WFL Publisher
Science and Technology

Meri-Rastilantie 3 B, FI-00980
Helsinki, Finland
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Journal of Food, Agriculture & Environment Vol.8 (3&4): - . 2010 *www.world-food.net*

Market value vs. legal value in land use change in Spain

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Received 20 August 2009, accepted 2 December 2009.

Abstract

The Spanish Land Law of May 28, 2007 gave rise to a radical change in the determination of the legal value of the land for agricultural use under compulsory purchase proceedings linked to the transformation of their use. Under this new law the compulsory purchase value is calculated based on the real or potential discounted cash flow at a determined rate set in the rule, with the aim of avoiding the negative effects of speculation. The aim of this work was to compare if there are significant differences between the values obtained when applying the methodology provided under the new law and the values presented in the national land prices survey. We have considered whether differences actually exist between the values obtained when applying the methodology provided under the new law and the values presented in the national survey; and the aim of this work is to compare these values. For this purpose the variables relevant for the application of the capitalization method were estimated based on the data published in the Spanish official statistics. Significant differences were found between the legal rate and the one which estimates the market values, with an average value for the studied period of 3.45% and 1.75%, respectively; additionally, different trends were observed. Also the existence of different discount rates for the market value depending on the land use against the unique rate set in the rule has been verified; therefore, the real distortion which a single capitalization rate could give rise to is very significant.

Key words: Compulsory purchase, discounted cash flows, discount/capitalization rate, market value, income approach, interest rate, profitability, legal value.

Introduction

The market value is defined as the reasonable quantity a seller might expect to receive from the sale of a property on the valuation date, after an appropriate marketing period and assuming that there is at least one potential buyer who is correctly informed about the real estate features [1]. It is also assumed that the buyer and seller act freely and without a special interest in the transaction. As from 1983 Spanish Administration has developed a National Survey of Land Prices (NSLP) for land under agricultural use. The aim of this survey is to measure the evolution of the average price level of the most significant types of agricultural land, in other words, free land for sale to be used for agricultural purposes; and as from 1998 this statistical information has been complemented with the evolution of rental rates. In principle, the registered values will be exempted from housing development expectations, thus they would be an unquestionable guideline for appraisal in case of a change in the use of the land, especially when taking into account the fact that the surveys have become a basic reference for agrarian valuation and have progressively been included in certain administrative valuation processes such as cadastral processes. The determination of the legal value of the land under agricultural use, primarily for purposes of taxation, has been regulated by various rules, which almost always focus on proceedings based on the capitalization of a certain variable which expresses the income attributable to land at a fixed rate set in the rule, although there has been controversy about the suitability of using market value or income approach for taxation [2]. For the purposes of compulsory land purchase, the market value has always been taken into account in establishing fair compensation in Spain.

The passing of the Spanish Land Law (SLL) on May 28, 2007 gave rise to a radical change in the determination of the legal value of the land for agricultural use under compulsory purchase proceedings linked to the transformation of their use; until the enactment of this law the compulsory purchase value was linked to the market value of the land for agricultural use without housing development expectations or was determined pursuant to the general compulsory purchase rule, in which the market value was also considered. Under the new law the compulsory purchase value is calculated based on the real or potential discounted cash flow (at a determined rate). So, the aim sought by this new law is to avoid the negative effects of speculation in the transformation of land use. Although this aim is not new, having been sought under previous legislation, it is innovative in that solely the valuation method is relied on to reach this aim. Spanish legislature appears to consider valuation based on market value to be permanently influenced by speculation as opposed to valuation based on the discounted cash-flow method,

such is the case that the possibility of duplicating the cash flow value obtained is even admissible in order to take exceptional situations into account.

We have considered whether differences actually exist between the values obtained when applying the methodology provided under the new law and the values presented in the national survey; and the aim of this work is to compare these values. For this purpose the variables relevant for the application of the capitalization method were estimated based on the official statistics of the Spanish Ministry of Environment, Rural and Marine Affairs (MARM).

Materials and Methods

According to income approach, the value of a farm is equal to the current value of future cash flows (real or potential) which this farm is able to generate, after discounting these cash flows at an appropriate rate. In the literature on firm valuation, discounted cash flow for the economic unit at a rate which includes the risk associated to its variability is normally used as an estimator of the value of the company [3]. Although the income approach does not formally differ from the discounted cash flow method, it is obvious that its application is open to a higher level of subjectivity due to the impossibility of explicitly establishing the real or potential value of the income and the lack of objective references related to discount rate calculation. Several research studies have been carried out on the discount rate to be used. In all these studies the authors attempt to establish a discount rate which enables the market value to be estimated by means of income approach, with the aim of simplifying procedures for valuation in complex situations [4-6].

