

## AN ESTIMATION OF THE EFFECTS OF SELECTED FARM CONSOLIDATION MEASURES ON THE ECONOMIC GROWTH IN ROMANIAN AGRICULTURE

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### Abstract

The estimation of agricultural sector contribution to economic growth, as a result of farm consolidation measures that could be implemented in the period 2013-2020, is made as a forecast oriented towards an objective, by calculating the increase in value added brought about by certain selected factors, which directly contribute to farm consolidation or which directly interact with the consolidation process. The identified mechanism for the quantification of the effects of consolidation measures upon Gross Value Added in agriculture targeted two main sources of value added increase: the results of proper consolidation measures and the results of yield increase in the main field crops. The cumulated effects of the agricultural land transfer to larger-sized areas and of land re-introducing into operation represent a 5.7 % Gross Value Added increase per total agriculture. The effect of the increase of average yields in cereals, oilseeds and protein crops leads to Gross Value Added increase per total agriculture by 9.8%. If these increases are applied to the average GVA in agriculture in the period 2008-2011, the Gross Value Added to agriculture will reach 8556 million Euro, in 2009 prices, by the year 2020.

**Key words:** Romania, economic growth, farm consolidation, commercial farms

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The present paper is not intended to comprehensively address all aspects of agriculture, but mostly trying to identify future directions for the development of the sector, focusing on the adjustment process in agriculture, related to overcoming fragmentation both the property and land use, which directly affects crop production and indirectly the overall performance of the sector.

Unlike most EU countries, agriculture was and continues to be a sector of first importance in Romania, both through its contribution to the economy and share of employed population, and out of this reason, it has been a source of both hopes and delusions. Permanently subject to evaluations and analyses, the performance of Romania's agricultural sector remain relatively modest, in contrast with its natural potential and the population's expectations with regard to agriculture fast adjusting its structures under the influence of the Common Agricultural Policy, by facilitating the system finance, including the necessary investments for growth, as well as to introducing continuity and consistency in the measures taken by decision makers.

The agricultural land operation structure in Romania did not significantly change in the last decade, featuring the same land fragmentation and extreme polarity, which represent a main constraint to the sector competitiveness increase (Swinnen, 2003 and 2009). The duality of the Romanian agricultural sector is one of the great challenges facing the political decision-makers, which is maintained in spite of certain measures targeting agricultural land consolidation and intersectoral labour reallocation. Such a strongly bipolar distribution, with the largest part of the agricultural land divided between extremely modest holdings in physical and economic size, on one hand, which mainly produce for self-consumption, do not make investments and are not market-oriented, and a relatively small number of farms that produce under industrial system and adopt modern technologies, on the other hand, represents the main factor that constrains Romania's agriculture competitiveness increase (Cionga, 2008).

Farm consolidation presupposes the increase in the physical size of farms, and in their economic size implicitly (being more obvious in the case of agricultural holdings specialized in crop

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production). In parallel with the increase of farm size, an increase in the size of its parcels can be also noticed, through land consolidation. The result is a farm concentration process, i.e. an increase of the economic importance of large-sized holdings (Luca, 2010). The process is a natural one, closely linked to the emergence of new, more performant agricultural technologies. The development of specialized production systems, which currently prevail in the agriculture of industrialized countries, presupposes the elimination of holdings that cannot make investments and enlarge their land area. These are holdings that are under the reproduction threshold, namely those where the

farmer gains less than he would earn as an employee on an alternative occupation, and yet more than he needs in order to survive, which makes the farm head continue the farming business until he retires. At that moment, he or his inheritors will sell the holding, and the holding will be bought by other holdings that practice a performant production system. On the long term, those holdings that adopted the most performant production systems will remain in business. This evolution can take place naturally or it can be guided (hastened or delayed) by farm structure orientation policies (Luca, 2011).

Table 1

**Variants of evolution of variables resulting from the agricultural farm consolidation policies in the period 2013-2020**

	Pessimistic variant	Neutral variant	Optimistic variant
Land released by exiting the small farmers scheme (thou. ha)	250	250	500
Land released by elderly people exit through the state aid scheme (thou. ha)	250	250	500
Idle land, re-introduced into operation (thou. ha)	0	150	150
Non-utilized land, re-introduced into operation (thou. ha)	0	150	150
Percentage contribution to GVA increase in agriculture in the period 2013-2020	2.9%	5.7%	8.6%

## MATERIAL AND METHOD

The estimation of agricultural sector contribution to economic growth, as a result of farm consolidation measures that could be implemented in the period 2013-2020, is made as a forecast oriented towards an objective, by calculating the increase in value added brought about by certain selected factors, which directly contribute to farm consolidation or which directly interact with the consolidation process.

