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Factors Affecting Informal Economy of Rural Turkey

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Abstract: In this study, the informal economy in the rural areas of Turkey has been measured and factors affecting the informal economy have been analyzed. The informal economy has been discussed with regards to three main issues, namely unpaid household labor force usage, own consumption of crop and animal products and informal sales. Although the household labor force is mainly used in farms for agricultural and off-farm activities, the rate of idle labor has been found to be highly significant. It has been found that milk has the largest share of animal produce values consumed by the household, while particularly processed milk products are sold informally and that the consumption and sales values of animal produce processed in the households are required to be added to the unrecorded value calculation. Consumption of crops varies depending on the type of product. The own consumption ratio of crops is affected by the size of the enterprise, the number of individuals in the households and particularly the access to the markets of the enterprises in each region. An average informal value of 6,400.04 USD has been calculated per household, which is higher than the farm income, accounting for 4/5 of total household income. This can be attributed to the fact that the farms are generally small family enterprises with limited market-access opportunities.

Key words: Informal economy, rural Turkey, product transformation rate

INTRODUCTION

Non-observed or informal economy should be distinctly defined both in microeconomic (enterprise or household) and macroeconomic terms. In the microeconomic sense, this term means that rural household production is not reflected in the national accounts, as generally rural households do not declare their small-scale family consumption or market-oriented production activities, or are not required to declare these activities. Macro-economically, the term defines the fact that the economic activities to be included in Gross National Product (GNP) are not included in the statistical or administrative records used for national accounts (Blades and Roberts, 2002).

There is no particular reason why individual producers disguise their production activities, aside from the fact that they are generally carried out illegally. The reason this situation is not reflected in the national accounts is primarily that the processes between buyer and seller cannot be observed, since the buyer and seller are one and the same person. Own production of food by a person or household in transition economies or

developing countries is an important activity in the control of household expenditure and the nutrition of household individuals. Despite the events of the early 1990s and primarily the recent intense discussions on globalization, small-scale production is still a very important survival activity (Collinson, 2000; Minasyan and Aghassi, 2005).

The elements to be included in the GNP in the calculation of the non-observed economy are given in (Fig. 1) (Blades and Roberts, 2002). It is necessary to explain the production boundary to gain a better understanding of the notion of informal economy. People, on the one hand, invest to exploit and gather assets, such as oil, fishery products and natural forestry products, while on the other hand, processing natural raw material using capital, labor force and technology to produce added value. The main point to be derived from the flow diagram defined in Fig. 1 is the association of products manufactured and consumed by households and sold with macro-economic criteria and wealth indicators (Bartelmus *et al.*, 1992; Tongeren *et al.*, 1991). All the manufactured goods, whether they are manufactured for own consumption or for sale, should be included in the

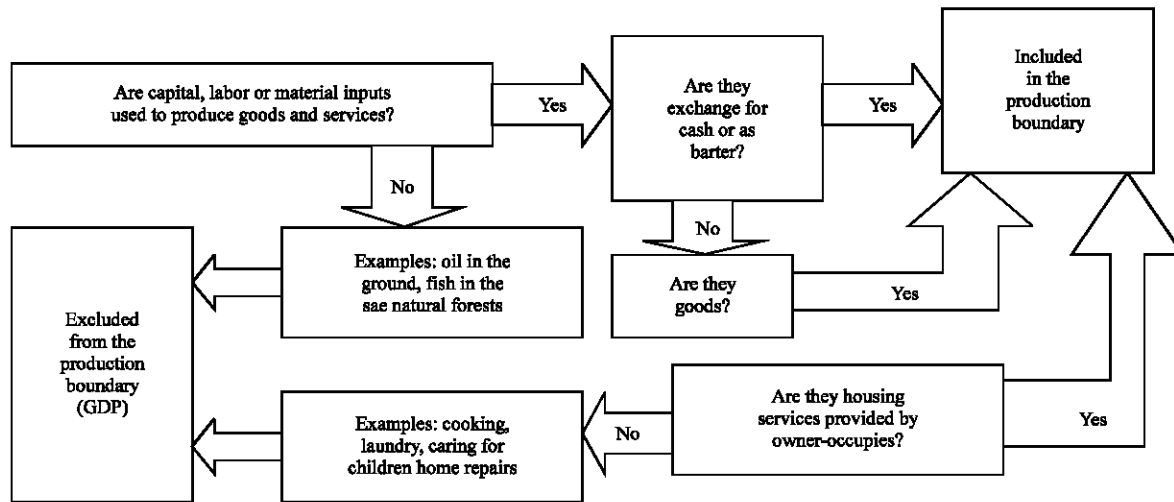


Fig. 1: A framework of production boundary. Source: Blades and Roberts (2002)

Table 1: Properties of formal and informal economies

Categories	Informal sector	Formal sector
Introduction	Easy	Hard
Resources	Indigenous	Overseas resources
Ownership	Family	Company
Enterprise size	Small	Big
Production structure	Labor intensive	Capital Intensive
Skills	Acquired out of the formal schooling system	Acquired formally, generally expatriate
Market structure	Irregular and competitive	Protected by tariffs, quotas and trade licenses

GNP. The production of plant and animal products manufactured for own consumption can be given as an example of this (Blades and Roberts, 2002; Farid, 2004). Some economists assert that mistakes are frequently made, primarily in including the reserves of the amount of production allocated for own consumption and unpaid household labor in the studies evaluating income, poverty and wealth levels in rural areas and that due to these mistakes rural household incomes are calculated lower than the actual figures (Dinler, 1996).

The International Labor Organization (ILO) first used the term informal sector to describe the activities of the working poor, who were working very hard but who were not recognized, recorded, protected, or regulated by the public authorities (Anonymous, 1972). In 1972, the ILO established the properties of the formal and informal sectors (Table 1). According to the ILO, the informal economy is directly associated with poverty. Informal economic activities are the main survival activities by which the poor population with high social risk can meet their basic consumption requirements (Stanculescu and Illie, 2001; Grabiner, 2000). Kim (2005) also stated that the dominant motivation behind participation in the informal economy is to escape from poverty.

The most common criterion for distinguishing the informal and formal sectors is whether the enterprise is

registered with the related public institutions (or authorized private institutions) (Charmes, 2000). As a result, whether an activity taking place in a definite society or country or in a definite period in a country is formal or informal depends on the legislative regulations of that society or country (Stanculescu and Illie, 2001; Grabiner, 2000). However, it should be noticed that the formation of an informal sector is mainly associated with the socio-economic development of the areas in which the enterprise is situated, legislative and institutional regulations and the applicability of these regulations. Informal economic activity is a dynamic process, which includes many aspects of economic and social theory, including exchange, regulation and enforcement. It will be required to consider the enrollment levels of production and consumption units by agricultural institutions and the farmer enrollment system and farm accounting data network organizations, which provide the most reliable data to convert informality into a formal economy in the evaluation of the informal economy potential in rural areas.