In legal valuation the discount rate can be ignored, since it is determined by law and by the legal interest rate or any other rate defined in the rule. The SLL provides now that the discount rate shall be the last reference published by the Bank of Spain for the internal return of public debt in the secondary market between two to six years. The door is left open to the modification of this capitalization rate and to the setting of minimum values based on the kind of crop and land use, in the Spanish State General Budgetary Law, when the preceding rates of interest risk in a significant way the valuation results with respect to the market prices of this rural land; this reference to the market value in the law being at least curious. Except for this possibility (which still remains open), it is obvious that for purposes of legal valuation, this discount rate is independent from the risk associated to the financial returns on land.

The influence of expectations for change of use in land values has been widely discussed [7] and it is assumed as included in market values. The relationship among them and the estimated land income will allow us a suitable approach to the capitalization rate. In this study, Spanish official statistics are used as data sources.

Results

Evolution of the capitalization rates which estimate market value: As previously mentioned, as from 1998 the Administration has also developed a National Survey of Rental Rates (NSRR), thus it is possible to make a first approximation of the rate which would be used to estimate market value (Table 1); taking into account the average land values and the rental rate in the last decade a downward trend in the rate is observed, i.e. from 1.96% to 1.53 %, with an average value of 1.75%. This rate could be considered to be a national average rate, comparable to other legal rates fixed by the administration.

Table 1. Evolution of the rates estimating market value and legal rates.

Year	Price (€/ha)	Income (€/ha)	Market Rate (%)	TIL (%)	RIDP (%)
1998	6,125.00	120.00	1.96%	5.50	3.86
1999	6,823.00	130.00	1.91%	4.25	4.40
2000	7,292.00	138.00	1.89%	4.25	5.24
2001	7,553.00	140.00	1.85%	5.50	4.16
2002	8,026.00	145.00	1.81%	4.25	3.70
2003	8,553.00	154.00	1.80%	4.25	3.02
2004	9,024.00	155.00	1.72%	3.75	2.97
2005	9,714.00	162.00	1.67%	4.00	2.69
2006	10,402.00	165.00	1.59%	4.00	3.68
2007	11,070.00	167.00	1.51%	5.00	4.18
2008	10,974.00	168.00	1.53%	5.50	3.96
Average			1.75%	4.57	3.81

Source: Own elaboration from MARM [8, 9].
TIL Legal interest rate; RIDP Internal return of public debt in secondary markets between 2 and 6 years.

The evolution of the rates the administration imposes when setting the legal values of the land for agricultural use (Table 1) shows that the highest rates for the period match the legal interest, which ranged from 3.75% to 5.5% with an average of 4.57%. The internal return of public debt between two to six years stood at a period average of 3.81%, with values ranging from 4.40% to 2.69%, almost one percentage point below the legal rate of interest.

The differences observed among the rates obtained from NSLP and NSRR, and the rates legally defined involve differences in the estimation of the value, as in other circumstances, which exceed 100%. Additionally, there is no correlation between the evolution of this market rate and the rates set under law, the correlation coefficients between these serial data taking values ranging from 0.019 to 0.0279.

It is true that NSRR does not include the same uses and does not apply the same weights to the different kind of uses as the NSLP when calculating the average values, hence the direct comparison between the average rental rate and the average land price would be reprehensible, however, the results obtained for common agricultural uses in the two surveys do not lead to results which are significantly different (Table 2). Indeed, for the irrigated and dry land, the non-irrigated vineyard, the non-irrigated olive grove, the natural meadows and the pasture lands, the same downward trend is observed for the national average value, with average rates for the period ranging from 2.93% to 1.51%. Only in the case of the irrigated farm work land would the legal rates allow for a good estimate of market value to be obtained. In the rest of the cases the legal rates would underestimate the value of the land for agricultural use, assuming it is possible to appropriately estimate income. It should be remarked that there are some significant differences between the average values obtained for the irrigated crop lands, the vineyards and the non-irrigated natural meadows and the national average obtained and, at the same time, there are significant differences between them. Consequently, four statistically different levels of discount rates for the market value can be established (Table 3).

Table 2. Rates estimating market value by crops and uses (%).

