



University Ss. Cyril and Methodius in Skopje
Faculty of Agricultural Sciences and Food



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7-9 October 2015, Ohrid, Republic of Macedonia*

SYMPOSIUM PROCEEDINGS



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VIII SYMPOSIUM FOR VEGETABLE AND FLOWER PRODUCTION

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**CAPTURING THE FARMLAND MARKET DATA IN THE REPUBLIC OF
MACEDONIA**

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Abstract

The capital farmland market in the Republic of Macedonia is underperforming and lacks of transparency. The limited availability for pricing information on farmland hinders the establishment of a functioning and transparent land market. Even though farmland markets typically exhibit a low rate of transactions, the land price may vary due to different factors. Hence, the prime aim is to detect initial records on the farmland prices, and to explain the influence of the factors that may affect the farmland price. The data collection is based on the desk and field research methods. The desk research was based on data reported in the Official Gazettes of the RM during the period from January to December 2013, resulting in 1100 observations on the price of arable land and gardens. The field survey covered 244 respondents and was conducted by using the focus group approach during February 2014. The questionnaire included two points for discussion: 1) The lowest, mid and the highest price of the landmark i.e. the hypothetical property, and 2) The factors that influence the price. The results show that there are differences in the observed farmland prices resulting from the desk and field research. The average farmland price resulting from the desk research is 1 €/m², while the one from the field survey is 1.53 €/m². However, there are differences in the prices between regions as well, due to different factors affecting the farmland price. Density showed the strongest positive correlation with the farmland price, meaning that higher density increases the price, and vice versa. Other factors influence the farmland price as well. These initial results shall serve as a basis for future development of permanent records on the farmland price data, which are necessary to persuade timely information on the farmland market value and ease the farmland transactions.

Key words: farmland prices, initial records, factors' analysis.

Introduction

Background information

Farmland is an important asset for every economy. It is used for producing food and other materials necessary for the peoples' well being. Like every other assets, farmland has its own value. Farmland is capable of producing a continuous stream of agricultural services and if it is properly managed, it does not depreciate; however it changes over time

(Gardner and Nuckton, 1979). These changes in farmland occur through drainage, irrigation and conservation structures. Buildings, fences and other improvements also add to the farmland value. However, farmland valuation is not an easy task since there are many other factors related with the value of the farmland. Moreover, it has a market value created throughout market transaction.

The farmland market consists of the sellers (the supply) and the buyers (the demand) of a farm real estate, which are the key drivers of the farmland market value. The sellers are the owners of farmland that are selling their property due to diverse factors mainly driven by farm abandonment or lack of interest to engage in agriculture on a inherited farmland, etc. The buyers of farmland are the existing farmers that expand production, investors and new farmers interested in farm business activities, non-farmers that are attracted to rural areas, etc. Reynolds (1966) emphasizes that all participants on the land market (landowners, prospective buyers, tax assessors, etc.) must place a value on farmland.

The level of prices at which ownership rights in farmland are exchanged is a major determinant in the use of the farmland and in the distribution of economic benefits resulting from its use. Therefore it becomes important to understand the factors that determine farmland prices. Thus, it should be considered that price and value are usually measured to be equal under conditions of perfect competition. However, under actual conditions of the farmland market, prices may be quite different from value.

Definition of the Problem

The capital farmland market in the Republic of Macedonia (RM) is underperforming and lacks of transparency. The limited availability for pricing information on farmland hinders the establishment of a functioning and transparent farmland market.

Even though farmland markets typically exhibit low rate of market transactions, the farmland price may vary due to different factors. Therefore, it is necessary to determine the key drivers of the farmland market in the country since there is no similar official analysis. The necessity for a functioning and transparent farmland market in the RM urged the need for capturing the farmland market data in the country. This necessity is becoming increasingly vital within the Macedonia's reforms in its aspiration to join the European Union (EU).

Aim and Outline

Permanent records on the farmland price data, as well as identification of factors affecting the farmland price, are necessary to persuade timely information on the farmland capital market value. As the farmland is being an important capital asset for every economy, these records and information are needed to ease the farmland transactions in the RM and to provide basis for recurrent farmland market analyses. Thus, the *prime aim* of this article is to: *a)* detect initial records on the farmland prices upon which future valuation of farmland shall be based, and *b)* to identify the possible influence of certain external factors on the farmland price.