The estimation of the effects of consolidation measures upon Gross Value Added (GVA) in agriculture presupposed the use of simplified calculation formulae for these, which facilitates the shift from the micro-economic data to the macro-economic aggregates. The identified mechanism for the quantification of these effects targeted two main sources of value added increase: 1) the results of proper consolidation measures, quantified by the agricultural land areas that shift from the subsistence and semi-subsistence holdings to the commercial farms, as well as by the land area re-introduced into operation, from those that are not currently operated; 2) the results of yield increase in the main field crops, by introducing performant technologies, possible as a result of farm size increase and supported by the investments co-financed by the European funds devoted to agriculture and rural development.

The data directly used for estimations come from the following sources: farm statistics (Farm Structure Survey 2007, Eurostat), Farm Accountancy Data Network (FADN 2009), economic accounts for

agriculture (Eurostat 2009-2011), completed by the national accounts (Eurostat 2008-2010). For approximating certain results of the consolidation measures, data from other sources were also used, referring to: production statistics (NIS 2000-2011), beneficiaries of direct payments (APIA 2010), recent farm structure (General Agricultural Census 2010, NIS), life annuity beneficiaries (Life Annuity Office 2009). The values were expressed in euro, in current prices.

## RESULTS AND DISCUSSIONS

The hypotheses referring to the proper consolidation measures describe two instruments that could be implemented in Romania in the period 2014-2020: 1) providing compensations for the beneficiaries of the small farmers scheme, stipulated by the future Common Agricultural Policy, who decide to exit from agriculture and transfer their land to other larger holdings; 2) adopting a national state aid scheme for the elderly farmers who retire from farming, inspired by the life annuity scheme, but adapted to the context of the future agricultural policy.

The first instrument for those who wish to exit agriculture is provided under the Small Farmers Scheme. Even if it is an ambivalent mechanism - because on the one hand, it enables small farmers to remain in the direct aid system by reducing their administrative obligations -, on the

other hand, it allows them to leave agriculture and exit the payment system permanently, in exchange for a compensation of 120 percent of the direct aids received under the Scheme, all through the multi-annual funding - that is, starting with 2015 at the earliest and ending with 2020. This mechanism is part of the regulatory proposal submitted by the European Commission, which is to receive an initial approval by the European Council (the Ministers of agriculture) and subsequently by the European Parliament (EC, 2011 a and b). Romania has a high potential to benefit from this scheme, and the participation of all farms up to 3 ha would already exceed the financial ceiling proposed by the European Commission. The amount that the farmers participating to the scheme would receive annually would be 500 euro (not related to the area), and the amount received as compensation by those who exit would be 600 euro (it is to be mentioned that there is no age-related condition for exit).

As a complement to first instrument and given the positive experience of the Life Annuity Program, which was aimed at the transfer of properties (and indirectly, of the farms) of up to 10 hectares, we argue for the introduction of an exit scheme funded under state aid rules (with compensation paid from the state budget). The agricultural life annuity was introduced by Law no. 247/2005, in order to consolidate the agricultural land areas, as explicitly declared in the law, targeting Romania's agriculture modernization through the creation of efficient holdings (Ghib, 2009 and 2011). Overall, in the period 2006-2009, about 330 thousand hectares were transferred under the Life Annuity Scheme; it was obvious that the rent beneficiaries (over 88 thousand people) preferred the transfer through the land lease (247 thousand ha), compared to land sale (82 thousand ha). The new exit scheme will focus on farmers over 65 (as of 2015) who wish to renounce agriculture, who have between 3 and 10 hectares of owned farmland and receive direct aids (they are registered with Payments Agency). The compensation that these farmers would receive for having renounced the EU direct aids completely after having sold or rented out their land would be Euro 200 per hectare (that is, similar to what the small farmers receive) and would be granted for 5 years (therefore not for life, as in the case of the life annuity).

The quantification of the effects of these two instruments presupposes that the transfer of certain land areas from small-sized holdings (under 1 ESU) to larger-sized holdings (over 1 ESU) is accompanied by an increase of gross value added per total agriculture, calculated as product between

the area expected to be transferred and the difference between the gross value added per ha corresponding to the holdings under 1 ESU and that of holdings over 1 ESU. In 2009 prices, if the average national GVA is 464 euro/ha, the increase for the transferred hectare is estimated on the basis of the indicator at farm level from FADN for the year 2009 (the latest available data), namely Gross Farm Income (micro level correspondent of macro level GVA), as a difference between the 581 euro/ha average on the farms over 1 ESU and 203 euro/ha on those under 1 ESU.

The volume of land areas transferred through the exit from the small farmers scheme was estimated at 250 thousand ha out of total 1.2 million ha, and the land areas transferred through the state aid scheme for elderly people at 250 thousand ha out of total 1.5 million ha. The small farmers scheme will release land areas from those who operate 1 – 3 ha, and the state aid scheme from the farmers aged over 65 years who abandon their farms of 3 – 10 ha.