Year	Dry lands	Irri-gated	Dry vineyard	Dry olive grove	Dry meadows	Dry pasture lands	National average
1998	2.12	3.22	2.44	1.84	1.53	1.88	1.96
1999	2.03	3.36	2.04	1.99	1.56	1.92	1.91
2000	2.08	3.24	2.06	1.63	1.43	2.36	1.89
2001	2.02	3.04	2.03	1.47	1.57	2.05	1.85
2002	1.90	3.03	1.99	1.47	1.63	1.99	1.81
2003	1.94	3.04	2.09	1.48	1.46	2.00	1.80
2004	1.87	2.85	1.97	1.55	1.46	1.89	1.72
2005	1.73	2.65	1.96	1.98	1.64	1.83	1.67
2006	1.65	2.61	2.02	1.93	1.52	1.80	1.59
2007	1.53	2.59	1.99	1.56	1.52	1.70	1.51
2008	1.64	2.63	1.94	1.38	1.32	1.65	1.53
Average	1.86	2.93	2.05	1.66	1.51	1.92	1.75

Source: Own elaboration from MARM [8, 9].

Table 3. Differences between the average value of the market rates.

	Crops	Average	95% interval of average	
			Lower Limit	Upper Limit
Level 1	Irrigated lands	0.0293	0.0274	0.0312
Level 2	Vineyard	0.0205	0.0196	0.0214
Level 3	Natural Meadows	0.0151	0.0145	0.0157
Level 4	Others lands	0.0175	0.0164	0.0185

Evolution of the financial results of agricultural exploitation: Some kind of uses, such as land used for citrus fruit crops, are not included in the NSRR, hence the information required to directly estimate the market rate is not available. However, a direct comparison can be made between the market values of the NSLP and the legal values derived from the application of the SLL. Land income is estimated based on the data from the National Agricultural Accounting Net (RCAN) [12].

The field of observation of the RCAN are agricultural exploitations with an economic dimension of at least 2 Economic Dimension Units (EDU) and from all the Economic Trend Orientations (ETO) forming the base. Land income does not appear in an explicit way in the RCAN, meaning it would have to be estimated. However, beforehand it is necessary to specify the accounting concept we required to be sought, and in this connection, the SLL literally states: "The potential rate will be calculated based on the return on the use, enjoyment or exploitation which the land is subject to according to the applicable legislation, using the standard technical means for its production. It will include as income, if applicable, the subsidies which will steadily be granted to the crops and uses which are considered for its calculation and the necessary costs for the considered exploitation will be discounted".

The law refers to a term, "potential income", and to a calculation process based on obtaining the difference between the chargeable incomes and the necessary costs; in fact, it defines financial profit (incomes minus necessary costs) and not the potential rent, unless the cost of utilization for the land factor is not considered in the productive processes developed in land under agricultural use. The established rules do not resolve the crucial problem of the capitalization method: the separation for accounting purposes of income and profit. From the interpretation of the calculation process described in the law it could be deducted that the term potential income which can be capitalized refers to the binomial rental income, since for its calculation it only makes reference to the necessary costs for the exploitation considered and at no time does it refer to discounting profits. It probably would have been much more practical to talk about net cash flows, or any other variable that can be directly calculated from the information contained in the profit and loss account.

Taking into account the RCAN methodology, the variable which would initially have to be considered would be "Business Availabilities", defined as the net added value to the cost of the factors minus wages, rental rates and interest paid. The difference between this concept and the potential income defined by the law would be the wages assigned to the family labour employed on the farm. These wages are based on the average national wages published in the MARM and the information of the RCAN on the labour employed on the exploited land.

Using this methodology the variable that could be assimilated is calculated. This value is called potential income, and its unitary value for several ETOs and for the national group shows a very different evolution depending on the different uses of the land, without being able to appreciate a common pattern among them. If the market values of the hectare of land with these same uses derived from the NSLP are taken into account, it can be observed, that, except in the case of the citrus and national average values, there is not a significant relationship between both variables, i.e. they are evolving in an inverse manner (Table 4).

Table 4. Correlation between unitary potential income and market value.

Year	Correlation coefficient
Crop	0.38804294
Cereal	-0.01873496
Green vegetables and orchards	-0.49456123
Vineyard	-0.38898139
Fruits	-0.73339710
Olive grove	0.74627054
Citrus	0.76159562
National Average	0.38804294

Discussion

The discount rates, which would allow us to estimate the market value from the variable estimated as potential income (Table 5) logically show a higher variability than those obtained from the NSRR (Table 1), with a maximum average value for green vegetable and orchard uses and a minimum value for cereal crops. These minimum and maximum rates are significantly different from the

Table 5. Discount rates which will estimate market value (%).

