BEEKEEPER' INCOME VOLATILITY. CASE STUDY: BEEKEEPING EXPLOITATIONS IN ROMANIA DURING THE 1962 TO 2011

Maria MĂGDICI[1], Dan BODESCU [2], Radu Adrian MORARU[2], Eduard BOGHIȚĂ[2]

e-mail: maria_magdici@yahoo.com

Abstract

The purpose of this paper is to determine the impact of honey yield variation on beekeepers revenue in Romania. The period for which investigations were carried out is 50 years to highlight the influence of a centralized economy and then of a under development market economy on the financial situation of beekeepers. The main research tools used were the indices of elasticity of prices and incomes based on the honey offer and on the consumer's incomes. Results indicate a diminution in production capacity coupled with a significant increase in yield average. It was also revealed a significant volatility in the Romanian beekeepers revenues correlated with a low elasticity of honey prices compared with the dynamics of consumer's incomes and with the total honey yield. During the 1962 to 2011 in Romania the incomes from honey production were by 43,3 millions with variations from 18,1 millions $ between the 1962 to 1966 to 109,3 millions $ between the 2007 to 2011. Thus, the increase of incomes from honey production was of 502.7 % while the honey yield increased by 183,8%.

Key words: incomes elasticity, honey, demand, price

The importance of beekeeping in terms of socio-economic aspects and environmental protection is invariably recognized. Moreover, the variability of the results obtained within this economic branch, due to natural factors that influence it directly, is also known (Bodescu et al, 2009. Susan, Kohler Sue, Jacobson Stu., 2004).

The beekeepers' income is the lever that increases or reduces the interest in practicing apiculture. Consequently, revenues from beekeeping decisively influence the number of hives in a certain area (Beneche Fr. S., 2003).

MATERIAL AND METHOD

The main objectives of this paper were to determine the average income obtained from the beekeeping exploitations in honey production in Romania and to determine the main influence factors. Among these factors, we chose: the total honey production, the average honey production, the domestic and the export price, and the gross domestic product.

The research methodology used was based on information obtained from the United Nations, FAOSTAT, and the National Institute of Statistics and from the National Bank of Romania.

The investigated time includes two historical periods: 1962-1989, span characterized by market economy and the 1990-2011 span, in which a transition economy towards a market economy worked.

Due to the large data volume, we had to fractionate the whole period in 5-year increments, for which average values were determined.

The main used indicators are based on the income variability level, in line with the development of the influence factors. Basically, these elasticity indicators were determined as ratio between the percentage dynamics of the outcome and the dynamics percentage of the factor (Stephen G. et al, 2007).

RESULTS AND DISCUSSIONS

The average income obtained from honey production (*figure 1*) in the investigated period was about $ 36,4/ bee family, varying with an obvious increase of approx. 5,11 times from $ 17,7/family between 1962-1966 to $ 90,6/ family in 2007-2011.

Within the centralized economy before 1990, the average increase was about 5, 3% per year, followed by a 14, 6% per year average increase. This phenomenon may be attributed to the increased quality of the technological processes and to the beekeepers' interest. At the same time, it is obvious that within an economy where the price did not represent the market value of the product, the revenue cannot clearly express the results of the economic unit.

---

[1] S.C. Research and Development for Beekeeping S.A.
[2] "Ion Ionescu de la Brad" University of Agronomic Sciences and Veterinary Medicine of Iaşi

During the 1962-1990 interval, a significant increase in the average income to a value of \$ 46,5/family within the 1977-1981 period is highlighted. In the coming years, the income reduces significantly, close to the minimum range of the whole interval – \$ 18,1 / fam. in the 1987-1991 period. This decrease may be attributed to the disruption of state institutions, which were holding the most of the bee families.

Instead, the further growth of the average income is encouraging; a growth that appears sustainable through the consistency it expressed itself. This is even more important as it may also be associated with the increasing size of agricultural holdings.