Methods of calculating the informal economy and GNP have often been discussed since the 1970s, both in Turkey and in many other developing countries. The informal economy can be observed in all sectors. However, the objective of this study is to make an attempt

to measure the size of the informal economy in rural areas only. In developing countries, agriculture is the major sector with regards to its contribution to the GNP and employment and the informal economy is dominant in this sector. According to the results of the 1997 Village Inventory, the population of the 36,651 villages in Turkey is 21.5 million (SIS, 2004a). In 2005, 35% of the total population was living in rural areas where the population is less than 2,000, with 34% of the economically active population employed in agriculture. The number of households in the villages was 4.2 million and 76.2% of this population was engaged in plant and animal production activities. The contribution of agriculture to GNP was 11.3% and the Turkish economy presented agrarian characteristics (Tanrıvermiş and Bülbül, 2007).

Scientific studies conducted in many countries in the past have generally focused on informal labor utilization and measurement or factors affecting labor in rural areas (Gupta, 1997; Kim, 2002; Williams, 2002; Gindling and Terrell, 2005; Kim, 2005; Palmer, 2007). The great economic value related to labor has generally stimulated researchers to focus on this field. For many rural households that draw their livelihood from agricultural activities, in addition to the economic value originating from the informal utilization of labor, own consumption and/or informal sales of plant and animal products have a significant value and on some occasions, the value of own consumption and informal sales can even exceed that of informal labor. The method used to calculate the value of the informal economy can be very important when assessing the size of an informal economy. The objective of this study is to assess the informal economic value of rural households whose primary source of income is agriculture. The calculations have been classified under three main categories; namely labor, plant production and animal production. A new approach taking the transformation of products in the calculation of the informal economic value, particularly in plant and animal production, into consideration has been used in the study.

MATERIALS AND METHODS

The material in the study consists of primary data obtained via a survey of households in which the source of livelihood is agricultural production in the rural areas of 10 different provinces, chosen from Turkey's northern, east, central and southeastern regions (Adana, Ardahan, Elazığ, Erzincan, Erzurum, Gümüşhane, Kars, Kayseri, Osmaniye, Sivas) in 2004. National and international norms and approaches are jointly used for the scope of the income and expenditure survey carried out in the households, establishing the methodology of the study,

defining income and expenditure concepts, classification, tabling and presentation of the study findings (EU-HBS, 1997; Franz *et al.*, 1998; Anonymous, 2000, 2003). Secondary data has also been obtained from the records of the related public and private institutions and previous studies and researches on this topic have also been utilized.

Concerning the informal economy in rural areas, a significant difference and a dualistic structure among regions and provinces are observed. In Turkey there are some regions in which trade relations are dominant (coast of the Mediterranean, Aegean, Marmara and Black Sea regions), while there are also regions in which non-cash relations are dominant (the central and eastern regions). Under these conditions, this study aims to examine the households chosen from the provinces located in the east, central and southern (including coastal) regions and thus associate the dualistic structure area with the size of the informal economy in rural areas.

The investigated households have been categorized into four groups according to geographical locations and socioeconomic development stages. The first group is the North-East (Kars and Ardahan Provinces); the second group is Eastern Anatolia (Erzurum, Erzincan, Gümüşhane provinces); the third group is Central Anatolia (Sivas, Kayseri provinces) and the fourth is the Southeastern Mediterranean (Kahramanmaraş, Osmaniye and Adana provinces). Data obtained from 394 households, chosen through simple random sampling from 91 villages in four different districts chosen from each of the 10 provinces, are analyzed and evaluated. To establish the sample volume, the following formulae have been used (Yamane, 1967; Çingi, 1994):

$$n^* = \frac{t^2 PQ}{d^2} \text{ and } n = \frac{n^*}{1 + \frac{n^*}{N}} \quad n^* = \frac{2^2 \cdot 0,5 \cdot 0,5}{0,050^2} = 400;$$

$$n = \frac{400}{1 + \frac{400}{26264}} = 394$$

Where:

- n^* = Temporary sample size
- t = Statistical (critical) value ($\alpha = 0.05$, $t \approx 2$)
- d = Tolerance level (0,050)
- $P = Q = 0.5$ to: selection probability
- N = Total population (26,264 persons) of the examined villages, obtained from the last census

According to the result of the sampling performed by considering the cost and time limitations of the study,

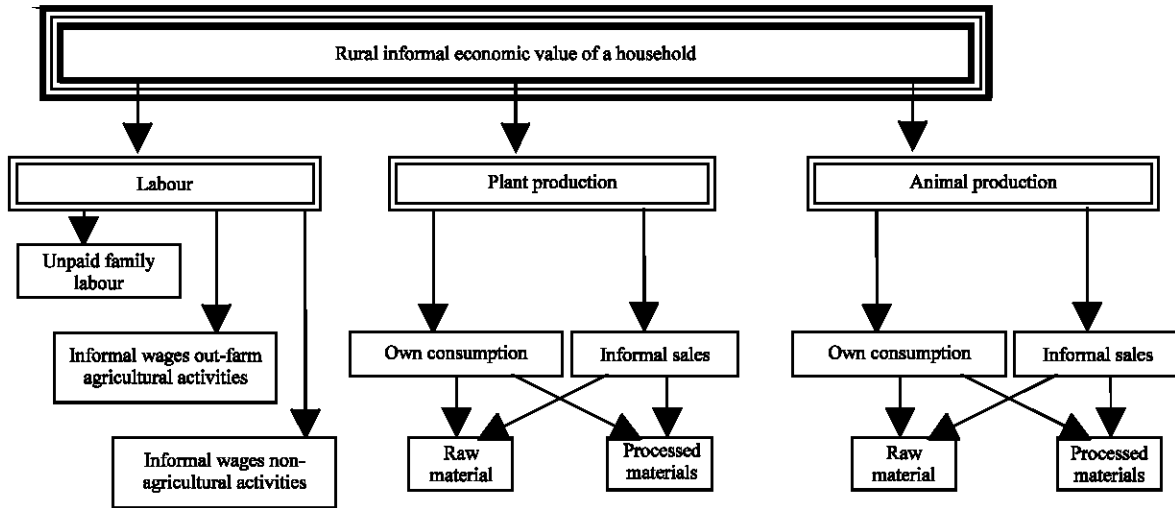


Fig. 2: The scope of calculation of the informal economic value of rural households

394 households are considered sufficient for the study and the sampling factor has been established to be 1.5% (394/26264). Pro rata distribution has been taken as a basis in the distribution of the sample volume to the regions and 394 households are distributed by taking the share of the region population in the total amount (Yamane, 1967).

The survey administration and observations were carried out between 10 October 2004 and 15 February 2005. In the survey study, the physical and financial data from the 2003-2004 production period and the incomes and expenditures of the households have been collected and analyzed. In the analyses of the economic results of the annual activities, indicators such as gross production value, gross output, operating costs, net return, farm income and total household income have been calculated (Açıl and Demirci, 1984; Erkuş *et al.*, 1995; Turner and Taylor, 1998; Anonymous, 2000). In the analysis of the farm and off-farm incomes of the households, assets and usage of production factors, consumption and sales amounts and the producer's received prices have been used. Thus, the household income and the total size of the informal economy have been comparatively examined in the four different groups.