Re-introducing into operation of unfarmed land (directly on the commercial farms over 1 ESU) presupposes a GVA increase of 581 euro/ha. The land area estimated for being re-introduced into operation comes from two distinct categories: on one hand, the idle land (out of about 850 thousand ha, we presuppose the recovery of 150 thousand ha); on the other hand, the non-utilized agricultural land (the recovery of 150 thousand ha out of about 560 thousand ha).

The estimation of the effects of direct measures for farm consolidation is a median one, between a pessimistic variant, which presupposes that re-introducing into operation of land areas is not possible at all, and an optimistic variant, which presupposes a stronger exit of small farmers and elderly farmers (Table 1).

The hypothesis of increasing the field crop yields is justified by certain empirical arguments: except for the very bad years (2003 and 2007 for wheat, with average yields around 1500 kg/ha, and the years 2000 and 2007 for maize, with average yields of 1500-1600 kg/ha), the yields increased by about one quarter in the second half of the 2000s, compared to the first half, and the yields on the farms organized as commercial companies exceeded those on the individual farms beginning with the year 2004; moreover, Romania has among the lowest yields in EU in these crops, although the potential is higher, certain studies revealing that the cereal and oilseed yields in the Eastern European countries account for only 37% of the economically viable yield (OECD/FAO, 2012).

The effect of increased yields in cereal, oil and protein crops (for instance, from 3075 la 5083

kg/ha in the case of wheat and from 4363 to 7616 kg/ha in the case of maize, meaning an increase by 70% of average production, i.e. reaching the level of Poland of the year 2009), represents a 56% increase of the Gross Farm Income of these crops (the average for all farms in Romania was 235 euro/ ha in 2009), which applied to an area of about 4.8 million ha, leads to GVA increase per total agriculture by 9.8%.

## CONCLUSIONS

The cumulated effects of the agricultural land transfer to larger-sized areas and of land re-introducing into operation represent a 5.7% GVA increase per total agriculture. The effect of the increase of average yields in cereals, oilseeds and protein crops leads to GVA increase per total agriculture by 9.8%. If these increases are applied to the average GVA in agriculture in the period 2008-2011, which presupposes that a certain stabilization of crop production is possible in the current decade, as a result of introducing new technologies on the farms (including crops adapted to harsher weather conditions), as well as of agriculture infrastructure development programs (irrigations where possible, efficient storage of production), the Gross Value Added to agriculture will reach 8556 million euro (in 2009 prices) by the year 2020.

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## REFERENCES

- Alexandri C., Rusu M., Serbanescu C., 2003** - *Study on possible measures to enhance consolidation of farms in the context of accession to the European Union: the Romanian case.* (IEA, 2003).
- Cionga, C., Luca, L., 2008** - Farm Income Support and Investment Incentives: Underlying Factors in Agricultural Sector's Economic Convergence, in *Economic Growth and Convergence*, edited by Valentin Lazea, CEROP, Bucharest
- European Commission, 2011a** - *Regulamentul de stabilire a unor norme privind plățile directe acordate fermierilor prin scheme de sprijin în cadrul PAC*, DG Agri, Bruxelles.
- European Commission, 2011b** - *Regulamentul privind sprijinul pentru dezvoltare rurală acordat din FEADR*, DG Agri, Bruxelles.
- European Commission, 2012** - *Agricultural Policy perspectives, Member States Factsheets*, DG Agri, Bruxelles.
- Eurostat, 2011** - *Food: From Farm to Fork Statistics*, Eurostat Pocketbooks.
- Ghib, M.L. et al., 2009** - *Small Farms in Romania: evolution and transformation?*, paper for The 111 EAAE Seminar, Canterbury.
- Ghib, M.L., Luca, L., 2011** - *Cum putem resuscita Renta viageră - ca o măsură compatibilă cu Politica Agricolă Comună*, CRPE, București.
- Giurca, D., Alexandri, C., Rusu, M., 2012** - *Reforma Politicii Agricole Comune în contextul perspectivei bugetare post-2013*, Studii de strategie și politici, Institutul European din România.
- Luca, L., Alexandri, C., 2010** - *Constraints and restrictions of land market in Romania*, Simpozionul științific internațional „Managementul dezvoltării rurale durabile”, Lucrări științifice, seria I, vol. XII (1), Agroprint, Timișoara.
- Luca, L., 2011** - *Subvenție multianuală, decuplată de suprafață: o propunere românească pentru viitorul fermelor mici din Europa*, CRPE, București.
- OECD/FAO, 2012** - *Agricultural Outlook 2012-2021*.
- Rusu, M., 2002** - *Agricultural Land Fragmentation and Land Consolidation Rationality*, paper prepared for the 13th International Farm Management Congress, Wageningen.
- Swinnen, J., 2003** - *Farm Fragmentation in Romania: Causes and Policy Implications*, report for FAO project „Strategy for Agriculture and Rural Development in Romania”, București.
- Swinnen, J., Vranken, L., 2009** - *Land & EU accession*, CEPS, Brussels.