Figure 1 **Evolution of the average income (\$/bee family)**
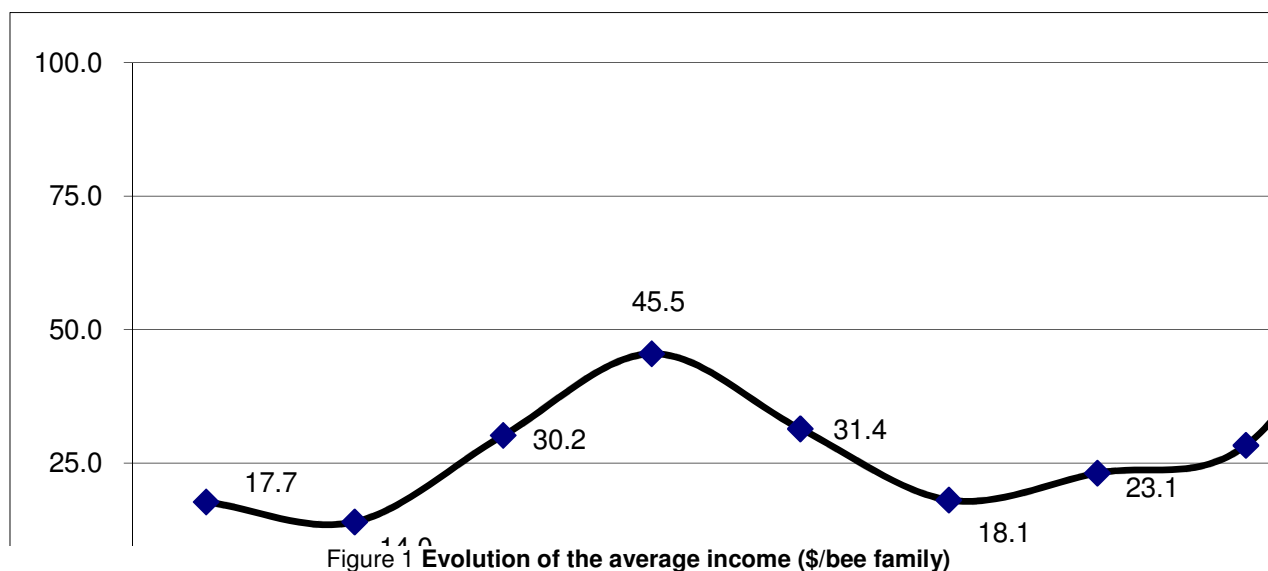
Regarding honey price dynamics in correlation with honey average production (*figure 2*), it can be appreciated that the demand is relatively inelastic because the average of the period records a value of approx. 0, 57, but there were periods in which the price fluctuated favoring the beekeepers and others in which it favored the clients. Thus, during the 1977-1981 period, the price of honey increased 3,21 times than the average production dropped, and from 1997 to 2001, the price rose 2,45 times in comparison to the increase of the average production.