Since the share of the gross production value obtained through the gathering, utilizing and use of naturally-growing forestry products such as rosehip, mushroom and thyme, etc., accounts for a small percentage of the total amount, these products have been evaluated as part of crop production. Annual informal household incomes, farm, off-farm and total household incomes are measured primarily in the national currency and then the calculated average income levels are transformed into USD based on the average exchange rate

of the Central Bank of the Republic of Turkey. In the statistical analyses of the study, Person Correlation and Multiple Regression analysis have been used.

In the measurement of the informal economic value created by rural households, particularly processed products of plant and animal products and sales that are not formal were taken into consideration. The general framework of the informal economy calculation used in the study is shown in Fig. 2. The details of the calculations are provided within each individual section.

RESULTS AND DISCUSSION

General characteristics of investigated households:

Owned lands are most common among the investigated households, followed by rental and crop-shared lands. The average size of operating farmlands of the households is 21.97 ha, which is 3.6 times greater than the national average of 6.1 ha (SIS, 2004b). Since the households are regarded as enterprises, the households in each of the four groups are generally regarded as small farms in terms of land ownership. Approximately half of the operating farmlands of the households comprise rental and crop-shared lands.

It will not be a sufficient criterion to know only the size of the enterprise when evaluating farm incomes and living standards in the households. 68.1% of the operating farmlands in the provinces consist of dry farmland, 24.8% of irrigated land, 0.1% of orchards or vineyards and 6.8% of pastures. Dry farmlands have the largest share of the total amount of operating land in the first and third regions, amounting to 91.5 and 93.4%, respectively. The share of irrigated land in the total

Table 2: Distribution of land according to types (ha)

Study regions	Dry land	Irrigated land	Total cultivated land	Fruits and vineyards	Vegetables	Pasture	Other	Operating farmland
Northeast	8.84	1.01	9.85	0.00	0.00	1.77	0.23	11.85
Eastern Anatolia	11.22	14.54	25.76	0.00	0.02	3.47	0.00	29.26
Central Anatolia	26.95	1.94	28.89	0.00	0.01	0.35	0.03	29.28
Southeast Mediterranean	6.99	2.51	9.50	0.03	0.00	0.03	0.00	9.55
General average	14.95	5.45	20.40	0.01	0.01	1.50	0.06	21.97

amount of operating land is 8.5% in the first region, 49.7% in the second region, 6.6% in the third region and 26.3% in the fourth region. Although the second and third groups have a larger average farm size when compared to the overall average, the ratio of dry farmlands is also high in these groups (Table 2). Irrigation and suitability of the land, climatic conditions and other factors directly impact on income generating potential.

The way land is used is considered important, as this can provide an idea of the agricultural production techniques the households use. Dry lands have the largest share in total farmland and the share of orchards and vegetable farming, which require relatively high technology and more capital, in the total amount is negligible. On the other hand, the distribution of lands according to usage areas is associated with the activity areas of the households. In the northern and eastern regions, an important part of the farmland (14.9 and 11.9%, respectively) is set aside as pasture, meaning the households are trying to meet their fodder crop requirements for their animal husbandry activities. In regions where animal husbandry activities are intense, in the selection of activities such as cultivating wheat, common vetch, sainfoin, corn and alfalfa, priority is given to meeting the fodder crop requirements of animal husbandry activities rather than the demands of the market. When the land assets and utilization of the households are evaluated as a whole, it is revealed that since there is no irrigation system, in general production is carried out in dry conditions and the share of the lands allocated for orchards and vineyards, which require capital and technology, is lower even than 1% of the total amount. This production type is generally known as extensive farming.

The products being cultivated by households vary depending on the presence of irrigated land and market conditions. Cereal and fodder crops are common, while cultivation of products that require relatively more investment and maintenance, such as orchards, vineyards and vegetables, is generally not preferred. According to the regional average, 50% of the land is allocated for wheat, 13% for barley, 8% for pasture, 5% for alfalfa, 5% for common vetch, 4% for corn and 3% for cotton. Since the households in the first, second and third groups tend to use field crops for animal husbandry, to transform

these products into more valuable materials (such as meat and milk) to improve their annual income, they make utilization decisions regarding their existing operating farmlands taking this into consideration. Some 80% of the households engage in both crop and animal production and since there are literally no producers that have their products and animals insured in regions, apart from in the province of Adana, the mostly preferred risk management tool is diversification.

The survey revealed that 76.0% of the households are members of at least one organization or institution. The agricultural institution membership ratios of the households are generally low-similar to the national average-and the production and marketing efficiencies of the organizations are weak. The organizational participation levels of households vary on a line within the north-south direction and are highly organized in the provinces of Adana, Osmaniye, Kahramanmaraş, Kayseri and Erzurum. Cooperatives and chambers of agriculture of which the households have membership have been quite ineffective with regards to the registration of the economic activities of households and formalizing relations in the rural areas.

In Turkey, input subsidies and price supports have been abandoned in line with the commitment given within the framework of the GATT-Agriculture Agreement and have been replaced with other tools, such as direct income support and deficiency and indemnity payments. Within this framework, producers who are covered by the farmers' registry system constituted within the Ministry of Agriculture and Rural Affairs have been provided with incentives since 2001. It is evident that 92.0% of the households in the first region, 80.5% in the second region, 84.8% in the third region, 65.2% in the fourth region and an overall average of 81.7% of the total households, are included in the farmers' registry system and benefit from direct income supports. The reasons why all the households have not (or have been unable to be) covered by the registration system are found to include the fact that cadastral and registration processes of the lands have not yet been completed (the lands are only possessed, not owned), that land assets are small or multi-shared and that producers refrain from declaring to be covered under registration for fear of taxation. Although the main aim of the farmers' registry system is to cover the

producers under registry, the constituted registry system does not enable measurement of the variations in production volume, household consumption, income, expenditure and savings. Under these conditions, covering the households under the registry system does not enable the collection of data, which would ensure the measurement of the informal economy on a large scale.

Household population and employment: It is a known fact that the population working in agricultural and off-farm activities in rural areas is generally informal and is not able to benefit from social security. The household population in the regions is an average of five people (Table 3). The share of females in the total population is 49.3%, whereas the share of males is 50.7%; but these ratios vary across the groups. The 15 to 65 age group constitutes the economically active (productive) population among the households. The share of the 15 to 65 age group in the total population in Turkey is 65.5%, the share of 65 and above age group is 5.7% and the share of the 0 to 14 age group is 28.8% (Anonymous, 2005).

An average of 65.84% of the household population converges in the 15 to 65 age group. There are no significant differences between the study groups regarding the share of the active population in the total household population.

It has been found that the household population is generally educated to a primary (primary and secondary school) level. In the informal value calculation of family labor force actually working but not receiving payment in agricultural and off-farm activities, the actual working time of the family members according to their age and gender and the current fees paid for similar jobs in the region have been taken into account.

