



# The incidence of agricultural policy on the land market in Poland: Two-dimensional and multilevel analysis<sup>☆</sup>



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## ABSTRACT

Research has shown that the reform of the CAP which broke the link between subsidies and production (the decoupling reform) has had little effect on farmers' demand for land under the SPS (Single Payment Scheme) system. For this reason, in the conditions of the SPS, there is petrification of the structure of agricultural land, and an upward trend in prices on the market for agricultural land should not be expected to continue in the long term. Under the conditions of the SAPS (Single Area Payment Scheme), which applies in the EU-12 new Member States, the position in the market for agricultural land is different. However, most research carried out in Europe relates to the SPS system, where marginal changes in the value of land are identified as a result of the incidence of agricultural policy, as well as quantitative and qualitative attributes of particular properties. Under SAPS, these issues have not been sufficiently investigated. The authors have attempted to fill that gap, constructing a two-dimensional and multilevel econometric model for land prices in a leading agricultural region of Poland based on a sample of 653 transactions in the years 2010–2013. The aim is to determine how policy, as well as various quantitative and qualitative features, including location factors, affect the prices of land under SAPS. The results indicate, among other things, the key importance of the functional type of rural areas – properties in agrotouristic areas gained 43% higher prices on average than those in agricultural areas. Another finding of interest is that LFA and agro-environmental payments decapitalise the value of land.

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## 1. Introduction

The subsidies paid under the EU's Common Agricultural Policy (CAP) are capitalised in the value of agricultural land, and in effect landowners obtain higher land rents. This process became particularly marked following the decoupling reforms, which broke the link between subsidies and production. If the land is owned by farmers, then in this way the economic strength and liquidity of farms increases, insofar as land capital can serve as collateral for credit. In the case of leased land, a significant part of the subsidies flows out to non-agricultural sectors. These mechanisms are well described in relation to the SPS (Single Payment Scheme), which operates in the countries of Western Europe. Little research has been done, however, into the determinants of land value under the SAPS (Single Area Payment Scheme), which is used in the coun-

tries of Central and Eastern Europe. There are indications that the influence of agricultural policy is different in this system. The basic difference between the SPS and SAPS is that in the SAPS system there are no disposable entitlements to payments or reference periods. Every hectare of land which fulfils the specified conditions receives the same subsidy. Apart from the single area payment, the user of land may also receive supplementary payments: for example, for grain production, for least favoured areas (LFAs) and/or under agro-environmental programmes, to a preset amount. Theoretically the subsidies are due to the user of agricultural land, but in practice they are generally taken over by the owner. Bearing in mind that the subsidy for every hectare of land is already known at the start of every programming period, and that there is no limited pool of entitlements to payments, the market is theoretically able to discount the incidence of agricultural policy in land prices a long time in advance. This causes increased demand for land, since the very fact of acquiring a new property or increasing one's existing area brings entitlement to receive additional payments, provided that the land is maintained in good agricultural condition. The seeking of subsidies is often the chief motivation for the purchase of land.

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After 2004, as a result of Poland's accession to the EU, prices of agricultural land of all grades and in all locations rose rapidly, and since then a strong upward trend has been maintained, discounting the expected political rents. This process could operate without significant barriers, because although the market for agricultural land in Poland is subject to regulation, that regulation is effectively limited to the granting of the right of pre-emptive purchase to the government's Agricultural Property Agency (ANR) and the placing of certain restrictions on the purchase of land by foreigners. It is hard to say, however, to what extent at the present time agricultural policy, and various attributes of agricultural properties, cause differences in land prices and are capitalised in the value of land. The problem is that it is difficult to quantify all non-agricultural amenities and to find comparable measures for them (Czyżewski and Trojanek, 2016). It is therefore necessary to seek appropriate aggregates for environmental and metropolitan amenities. The authors have attempted to fill these gaps in the literature by carrying out a wide-ranging study of the drivers of agricultural land values in a leading agricultural region of Poland. The study was preceded by an examination of the literature on the effect of agricultural policy on land prices and leasing rates, and on the impact of non-agricultural attributes on the value of land. In summary, the study aims to determine how agricultural policy, agricultural and non-agricultural attributes, and location factors affect the prices of land properties under the SAPS system.

## 2. Literature review

There are various ways in which government programmes come to be capitalised in the prices of agricultural land. There is evidence that subsidies not coupled to the size of production have a greater effect on land prices than those that are linked to production (Duvivier et al., 2005; Latruffe et al., 2008; Patton et al., 2008; Latruffe and Le Mouël 2009; Ciaian and Kancs 2012). In a study by Nilsson and Johansson (2013) the marginal effect of single area payments in Sweden was found to be 0.54, which indicates that subsidies not linked to the size of production lead to higher land prices. This is also confirmed by earlier studies which found elasticity indices less than 1 (Clark et al., 1993; Weersink et al., 1999). Further research by Karlsson and Nilsson (2014) has indicated, however, that single area payments have no effect on the prices of farms if measured at local level. Because of the ambiguity as to the impact of policy on the value of land, there is a need for research to be continued in this area, particularly in the conditions of the SAPS (Single Area Payment Scheme).

