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## Short communication

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# The Common Agricultural Policy and productivity gains in Romanian agriculture: is there any evidence of convergence to the Western European realities?

When Romania joined the European Union (EU) in 2007, it did so with significant structural drawbacks. This paper investigates, in this context, the influence of the considerable levels of financial support given under the Common Agricultural Policy (CAP) on the overall productivity of Romanian agriculture. Using data for a 15-year time horizon (1998-2013), we show that the policy incentives have not yet produced any positive effects on the Total Factor Productivity index. Moreover, the increases in the input index remain higher than the output index, reducing the overall productivity of Romanian agriculture. This is explained by a low share of high value-added products in the total agricultural production and agricultural structures that are not yet compatible with those of Western Europe. The new CAP financial allocation must correct these negative findings by supporting new investments in the food processing industry and the better marketing of agricultural products.

**Keywords:** CAP, value-added products, total factor productivity

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## Introduction

The impacts of agricultural policies have long been of interest to policy makers and scientists (Key and Roberts, 2007). The European support-type public policy has had important consequences for the agricultural sector and farm structures (Sahrbacher, 2012), with positive impacts on farm production and negative effects on productivity (Ciaian and Swinnen, 2009). After decoupling the direct payment, the effects on farm productivity became positive in several EU-15 Member States and negative in the others (Rizov *et al.*, 2013). Moreover, for the entire agricultural sector it was estimated that for the last 50 years the total factor productivity (TFP) growth has been very important (Boussemart *et al.*, 2012). There was also shown to be a big gap between the farm technical efficiency of the countries that joined the European Union (EU) in 2004 and 2007 and the older Member States (Tonini, 2012).

Between 2002 and 2012, Romanian agriculture benefited from EUR 16.4 billion in subsidies, of which almost 50 per cent came from the EU budget. However, EU membership has not led to farm consolidation: semi-subsistence farms remain the dominant characteristic of Romanian agriculture (Hubbard *et al.*, 2014). The financial support has been given mainly to the big farms (12.05 per cent from Pillar I of the CAP in Romania was devoted to only 0.03 per cent of farms), indicating that the Western European policy model was not adapted to the Eastern European agricultural structures (Swain, 2013). In this context, this short communication describes the main effects of EU accession on the productivity of the Romanian agricultural sector. It also investigates if there is any evidence of increasing shares of value-added agricultural products in the overall sector outputs and questions the efficiency of the budgetary spending.

## Methodology

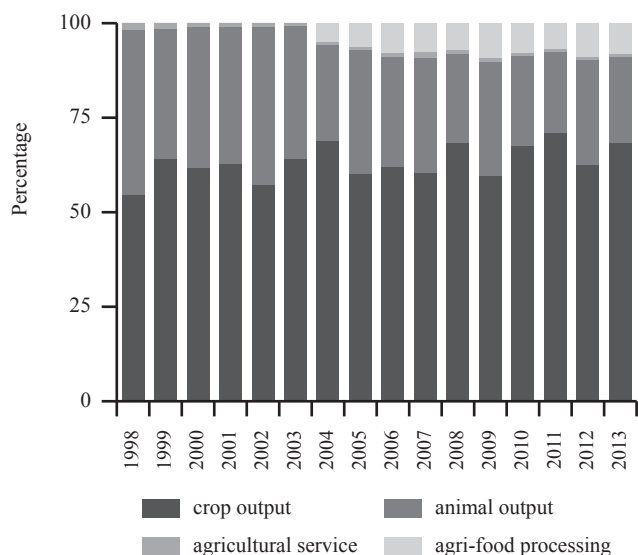
The productivity gains, as responses to the policy incentives, were underlined with the surplus accounting techniques and additive indexes. These methods were used to estimate the TFP before and after Romania's accession to the EU (Coelli *et al.*, 1998).

$$TFP_{index} = \frac{Output\ index}{Input\ index} \quad (1)$$

The output and input base indexes were calculated in value terms (1998 = base year). The methodology of the Agricultural National Accounts (ANN) was used to initialise the productivity gains model (Eurostat, 2000). The accounts were expressed in current currency (100=2012). The input vector is composed of the following categories: intermediate consumption, fixed capital consumption, hired labour, other taxes on production, governmental financial support, rentals and interest. The output vector represents 40 different products (30 crops, 8 animal husbandry products, agricultural services and the processing industry). The model was initialised with aggregate national data, collected from national and EU official statistics, covering fifteen years (1998-2013). The intermediate inputs data and the fixed capital consumption came from the Romanian Institute for Statistics TempoOnline database. Land value was included in fixed capital consumption. Production subsidies were derived from the ANN and were introduced in order to capitalise the effects produced by the governmental spending before and after EU accession. The taxes on production listed in the ANN were subtracted from the total input vector.

