

THE EFFECT OF ECONOMIC SIZE ON PROFITABILITY OF APPLE FARMS

Y. CELIK¹ and M. EMRE²

¹ *Selcuk Universty, Faculty of Agriculture, Department of Agricultural Economics, Selcuklu, Konya, Turkey*

² *Egirdir Horticultural Crops Research Institute, Egirdir, Isparta, Turkey.*

Abstract

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The effects of economic size on profitableness was investigated by determining economics size classes of agricultural farms that produce apple in Egirdir district of Isparta province with respect to FADN system. The main material of this study was data that collected with survey from 71 farms that produce apple were determined with respect to simple random sampling.

According to research results, economics size classes of farms that produce apple in the study area was alterable between 2.39 ESU and 53.39 ESU and this value was confirmed as 19.40 ESU in average farms. According to standard results of farms, gross farm income margin was vary between 34.27% and 71.18% in economics size classes, farm net value added margin was between 10.35% and 61.38%, family farm income margin was between -9.25% and 44.04% and it was increased in parallel with economic size classes. These results prove that if economic size increases, profit margin of farm will increase and income will increase per scale.

Key words: FADN, apple farms, economic size, profitability

Abbreviations: FADN: Farm Accountancy Data Network; ESU: Economic Size Unit; TSI: Turkish Statistics Institute; EU: European Union; UAA; Utilised Agricultural Area

Introduction

In Turkey, relative importance of agricultural sector in national economy has decreased gradually in recent years. Thus, the agricultural sector participated with 10% in the national income in 2000 and this ratio decreased by 8% in 2011 (Anonymous, 2011). However, it is seen that agriculture contributes to national economy consequentially when it is considered that food production of agriculture contributes to employment and raw material to industry sector. When structure of agricultural farms was examined, it was seen that there were many businesses and they were small with respect to scale. According to data from 2006, there were 3 076 649 agricultural enterprises in Turkey and cultivated agricultural area was approximately 18 434 822 ha. According to this source, the average Turkish farm utilizes agricultural area of as low as 5.9 ha (81.8 % of all holdings cultivate less than 10 ha of utilized agricultural area). 27.8% of cultivated agricultural land was irrigated land and 72.2 of them were

dry land. More than 85.1% of holdings were operating agricultural activity in their own land. Holding operating own and rented land was 12.7%, only rent and sharecropping was 2% and 0.2 % of them was operating with two or more operating types. The percentage of holdings engaged in both crop production and animal husbandry was 62.3% and 37.2 % of them were holdings engaged only in crop production and 0.5 % of them were holdings engaged only in animal husbandry. 19.8% of agricultural enterprises of Turkey were involved in farms type that grows long-lived plant (Anonymous, 2011).

In Turkey, data related to agricultural sector include physical and structural statistics in macro level and data is collected by TSI. There is no data related to balance sheets, expenditure and income statue of agricultural holdings in micro level and accounting records are not kept in most of agricultural holdings. Therefore, there is no data related to income and expense of farms. In fact, data related to farms in micro level and related to agricultural sector in macro level contribute to sector planning studies and analyzing and planning of

farms. Globalized markets require more data and advanced level management in order to take right decision (Heidhues and Patel, 2012). Nowadays, in working life, farms try to use their sources more efficiently in order to become prominent. Main factor in usage of sources efficiently is knowledge. Especially aim of developed economies is to process and to manage data in order to achieve economic value from knowledge. It is seen that welfare level of economies, businesses, communities and persons that have a power to do it increases (Gökdeniz, 2005). It is generally accepted that keeping record in businesses enhances farm management and increases performance of business (Luening, 1989). On the other hand, data related to income and expense that is accounted based upon accounting records in agricultural enterprises increases impact and activism in order to take a right decision of decision maker and other shareholders (Argiles, 2001).

Turkey has been carried out partnership negotiation with European Union as candidate country since 2007. In this process, different harmonization studies related to agricultural sector has been carried out within EU harmonization studies. One of them was pilot study related to keeping statistical data concerned to agricultural holdings with respect to FADN system. The aim of FADN accounting system is to measure effect of common agricultural policies and to contribute evaluating standard results of farms by presenting structural and financial results of farms having different economic size and type. For this reason, FADN accounting system was established for operating in all member governments in order to evaluate agricultural holdings 'activities with same way.