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	Average
Cereals	3.15	2.84	3.53	3.06	2.07	2.79	3.76	0.94	2.59	3.53	2.83
Green vegetables & orchards	14.90	16.21	11.91	9.10	10.14	7.90	13.83	8.44	8.36	6.03	10.68
Vineyard	11.76	10.05	5.69	22.02	1.26	4.12	3.78	0.35	n.a.	n.a.	7.38
Fruits	18.53	12.78	10.06	1.46	11.40	13.31	8.88	2.24	2.97	3.42	8.51
Olive grove	9.26	5.90	5.94	4.64	3.51	3.49	3.33	2.93	2.77	2.71	4.45
Citrus	3.85	3.25	4.34	2.96	3.64	5.99	4.81	3.35	3.35	4.61	4.01
Average	6.38	5.73	5.90	5.83	5.13	5.47	6.17	4.55	4.50	5.09	5.47

rest, and accordingly from the estimated values of the potential rents, at least, three different levels of rates which would estimate the market value can be established. All these rates, except those relating to cereal crops exceed the average values of the rates set by law for determining fair compensation, hence its application will lead to overvaluation of the land, which in the case of the land dedicated to green vegetable and orchard crops would reach three times its market value according to the NSLP.

This paper only considers the variability of the discount rates and the returns on agricultural exploitations depending on their different crops and uses. However, there is also significant variability on a regional level, taking into account the differences observed in the land prices for the different Autonomous Regions, and the size of the land under exploitation, given the variations in the results of the different EDUs. Therefore, the real distortion which a single capitalization rate could give rise to is very significant. It would be necessary to do a full and thorough study in order to establish more objective criteria when setting the capitalization rate.

Conclusions

The application of the valuation method provided under the SLL can give rise to an important distortion with respect to the average market values obtained based on the NSLP for two reasons: first of all, because a unique rate is set, regardless of the kind of crop or use of the land to be valued, given that we have verified that there are some significant differences between the rates of the different uses. Secondly, because the value assigned to the land depends on a rate subject to financial market tension, whose evolution does not correspond to the variations observed in the real land market. In fact, there is no relation between the variation in the internal return of the public debt in the secondary market between two to six years and the rates obtained from the NSLP and the NSRR. It is true that law provides for the possibility of setting the rates based on the current crop and use of the land when the evolution observed in the land prices or in the rate of interest are, in a significant way, far from the results of the valuations with respect to the rural land market prices. We have been able to verify that in the period considered, i.e. 1998 to 2008, the rate set by the SLL has increased by 2,64%, while the land value has increased by 79.16%. This increase in the discount rate contradicts with the land value increase. This simple reflection should be enough to conclude that designating the rate set by the SLL as the capitalization rate for the agricultural land market is erroneous.

References

[1]IVS 2007. International Valuation Standards. 8th edn. International Valuation Standards Committee, London.

[2]Shane, R., Hansen, T., Janssen, L. and Peterson, D. 2003. American Agricultural Economics Association Annual Meeting, Montreal, Canada.

[3]Damodaran, A. 2006. Valuation Approaches and Metrics: A Survey of the Theory and Evidence. Stern School of Business, New York, USA, 784 p.

[4]Airaksinen, M. and Hannelius, S. 2010. The income approach combined with market prices in forest property. FIG Congress 2010, Sydney, Australia.

[5]Ribal, F. J. 2003. Fondos de inversión inmobiliaria. Una aplicación a las tierras de uso agrario. PhD thesis, UPV, Valencia, 351 p.

[6]Segura, B. and Ribal, F. J. 2002. Estimación de tasas de actualización mediante el CAPM para la valoración analítica de fincas rústicas en España. I International Conference on Valuation and Appraisal, SPUPV, Valencia, pp. 195-204.

[7]Plantinga, A. J. and Miller, D. J. 2001. Agricultural land values and the value of rights to future land development. Land Economics **77**(1):56-67.

[8]MARM 2009. Encuesta de precios de la tierra. Ministerio de Medio Ambiente y Medio Rural y Marino, Boletín mensual de estadística, Secretaria General Técnica, Madrid.

[9]MARM 2010. Renta Agraria. Ministerio de Medio Ambiente y Medio Rural y Marino, Boletín mensual de estadística, Secretaria General Técnica, Madrid.

[10]BOE 2007. Ley del Suelo. Boletín Oficial del Estado **128**:23266-23284.

[11]BOE 2008. Texto Refundido de la Ley del Suelo. Boletín Ofic. Estado **154**:28482-28504.

[12]RECAN 2009. Red Contable Agraria Nacional. Ministerio de Medio Ambiente y Medio Rural y Marino, Madrid.