The following section presents literature review related with the characteristics of the farmland market and determinants on the farmland value which shall serve in future attempts for farmland valuation in the country. The next section describes the research method in details. The results are then presented followed by a short discussion and conclusions.

Literature review

Economic Value of the Farmland

Farmland is an immobile recourse and has an infinite life, which with proper maintenance may change over time but very slowly (Barry *et al.*, 2000). In contrast to other production factors in agriculture, farmland has special treatment in institutional arrangements such as taxation, government programs, etc. (Barry *et al.*, 1983). Different factors affect farmland values, such as the availability of water, minerals, oil, buildings, as well as conservation practices, etc. Also, farmland values are influenced by particular factors typical for the potential buyers, such as the ownership of agricultural machinery to the potential buyers and preparedness to buy new one (Plantinga and Miller, 2001). And lastly, there are monetary factors affecting farmland values, such as family tradition, hobby farming, rural living and other (Borchers, Ifft, and Kuethe, 2014).

Farmland acquires its economic value from a series of anticipated net returns which will become available over a period of years (Reynolds, 1966). In this regard, farmland has economic value for the same reasons as other goods. Since farmland has greater durability as a production factor than many other goods, the future earning capacity of land becomes important for the purpose of valuation. Theoretically, the market value of farmland should always equal the present worth of its future net returns discounted back to the present (Barry and Ellinger, 2012).

Characteristics of the Farmland Market

The farmland market has certain distinctive features because of the peculiar characteristics of land and the specificities of the agricultural production. In this regard, the farmland market does not have the usual characteristics of a purely competitive market (Colyer, 2004). The characteristics of a purely competitive market are (Kohls and Uhl, 2002): 1) existence of a homogeneous product, that is, the product of each seller is identical with that of every other seller; 2) there are many buyers and sellers in the market and the sales and purchases of each individual are small in relation to the aggregate volume of transactions; and 3) there is free entry into and exit from the market for both buyers and sellers. A perfectly competitive market differs from a purely competitive market. In addition to the above characteristics, both buyers and sellers possess perfect knowledge in a perfectly competitive market.

Even though agriculture is often referred to as purely competitive industry, a different situation occurs in the market for farmland (Reynolds, 1966). Land is a heterogeneous resource that varies greatly in quality. Land is very difficult to classify because of the subjective nature of the classes. For example, the Agency for Real Estate Cadastre in the Republic of Macedonia classifies farmland as I, II, III and IV class. However, two class I farmlands could be quite different under the Cadastre. In addition, the Cadastre's classification is not yet adapted to a comparable classification of the farmland, however improvements are in progress. In the farmland market there is not always a large number of buyers and sellers present. These conditions may affect the characteristic of free entry into and exit from the market. The availability of credit is a factor that may also affect free entry into and exit from the market. If credit is not available, a person without a large cash reserve may be unable to buy farmland. The farmland market does not meet the requirements for a purely competitive market. Imperfect competition results since farmland

is a heterogeneous recourse and there may be a limited number of buyers and sellers in the market. The average buyer and seller only participate in the farmland market occasionally, and as a result their experience is limited. The seller's decision to sell is often connected with some outside event such as the desire to obtain a larger farm, abandonment of the farm or migration to another city or country. On the other hand, from the buyer perspective, there are large considerations involved in most farmland transactions, including the preparedness to undertake great investment farming activities.

The fixed location of the resource is another characteristic of the farmland market. Farmland must always be sold where it is located. The fixed location of farmland tends to localize the market for it.

Materials and methods

In regard to the aim of this study, the research method comprises field and desk research techniques so to provide the initial data on the farmland prices in the Republic of Macedonia. Also, secondary sources were consulted so to examine the factors which affect farmland values in the country, whose relationship with the farmland price was additionally tested.

Field research

The field survey covered 244 respondents and was conducted in all eight regions in the RM during February 2014, by using the focus group approach (a group interview). In this case, the focus groups consisted of 6 villagers (respondents) on average. This approach provides in-depth and in-time information, and by this way it is a cost-efficient for the surveyor. Moreover, group interviews provide the possibility to encourage discussion among participants (respondents) in the focus groups on matters which would be otherwise missed in an individual questionnaire. In most instances, the surveyors utilized the possibility to meet in their home environment in order to induce comfort and confidence of the respondents.

The questionnaire included the two points for discussion: 1) The lowest, mid and the highest price (in Euros/m²) of the landmark i.e. the hypothetical property, that does not have the potential to be converted into construction land in future (a farmland that is about 1 km away from the village and is partially accessible by paved road), and 2) Factors that influence the price such as infrastructure (irrigation, paved road, demography, etc.).