The total labor force of the households can be found by adding the number of hired laborers working in the farm to the household labor and subtracting the number

of those working outside the enterprise from this amount. In this calculation, the family members not working in the enterprise for such reasons as education, military service, illness and occupational dysfunction, are not taken into account. The ratio between the population working in agricultural and off-farm activities and the idle labor force varies among the provinces. The survey reveals that 26.9% of the labor force of the households is idle in the first region, 29.1% in the second region, 25.40% in the third region and 36.3% in the fourth region. Since market-oriented animal husbandry activities and off-farm opportunities are limited in the fourth region, the rate of idle labor force was found to be high. Despite an excess of labor, hired labor is employed in parts of the year due to the seasonally intensive labor requirement of crop and livestock activities. In particular, the maintenance and harvesting of some crops, such as cotton, corn and peanuts in the provinces of Adana and Osmaniye and sugar beet, sunflowers and potatoes in the provinces of Kayseri, Erzincan, Sivas, Gümüşhane, Erzurum and Kars, generally necessitate a larger labor force and the need to complete these processes on time causes an intensive labor demand, resulting in the employment of hired labor.

The informal values and distribution of labor in the examined households are provided in Table 4. The largest share in informal labor value in households falls to family labor, with a rate of 71.21%. Households use foreign labor too. The permanent labor rate in households is considerably low, which is a result of the generally small size of the enterprises, the overall low economic status of farmers and the failure to employ the existing household labor in non-agriculture sectors. Although the families strive to utilize their own labor in their own enterprises, in certain periods, use of temporary labor becomes inevitable.

It has been found that 50% of the household heads are covered by one of the social security mechanisms,

Table 3: Average population in the households, age and average household size

Study regions	No. of households	Gender of population			Average age			Household size (Person)	Active population/total population (%)
		Men	Women	Total	Men	Women	Average		
Northeast	87	220	216	436	33	33	33	5.01	64.45
Eastern Anatolia	113	408	383	791	30	29	30	7.00	65.23
Central Anatolia	125	301	292	593	36	33	34	4.74	66.95
Southeast Mediterranean	69	179	185	364	35	33	34	5.28	67.03
General average	394	1,108	1,076	2,184	33	31	32	5.54	65.84

Table 4: Informal labor value of investigated households (USD \$)

Regions	Unpaid family labor	(%)	Informal wages out-farm agricultural activities	(%)	Informal wages non-agricultural activities	(%)	Total informal labor value
Northeast	958.77	65.61	1.90	0.13	500.64	34.26	1,461.31
Eastern Anatolia	1,043.35	73.68	16.43	1.16	372.70	26.32	1,416.05
Central Anatolia	2,242.38	85.04	23.20	0.88	371.27	14.08	2,636.85
Southeast Mediterranean	1,123.49	56.48	59.87	3.01	805.82	40.51	1,989.19
General average	1,362.77	71.21	24.50	1.28	526.46	28.79	1,913.73

such as the Social Insurance Institution, Bağ-kur (Social Security Organization for the Self-Employed) and the Pension Fund. However, it should be highlighted that this ratio does not reflect on the nationwide and agricultural sector ratios. It is useful to stress this point in order to prevent misvaluation. The off-farm occupation ratio is high in the examined households and being covered by social security depends on off-farm rather than agricultural working. When the farm workers are examined alone, it has been found that the households in the provinces of Kayseri, Kahramanmaraş and Adana have limited opportunities for social security coverage and that farm workers generally remain informal and are thus deprived of social security opportunities. On the other hand, within the framework of Law No: 3816, dated 1992, "The Law on Covering the Health Care Costs of the Citizens with Payment Difficulties by the State Via Granting of a Green Card", various health care supports are provided to the low-income population without access to the benefits of social security. The sum of the population covered by social security and the number of the persons with a green card exceeds the total population (Tanrıvermiş, 2006), revealing that some of the population covered by social security (covered population) and persons who cannot benefit from health opportunities without paying a premium have also received green cards.

Animal production and own consumption: The cattle and sheep-goat assets of the households are roughly equal. Central Anatolia has the largest livestock assets (44%), whereas the Eastern Mediterranean has the smallest (6%). Animal husbandry activities take place only in the provinces of Kahramanmaraş and Osmaniye in the Eastern Mediterranean Region and the enterprises in the province of Adana prefer not to engage in animal husbandry because of the insufficiency of meadows and pastures and enterprises in the region are generally specialized in market-oriented crop farming activities.

Looking at animal produce, it can be observed that the products used by the households are meat, milk, eggs, honey and manure. Aside from Adana, animal produce consumption levels per individual in households are generally higher than the national average. The per household value of animal produce consumption in the regions is shown in Table 5 and the share of own consumption of the total amount is shown in Table 6.

The consumption value of animal produce as raw materials in households varies between 413.98 USD and 586.00 USD in the regions. The average animal product consumption value has been found to be 527.98 USD. The most valuable animal product consumed in the households is milk, with an average value of 400.36 USD of milk consumed annually. It is revealed that 75.8% of the

value of animal products consumed in the households comprises milk consumption as a raw material. However, when it is considered that most of the milk set aside for household consumption is transformed into products with higher added value, such as cheese, yogurt and butter, it can be understood that the value of milk in own consumption is much higher. The consumption value of eggs has an almost homogeneous distribution among all the regions. Most of the animal products produced by households in the northeastern and Central Anatolian regions of Turkey is consumed in the households and these products are not generally covered by provincial, regional and national production values (Table 5). Another important point is that since the per capita income is lower than the national average in these regions, if animal products are not produced in the households there would be severe problems in the sufficient and balanced nourishment of families and meeting the requirements of animal produce. As noted by Minasyan and Aghassi (2005), agricultural activities still help to secure the minimum of food consumption, keeping extreme poverty in rural areas low when compared to urban areas.

Although the consumption of meat and other animal products depends on the amount of livestock in the regions, it also reflects the regional consumption habits in the country. Meat-based nourishment habits are dominant in the eastern region, while the crop based nourishment habits of the Mediterranean region can be observed in the consumption/production rate. As a regional average of milk consumption, 60% of the milk produced is consumed in the households (Table 6). The high milk consumption rate prevalent in the Mediterranean region, which is the fourth region, is not an indicator of the fact that the households consumes milk in high amounts; on the contrary, this large value results from the fact that the households breed animals in low numbers and only for their own needs, or in other words, the households only engage in dairy cattle production activities. In this region, only milk that exceeds household consumption is sold and more than half of this amount is sold to milk collectors.

Manure consumption rates vary depending on the crop production activities of the farms and production types. Nearly all of the manure produced (92%) is used on the farms (Table 6). Enterprises engaged in animal production sell only the manure that exceeds their own needs for crop farming. In the examined regions, the egg consumption rate to production is 2.8%. It can be observed that the first region has the highest own consumption rate, whereas the fourth region has the lowest. The impacts of consumption habits in the regions also come to the forefront in egg consumption.