A research that examines standard results of agricultural holdings that produce fruit with respect to FADN system has not been carried out in Turkey. However, some researches related to evaluating economic size groups of agricultural holdings and different farm types with respect to FADN system and comparison of standard results with economics size groups has been done (Gündoğmuş, 2000; Rehber et al., 2002; Tipi, 2002; Altınkol, 2006; Keskin and Dellal, 2006; Külekci, 2006; Göktoğa, 2007; Çelik and Direk, 2008; Emre, 2010). Naturally, researches related to FADN methodology and analyzing of standard results were more in European Union Countries. Some of them were (Hill, 1991; Colson et al., 1992; Boers et al., 1994; Thiede, 1994; Furesi, et al., 1995; Ikonen, 1995; Meier, 1996; Van Lierde et al., 2001; Hennessy, 2003; Udovecz, 2004; Aamisepp and Varendi, 2004 and Csaibok et al., 2005).

In this study, effect of economics size on profitableness was investigated by determining economics size classes and standard results of agricultural holdings that produce apple in Egirdir District of Isparta Province with respect to FADN.

Material and Method

The main material of this study was data that collected with surveys from 71 apple farms were determined with respect to simple random sampling in Egirdir district of Isparta province. Data was obtained for 2008-2009 production periods. Also, researches relevant this study was benefited.

In the study, before determining standard results of farms examined in research, the economic size classes were determined. After that, standard results were calculated with respect to economic size classes. Economic size of farms was determined with respect to standard gross margin. Standard gross margin was calculated by subtracting special variable cost from total intermediate consumption of farms. Later on, economic size of holdings was determined by dividing total gross margin of farms to 1200 Euro (Anonymous, 1989). Gross farm income was calculated by subtracting total intermediate consumption from total output. Farm net value added was calculated by subtracting amortizations from gross farm income and family farm income was calculated by subtracting total external factors from farm net value added. In addition, share of these success criteria in total production value was calculated as profit margin and comparison was made with respect to economic size classes.

Results and Discussion

The most important criteria used for classification of farms within FADN system is economic size class. The classification that is made by considering income statue of holdings is used sampling of farms that data will be collected as key criterion and it is used in comparison of performance of farms.

According to research results, 8.45% of business that produce apple was very small (1<4 ESU), 11.27 % of them was small (4<8), 35.21 % of them was above average (8< 16), 33.80% of them was below average (16<40) and 11.27% of them was big holdings (40<100). 69.01% of farms were in the mean size groups (Table 1).

In EU 27, 47% of agricultural holdings was smaller than 1 ESU, 34% of them was in 1-8 ESU size class, 7% of them was in 8-16 ESU size class, 6% of them was in 16-40 ESU, 4% of them was in 40-100 ESU and 2% of them was in 100 and more than 100 ESU. 76.80% of holdings that was greater than 1 ESU was in 1-16 ESU, 18.88% of them was in 16-100 ESU and 4.32% of them was in more than 100 ESU (Anonymous, 2010).

One of the factors that affect farms success in agricultural is amount of cultivated land and property condition of this land. If amount of cultivated land increases per holdings, production planning, decreasing of fixed cost per cul-

tivated land, effective use and operating of inputs possibility increase. Moreover, it is known that producer maintains properly or does not use land that will create environmental problem when farmland is own land or rented land for long time (Çelik and Direk, 2008).

In the investigated farms, the cultivated area per holding was increase in parallel with economic size groups except for 4<8 ESU economic size class and it was change between 1.53 and 5.9 ha. In average, the agricultural arable area per holding was determined as 2.58 ha (Table 1). It is seen that number of area per holding in research area is lower than average of Turkey (5.9 ha). In EU 27, holding having one ESU

and more than it has 22 ha UAA per holding (Anonymous, 2010). In research area, number of arable area was low per holding because there were not much arable lands. When climate condition is proper in some areas, farmers generally produce fruit and vegetable having high-income unit area in low number of available area per holding. Thus, it was seen that farmers used 40% and 50% of area for fruit and other perennial in small business having area between 1 and 5 ha when product design is researched in different size businesses (Anonymous, 2010a).

Ratio of rented area has differentness with respect to economic size class. Share of rented area in holdings were