Although farmers currently receive direct subsidies which are not linked to the size of production, they transfer a significant part of them to the owners of land through higher rates for the leasing of agricultural land. The financial benefits of subsidies are not therefore capitalised in agriculture in the case where the landowner is not a farmer. There is an extensive literature concerning this mechanism, referring to the effect of subsidies in American agriculture on leasing rates for agricultural land (Herriges et al., 1992; Lence and Mishra 2003; Roberts et al., 2003; Kirwan, 2009), as well as to subsidies in the EU (Fuchs 2002; Breustedt and Habermann 2011). According to results of Breustedt and Habermann (2011) there are also other factors affecting lease prices and indirectly the value of agricultural land, such as the stock of farm animals. This in turn is affected by various programmes, including investment support from the second pillar of the CAP, which on one hand indirectly supports the income of farmers raising livestock, and on the other causes an increase in leasing rates.

Other authors state that the value of land is a result of a combination of various macroeconomic factors, such as agricultural prices, low interest rates and urbanisation pressure (Weber and

Key 2014). These factors have caused large increases in agricultural land prices in both Europe and the United States, where between 2004 and 2012 the nominal value of land in agricultural use doubled. Plaxico and Kletke (1979) and Lowenberg-DeBoer and Boehlje (1986) have shown that an increase in agricultural land prices improves a farmer's ability to obtain credit. Real property accounts for more than 80% of the total value of assets in US agriculture, and is the main source of credit collateral for farmers (Nickerson et al., 2012). Theoretically in such conditions there may appear an increasing demand for land ("feedback demand"), pushing up its prices (MacDonald et al., 2013). Breustedt and Habermann (2011) demonstrate that a speculative bubble in the agricultural land market is a possibility, if increasing creditworthiness helps farmers to obtain more or cheaper financing for the purchase of land, thus increasing demand for and the price of land, leading to further growth in the wealth of landowners and their ability to obtain credit (Adran and Shin 2010; Rajan and Ramcharan, 2012).

Under the SPS system of single payments, farmers in the EU are obliged to maintain the land for which they receive payments in good agricultural and ecological condition (Falconer and Ward 2000; Swinbank and Daugbjerg 2006). This is known as the principle of cross-compliance. The area of land which must be maintained is equal to the average number of hectares declared by the farmer in the reference period 2000–2002. The authors cited above claim that cross-compliance requirements discourage farmers from taking decisions to purchase land in conditions of increasing farm wealth and easier access to bank credit (Rude 2000), in spite of a reduction in farmers' aversion to risk (Hennessy 1998; Koundouri et al., 2009). In consequence, subsidies that are not linked to production (decoupled payments) tend to support investment in the farm and the supply of hired labour rather than the purchase of agricultural land (Guyomard et al., 2004). It can therefore be expected that the decoupling reform will have little effect either on farmers' demand for land or on the supply of land, because farmers who acquired land in the reference period will be required to maintain it in good agricultural condition in accordance with the cross-compliance principle (O'Neill and Hanrahan 2012) and have little opportunity to obtain additional entitlement to payments. For this reason, in the conditions of the SPS, a petrification of the structure of agricultural land takes place, and the upward trend in the market for agricultural land may not persist in the long term. The position is different in the case of the SAPS system, which operates in the EU-12 new Member States. Here, farmers do not require any historical entitlements to obtain payments, because ownership of the land is itself sufficient. As a result demand for land increases, and the market for agricultural land is subject to a great deal of variability, particularly in areas where "land hunger" occurs.

Research by Delbecq et al. (2014) indicates that the value of agricultural land is only partially accounted for by the income earned from the farm. Those authors identify non-agricultural attributes of agricultural land which affect its market value. These are divided into three groups: population and urban influence, recreational values, and location-specific factors. Among them are features that are related to public goods, such as the availability of water-based recreation or forest areas. The following variables (according to the cited authors) are statistically significant: possibility of building, population density, forestation, hunting permits, distance from a golf course, distance from the nearest high school or college, and average household income. It is shown in the literature that there is a divergence between the market value of land and its agricultural use value. The value of agricultural land in excess of the benefits from its use in agricultural production provides a basis for an approximate estimation of the value of the extra-market goods and services provided by the land factor. If there is no significant environmental or urbanisation potential in a given area, the excess value of the land over its production value may be a mea-

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