In addition, an attempt was made to separate margins according to the wholesale and retail segments. Another important task was to separate the margins between imported goods and those produced locally; since in reality, those goods do not always pass through two trade segments. In some of the cases, a retailer buys goods directly from the local manufacturer or from a foreign dealer, and transfers them on to the final consumer.

Retailers dealing in importing can be identified quite easily by the import tape obtained from Customs. Differentiating their margins from the rest of the retail trade margins improved the quality of the calculations.

Examinations of the data revealed that the margins charged by importing retailers were significantly lower than the total margins charged on goods which passed through two trade segments; however, this margin is higher than the margins charged separately in each one of the trade segments.

The margins calculated can be improved further. According to international literature, the only way to improve these margins is by constructing input-output tables, which only when they are balanced result in an accurate trade margin.

Appendix 1. Derivation of the formula for summarizing the rates of margins on wholesale and retail goods

The rate of the wholesale margin is the ratio of the margin value to the non-capital income:

$$(1) \quad m_w = M_w/R_w$$

When m_w is the rate of the wholesale margin, M_w is the wholesale margin, and R_w is the non-capital income of the wholesaler. Concurrently, the wholesaler's non-capital income is composed of the costs of sales (R_b) and the wholesale margin value (M_w): $M_w + R_b = R_w$. Therefore, (1) can be presented as:

$$(2) \quad m_w = M_w/(M_w + R_b)$$

A reorganization of the flanks results in:

$$(3) \quad M_w = R_b m_w / (1 - m_w)$$

The rate of the retail margin is:

$$(4) \quad m_r = M_r/R_r$$

With m_r – the rate of the retail margin

M_r – the value of the retail margin

R_r – the retail merchant's non-capital income

Such as the wholesaler's income, $R_r = M_r + M_w + R_b$. After presenting this formula to (4), and reorganizing the industries, M_r is derived:

$$(5) \quad M_r = R_b m_r (1 + m_w / (1 - m_w)) / (1 - m_r)$$

The weight of the total margin (both wholesale and retail):

$$(6) \quad m_{w+r} = (M_w + M_r) / R_r$$

After presenting (6) with the formulas for the margin values in (3) and in (5), and in addition, detailing R_r , the following is obtained:

$$\begin{aligned}
(7) \quad m_{w+r} &= (R_b m_w / (1 - m_w) + R_b m_r (1+m_w/(1-m_w)) / (1 - \\
& m_r)) / (R_b + M_w + M_r) = \\
& (R_b m_w / (1 - m_w) + R_b m_r (1+m_w/(1-m_w)) / (1 - m_r)) / (R_b \\
& + R_b m_w / (1 - m_w) + R_b m_r (1+m_w/(1-m_w)) / (1 - m_r))
\end{aligned}$$

As a result of reducing R_b , and organizing the formula, the end result is:

$$(8) \quad m_{w+r} = m_w + m_r - m_w * m_r$$

**Appendix 2. Trade Margins on Domestic and Imported Goods sold at
Different Segments of Trade (%)^{*}.**

No. of Industry	Importing retailer	Non-importing retailer	Summed margins of wholesalers and retailers on imported and domestic goods**	Non-importing wholesaler	Importing wholesaler
170	41.6	44.0	59.7	26.9	29.5
171	41.6	36.0	54.0	26.9	29.5
174	41.6	36.0	54.0	26.9	29.5
175	49.0	34.7	53.1	26.9	29.5
176	59.7	33.4	52.1	26.9	29.5
177	41.6	36.0	54.0	26.9	29.5
178	44.2	33.2	55.0	17.5***	39.9
180	44.2	33.2	55.0	17.5***	39.9
181	44.2	33.2	55.0	17.5***	39.9
182	44.2	33.2	55.0	17.5***	39.9
188	44.2	33.2	55.0	17.5***	39.9
191	29.4	29.1	49.0	27.3	28.2
211	36.8	31.1	46.0	24.0	16.1
223	40.9	29.8	52.1	35.3	29.8
248	48.8	16.3	34.8	18.4	32.8
251	34.0	20.7	42.0	15.0	32.7
252	34.0	20.7	42.5	14.0***	34.5
254	34.0	20.7	42.5	14.0***	34.5
256	34.0	20.7	42.5	14.0***	34.5
257	34.0	20.7	42.5	14.0***	34.5
258	50.2	44.4	62.3	29.5	35.0
260	24.5	34.9	51.4	24.2	31.3
261	22.4	30.2	44.8	23.2	17.4
262	22.4	35.2	48.8	23.2	17.4
272	33.5	35.8	49.4	22.1	18.6
280	29.6	41.4	55.0	23.2	25.0
284	27.9	43.0	56.2	23.2	25.0
285	22.4	30.2	47.6	25.2	23.1
286	22.4	30.2	45.0	22.1	18.6
288	34.0	20.7	37.4	22.1	18.6
294	26.8	20.3	40.4	19.2	27.3
301	40.9	24.3	43.8	25.9	25.7
311	50.2	44.4	58.5	25.0	25.5
313	50.2	44.4	56.9	23.1	21.5
330	39.2	28.1	47.7	27.8	27.1
332	36.8	31.1	48.8	25.9	25.7
342	49.5	35.5	59.6	40.6	37.3
343	46.4	27.5	47.3	27.8	32.5
360	23.2	31.5	50.4	22.4	33.1
361	23.2	31.5	50.4	22.4	33.1
362	23.2	31.5	50.4	22.4	33.1
380	53.1	44.9	63.5	33.9	32.0
382	53.1	44.9	63.5	36.0	32.4
390	34.8	33.1	58.4	44.7	33.9
392	35.1	31.9	49.3	26.2	24.6
395	36.8	31.1	49.9	27.8	27.1
398	40.8	21.4	43.8	28.5	28.5

