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# Life annuity program in Romania : is the indemnity high enough to be efficient?

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**Abstract**—Romania bears the marks of the country's former land policies : 36% of the active population is involved in agricultural activity. In addition, the agricultural land is characterized by excessive land fragmentation (approximately 2 ha per holding). In the context of a strong will to stimulate the land market and to encourage competitiveness by modernizing the production systems, the Ministry of Agriculture in 2005 decided to implement a specific policy : the life annuity subsidy. This consists in a subsidy calculated according to the surface of the agricultural land, paid to people over 62 years old who commit themselves to stopping agricultural activity. This paper analyses the opportunity for farmers to participate in this program using a Net Present Value to test the financial incentive of the measure under renting or selling contracts. We based our analysis on data concerning the land market and profitability from a survey conducted in the Mures region in the summer of 2007 and on land price figures. We show that in this specific context of grain and land prices, the amount of the subsidy is not high enough to make the program attractive but comforts landowners who are already engaged in renting contracts.

**Keywords**—Life annuity program, Land policy, Romania

## INTRODUCTION

Almost 20 years after the revolution, the so called “transition” period in Romania has not yet ended. The land retrocession process implemented in 1990 has been blamed for causing a delay in the agricultural sector modernization. Today, the land is split into a multitude of small parcels and 36% of the active population still work in agriculture (as opposed to an average of 15% in the other New Members States(NMS) of European Union). On one hand, this retrocession participates in the economic absorption of the social consequences of the post-communist transition (Pouliquen [1]). On the other hand, this patchwork of small farms is perceived as a factor slowing down improvement in Romanian agriculture but also more generally as an obstacle

to a global economic revival (Alexandri and *al.*, [2]).

The optimal size of agricultural holdings is a source of debate, notably in terms of the possibility of return to scale in agriculture (Boussard, [3]). There have been numerous studies published on option choices in terms of leasing and tenancy contracts, but there are fewer published studies on options between individual farming, selling or leasing the land.

This paper is a part of a larger analysis of the life annuity program, a national subsidy implemented in Romania in 2005. We focus here on the major objective of the program : land market stimulation, through financial opportunity for landowners to adhere to the program.

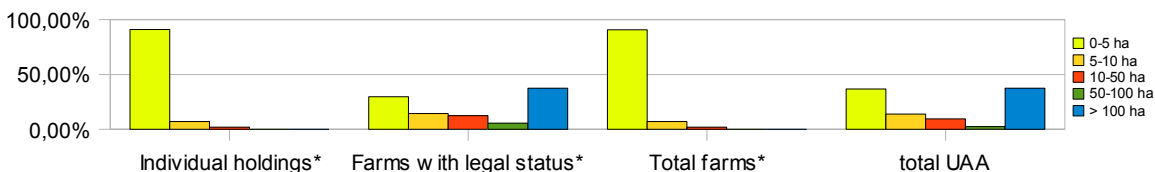
We studied the policy globally using a comprehensive approach, notably through a field survey and crossed interviews with diverse stakeholders of the policy. In this paper, we focus on the financial interest calculation for a landowner to adhere to the program, using some assumptions of the peasant economy defined by Chayanov [4]. Does the amount of the life annuity change the preferences for leaving the agricultural activity of farming individually in order to lease or sell the land, or change the preference from leasing to selling the land?

### *A. Description of the Farm structure and the role of land tenancy or land purchase in land reconfiguration*

As in other NMS, a land retrocession occurred after the revolution in Romania. According to standard theory, the development of private property implies productivity and increasing growth (Amblard,[5]). Approximately 9.1 million ha were given back to 5 million land owners (Dumitru and *al.*, [6]), but the allocation was not optimal.

Actually, several new landowners did not have professional abilities nor were located near the land. The formal right to exchange land assets on a market was granted in 1998 (law n° 54/1998) (Amblard [5]). According to Dumitru and *al.* [6] the land market concerned only 3.1% of the total agricultural area from 1999 to 2004.

