



Paper prepared for the 122nd EAAE Seminar
**"EVIDENCE-BASED AGRICULTURAL AND RURAL POLICY MAKING:
METHODOLOGICAL AND EMPIRICAL CHALLENGES OF POLICY
EVALUATION"**

Ancona, February 17-18, 2011



**Direct payments and rent extraction by land owners:
Evidence form New Member States**

Van Herck, K.1 and Vranken L.1,2

1 Department of Economics, LICOS - Centre for Institutions and Economic Performance, K. U.
Leuven, Belgium

2 Department of Earth and Environmental Sciences, University of Leuven, Belgium

kristine.vanherck@econ.kuleuven.be

Copyright 2011 by Kristine Van Herck and Liesbet Vranken. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

Direct payments and rent extraction by land owners: Evidence from New Member States

Van Herck, K. and Vranken, L.

Abstract

Since the accession of the eight Central and Eastern European countries, farmers in these countries started to receive substantial agricultural subsidies. Agricultural subsidies alter farmer production incentives and thus factor demand and factor prices. Hence, agricultural support has an impact on land rents. This paper analyses the impact of the introduction of direct payments on land rents in the new member states and correlates econometrically land rental price data with support measures while controlling for other effects. The impact of direct payments on land rents is not only found to be statistically significant, but also economically important as 15% of the direct payments are capitalized in land rents in the new member states.

Keywords: Land rental prices, Farm subsidies, New member states

JEL classification: Q12; Q18

1. INTRODUCTION

In 2004, eight Central and Eastern European countries joined the European Union. This accession round was followed by the accession of Bulgaria and Romania to the EU in 2007. Since EU accession, farm support in the EU New Member States (NMS) is implemented through the Common Agricultural Policy (CAP) and in most countries financial support to farmers largely increased compared to the pre-accession level.

A general purpose of agricultural subsidies is to increase the income of the farmers. However, in addition to this first order effect, agricultural subsidies also induce second-order adjustments. Various studies have analysed the second-order effects of agricultural policy measures (see e.g. Hertel, 1989; Salhofer, 1996; Dewbre *et al.*, 2001; Alston and James, 2002; Guyomard *et al.*, 2004; Ciaian and Swinnen, 2006, 2009). In general, these studies find that agricultural subsidies alter farmer production incentives and thus factor demand. One strand of the literature considers the second order effects of policy impact on the land market (among others, Floyd, 1965; Guyomard *et al.*, 2004; Ciaian and Swinnen, 2006, 2009).

In case that agricultural policy affects rural land markets, there are two important implications.

First, rent extraction by land owners reduces the impact of subsidies on agricultural income. If land owners are farmers, the impact of rent extraction on agricultural income is rather limited. However, in several NMS land reforms restituted land rights to the former owners who are no longer active in agricultural sector. As a result, a large share of the utilized agricultural area (UAA) is rented out by these absentee land owners, often to large scale cooperate farms (Table 1).

Country	Percentage of UAA used by legal entities (%)	Percentage of UAA rented (%)
Bulgaria	53%	79%
Czech Republic	71%	83%
Estonia	48%	50%
Latvia	9%	27%
Lithuania	14%	48%
Hungary	52%	56%
Poland	10%	20%
Romania	35%	17%
Slovakia	80%	89%

Source: Eurostat

Second, an increase of land rents has a direct negative effect on land mobility and an indirect negative effect on structural change. New farmers face a higher initial investment cost and existing farmers face a higher cost of expansion. Consequently, the transfer of land from less to more efficient users will be reduced which has a negative impact on structural adjustments that are necessary to increase the competitiveness of the sector.