Table 5: Animal products household own consumption value (US \$)

Regions	Meat	Milk	Manure	Egg	Honey	Leather-wool-hair	Total
Northeast	22.42	508.36	27.94	19.21	8.07	0.00	586.00
Eastern Anatolia	62.89	334.34	76.87	16.73	25.50	0.06	516.37
Central Anatolia	54.35	403.13	47.86	18.92	43.57	6.97	574.81
Southeast Mediterranean	0.00	367.30	24.96	21.72	0.00	0.00	413.98
General average	40.22	400.36	43.40	18.85	22.92	2.23	527.98

Table 6: Household consumption/production rate in animal production (%)

Regions	Meat	Milk	Manure	Egg	Honey	Leather-wool-hair
Northeast	45.42	55.33	96.20	4.11	11.24	0.00
Eastern Anatolia	50.47	56.62	100.00	3.81	28.95	0.32
Central Anatolia	3.59	58.52	79.50	3.05	44.79	30.32
Southeast Mediterranean	0.00	88.98	85.30	1.55	0.00	0.00
General average	7.60	60.53	91.53	2.80	37.81	100.00

Special attention should be paid to some points in the calculation of the informal value of milk, which has the highest value with regards to household consumption. Region wide, 57.4% of milk is sold in small scale dairy plants and 27.0% is sold directly at the neighborhood marketplaces. The share of milk being sold to neighbors and milk collectors is 12.4%, whereas the share sold to cooperatives is only 3.2%. The value of milk, which is not considered own consumption and sold either in the neighborhood marketplaces or directly to small scale dairy plants and neighbors, is within the scope of the informal economy and no stoppage at source or other taxes are paid. Therefore, the sale locations of the products should be taken into account in calculations of the informal economy, even though they are not consumed in the household. In addition, raw materials such as milk and meat are retained in the households and transformed into meat and milk products with higher added value, such as cheese, yogurt, butter, sucuk (Turkish style dry-fermented sausage) and Turkish pastrami and these products are consumed and/or sold, increasing the obtained income (if there are no sales, the value of the consumed product increases). This is another aspect to be taken into account in revealing the true value of the informal economy. With regards to whether the sales places of raw material products are registered, the amount which will be taken as a basis for calculating informal value with a general expression will be:

$$\text{Informal animal products value} = \text{Own consumption value} + \text{Informal sales value}$$

When processed products are taken into account, the following equation will apply:

$$\text{Informal animal products value} = \left[\begin{array}{l} \text{Raw products} + \text{Processed products} \\ \text{own consumption value} \end{array} \right] + \left[\begin{array}{l} \text{Raw} + \text{Processed products} \\ \text{informal sales value} \end{array} \right]$$

A calculation using the above equation will give only the total amount of the informal product value. In addition to this amount, which is non-observed and thus cannot be reflected in national calculations, there is the value of taxes which must be paid to the state. Although the taxation rates to be applied vary depending on each country's tax legislation, the taxation rates for processed and raw products are different in general. In Turkey, stoppage at source tax is paid for raw products at the rate of 4% for plant products and 2% for animal products. Regardless of the size of the industrial enterprises, Value Added Tax (VAT) is collected for the processed materials delivered to the industrial enterprises according to the product type. Hence, the amount which should be paid to the government, but which is not paid, will be calculated as follows:

$$\begin{aligned} \text{Non - paid taxes value} = & \left[\left(\begin{array}{l} \text{Raw product} + \text{Raw product} \\ \text{own consumption} \quad \text{informal sale} \end{array} \right) \times \text{Stoppage} \right] + \\ & \left[\left(\begin{array}{l} \text{Processed product} + \text{Processed product} \\ \text{own consumption} \quad \text{informal sale} \end{array} \right) \times \text{VAT} \right] \end{aligned}$$

If the fact that produced raw materials are processed in households is taken into account, the method of calculating the informal value of animal products and thus the informal value, will change. Most of the studies carried out to date take only the informal value of the produced raw materials in an unprocessed state into account (Masakova, 2000; Ratner, 2000; Anonymous, 2002; Farid, 2004; Gennari, 2004). However, it is a fact that the households process, consume and sell these raw materials. Therefore, the real informal value is expected to be greater than the value calculated based only on raw materials.

It is found that the households process only raw milk and carry out no processing of meat. The amount of milk retained and produced in the households in one year is obtained using a survey. The households consume a

certain amount of the milk for drinking and/or sell to neighbors and convert the remaining milk into various milk products. Hence, in order to calculate the amount of milk consumed as drinking milk and/or sold to neighbors, the Product Transformation Rate (PTR) is used. The product transformation ratio (PTR) shows how many units of raw product are required to obtain one unit of processed product. The PTR was taken as Milk Equivalent (ME) for milk products. The amount of milk being sold in small-scale dairy plants is excluded from the calculation carried out with ME (1). Many local types of cheese are being produced in the study region and the ME varies between 6.5 and 12 depending on the cheese type. ME is taken as 11 considering the common types of cheese produced and as 1.5 for yogurt production. After estimating the amount of raw milk to obtain 1 kg of product utilizing the ME, the value found is subtracted from the amount of milk set aside for household consumption to find the milk utilized as drinking milk and/or sold to neighbors (2). After this calculation, the amount of each product is multiplied by its price to find the own consumption and informal sale values for households for milk and milk products (Table 7).

$$\begin{aligned} \text{Milk allocated for home} = \\ \text{Total production quantity} - \\ [\text{Formal} + \text{Informal sale quantity}] \end{aligned} \quad (1)$$

$$\begin{aligned} \text{Fluid milk} = \text{Milk allocated for home} - \\ \left[\begin{aligned} &(\text{Yogurt production quantity} \times \text{ME}) + \\ &(\text{Cheese prod. quantity} \times \text{ME}) \end{aligned} \right] \end{aligned} \quad (2)$$

$$\begin{aligned} \text{Informal value of milk} = &[\text{IS} + \text{OCQ}_{\text{fluid milk}}] \times \text{p}_{\text{rm}} \\ &+ [\text{IS} + \text{OCQ}_{\text{yogurt}}] \times \text{p}_{\text{y}} + [\text{IS} + \text{OCQ}_{\text{cheese}}] \times \text{p}_{\text{c}} \\ &+ [\text{IS} + \text{OCQ}_{\text{butter}}] \times \text{p}_{\text{b}} \end{aligned} \quad (3)$$

Where:

ME = Milk Equivalent

IS = Informal Sale

OCQ = Own Consumption Quantity

p = The price of raw milk (rm), yogurt (y), cheese (c) and butter (b) (Price is the producer price for raw milk and consumer prices for dairy products)

The informal values calculated based on the amount of milk that the households retain from production are presented in the first two rows of Table 7. The results obtained through the second calculation, which takes the

value of the processed products into consideration and is based on the ME, are also shown in Table 7. While the average milk consumption value was 400.36 USD when the raw material value of consumed milk was taken into account, the milk consumption value was 809.33 USD in the calculation based on the values of processed milk products. Although there are differences across the regions, there is an average difference of 102.2% between the two calculation methods in the general average. This difference is very high and reflects the actual informal value. The new informal value of animal produce to be obtained when the recalculated value of milk and milk products are added to the milk column of Table 5 will be as presented in Table 8. The informal animal produce production value will be higher when calculated considering processed milk products instead of only raw milk. When the value of processed milk products is taken into consideration, the total informal value of animal products becomes higher, at a rate of 77.5%, when compared with the previous calculation method (Table 8).