Graph 1 : Farm Structure organization by status and size



\* farms using agricultural area; UAA : Utilized Agricultural Area  
Source : ASA 2005 (INS, [7])

Until 1998 therefore, the general structure did not change significantly small structures remaining the rule. Economic literature assumes that land market imperfection is partially responsible for the present freeze in land allocation through the market. Ciaian and Swinnen identify land market imperfection as due to transaction costs (Ciaian and Swinnen, [8]). Amblard assumes that the real share of exchanged land is much higher and that informal contracts are preferred to formal ones in order to save notarial and registration costs (Amblard, [5]).

According to the Farm Structure Survey of 2005, Romanian farm structure appears to be dual (Graph 1) with a large number of farms on very small plots (an average of 2.15 ha) and a few farms ranging widely in terms of land area (an average of 263 ha). More than 4 million individual holders currently cultivate 65.5% of the total agricultural surface and only 18,000 having legal status occupy the other 34.5%.

In this paper we analyze the existence of financial preferences with and without the life annuity program, for a particular region, the village of Ganesti in the Mures region, and at a particular period, the summer of 2007.

#### *B. Implementation of a life annuity program and its apparent failures*

In spite of the belief that redistribution, and thus private property, would be a leverage for change in the modernization of agriculture, surveys and censuses showed that the sector still faced enormous problems on the road to modernization. Next, the Romanian government implemented policies to stimulate the land market and thus encourage better land allocation. The implementation of a life annuity program in 2005 (law no. 247 of 19<sup>th</sup> July 2005, implemented 27<sup>th</sup> December 2005 with publication of the methodological norms) was one of these policies. It aims to

facilitate land market operation but also to stimulate a decrease in the number of people (especially older people) working in agriculture.

The amount of the subsidy was calculated on the basis of 2 studies and adapted by the government under budget constraints :

*Alexandri*, [9] tended to equalize the pension of the former members of the agricultural production cooperatives (who are the main landowners) to the pension of the workers of other industries. So, she recommended an additional life annuity subsidy of 240 euros/year for farmers who gave up their land by selling or renting it on a long term contract.

*Dumitru and al*, [6], assumed that elderly people would cease farming and in so doing would release the land for larger commercial farming units, provided that they obtained a pension or pension benefits equal to or more than the income they drew from subsistence farming. They calculated the present income from a farm as being 300€/ha/year.

Finally, the eligibility conditions were defined as being over 62 years old, owning land surface totaling not more than 10 ha. They have to lease or sell all their land but can keep 0.5 ha for self-consumption purposes. The amount of indemnity per hectare was fixed at 100 euros per year in the case of a sale and 50 euros per year in the case of leasing until the death of the landowner. The life annuity program is a structural policy tool according to definition formulated by Allaire and Daucé [10] : it acts on the dynamics of the structure and results from the reality of obstacles to land mobility and to the professional mobility of farmers.

According to the General Census in Agriculture, the targeted population numbers almost 1.9 million people (INS[11]). In fact, the first results show a disappointing number of applications : 55,000 cumulated applications as of March 2008. Another important finding of this first

investigation is that a large proportion of landowners chose to lease their land : an average of 85% of the land is disposed of under a leasing contract, whereas only 15% of landowners decided that selling their land was the more interesting option.

In trying to understand these results by means of a field survey, we pinpointed the following obstacles :

- inadequate information : the agents responsible for its implementation did not have the means to promote the program successfully
- property rights are still not clarified in several cases, and people cannot prove their ownership
- transaction costs for the selling contract option have been identified as the main obstacle in the development of the land market
- complex transmissions rules

### C. Methodology : Net Present Value calculation

In order to make possible a comparison of present profit on the land (and the expected profit for the next years) and the potential land price through a sale, we used a Net Present Value (NPV). This enables the comparison between monetary amounts at different dates.