In this paper, we estimate the impact of direct payments on land rents in selected NMS. Virtually all existing empirical studies have dealt with data on the land market in North America (the US and Canada). To our knowledge, there are only four studies that have empirically analysed the impact of direct payments on land rents in the EU. First, Patton *et al.* (2008) analyse the impact of both coupled and decoupled direct payments on land rents in Northern Ireland covering the period 1994 to 2002. Second, Killian *et al.* (2008) analyses the impact of direct payments on land rents in Bavaria in 2005. Third, Ciaian and Kancs (2009) investigate the impact of the Single Area Payment Scheme (SAPS) in the NMS based on farm level panel data of the period 2004-2005. Finally, Ciaian *et al.* (2010) analyse the income distributional effects of different types of CAP payments for farmers and landowners, using a farm level panel data for the period 1995-2007 in selected member states. However, none of these studies have disentangled the impact of direct payments from the impact of market price support on land rents. We present the empirical evidence of a natural experiment being the accession of several countries to the EU where as a result of accession CAP measures have been introduced. This resulted in a considerable change in the level and type of subsidies paid in the NMS.

In the next section, we briefly discuss rental land market and direct payments in the NMS. The third section gives an overview of the exiting literature on the impact of agricultural policy land rents. In section 4 we empirically test the impact of direct payments on land rents in selected NMS. Finally, we conclude and discuss policy implications.

2. RENTAL LAND MARKETS AND DIRECT PAYMENTS IN NMS

In this section we briefly discuss rural land markets and agricultural policy in the NMS before and after the accession to the EU.

2.1. Rental land markets

Similar to US and several EU15-countries, most of the land transactions in the NMS take place through the rental market, although there are large variations among countries (Table 1). In Slovakia and the Czech Republic, more than 80% of the cultivated land area is rented. Also in Bulgaria, land renting is very prominent (79% of total land). In Hungary, Estonia and Lithuania, between 48% and 56% of the cultivated area is rented. In Latvia, Poland and Romania, the figures fall to respectively 27%, 20% and 17%.

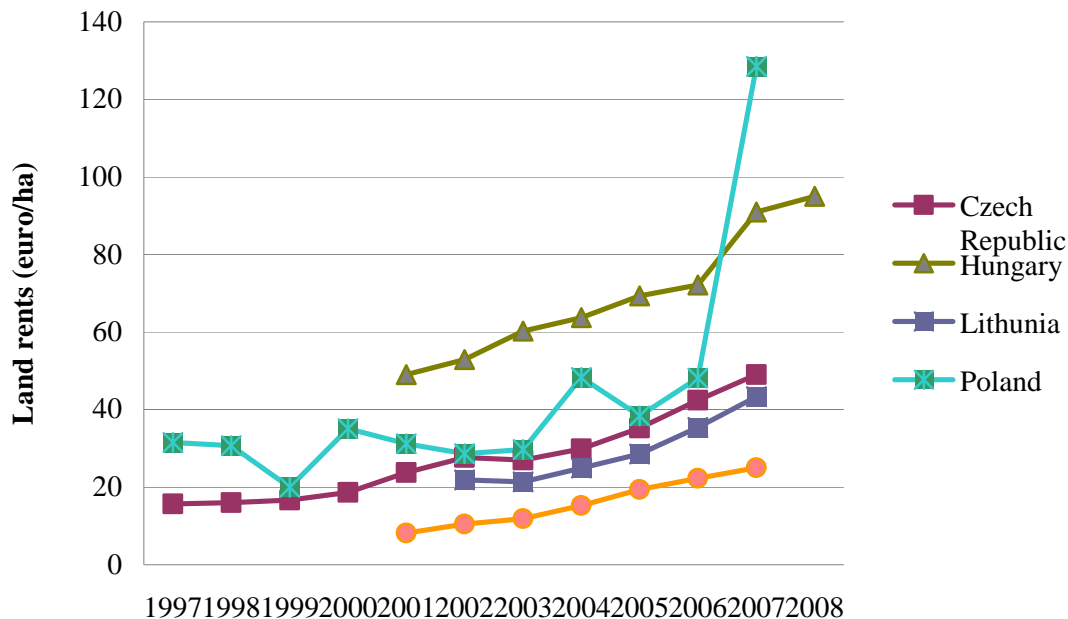
There is a striking correlation between the prevalence of land rental at the country level and the proportion of corporate farms in total land use (Swinnen et al., 2006). While corporate farms own little land, they use a lot of land in some countries, almost all of which is rented. In the Czech Republic and Slovakia, more than 70% of the total agricultural land area is used by corporate farms (Table 1). Also in Hungary, Estonia and Bulgaria, corporate farms still use around half of all agricultural land. The presence of high transaction costs reduces the incentives for landowners to withdraw their land and reallocate it. Therefore a large share of agricultural land is still rented to the organisations that have taken over the former cooperatives and state farms (Vranken et al., 2011).