Given the fact that that nine out of 10 years the elasticity is positive, we can say that the price is directly correlated with the average production and that it does not compensate the latter.
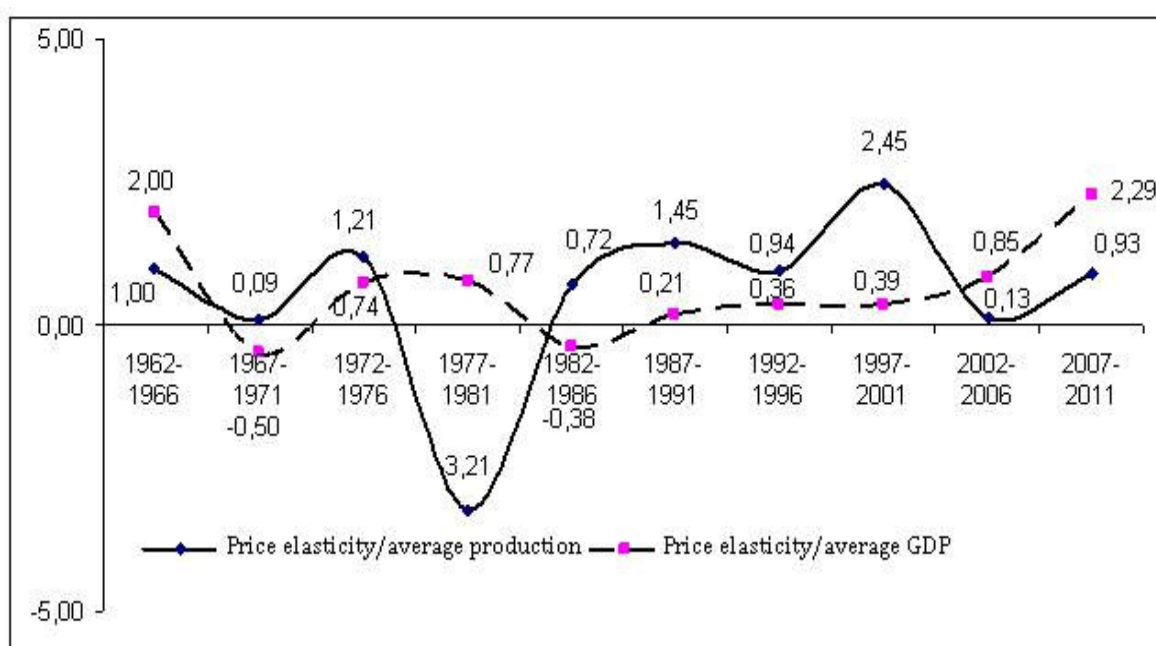

Figure 2 **Honey price elasticity compared to the average production and the average domestic product per capita**

In principle, a reduction of the average production should determine an increase of the price, but taking into consideration the defining price manner in the communist economy, the price increases, or decreases along with the average production increase or decrease.

The price elasticity against GDP per person has an average whole period value of -1.93, indicating a moderate elasticity which operates in compensation; an increase in GDP, produces a decline in price and vice versa.

An exception is highlighted for this indicator when the elasticity index has a negative value of 3,64 (1967-1971) highlighting, in this case, a much higher and compensating elasticity.

Moreover, an exception also appears for the 2007-2011 period, when this indicator has a positive value of 3,50, expressing a price increase by three percent for each overall production increase percentage.

If we correlate these results with the fact that the gross domestic product per person had a continuous growth trend, as it happened with honey consumption, we may characterize this growth as inconsistent with the economic reasons related to supply and demand. But this phenomenon reminds us that the domestic price is also influenced by the volume and price of imported honey and, on the other hand, that part of Romanian beekeepers' income is derived from the exported honey.

In conclusion, the market and the economic situation do not seem to favor apiary exploitations in low production years, but allow achieving increased economic performances when obtaining heightened productions. This may be reason why the average income has increased in recent years.