Crop production and own consumption: Farm outputs obtained by the households by way of crop production activities are evaluated separately as main products and by-products. By-products are not evaluated on a per product basis, since nearly all of them are consumed by the households. The main products are covered under the categories of cereal, leguminous crops, industrial crops and fodder crops. The enterprises are classified according to their sizes in order to depict the correlation between the size of the enterprise and the rate of own consumption. This classification is made on the basis of farm size. The ratios of own consumption and seed keeping of the main product outputs to total production in each region according to the farm size is gathered under general product categories and presented in Table 9.

The research results reveal that in small-scale farms (1-10 ha) there is own consumption of all crop farming produce and that the rate of family consumption of total production is higher than the remaining farm sizes, excluding some exceptional cases. This result is an important indication that small family farms have not yet become commercialized. It is known that a great majority of the small-scale enterprises around the world are subsistence enterprises which use most of their production for their own consumption (Johnston and Kilby, 1975; Randhawa and Sundram, 1990; Rehber, 1996). Despite the fact that the value of output allocated for own consumption for one single small family farm is a negligible amount, the total value of the informal economy adds up to significant figures for countries with a large number of small-scale farms in their agricultural structure.

Table 7: Raw milk and milk products consumption and sales values of households (US \$)

Regions	Raw milk									Own consumption value (including processed products)	Difference (%)
	Sale value	Own-cons. value (excluding processed products)		Cheese		Butter		Yogurt			
		Own-cons. +informal sale value	Own-cons. value	Informal sale value	Own-cons. value	Informal sale value	Own-value	Informal sale value			
Northeast	317.63	508.36	459.94	94.71	60.00	95.64	11.31	61.97	0.00	783.57	54.14
Eastern Anatolia	220.84	334.34	196.35	293.40	176.99	93.03	44.10	131.39	4.67	939.92	181.13
Central Anatolia	213.96	403.13	319.14	203.09	180.67	40.67	2.25	121.63	32.75	900.22	123.31
Southeast Mediterranean	45.62	367.30	325.00	125.07	10.18	3.06	0.00	0.00	0.00	463.30	26.14
General Average	209.35	400.36	316.04	191.40	123.11	61.24	15.86	89.96	11.73	809.33	102.15

Table 8: Informal value of animal products (value including the processed products) (US \$)

Regions	Meat	Milk	Manure	Egg	Honey	Leather-wool-hair	Previous total value	New value of informal animal products	Difference (%)
Northeast	22.42	783.57	27.94	19.21	8.07	0.00	586.00	861.22	46.96
Eastern Anatolia	62.89	939.92	76.87	16.73	25.50	0.06	516.37	1121.96	117.28
Central Anatolia	54.35	900.22	47.86	18.92	43.57	6.97	574.81	1071.90	86.48
Southeast Mediterranean	0.00	463.30	24.96	21.72	0.00	0.00	413.98	509.99	23.19
General average	40.22	809.33	43.40	18.85	22.92	2.23	527.98	936.95	77.46

Table 9: Household consumption rates on the basis of farm size and crop categories (%)

Regions	Crop categories	1-10 ha	10.1-25 ha	25.1-50 ha	> 50.1 ha
Northeast	Cereals	56.97	12.35	1.73	1.00
	Leguminous	69.05			
	Industrial crops	12.12			
	Fodder crops	61.93	100.00		25.21
Eastern Anatolia	Cereals	39.76	19.32	18.54	5.99
	Leguminous	59.72			
	Industrial crops	2.77			
	Fodder crops	74.72	100.00	52.83	
Central Anatolia	Cereals	46.69	25.59	6.13	10.51
	Leguminous	42.74	15.00		
	Industrial crops	22.73			
	Fodder crops	84.34			
Southeast Mediterranean	Cereals	21.84	5.04	0.91	
	Leguminous	18.19		0.21	
	Industrial crops	3.81			
	Fodder crops	56.41		100.00	
General Average	Cereals	41.32	15.58	6.83	5.83
	Leguminous	47.43	15.00	0.21	
	Industrial crops	10.36			
	Fodder crops	69.35	100.00	76.42	25.21

The share of consumption/production decreases in an inverse relationship with the increase in the size of enterprises. As enterprise land assets of the households increase, the amount saved for family consumption does not decrease, however, the share of the farm outputs set aside for family consumption within the total production decreases. For example, it is found that small family farms with 1 to 10 ha of land consume on average 41% of the cereal, 47% of the leguminous, 10% of the industrial and 69% of the fodder crops within the household. In fact, because of the lack of positive trends in specialization, the farm outputs of small farms are increasingly becoming own-consumed.

It is determined that in enterprises with 10.1 to 25 ha of farmlands, all industrial products are marketed, all fodder crops are used in animal husbandry activities and

16% of the cereals and 15% of the leguminous crops are consumed within the household. In cases where the operating farmland is greater than that of 25.1 ha, own consumption of fodder crops, cereals and leguminous crops decreases drastically (Table 9). A study conducted by Erkuş (1975) illustrates that in the farms of the Central Anatolian region, as the farm size increases, the rate of own consumption of cereals decreases and the level of households that do not market even cereal crops is about 25%. However, the fact that farm outputs other than the fodder crops in the region where this study was conducted are totally consumed within the household may be an indicator of a significant change in the production system that existed until the 1980s. Nevertheless, it can be seen that there has been no significant change in the own consumption rates of crop

products by the households in parallel to the changes in the economic structure of and socioeconomic changes in, Turkey. This result shows that agriculture is in the greater part not commercialized and subsistence-agriculture still prevails as a significant fact.

The decrease in the number of products raised by the households in parallel with the increase in land assets they physically possess, regardless of ownership, is remarkable, especially in the central and southern regions. Another important finding is that the amount and rate of products allocated for own consumption remains considerably low in households that are specialized in specific products. This can also be clearly observed from the results collectively presented in Table 9. In addition, the results of the regression equations given below also support this finding.

The production and marketing approaches of the rural households indicate that their relationships with the product and input markets (such as the fertilizers, disinfectants and animal fodder markets) are weak. Since small family farms usually consume what they produce, they will not be affected by the general price increase in the economy of the nation as much as larger enterprises. Another important consequence of the consumption of a significant amount of farm outputs produced by the households within the enterprises is that the positive changes in market prices has little or no affect on the producers and thus the influence of inflation on rural and urban areas differentiates. Households which consume the farm outputs they produce and obtain a portion of inputs from family resources, will be influenced lesser from the price fluctuations in the market than the households which supply all their products to and procure all their inputs from, the markets. This structure has a rather negative aspect. Agriculture was supported in Turkey in the period from 1932 to 2000 by way of support purchases, as well as input and credit subventions. Rural households, which produce and market the significant amounts of farm outputs and use significant amounts of credit, chemical fertilizer, pesticides and irrigation water, have gained most from these support payments or government subsidies. After 2001, the majority of input subsidies and support purchases have been finalized and direct income support has been initiated. Direct income support is given on the basis of acreage of owned farmland (Tanrıvermiş and Bülbül, 2007). Under these circumstances, the households with comparatively greater land will receive more government support. The beneficiaries of the support policies that have been put into practice in Turkey have been mostly the larger farms, while the rate of government aid among the smaller farms has been quite low. In addition to this,

great attention should be paid to the fact that the number of small family farms is still so high and thus the sustainability of small farms is connected the social insights in the rural areas of Turkey.