In the period 2000-2008, land rental prices increased significantly in the NMS and the increase was especially strong around the period of EU accession. For example, if one compares rental prices from just before (2003) to just after accession (2006), real land rental prices grew by 20% to 87% in the Czech Republic, Lithuania, Hungary, Poland and Slovakia (Figure 1).¹

Land rental payments in the NMS are usually in cash, although in several NMS at least a part of the payment is in kind. For example, in Poland, more than 20% of the contracts involving private rentals in 2005 were in kind (goods and services) rather than in cash. Land rents are generally paid at the end of the season (after the harvest) and depend on the weather or market conditions. In case of unfavourable conditions, payments are reduced or not paid at all (Swinnen and Vranken, 2009). This particular feature of the rental market in NMS will allow us to use contemporaneous values of the explanatory variables instead of expectations.

¹ Note that in 2007 there is a price spike in the land rental price of Poland. This is because land rental prices are partly determined based on the price of cereals.

Figure 1: Evolution of land rents in selected NMS (in euros)



*Price data are real prices (in 2010 prices)

**Data for Poland in 2007 are excluded from the regression as this could be considered as an outlier (land rents were exceptionally high as these were partially based on the cereal prices which were exceptionally high in 2007)

Source: Own calculations based on the constructed dataset (see section for a detailed description of the dataset)

2.2. Agricultural policy

After the transition to a more market orientated economy, agricultural support dramatically reduced in all Central and Eastern European countries. However, when the economic and institutional climate started to improve at the end of the 1990s, agricultural support started to increase again. Later, when the countries accessed the EU agricultural support increased even further.

There are several distinct types of support measures. First, governments can make payments directly to producers, so-called "direct payments". These payments can be coupled or decoupled from the production level. Before EU accession, agricultural policy in the selected NMS, mainly included a wide variety of coupled payments. These can be output payments, which are payments for selected commodities based on the produced quantity (payment/ton or payment/animal) For example, there existed output payments for crop production such as bread cereals in Poland and for livestock production such as for sheep, beef or milk production in Czech Republic and Slovakia. In all countries, there existed area payments, which are payments based on the cultivated area (payment/ha). For example a payment per hectare of flax was paid in the Czech Republic or for arable land in Slovakia. In addition, all countries provided a payment per produced quantity (often only for high quality produce). There existed output payments for crop production (e.g. bread cereals in Poland) and for animal/ livestock production (e.g. sheep, beef or milk production in Czech Republic and Slovakia).

After EU accession, there were two main types of direct payments depending on the source of the subsidy. First, there is the Single Area Payment Scheme (SAPS), which is financed by the EU budget. SAPS payments are fixed payments per ha, which are decoupled from production and, in principle, uniform for all eligible land within each NMS.² SAPS payments are gradually implemented and they will reach the EU-15 level in 2013. Second, the NMS were allowed to supplement the SAPS payments by national "top-up" payments (or Complementary National Direct Payments (CNDPs)). These "top-up" payments could be implemented in a similar way as SAPS, namely as a fixed payment per ha. However, the NMS could also decide to couple the support to production.

Second, in addition to direct payments, governments can also use specific instruments, such as quota, tariffs and intervention buying to support farmers' income. These instruments create a gap between the domestic producer price and the world market price of a specific agricultural commodity and are referred to as market price support (MPS). Already before EU accession, the NMS implemented quota, tariffs and intervention buying, to protect their agricultural markets. After EU accession, market price support was implemented in the same way as in the EU15.