## Results

Agricultural industry output was derived mainly from crop production (Figure 1) and its share has increased since EU accession. Animal production and the processing indus-



**Figure 1:** The share of different agricultural outputs in the total value of the Romanian agricultural industry, 1998-2013.

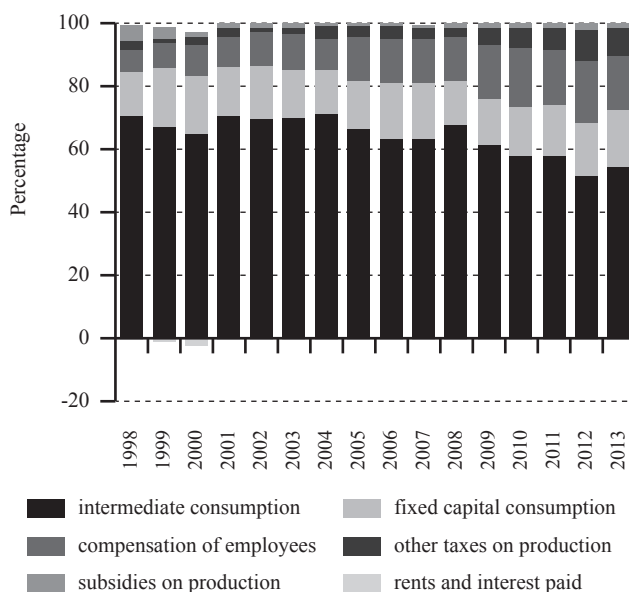
try have made only small contributions to the total value of Romanian agriculture. The input use analysis showed that the share of intermediate consumption has decreased (Figure 2). On the other hand, after 2007 the governmental expenditure has almost tripled as a consequence of the implementation of the CAP.

The TFP index declined even after Romania’s accession to the EU (Figure 3). According to above methodology, since 2007 the gap between the increases in inputs and outputs has been even more pronounced. This is especially due to the lack of capacity to sell high value-added products on the market.

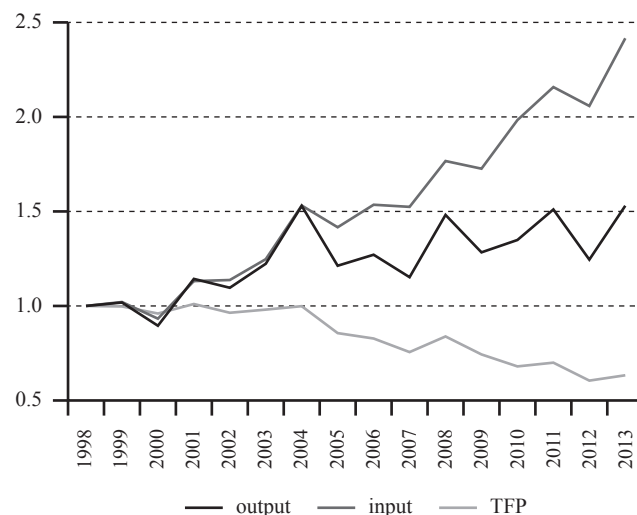
## Discussion

Hubbard *et al.* (2014) showed that the financial support to Romanian agriculture increased in the period 2007-2012. This expenditure has not obviously contributed to farm consolidation, but only to a gradual disappearance of semi-subsistence farms. Our study shows that the financial support did not lead to an improvement in the TFP of the Romanian agricultural sector. This is in line with earlier studies that explained the productivity gaps in the Eastern European countries by deficiencies in intangible factors (human, social and technological capital) (Dettori *et al.*, 2012). In addition, Bartelsman *et al.* (2013) explain that there is a direct link between the endowments structure and the productivity, which is higher in the USA and Western European economies.

In other studies, the annual TFP growth rate for Romania was calculated by the USDA (USDA, 2014) and DGAgri (Haniotis, 2013) to be 0.013 per cent (1998-2011) and 2 per cent (2001-2010) respectively. We found an average 2.7 per cent annual decrease in the period 1998-2013. These differences are explained by the approaches to measuring TFP index. In this study it was measured in value terms whereas in the USDA method the total output/input growth is estimated by summing the growth rates for each commodity/



**Figure 2:** The share of different agricultural inputs in the total consumption of the Romanian agricultural industry, 1998-2013.



**Figure 3:** The index of the output, input and total factor productivity (TFP) of the Romanian agricultural industry, 1998-2013 (1998 = base year).

input weighted by its revenue/cost share, while DG Agri uses a multi-factor productivity index.

The low capacity of commercialising high value-added products is also an important drawback for the competitiveness of the Eastern EU agricultural sector (Jámbor, 2013; Špička, 2013). Since the early 1990s, such products have been boosting the agricultural exports of the USA and EU (Lee *et al.*, 1992; Greene, 1994) but, as shown by this study, even seven years after EU accession, Romania has a very weak capacity for producing and selling value-added products. Vásáry (2013) showed that although the share of processed agricultural products in trade between Hungary and Romania has increased in recent years, raw agricultural products still represent more than 40 per cent of the total.