The regions are studied on the basis of farm size and the relation between production/consumption is statistically tested using the Pearson Correlation. The correlation coefficient between the planted areas of the farms (ha) and the production/consumption rates (%) for crop production is found to be -0.173 (significant at 1% level). Likewise, the correlation between the planted areas and the rate of value of own consumed farm output to value of the main product is calculated to be -0.210 (significant at 1% level). When applying the correlation between the enterprise size and own consumption rates and consumption values in plant production to the linear regression model, the equations of:

$$\begin{aligned} Y_{OC/MC} &= 40.747* - 0.293* PA \\ R^2 &= 0.044 \\ Y_{OC/PPV} &= 30.318* - 0.020* PA \\ R^2 &= 0.030 \text{ ((*) significant at 1\% level)} \end{aligned}$$

are found. In these equations, OC stands for Own Consumption Value, MC stands for Main Crop Value and PPV stands for Plant Production Value. Although the R^2 values related to the regression are quite low, the result is in line with expectations, with both the constant and the slope being significant at the 1% level and the slope having a negative direction.

It is better to make the evaluation on the consumption rates by considering the enterprise size, the number of household members and the location of the region in terms of market access, all of which can be regarded as factors influencing own consumption. The studied provinces, in which the households that are divided into four groups are located, have different features in terms of both their developmental level and market access. The northern and eastern provinces located in the first and second regions are less developed than the provinces in the central and southern regions in terms of their contribution to the GNP, per capita income and other socioeconomic features. Along with this, the farms categorized into groups such as group one cover the first and second region and group two consist of the third and fourth regions, which have similar market access and socioeconomic structures. In addition, between the studied groups, the first and second groups have disadvantages of geographical location and climatic conditions over the other two groups. Factors such as rough terrain, severe climatic conditions, transportation and road conditions in the first and the second regions make market access difficult. In this regard, in order to

Table 10: Estimated parameters for regression

Consumption/production	Plant products*	Cereals	Leguminous	Industrial crops	Fodder crops
Mean	50.023±32.193	35.792±30.991	2.420±12.934	1.550±9.194	52.855±45.302
No. of households	393.00	393.00	393.00	393.00	393.00
Farm size (ha)	-0.268 (0.000)	-0.233 (0.010)	-0.003 (0.344)	-0.002 (0.244)	-0.194 (0.049)
Person per household	1.041 (0.033)	1.090 (0.025)	0.045 (0.825)	0.132 (0.371)	1.034 (0.121)
No. of sheep and goats	0.175 (0.126)	0.018 (0.873)	0.042 (0.386)	0.029 (0.402)	0.266 (0.090)
No. of cattle and buffaloes	0.173 (0.000)	0.060 (0.141)	-0.014 (0.424)	0.008 (0.479)	0.234 (0.000)
Market access (D)	-14.408 (0.000)	-7.169 (0.022)	0.264 (0.843)	1.083 (0.254)	-27.859 (0.000)
R ²	0.128	0.055	0.006	0.011	0.166
F	11.353	4.551	0.501	0.825	15.459

*: Common evaluation of all plant products average consumption/production ratio; Values in parenthesis represent p-value

determine the effect of market access, it is proper to consider the geographical locations of the regions as a dummy variable. In the dummy variable, the provinces in the northern and eastern regions (the first and second groups) are considered to be 0 and the provinces in the middle and southern regions (the third and the fourth groups) are considered to be 1.

Factors effected consumption of plant products should be evaluated under the same product category. It is inevitable that the informal economic value for a household that produces one hectare of fodder crops and another that produces one hectare of sugar beet will not be the similar. The evaluations in regression equations were conducted under four product groups. As vegetable and fruit production were limited to few households on a very narrow area, they were neglected in the evaluation. The coefficient of the obtained regression equations are shown in Table 10.

For every 1 ha increase in farm size, household consumption of plant products in general decreases by 0.27%, while an increase in the person per household value increases own consumption by 1.04%. For the farms located in the central or eastern regions, the own consumption rate reduces by 14.41%. This rate has a significant value and is a significant indicator of the fact that if the enterprises have the means to offer their products in the market, their own consumption rates will decrease drastically.

The own consumption rates of leguminous and industrial plants average 2.42 and 1.55% respectively, which are quite low and none of the examined factors has been considered statistically significant. This is in line with expectations in general, because, these products are produced under contracted affiliations and sometimes there is no chance to consume these products without processed. Crops and fodder crops are the most own consumed products. The own consumption rates of crops drop as the size and market access opportunities of the enterprise increase whereas they increase as the number of persons in the household increases. On the other hand, the own consumption rate of fodder crops drop as the size and market access opportunities of the enterprise

increases, whereas they increase as the number of the sheep and goats and cattle in the enterprise increase.

As is the case with animal products, plant products may be subject to processing (or utilization) in rural households. In the western regions of the country, some agricultural enterprises conducting olive and sunflower farming transform a certain amount of their products into olive and sunflower oil and sell the rest of their products. Tomato producing enterprises sell an amount of their tomato produce and transform the rest to tomato paste for consumption throughout the year. Because vegetable and fruit production is quite limited in the examined households, there were no processed forms of these products. Among the plant products, only a certain amount of wheat is transformed into flour for use in bread and pastry making at home. However, since the wheat sale value is quite close to the bread value, no calculation was conducted for this field and the effect of the low-level processing was not taken into consideration. Still, in cases where there were product transformations, the amount of the processed forms of these same products should be multiplied with the market prices and included in the informal economic value. The calculations should be based on PTRs (tomato equivalent, olive equivalent, etc.) if the families do not know the amount of the products they have sold or how much oil or tomato paste or the like they have produced. The processed products may be transformed into raw material equivalent using the PTR to determine the amount sold as raw materials or own consumed. The materials sold or own consumed in the form of raw materials should be included in the producer prices and the processed goods in the market sales prices of similar products.