3. OVERVIEW OF THE EXISTING LITERATURE

Various studies have analysed the impact on land markets of agricultural policy measures that have been implemented to support farmers' income in developed countries (e.g. Floyd 1956; Ciaian and Swinnen 2006, 2009; Goodwin and Ortalo-Magné 2002; Lence and Mishra 2003; Kirwan 2005). These studies have indicated that there is rent extraction of land owners. Although the effect depends on the type of subsidy. The next sections present an overview of the theoretical findings and empirical evidence of the impact of coupled direct payments on the income distribution between the farmer and the owner of the input factors.

3.1. Theoretical evidence of capitalization of government payments

Ciaian *et al.* (2010) analyse the impact of different forms of coupled direct payments on land markets. They develop a partial equilibrium model, which combines two inputs (land and a non-land input) in a production function of one agricultural output.³

According to Ciaian's model, output payments increases the price of a factor if the supply elasticity of that factor is not perfectly elastic. A given percentage increase in product price will result in the same percentage rise in all factor prices if inputs are perfect substitutes in

² However, there are substantial differences between the NMS. These variations stem from the fact that the level of per hectare payments is computed by dividing the available EU financial "envelope" for each country by the eligible agricultural area. The EU rules for the determination CAP Pillar I financial allocations imply that higher land productivity results in higher hectare payments, as historical yield levels (2000-2002) were factored into the determination of the financial envelope for Pillar 1. There was a large variety in the reference yield of the different NMS which results in a disparity in the direct payments.

³ They based their model on the model of Floyd (1965), who analyzes the effects farm price supports on the returns to land in agriculture.

production or if the supply elasticities of the two factors are the same. If the factor supply elasticities are not equal, the price of the input with the least elastic supply will increase more. Hence, the impact of output payments on land rents depends largely upon the factor supply and substitution elasticities. In fact, in case the factor supply is entirely inelastic and the elasticity of substitution between factors is zero or the factor proportions are fixed, the output payment will be fully capitalized in the price of the factor with inelastic supply. If this factor is land, then the output payment will be fully capitalized in land rents.

Area payments, which are targeted on land, stimulate farm land demand and in combination with inelastic land supply, these payments are capitalised into higher land rents, creating leakages of policy rents to landowners. In a corner solution, when the land supply is fixed, the land subsidy is fully capitalised into land rents.

In summary, in case land is most inelastic production factor, both output and area payments are expected to be capitalized in land rents and the price of land will increase relative to the price of the other inputs. In case the land supply elasticity is equal to zero (or land supply is fixed) area payments will be fully capitalized in land rents. Output payments are fully capitalized in land rents if, additionally to zero land supply elasticity, either the supply elasticity of non-land inputs is perfectly elastic or if factor proportions are fixed.

In addition to the type of subsidy, the capitalization of subsidies also depends upon the exact policy implementation, market imperfections, and land market institutions and regulations.

First, if subsidies are only implemented for a limited period of time, they may not be capitalized in the land value. Also the criteria determining the eligibility to receive the future stream of policy transfers, may limit the capitalisation of subsidies (Sumner and Wolf 1996; Ciaian and Swinnen 2006, 2009; Kilian and Salhofer 2008). For example, area payments may be subject to cross-compliance, set-aside, or other requirements. If area payments are subject to cross-compliance, then their effect on land rents is (partially) mitigated due to the fact that farmers have to incur certain costs in order to meet the eligibility criteria.

Second, market imperfections affect the capitalization of government payments (see for example, Chau and de Gorter 2005; Hennessy 1998). Ciaian and Swinnen (2006) find that the presence of transaction costs related to land withdrawal from corporate farms do not affect the general result that area payments increase land rents.

Finally, also land market institutions and regulations may affect capitalization of payment in land rental rents. The most obvious case regulation affecting the land market is the case where rental payments are regulated by the government such as it is for example the case in Belgium or France (Ciaian *et al.* 2010).

At the end of 1990s, market imperfections in the credit markets (including credit and technology) and output markets were major limitations on the functioning of land markets in the NMS. At the end of the 1990s and especially in the beginning of the 2000s, under the impulse of the prospect of EU accession and economic growth, market imperfections started to decrease. This resulted in increased investments in agriculture and in an increase in farm productivity

which in turns leads to a rise in the demand for land in the NMS. Furthermore, foreign and domestic investment in the food industry and agribusiness were stimulated with major positive vertical spillovers on farms. Ciaian and Swinnen (2009) analyse the impact of credit market constraints on capitalization of area payments in land rents and they find that area payments increased land rents by more than the payment.