^{*} The description of the industries can be found in the Appendix 3 and in the Standard Classification of Economic Activities 1993 (CBS, Israel)

^{**} It doesn't include the margins of importing retailers - see formula 1, paragraph B3, p.21.

^{***} This data should be reviewed, because its preparation was based on relatively too small sample of businesses.

Appendix 3. The Total Trade Margin on products generated on imported and domestic goods at all segments of trade (%) *

Industry	Industry's Description	Margin's Rate
020	Growing of vegetables (including melons and pumpkins)	45.1
023	Growing of other cereals and pulses	45.1
042	Growing of potatoes	34.7
072	Growing of citrus	52.3
073	Growing of pome fruits	53.5
074	Growing of stone fruits	44.9
076	Growing of subtropical and other tree crops	53.1
077	Growing of grapes	43.9
078	Growing of bananas	56.6
094	Growing of flowers, garden plants and lawns	70.0
140	Processing of meat and poultry	35.7
141	Processing of fruit and vegetables	29.1
142	Processing of fish	34.7
143	Manufacture of edible oils, margarine and oil products	27.4
144	Manufacture of dairy products and ice cream	14.3
145	Manufacture of grain mill products	17.6
146	Bakeries	17.7
147	Manufacture of cakes, cookies and biscuits	9.5
149	Manufacture of noodles and pastry products	17.0
151	Manufacture of chocolate, cocoa and sugar confectionery	28.5
152	Manufacture of prepared food	30.2
158	Manufacture of food products n.e.c. and n.s.	12.3
160	Manufacture of wines and other alcoholic beverages	35.3
161	Manufacture of beer and malt	24.6
162	Manufacture of soft drinks	40.7
163	Manufacture of tobacco products	26.1
170	Spinning, winding and interweaving of yarns (incl. wool)	52.5
171	Weaving of fabrics	49.1
174	Manufacture of bedclothes and bedspreads	49.1
175	Manufacturing of other textile products	51.2
176	Manufacture of carpets and rugs	55.6
177	Manufacture of knitted fabrics	49.1
178	Manufacture of knitted wearing apparel	52.3
180	Manufacture of outerwear (except knitted)	52.3
181	Manufacture of swim suits	52.3
182	Manufacture of underwear (excl. knitted)	52.3
188	Manufacture of wearing apparel n.e.c.	52.3
191	Manufacture of footwear and footwear articles of leather and its substitutes	44.1
211	Manufacture of paper and cardboard products	44.0
220	Publishing of books, pamphlets and other publications	40.1
221	Publishing of periodicals n.e.c.	7.7
223	Publishing and reproduction of recorded media	51.9
230	Manufacture of refined petroleum and its products	49.8
243	Manufacture of pesticides and disinfectants	40.8
244	Manufacture of paints and varnishes	40.8
245	Manufacture of pharmaceutical products for human and veterinary uses	41.0
246	Manufacture of soap, detergents and cosmetics	50.4
248	Manufacture of chemical products n.e.c.	37.1

* The calculation of trade margins can be learned from the formula (2), paragraph B3, p.21

**Appendix 3. The Total Trade Margin on products generated on imported
and domestic goods at all segments of trade***

(Continued)