We used the Net Present Value to compare farmers' choices : to pursue agricultural activity, to lease or to sell, with separate dates for the benefits. Land sale implies a fresh amount of money available to spend or to be invested at the current interest rate, while pursuit of the activity implies a regular amount of money or savings on everyday food products for the household.

Equation 1<sup>1</sup> : Net Present Value calculation

$$NPV = SV - NPVA$$

Equation 2 : Calculation of PVA,  $t \neq$  infinite

$$PVA = \sum_{t=1}^n (R / (1+i)^t)$$

If  $NPV > 0$  the agent is better off selling

If  $NPV < 0$  the agent is better off selling or leasing than pursuing the activity.

- $i$  is the interest rate at which the agent can hope to invest his money. At the time of the survey, the interest rate

was 8 % for an account in the local currency (lei).

- $R$  is the annual profit from activity/ ownership. Land profitability was evaluated by means of a field survey. The survey showed that a majority of landowners work with a contract service : people who owned a tractor did most of the work.
- $t$  is the time period over which it is planned to pursue the activity. It represents the amortization period for an investment. In the case of pursuing the activity or ownership of the land, it can be considered as the time people thought they would live, or how long they planned to maintain agricultural activity. Based on Walras analysis, we chose an infinite time step for the calculation of PVA (Walras 1880, quote by Guigou, [12]), which become equal to  $R/i$ . This is corroborated by different empirical studies, where it's assumed that the land is a security net for the difficult employment context and low pensions (Von Hirschhausen, [13], Darrot and Mouchet, [14]).

### D. Margin calculation for the different production systems and estimation of land market price for the same period

In order to better understand why the measure has not worked, we conducted a field survey in a village : Ganesti in the Judet of Mures.

We adopted a comprehensive approach, based on the concrete situation. We chose a region which is not too specialized, nor too involved in tourism for this survey. Unemployment is still high in the area and a lot of people have returned to the village near the town (around 30,000 inhabitants). We interviewed 35 people chosen from the registry of agriculture at the local level.

Our subjects were all over 62 years old and owned at least 0,5 ha of arable land. None of them were engaged in the life annuity program although 2 had heard about it, but were not very well informed of the modalities. Moreover, 17 people had partially anticipated the transmission of their land, in 11 cases by giving over the management to a family member and in 6 cases by an official leasing act with an exterior party.

We identified that the land outside the village (classified as agricultural land) is used for purposes of cereal production : principally corn and wheat. Beet sugar and potato production exists as well, but rarely outside the village. Production distribution is almost 1/3 for wheat and 2/3 for corn. Production is mainly used for consumption by

1 With NPV : Net Present Value; SV : Sale Value; PVA (or PVL) : Present Value when pursuing the activity or when the land is leased

the farmers themselves, as flour for bread or feed for pigs and poultry yard animals. We identified for this region and during this period, 4 modalities of production in the system :

- the farmer owns the land he works and possesses a tractor
- the land is worked under a service agreement, where the landowner still makes decisions concerning production but externalizes the main tasks such as plowing, seeding and harvesting for wheat but not for corn
- leasing with a good contract\*: 500kg of wheat / ha/year
- leasing with a weak contract : 250kg of wheat /ha/year; this is a situation of “reverse tenancy”

\* As of 1998 the term and the amount of the leasing contract are free and have to be negotiated between the parties. In the village there are two major farms asking for leasing contracts, at two different prices.

\*\* “Reverse tenancy” defined by Amblard [5]) concern the situation where the land owner own a small amount of land and the tenant is a big farmer using largely leasing to access the land. In this case tenants dominated the

negotiation on the rental contract to the small land owners.

We estimated the margin as the substitute income, the production price for raw products minus production charges. As the major purpose of production is self-consumption and animal breeding, we compared the production to the price that farmers would pay in the village from a local seller. During this period, on the local market, wheat and corn were selling for almost 200€/t. We did not take into account land tax (almost 10€/ha), nor subsidies (between 30€/ha for the national subsidy last year and 50€/ha expected for next year counting additional European Subsidies). The village studied is situated in a hilly region appropriate for vineyards. Land prices have evolved quickly in the past years.