Calculated results of average informal economic value:

A total display of the calculated informal economy values and the share of average informal economic values in household farm and total income are provided in Table 11. The households in this study obtain 6,400.04 USD of informal income per household annually as an average of all groups. The informal income varies in regions between 3,701.15 USD (region 4) and 7,940.63 USD (region 3) and

Table 11: The share of informal economy within the farms and total household income

Enterprise averages	Group 1		Group 2		Group 3		Group 4		Average	
	Value	(%)	Value	(%)	Value	(%)	Value	(%)	Value	(%)
Plant products consumption value	4,117.81	63.94	3,790.06	59.89	4,231.88	53.29	1,201.97	32.48	3,549.36	55.46
Animal products consumption value	861.22	13.37	1,121.96	17.73	1,071.90	13.50	509.99	13.78	936.95	14.64
Family labor wage provisions	1,461.31	22.69	1,416.05	22.38	2,636.85	33.21	1,989.19	53.75	1,913.73	29.90
Total value of informal economy	6,440.34	100.00	6,328.07	100.00	7,940.63	100.00	3,701.15	100.00	6,400.04	100.00
Total household income	6,974.76	92.34*	9,744.64	64.94	9,687.71	81.97	4,967.61	74.51	8,123.19	78.79
Total farm income	4,523.60	142.37**	4,869.75	129.95	5,998.65	132.37	3,096.35	119.53	4,840.90	132.21

*: Informal Economy/Household Income (% share), **: Informal Economy/farm income (% share)

aside from group four, the crop product consumption value, followed by the family labor usage value, constitute the highest share to the informal economy value. In the average of all regions, the share of the plant product consumption value is about 55.5%, non-paid family member wage provision is 29.9% and the animal product consumption value is 14.6%. In the fourth group, the family labor wage provisions are higher than the crop product consumption value. There are some important reasons for this result in the fourth region, the main one being the widespread production of industrial plants and vegetables, such as cotton, peanuts, corn, melon and watermelon, which require comparatively higher labor per unit area in the fourth region. Since the market access opportunities are higher in this region when compared with the other regions, the households are oriented towards industrial product and vegetable production, or in other words, since they are more commercialized, their own consumption of plant products has remained at much lower levels than those of enterprises which engage heavily in cereal and leguminous crop production.

In the cases where the tendency to specialize in farming is low and market access is weak, a great deal of output is set aside for household consumption and in such situations it becomes very important to measure the farm and household incomes of the households. According to economic analysis results, the calculated farm incomes of the households vary on the basis of regions between 3,096.35 USD (region 4) and 5,998.65 USD (region 3), with the average calculated as 4,840.90 USD. It should be noted that the average farm income of the households is below the general average in the fourth region. The fourth region includes provinces such as Adana, a province specialized in market-oriented crop farming, where outputs can be obtained three times a year, as well as the provinces of the Eastern Mediterranean region, such as Osmaniye and Kahramanmaraş, which rely heavily on dry farming. On the other hand, the 2004 price levels of wheat, barley and corn, which constitute 2/3 of farmland use, are much lower than in previous years and the increase in input costs has been one of the main factors behind the decrease in

household farm incomes. The proportion of the informal economy value to farm income may be used as a more significant criterion in defining the correlation between economic development and the informal economy. The rate of informal economy value in the household farm income varies between 119.5% (region 4) and 142.4% (region 1), with an average of 132.2%. It should be noted that the total informal economy production value and family labor wage provision values of the households are higher (132.2%) than the household farm income (Table 11). The most marked feature of rural incomes is the importance of the farm income component in the structure of the total household income. The share of farm income in total household income is 64.9% in the first region, 50.0% in the second region, 61.9% in the third region and 62.3% in the fourth region, averaging 59.6% across the research regions.

The sum of the values of agricultural and food consumption of own production accounts for around 78.8% of the total income of the households. The rate of the calculated informal income of the households to the total household income varies between 74.5% (group 4) and 92.3% (group 1) (Table 11). In line with the theoretical expectations, in the relatively developed regions of those studied, the average informal income amounts and even the rate of informal economy value to the farm income and total income of the households, are decreasing and the informal economy is transforming into a formal economy in parallel with economic developments. The informal economy value is higher than the calculated farm income of the households, amounting to 79% of the total household income at both a regional level and in the research area average, which makes it an interesting finding in terms of signaling the high potential of the informal economy. Under these circumstances, an analysis of consumption, savings, poverty and other welfare indicators of the rural households should be made in a precautionary way and even the calculation methods of these indicators need to be discussed again and the deficiencies fixed. The evaluation of the economic status of the households in the chosen regions only by way of calculated and declared farm income will most possibly

result in a wrong determination of the welfare of the households. In general, statistics on the informal economy are unreliable by virtue of the subject, yet they can provide a tentative picture of its relevance. However, since there have been no previous studies on this subject conducted in Turkey, it has not been possible to evaluate the change over time nor prepare a comparative analysis of the results of previous researches and this research.

CONCLUSIONS

The state of non-observance or informality in the economy is more commonly discussed in relation to urban regions and employment areas and the informal economy in rural areas is seldom an object of attention. Since tax subsidies for agriculture and rural areas are commonplace in developing countries where the share of the population living and/or working in rural areas among the total population is high, studies oriented at measuring the dimensions of the informal economy in rural areas are often neglected. This study is an attempt to measure the scale of the informal economy relating to the unpaid family labor and crop and animal production sectors in rural areas and targets to constitute a framework for studies in this area. The article also provides a new approach in the measurement of the non-observed value of animal and plant products. To this end, the potential of the informal economy is evaluated from provinces chosen among four different regions so as to enable a characterization of the dualistic structure of rural areas.

The study has found that in households with a main source of income coming from agricultural production, the most significant informal economic value originates from the consumption of plant products, labor comes second and animal products have the third place. It is not only own consumption that should be recorded under informal value. On the other hand, that a product is sold does not necessarily mean that it can be classified as having a formal economic value. Here, what is important is whether the outlet is formal, in other words, whether the sales are recorded.

Accurate and precision calculation of the results of Integrated Household Surveys is very important, since its results will be generalized. It has been found that the method of calculating informal economic value significantly influences the results. The products that are processed and thus utilized, in households should be taken into consideration. Here, in order to identify how much of the raw material kept for the household is processed and how much of it is utilized as raw materials, the PTRs should be used. As the results of the survey

study will be amplified to the whole country, it is of ultimate significance to conduct assessments using accurate criteria.

When own consumption rates of plant products are evaluated under product categories and when factors affecting the size of these rates are considered, enterprise size, the number of the persons in households and market access opportunities were found to be important factors with regards to crops whereas for fodder crops, additional factors such as the number of sheep and goats and cattle in the enterprise proved significant. This evaluation has found that the most significant factor that reduces the consumption of the products in households is access to the markets. This indicates that transforming a substantial amount of the informal economic value into a formal structure would be possible through the implementation of methods facilitating the integration of enterprises with the markets.

Under these circumstances, an analysis of consumption, savings, poverty and other welfare indicators of rural households should be made in a precautionary way and even the calculation methods of these indicators need to be discussed again and the deficiencies eliminated. The rate of informal economy value to total household income varies between 74.5% (region four) and 92.3% (region one) depending on the region and is 78.8% on average. It is determined that the main reason for this finding is that most of the households are small farms and that market access is limited. In the comparatively developed regions among the studied cases, the ratio of the informal economy value to enterprise income is decreasing and the informal economy is transforming itself into a formal economy in parallel with economic developments. The evaluation of the economic status of the households in the research areas, only by way of calculated and declared farm and total household income, would result in a wrong determination of the welfare status of the households and the calculated indicators would far from reflect the real economic conditions of the households. The findings of this study reveal that the size of the informal economy in rural areas is far greater than anticipated, although this issue has not yet been subjected to in-depth researched and has not received enough attention in Turkey until today.

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