ענף	תיאור ענף	שיעור המתח
251	Manufacture of plastic sleeves and sheets	36.3
252	Manufacture of plastic containers and bottles	36.5
254	Manufacture of plastic products for kitchen, table and domestic uses	36.5
256	Manufacture of plastic products n.e.c.	36.5
257	Manufacture of rubber products	36.5
258	Manufacture of tyres and tubes	57.5
260	Manufacture of glass and glass products	43.7
261	Manufacture of ceramic tiles	35.8
262	Manufacture of other ceramic products	39.2
272	Iron and steel foundries	45.8
280	Manufacture of structural metal products, tanks and steam boilers	48.1
284	Manufacture of cutlery and cutting and hand tools	47.0
285	Manufacture of plumbing fixtures	37.5
286	Manufacture of tinware products	35.9
288	Manufacture of metal products n.e.c. and n.s.	35.0
291	Manufacture of agricultural and forestry machinery, parts and maintenance thereof	34.4
294	Manufacture of domestic appliances	37.4
301	Manufacture of automatic data processing machinery (computers)	43.7
311	Manufacture of electricity distribution and control apparatus	55.3
313	Manufacture of cells and batteries	54.3
330	Manufacture of telecommunications equipment	45.9
332	Manufacture of domestic electronic equipment	46.1
342	Manufacture of instruments for measuring, testing and navigating	57.2
343	Manufacture of optical instruments and photographic equipment	47.1
350	Manufacture of motor vehicles	16.1
358	Manufacture of other transport equipment	45.7
360	Manufacture of furniture (excl. metal and plastic furniture)	45.1
361	Manufacture of metal furniture	45.1
362	Manufacture of plastic furniture	45.1
380	Manufacture of goldsmiths' articles	58.1
382	Manufacture of gift items	58.1
390	Manufacture of musical instruments	42.2
391	Manufacture of sports goods	57.4
392	Manufacture of toys and games	45.6
393	Manufacture of medical equipment and and orthopaedic articles	38.7
394	Manufacture of disposable medical equipment	38.7
395	Manufacture of school and office supplies	47.0
398	Manufacture of products n.e.c.	42.5

* *The calculation of trade margins can be learned from the formula (2), paragraph B3, p.21*

Bibliography.

English sources

1. Asensio Pardo, M., Rueda Cantuche, J. M. and Titos Moreno, S. “A Use-Side Trade Margins Matrix for the Andalusian Economy”. Paper Presented at the Conference: “Input-Output and General Equilibrium – Data, Modeling, and Policy Analysis. Brussels: September 2-4, 2004.
2. Commission of the European Communities - Eurostat. European System of Accounts ESA 1995. Brussels/Luxembourg: 1996.
3. Commission of the European Communities - Eurostat. The ESA 95 Input-Output Manual: Compilation and Analysis. Brussels: August 2002.
4. Commission of the European Communities- Eurostat, International Monetary Fund, Organization for Economic Co-operation and Development, United Nations, World Bank. System of National Accounts 1993. Brussels/Luxembourg, New York, Paris, Washington, D.C.: 1993.
5. Diewert, Erwin. “Methodological Problems with the Consumer Price Index”. A written text of a talk presented at the joint UNECE/ILO Meeting on Consumer Price Indices, held at the Palais des Nations, Geneva, December 4-5, 2003.
6. Gohin, Alexandre. “Incorporating Domestic Marketing Margins into GTAP: Data and Modeling”. Internet. April 2000.
7. Hobijn, Bart, McConnell, Margaret M., and Rabin, Bess. “Unraveling the U.S. Supply Chain”. Internet. May 2004.
8. International Labour Office. Consumer Price Index: Theory and Practice. August 2004.
9. International Labour Office. Producer Price Index. September 2004.
10. Peterson, Everett B. “A Comparison of Marketing Margins Across Sectors, Users and Regions”. Paper Presented at the 7th Annual Conference on the Global Economic Analysis. Washington, D.C.: June 17-19, 2004.
11. Rainer, Norbert. “The Set of Trade and Transport Margin Matrices in the Austrian IO-System”, **Problems of Compilation of Input-Output Tables**. Edited by A.

Franz and N. Rainer. Wien: Schriftenreihe der Osterreichischen Statistischen Gesellschaft, Band 2 Orac-Verlag, 1986.

12. Statistics Canada. "Service Industries in the Canadian Input-Output Accounts (Current Prices): Sources of Data and Methods of Estimation". **Input-Output Accounts Sources and Methods Series**. Catalogue 15-601E, No. 2 – Occasional.

Hebrew sources

1. Central Bureau of Statistics of Israel. **Input-Output Tables, 1995**. Jerusalem, 2002.
2. Central Bureau of Statistics of Israel. "Consumer Price Index". Technical Publication No. 60, Jerusalem, 1992.
3. Elbert, Alexander. "The Exposure of the Israeli Economy and Its Influence on the Imports' Composition 1988-2000". **Israel Quarterly of Taxes**. Volume 31, edition 123, September 2004, pp. 63-7.
4. Yadlin, Noa. "The Bribed Game". Weekend, **Maariv**, 28/1/2005, pp. 40-46.
5. Yohai, Galia. "The Concentration in Manufacture 1990-2001". Not published.