3.2. Empirical evidence of capitalization of government payments on land rental markets

There is less evidence on the capitalization of government payments in land rents than on the capitalization in land values. Although, Whithaker (2006) arguments that investigating the effects of domestic support on land rents is more relevant for at least two reasons. First, rental rates are observed in the market while land value is often stated by the owner and therefore subjective. Second, rental rates are less affected by urban and other non-agricultural pressures as contracts have only a limited duration.

Almost all available studies on the capitalization of land rent use US data, but recently the number of studies analysing the impact of CAP payments on land rents increased.

Using US-county level data from the state Iowa, Lence and Mishra (2003) examine the impact of government payments on cash rents using county-level panel data for 1996-2000. Unlike most other studies on land values and rents, Lence and Mishra control for spatial autocorrelation. They find positive marginal impacts of support payments per acre that range from \$0.25 to \$0.86 in additional rent per acre.

Roberts et al. (2003) use 1992 and 1997 farm-level panel data from the US Census of Agriculture. They find that an increase in cash land rents of between \$0.34 and \$0.41 per acre for each additional dollar of government payments. Using the same data, Kirwan (2005) finds in a related study that landowners capture on average between \$0.20 and \$0.40 of the marginal per acre subsidy dollar depending on the region and farm size.

Using EU data, Patton et al. (2008) analyse the impact of both coupled and decoupled direct payments on land rents in Northern Ireland covering the period 1994 to 2002. They find that the impact of CAP direct payments on rental values depends on the type of payment and on the nature of the production characteristics of the associated agricultural commodity.

Also in the EU, Kilian et al. (2008) analyses capitalization of direct payments in land rental prices in 2005 in Bavaria (region in Germany). They find that 1 additional euro of direct payments increases rental prices by 28 to 78 cents. Additionally, they evaluate the effect of decoupling support and they find an increase in the capitalization ratio due to decoupling as additional 15 to 19 cents are capitalized into land rents.

Ciaian and Kancs (2009) investigate the impact of the Single Area Payment Scheme (SAPS) in the NMS based on farm level panel data of the period 2004-2005. They find that almost 20% of the SAPS payment is capitalized in land rents. However, in a related study, Ciaian et al. (2010) analyse the income distributional effects of the common agricultural policy for farmers and landowners, using a farm level panel data for the period 1995-2007 in selected member states. Their results do not confirm the theoretical hypothesis that landowners benefit a

large share of the CAP subsidies. According to their estimates, farmers gain between 60% to 95%, 80% to 178% and 86% to 90% of the total value of coupled crop/animal, coupled RDP and decoupled payments, respectively. They find that CAP subsidies are only marginally capitalised in land rents, although the effects depend on the type of payment.

4. ECONOMETRIC ANALYSIS

4.1. Model and variables

To econometrically quantify the effect of direct payments on land rents, we estimate the following model:

$$RENTS_{it} = a_0 + a_1 DP_{i,t} + a_2 MPS_{i,t} + a_3 PPIP_{i,t} + a_4 YIELD_{i,t} + a_5 GDP_{i,t} + a_6 ACCESSION_{i,t} + \delta_i + \varepsilon_{i,t} \quad (1)$$

where $RENTS_{it}$ represent the average rental price of agricultural land in country i in year t . $RENTS_{i,t}$ is defined as respectively the deflated country average land rental price in euros⁴. Land rents are obtained from national statistics cited in Swinnen and Vranken (2009).

Further, we make use the specific feature of the land markets in the NMS that in general rental payments are paid at the end of the season and can depend on the weather and market conditions, such that we can include contemporary values of the explanatory variables rather than expected values.