At the beginning of each session (meeting), the surveyor gave introduction for the purpose of the survey and the expected discussion. In this regard, the following questions were used to initiate the discussion about price of each landmarks: 1) If the *landmark* property described below existed in the locality, how much would the farmer (or other respondent) expect to pay for it in the open market?, and 2) If the *landmark* property was owned by the farmer (or other respondent), how much would they be prepared to sell it for?.

Before the field survey was initiated, there was a test survey conducted in a village in the Skopje region to a group of nine farmers. The findings from the visit were the base for the additional instructions for the surveyors.

Desk research

The desk research is based on data that were reported in the Official Gazzetes of the RM (OG) during the period from January to December 2013, resulting in 1100 observations on the price of arable land and gardens for all eight regions throughout the country. Observations that were reported as the price of arable land, but were in fact prices for construction land, were not considered in the analysis.

The data set created from the desk research data covers the following information on the price of the agricultural land: 1) General information on the source (number and date of the issue of the OGs); 2) Legal information on the agricultural land announced for sale (municipality, spot, cadastral municipality, number of cadastral parcel, class of cadastral crop, area on sale (in m²), and 3) Sales price of the arable land and gardens (in Euros/m²).

However, the results from the desk research presented in next section include the average price of the arable land and gardens by region and by municipality, and additionally give an overview of the number of observation by region and municipality. The number of observations per region is different. More than a half of the observations belong to Pelagonia and Southeastern region since there are a large number of observations for Prilep and Strumica, respectively. Also, not all municipalities within a region were covered since there was not any land on sale during the observed period as registered in the OGs.

Data analysis

Since the prime aim of this study is to obtain initial records on the farmland prices in the RM, the analysis is based on calculating average prices on regional level and on a country level. For these purpose mean statistics was employed to data observed from both desk and field research. Additionally, the differences in the observed average prices on agricultural land, which resulted from both data sources, were calculated.

In order to determine whether particular factors affect the farmland price in the country, a correlation statistics was employed. Since all the variables are of interval-scale type, they were analyzed with the Pearson's correlation coefficient. The following factors specific for each region in the country were tested if they influence on the local farmland price: a) Density, b) Arable land per capita, c) Population over 65 years, d) Local road network development, e) Water supply, f) Installed electricity, and g) GDP per capita. The official statistical data on each factor was obtained from the State Statistical Office of the Republic of Macedonia.

Results and discussion

Field research results

The testing of the questionnaire was conducted in a village of Pobožje in the Skopje region and the focus group covered nine farmers. During the discussion, it was noted that farmers faced difficulties to visualize hypothetical landmark properties. However, initial results from the trial of the focus group approach were obtained. That are, the size of the land that was traded in the surrounding of this village were between 0.2 to 0.5 hectares because part of the village area is very steep. Furthermore, households own 2 ha land on average which is divided in several pieces in different locations. This village did not have any irrigation systems and the average reported price by every discussant was 0.5 €/m². Farmers stated that this price was mostly influenced by the proximity of the parcel to the main road or to

the house of the buyer. The results from the test showed that there should not be further difficulties for farmers to define the hypothetical landmark property, therefore there were no altered instructions given to the rest of the surveyors prior their interviews.

Data on the farmland prices observed from the field survey for all eight statistical regions (the Vardar region, the Eastern region, the Southwestern region, the Southeastern region, the Pelagonia region, the Polog region, the Northeastern region and the Skopje region) are presented in Table 1. The field research data on the farmland prices are based on the opinions on 244 farmers from 42 villages in 37 municipalities. These data are based on the highest, average and the lowest observed price in one village. The group interviews gave different prices for the farmland throughout the country. But, there were no big differences in the range in prices stated by the people from one focus group in each village. Usually, these prices of farmland varied due to several factors. In the regions without irrigation system, typically the mountainous regions in the western part of the country (mainly Polog region), the size of the parcel and the proximity to the road and/or to the village influenced the price of the farmland. Conversely, in dry areas, the proximity of a river or irrigation systems play much bigger role in the determination of the farmland prices. Intensive irrigation is especially essential for the regions characterized with intensive vegetable production. In general, the frequency of the transaction on the farmland market could be also considered as a factor that affect the level of farmland prices, however there are certain difficulties for these price changes to be observed due to the existing imperfection of the farmland market in the country. From a demand perspective, farmland is usually transacted if farmers are willing to enlarge their production (generally from the neighbor), and, from a supply perspective, farmers are willing to sell land so to cover their liabilities to external party.