Due to speculation in vineyard land and inflation, prices have increase from 150€/ha up to an average of 1000€/ha that we chose as Sale Value (SV) in our calculation.

Table 1 : Yearly margin of agricultural production and Present Value of Activity (PVA)

1 ha for 1 year (in Euros)	Service agreement	Tractor owners
Corn margin	320 to 920	500 to 1100
Wheat margin	-100 to 500	120 to 720
Global margin with 70% corn, 30% wheat	194 to 794	386 to 986
Present Value of Activity (PVA) $i=8\%$ , $t = \infty$	2425 to 9925	4825 to 12 325

Table 2 : Rent benefice and Present Value of Rent and Life Annuity program

1 ha for 1 year (in Euros)	Lease 250 kg/ha	Lease 500kg/ha	Life Annuity/ leasing	Life Annuity /selling
Rent value	50	100	50	100
Present Value of Leasing (PVL) or of Life Annuity subsidy (PVLA) <sup>2</sup>	625	1250	552	1105

#### E. Effect of life annuity program on option opportunities

In this specific market context, we would know what his the life annuity program on the financial opportunity to lease or sell the land. Table 3 on next page, shows that at the present amount, the life annuity program reinforces the rental option and the selling option only when the previous situation was already leasing.

When people were engaged personally or through service agreements in agricultural work, there is no financial incentive to sell.

This explains why a majority of life annuity subscriptions occur under a leasing contract. The decision to

sell is motivated by elements other than the incentive of the subsidy.

The table 3 also allows us to calculate the level of the life annuity program, at which selling would be financially speaking advantageous. In case of a service agreement, the proposition made by Alexandri [9]) at 240€/ha would be sufficient, whereas for tractor owners, at least amount suggested by Dumitru and *al*, [6] would be necessary.

In conclusion, at its present state of development, the life annuity program has failed in its objective of land liberation. This is so because landowners who already lease their property gain under the program by continuing to lease or by selling. But leasing is a temporary and fragile situation due to a weak rental law (no minimal terms for

2 PVLA is calculated with the optimistic option. We used the life expectancy of a woman of 62 years old, or 28 years for the present value calculation (INS [15]).

contracts) but also because rental contracts become null when the land owner dies and the heirs want to farm

Table 3 : Net Present Value for 1ha, village of Ganesti, Mures County

In Euros	(1) PVA*	(2) SV	(3) SV+PVLA	NPV =(1)-(2)	NPV with PVLA =(1)-(3)
<i>Individual Farming</i>					
with service agreement	2425 to 9925	1000	2105	-1425 to -8925	-320 to -7820
as tractor owner	4825 to 12 325	1000	2105	-3825 to -11325	-2720 to -10220
<i>Externalization of the production</i>					
Lease at 250kg wheat /ha/year	625	1000	2105	375	1480
Lease at 500kg wheat /ha/year	1250	1000	2105	-250	855
Lease at 250kg wheat /ha/year with life annuity program	625 + 552= 1177	1000	2105	-177	928
Lease at 500kg wheat /ha/year with life annuity program	1250+552= 1802	1000	2105	-802	303

the land themselves. It will be remembered that one of the objectives of the policy was to release the land in a more permanent fashion.

## CONCLUSIONS

According to Ciaian and Swinnen, [8], the land market and the land rental market are marked by failures in Romania. The life annuity program was implemented in order to compensate for these failures among other things. Using empirical data from a field survey, we have demonstrated in this paper that the amount of the subsidy is not high enough to achieve the desired objectives. The use of a Net Present Value calculation demonstrates that, based on strictly financial motivations, the subsidy does not sufficiently compensate the profit earned by a landowner working his land with his own tractor or by delegation to a tractor operator. Nevertheless, the policy reinforces the interest of leasing contracts and incites landowners who previously leased their land to sell it.

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