In conclusion, financial support from the CAP has allowed the inputs used in agriculture (fixed consumption, compensations of employees) to increase, while outputs

have also increased, but to a lower extent. The lack of value-added products and a farm structure that are not compatible with the Western European realities have acted as barriers in improving the productivity of the Romanian agricultural sector. So, as yet, there are no significant signs of real convergence in terms of productivity to the EU-15 levels.

## References

- Bartelsman, E., Haltiwanger, J. and Scarpetta, S. (2013): Cross-country differences in productivity: The role of allocation and selection. *The American Economic Review* **103** (1), 305-334. <http://dx.doi.org/10.1257/aer.103.1.305>
- Boussemart, J.Ph., Butault, J.P. and Ojo, O. (2012): Generation and Distribution of Productivity Gains in French Agriculture. Who are the Winners and the Losers over the Last Fifty Years? *Bulletin UASVM.Horticulture* **69** (2), 55-67.
- Ciaian, P. and Swinnen, J.F.M. (2009): Credit market imperfections and the distribution of policy rents. *American Journal of Agricultural Economics* **91** (4), 1124-1139. <http://dx.doi.org/10.1111/j.1467-8276.2009.01311.x>
- Coelli, T.J., Rao, P., O'Donnel, J. and Battese, G. (1998): *An introduction to efficiency and productivity analysis* (2nd edition). New York: Springer. <http://dx.doi.org/10.1007/978-1-4615-5493-6>
- Dettori, B., Marrocu, E. and Paci, R. (2012): Total factor productivity, intangible assets and spatial dependence in the European regions. *Regional Studies* **46** (10), 1401-1416. <http://dx.doi.org/10.1080/00343404.2010.529288>
- Eurostat (2000): *Manual on the economic accounts for Agriculture and Forestry*. Brussel: European Commission.
- Greene, J. (1994): High-value food products boost agricultural exports. *Food Review* **17** (3), 18-22.
- Hubbard, C., Luca, L., Luca, M. and Alexandri, C. (2014): Romanian farm support: has European Union membership made a difference? *Studies in Agricultural Economics* **116** (2), 100-106. <http://dx.doi.org/10.7896/j.1415>
- Haniotis, T. (2013): *Agricultural productivity: introductory comments* [www document]. [http://ageconsearch.umn.edu/bitstream/152333/2/Plen11\\_Haniotis\\_Seville2013.pdf](http://ageconsearch.umn.edu/bitstream/152333/2/Plen11_Haniotis_Seville2013.pdf) (accessed 1 December 2014).
- Jámbor, A. (2013): Comparative advantages and specialisation of the Visegrad countries agri-food trade. *Acta Oeconomica et Informatica* **XVI**, 22-34.
- Key, N. and Roberts, M. (2007): Do government payments influence farm size and survival? *Journal of Agricultural and Resource Economics* **32** (2), 330-349.
- Lee, J.H., Henneberry, D. and Pyles, D. (1991): An analysis of value-added agricultural exports to middle-income developing countries: the case of wheat and beef. *Southern Journal of Agricultural Economics* **23** (2), 141-154.
- Rizov, M., Pokrivcak, J. and Ciaian, P. (2013): CAP Subsidies and Productivity of the EU Farms. *Journal of Agricultural Economics* **64** (3), 537-557. <http://dx.doi.org/10.1111/1477-9552.12030>
- Sahrbacher, A. (2012): Impacts of CAP reforms on farm structures and performance disparities: An agent-based approach. *Studies on the agricultural and food sector in Central and Eastern Europe* no. 65. IAMO: Halle (Saale).
- Špička, J. (2013): The Economic Disparity in European Agriculture in the Context of the Recent EU Enlargements. *Journal of Economics and Sustainable Development* **4** (15), 125-133.
- Swain, N. (2013): Agriculture 'East of the Elbe' and the Common Agricultural Policy. *Sociologia Ruralis* **53** (3), 369-389. <http://dx.doi.org/10.1111/soru.12016>
- Tonini, A. (2012): A Bayesian stochastic frontier: an application to agricultural productivity growth in European countries. *Economic Change and Restructuring* **45** (4), 247-269. <http://dx.doi.org/10.1007/s10644-011-9117-9>
- USDA (2014): *International Agricultural Productivity: Overview* [www document]. <http://www.ers.usda.gov/data-products/international-agricultural-productivity.aspx> (accessed 1 December 2014).
- Vásáry, M. (2013): Foreign trade trends in the Hungarian-Romanian turnover of agricultural products. *Eastern Journal of European Studies* **4** (1), 81-103.