Table 1. Summary results on the farmland prices based on a field survey data

Region	Number of municipalities	Number of villages	Number of participants	Farmland price (€/m ²)		
				Low	Mean	High
Vardar	5	5	29	0.36	0.72	1.24
Eastern	5	5	29	0.40	1.20	1.90
Southwestern	5	5	28	1.12	2.55	4.00
Southeastern	4	5	28	0.48	0.72	1.10
Pelagonia	4	4	24	0.45	0.70	1.35
Polog	4	7	34	1.05	2.40	3.84
Northeastern	5	5	37	0.72	1.14	1.70
Skopje	5	6	35	1.38	2.83	4.16
Total/ Average	37	42	244	0.75	1.53	2.41

The lowest farmland price is observed in the *Vardar region* due to the low price observed in Caska village that ranges from 0.2 to 0.5 €/m². This village is lowland and the main agricultural production is field crop. The highest price in this region is observed for the village Dolni Disan, which ranges from 0.5 to 0.6 €/m². However, this price would be higher if there is an irrigation system and if it is near a paved road. Also, if the observations include vineyards or orchards, the average price would reach 1.2 €/m². The highest price of 4.16 €/m² is observed in the *Skopje region* since the villages are located

near the capital of the country and are characterized with a well developed local road network, irrigation system, available electricity, etc.

Desk research results

The results from the desk research cover 1100 observations on the average farmland prices (the price for arable land and gardens) and the number of observations by region and municipality. In general, the average farmland price in the RM is around 1 €/m². The highest average price of 3.42 €/m² is observed in the Skopje region, while the lowest of 0.39 €/m² in the Eastern region.

For more details, Table 2 presents the data on the farmland prices observed with the desk research. The average price in the *Vardar region* is 0.71 €/m² and is based on total of 89 observations for four municipalities. The highest average price of 1.29 €/m² within this region is observed for Veles, and the lowest of 0.35 €/m² for Demir Kapija. The average price in the *Eastern region* is 0.39 €/m² and it is the lowest observed regional price. It is based on total of 40 observations for five municipalities. The highest average price of 0.61 €/m² within this region is observed for Kocani, and the lowest of 0.11 €/m² for Stip. The average price in the *Southwestern region* is 1.60 €/m² and is based on total of 90 observations for four municipalities. The highest average price of 1.83 €/m² within this region is observed for Struga, and the lowest of 1.13 €/m² for Debar. The average price in the *Southeastern region* is 0.51 €/m² and is based on total of 250 observations for three municipalities. The most of the observations within this region are for Strumica or 92%, where the highest average price of 0.77 €/m² is observed. The lowest average price of 0.29 €/m² is observed for Valandovo, however based on three observations. The average price in the *Pelagonia region* is 0.47 €/m² and is based on total of 394 observations for four municipalities. The most of the observations within this region are for Prilep or 73% where the price of arable land and gardens is on average of 0.24 €/m². The highest average price of 0.86 €/m² within this region is observed for Resen, and the lowest of 0.10 €/m² for Krusevo which is the lowest observed price within the whole country. The average price in the *Polog region* is 2.19 €/m² and is based on total of 101 observations for two municipalities. The average price is higher in Gostivar (2.66 €/m²) then in Tetovo (1.73 €/m²). The average price in the *Northeastern region* is based on only one municipality of Kumanovo. The average price is 1.43 €/m² and is based on total of 62 observations.

SECTION 2. AGRICULTURAL ECONOMICS

Table 2. Results from the desk research on the farmland prices

Region	Municipality	Total number of observations	Average price (€/m ²)
<i>Vardar</i>		89	0.71
	Veles	23	1.29
	Demir Kapija	2	0.35
	Kavadarci	35	0.68
	Negotino	29	0.55
<i>Eastern</i>		40	0.39
	Berovo	2	0.56
	Vinica	27	0.37
	Delcevo	8	0.32
	Kocani	1	0.61
	Stip	2	0.11
<i>Southwestern</i>		90	1.60
	Debar	2	1.13
	Kicevo	22	1.78
	Ohrid	40	1.67
	Struga	26	1.83
<i>Southeastern</i>		250	0.51
	Valandovo	3	0.29
	Gevgelija	17	0.46
	Strumica	230	0.77
<i>Pelagonia</i>		394	0.47
	Bitola	69	0.68
	Krusevo	7	0.10
	Prilep	288	0.24
	Resen	30	0.86
<i>Polog</i>		101	2.19
	Gostivar	37	2.66
	Tetovo	64	1.73
<i>Northeastern</i>		62	1.43
	Kumanovo	62	1.43
<i>Skopje</i>		74	3.42
	Skopje	74	3.42
Grand total		1100	1.01