Table 1
Standard results of investigated farms

Average value per agricultural holding	FADN Code	Very small farm	Small farm	Medium-low farm		Medium-high farm	Big farm	Average
		< 4 ESU	4<8 ESU	8<12 ESU	12<16 ESU	16<40 ESU	40<100 ESU	
Structure in sample	%	8.45	11.27	33.80		35.21	11.27	-
Economic Size (ESU)		2.39	7.12	10.13	13.52	22.93	53.39	19.40
Total UAA (ha)	SE 025	1.58	1.53	1.65	2.22	2.68-	5.90	2.58
Total livestock units	SE080	-	-	0.09	1.15	0.36	-	0.14
Total output crop production (Euro)	SE135	7 291.66	15 468.75	16 748.21	23 615.56	33 081.13	81 198.16	30 079.13
Total output livestock production (Euro)	SE206	-	-	902.78	1 001.16	358.61	-	434.49
Other output (Euro)	SE256	894.10	737.56	564.50	951.30	806.54	3 700.81	1 121.29
Total output (Euro)	SE131	8 185.76	16 206.31	18 215.49	25 568.02	34 246.28	84 898.97	31 634.91
Total specific cost (Euro)	SE281	4 423.03	6 810.26	6 156.25	8 201.34	9 070.46	22 010.78	9 275.01
Total farming overheads (Euro)	SE336	957.27	1 060.83	654.46	1 041.44	959.96	2 457.68	1 107.45
Total intermediate consumption (Euro)	SE275	5 380.31	7 871.09	6 810.71	9 242.78	10 030.42	24 468.46	10 382.46
Gross farm income (Euro)	SE410	2 805.46	8 335.22	11 404.78	16 325.24	24 215.86	60 430.51	21 252.45
Depreciation (Euro)	SE360	1 958.10	3 716.86	4 906.89	3 950.09	5 406.44	8 320.24	4 891.80
Farm net value added (Euro)	SE415	847.36	4 618.36	6 497.89	12 375.15	18 809.42	52 110.27	16 360.65
Total external factors (Euro)	SE365	1 604.46	2 062.14	2 522.36	3 374.73	5 435.42	14 720.05	4 949.12
Family farm income (Euro)	SE420	-757.09	2 556.22	3 975.53	9 000.42	13 374.00	37 390.22	11 411.53
Net profit margin (%)	(SE420/131)	-9.25	15.77	21.82	35.20	39.05	44.04	36.07

change between 9.09% and 25.75% in respect to economic size groups, and it was 13.95% in average of farms. Number of rented land was 25.75% and it was highest level in 16<40 ESU size class.

It was determined that animal production was not included in investigated farms. As seen in Chart, animal existence in farms was in moderate sized group. There was average one dairy cattle to meet milk requirement of family in these farms.

Total production value in farms was increase in parallel with economic size classes and average of farms was approximately 31 634.91 Euro. Total specific costs and total farming overheads expenditure made in order to achieve total production value were increase in parallel with economic size group. Amortization expenses depending on fixed asset of farm were varying in economic size classes.

Gross farm income was increasing in parallel with net value added and family income of farms. Profit margins that were share of these criteria in total production value were increasing in parallel with economic size classes. Increasing of profit margins in parallel with economic size shows that there was increasing returns to scale. In addition, this shows that increasing of economic size affects profitableness positively (Figure 1).

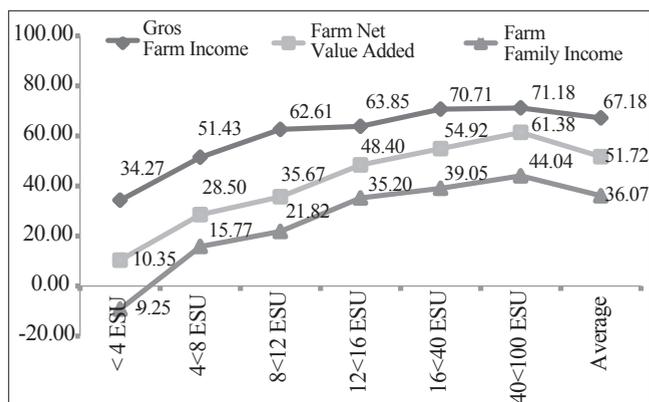


Fig. 1. Profit Margins of Apple Farms (%)

Conclusions

In Turkey, size of farms based upon physical quantities of production factors (Area, labor force, number of animal, capital) is determined. However, in EU FADN system, economic size class based upon standard gross margin of farms is used. If there is enough data, it is stated that income is the best factor for determination of size of farms (Erkuş et al., 1995). It does not matter that physical quantity or criteria related to income is used in determination of farms, the aim is

to determine optimal size of farms by presenting efficiency and activity of different size classes and to examine effects of policies that were carried out in macro level on different farm types.

In this study, effects of economic size on net profit margin have been tried to research and it is seen that net profit margin of farms increases when economic size of farms increases. However, it is not known how long this increasing continues because businesses generally includes small or medium size businesses. Researches that was carried out in Asia, Latin America and East Europe Countries, it was stated that there is inverse relationship between increasing of area existence and economic productivity (Bardhan, 1973). On the other hand, in farm in Macedonia, net profit margin increases in parallel with economic size (Martinovska et al, 2009) and in farms that produce coffee in Vietnam, small business works lower effective than big business (Rios and Shively, 2005). Consequently, these results show that there were different results between different economic size classification different farm types. Therefore, it is seen that farmers should determination of optimal size of farms on different region and farm types in order to use agricultural production factor efficiently. For this reason, it is required to keep and analyze statistical data related to agricultural sector and farms in macro and micro level.

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