On the other hand, the increase of the average income does not determine an increase of honey consumption in the same way; on the contrary, in these circumstances, consumers turn to substitute products.
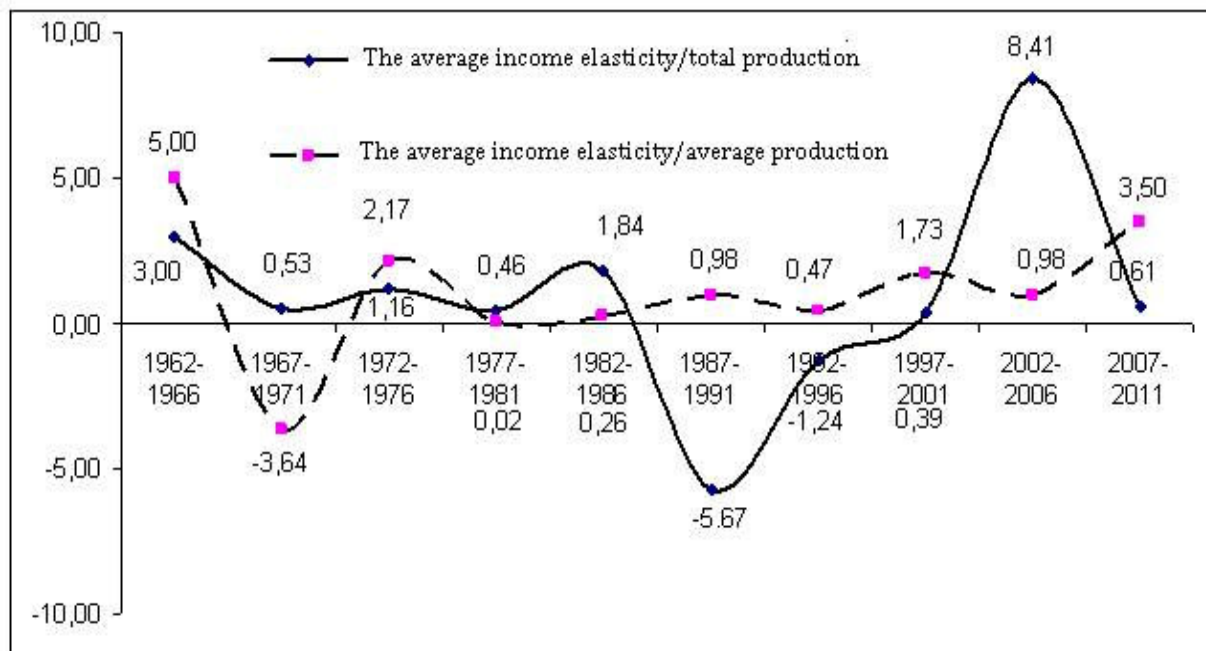

Figure 3 **The average income elasticity of the average production and the average domestic product per capita**

The average income elasticity of the bee exploitations in Romania (*figure 3*) had, in the reviewed period, an average value of 0,95, which shows that an increase with one per cent in the total production determines an increase of the income with almost one per cent. This value indicates a minimum elasticity of the two elements, but the variability of this indicator that records minimum values of 0,02 which indicate an almost complete inelasticity and maximum values of 8, 41which point out a significant elasticity, holds our attention. It is likely that the economy in transition that characterizes the last twenty analyzed years influences the evolution of this market and, therefore, the beekeepers' incomes.

Moreover, the average income elasticity, compared to the average production, has a 1, 90 researched period average value, indicating the fact exploitations income is strongly influenced by the fruition level of the production capacity. In other words, in the good years, the production increase determines the increase of the average income with almost two per cent, and, conversely, the production decrease has a double effect on the income.

CONCLUSIONS

The average income from honey production realized in the studied period was about. $ 36.4 / bee family.

Regarding the price of honey in correlation with the average production, it can be estimated that the demand is relatively inelastic, because the average of the period recorded a value of approximately 0,57.

The price against the gross domestic product per person is moderately elastic as it recorded a whole period average value of -1,93.

The average income elasticity of bee exploitations in Romania had, in the reviewed period, an average of 0,95, and the average income elasticity against the average production had an average value of 1,90.

REFERENCES

Beneche Fr. S. -2003, *Commercial Beekeeping in Australia - A report for the Rural Industries* Research and Development Corporation, Commercial Beekeeping in Australia, Sidney.

Bodescu D., Ştefan G., Olariu Paveliuc C., 2009, *The comparative profitability of romanian apiarian exploitations On Size Categories*, Lucrări ştiinţifice, seria: Horticultură, Publisher AcademicPres., Cluj Napoca

Ingram Verina, Njikeu J., 2011, *Sweet, Sticky, and Sustainable Social Business*, Ecology and Society, Vol. 16, Publisher Resilience Alliance, Canada.