Comparative analysis (field vs. desk research results)

The results show that there are differences in the observed average regional farmland prices resulting from both desk and field research data sources. Table 3 presents these differences in the observed average regional price on agricultural land, which resulted from both data sources, desk and field research. The desk research resulted in higher average price for only two regions, Northeastern and Skopje region. However, these differences are less significant. For all the other regions, the desk research resulted in lower average price for the agricultural land. The most significant difference in the price is observed for the Eastern region, while in Vardar region there is no difference in the registered price between the two different sources of data.

SECTION 2. AGRICULTURAL ECONOMICS

Table 3. Difference in the registered farmland price between two sources of data

Region	Average price (€/m ²) Desk research, 2013	Average price (€/m ²) Field research, 2014	Desk vs. field data (Change +/-)
Eastern	0.39	1.20	-2.08
Northeastern	1.43	1.14	+0.20
Pelagonia	0.47	0.70	-0.49
Polog	2.19	2.40	-0.10
Skopje	3.42	2.80	+0.18
Southeastern	0.51	0.72	-0.41
Southwestern	1.60	2.55	-0.59
Vardar	0.71	0.72	-0.01

The average farmland price resulting from the desk research is around 1 €/m², ranging from 0.39 €/m² observed in the Eastern region to 3.42 €/m² in the Skopje region. On the other hand, the average farmland price resulting from the field survey is 1.53 €/m², ranging from 0.7 €/m² registered in the Pelagonia region to 2.83 €/m² in the Skopje region.

Analysis of the factors affecting the farmland prices

In regards to the factors affecting the farmland price shown in Table 4, density showed the strongest correlation with the average price of agricultural land, and this relationship is positive. This is a logical result since higher density increases the price of the agricultural land, and vice versa. Furthermore, the total arable land per capita is negatively correlated, that is, the higher utilization of arable land results in lower farmland prices, and vice versa. From regional infrastructure, only local road network influence the price of agricultural land, and the more developed is the local road network, the higher the farmland price is. The water supply is only correlated with the price obtained from the field research, which is not a case with the desk research data. However, it is reasonable that the well developed water supply systems should contribute to higher prices of agricultural land.

Table 4. Factors affecting the farmland price (*correlation coefficients*)

Factors Regional data, SSO*, 2011	Average price (€/m ²) Desk research, 2013	Average price (€/m ²) Field research, 2014
Density	0.904917824	0.705985
Arable land per capita	-0.885200297	-0.850600
Population 65+	-0.512331695	-0.625130
Local road network	0.561281472	0.798591
Water supply	0.344917376	0.633251
Installed electricity	0.057582838	0.038760
GDP per capita	0.160425359	-0.093790

*SSO, State Statistical Office, Regional Statistics, 2012

Conclusions

The initial data on the farmland prices in the RM was based on the desk and field research methods. Thus, the average regional prices were determined and compared for existing differences in the prices recorded by the different collection method. The average farmland price resulting from the desk research is around 1 €/m², ranging from 0.39 €/m² observed

in the Eastern region to 3.42 €/m² in the Skopje region. On the other hand, the average farmland price resulting from the field survey is 1.5 €/m², ranging from 0.70 €/m² registered in the Pelagonian region to 2.83 €/m² in the Skopje region. In general, the highest price of a farmland is observed in the Skopje region, while the lowest in the Vardar and the Southeastern region. However, there were great variations in the farmland prices from one municipality to another so the calculated average regional price may not reflect the real regional farmland price.

Additionally, the possible relationship between recorded prices and external factors suggested by the literature were identified by applying correlation statistics. In general, density showed the strongest correlation with the average price of agricultural land, and this relationship is positive. Other important factors that determine the farmland price are the total arable land per capita, the local road and water supply infrastructure.

These initial data and information shall serve as a basis for future development of permanent records on the farmland price data in the country, that are necessary to persuade timely information on the farmland market value and ease the farmland transactions.

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