The main interest is the impact of coupled direct payments ($DP_{i,t}$). $DP_{i,t}$ is the average deflated amount of direct payments per ha expressed in euros. Due to data limitations, we aggregated output and area payments, although it is possible that the effect will be different depending on the type of the subsidy.⁵ Before EU accession, the coupled payments ($DP_{i,t}$) are calculated as the sum of the OECD support categories "Payments based on output" and "Payments based on area planted/ number of animals" divided by the total utilized agricultural area as obtained from Eurostat. After EU accession, $DP_{i,t}$ is the sum of SAPS payments and national "top up" payments, divided by the total utilized agricultural area as obtained from Eurostat. Given the theoretical evidence of the capitalisation of direct payments (see above), we expect a positive coefficient of the $DP_{i,t}$ variable.

In addition to coupled direct payments, which were – and still are – the main type of agricultural support, we also include a variable capturing Market Price Support (MPS). MPS is capturing the transfers from consumers and taxpayers to agricultural producers arising from policy measures, such as quota, tariffs and intervention buying, which creates a gap between domestic producer prices and reference prices of a specific agricultural commodity measured at the farm-gate level. $MPS_{i,t}$ is the average deflated amount of market price support per ha

⁴ All monetary values are collected in national currency, converted to Euros and deflated using the average annual exchange rate and the GDP deflator for the EU, which are obtained from Eurostat.

⁵ Based on the theoretical insights presented in section 3, we expect that area payments will be more capitalized into land rents than output payments.

expressed in euros. Before EU accession, these data were available from OECD. After EU accession, $MPS_{i,t}$ was calculated based on the total amount of MPS in the EU, as reported by OECD. For each commodity, we calculated the share of the commodity in total EU production and we assumed that the market price support for this commodity is equal to a similar share in total EU market price support. All transfers captured by $MPS_{i,t}$ increase commodity prices on the domestic market. Therefore $MPS_{i,t}$ is expected to have a similar effect as price support or output payments, namely a positive impact on land rents.

Third, $PPIP_{i,t}$ is the ratio of the agricultural producer price index to the agricultural input price index on the national level and equals terms of trade in agriculture. Data are obtained from Eurostat and Swinnen *et al.* (2005). An increase in the terms of trade indicate that agricultural activities become more profitable and therefore we expect $PPIP_{i,t}$ to have a positive impact on land rents.

Fourth, $YIELD_{i,t}$ is the aggregate crop yield index. Data are obtained from Eurostat are based on the aggregate yield of crop products, excluding fruits and vegetables. Higher agricultural yields are expected to increase the marginal product of land and, in the case of factor market clearing, this will result in higher land rental payments. However, this effect will be (partially) cancelled out due to an outward shift of the agricultural commodity supply curve so that the commodity prices drop which will lower the marginal product of land.

Fifth, we expect that economic growth and institutional changes at the beginning of the 2000s and later after EU accession led to a better functioning of all factor markets, including the land, labour and credit market. This may also had positive impact of land rents. In order to control these changes, we decided to include $GDP_{i,t}$, which is deflated gross domestic product per capita, expressed in euros. We expect that $GDP_{i,t}$ has a positive impact on land rents as in general economic growth is associated with better functioning institutions and markets (see among others, Acemoglu *et al.* 2005).

Finally, in addition, we also include two time dummy variables. $ACCESSION$, takes a value of 1 in the year of EU accession and 0 otherwise. This variable will capture sudden changes in institutions and markets caused by EU accession. $Dum2007$ takes a value of 1 in 2007 and 0 otherwise. We include this dummy to control for the high agricultural prices due to the food crisis in 2007.⁶

There are 5 countries included in the empirical analysis: Czech Republic, Poland, Slovakia, Hungary and Lithuania. For Czech republic we use yearly data from 1995 to 2007, for Poland data from 1994 to 2006⁷, for Slovakia and Hungary data are available from 2001 to 2007 and finally for Lithuania data are covered from 2002 to 2007. This results in an unbalanced panel data set with 43 observations. Table 2 gives an overview of the data used in respectively the land rents regression and the land values regression. Based on some preliminary evidence

⁶ Note that like indicate we exclude the data on land rents in 2007 for Poland.

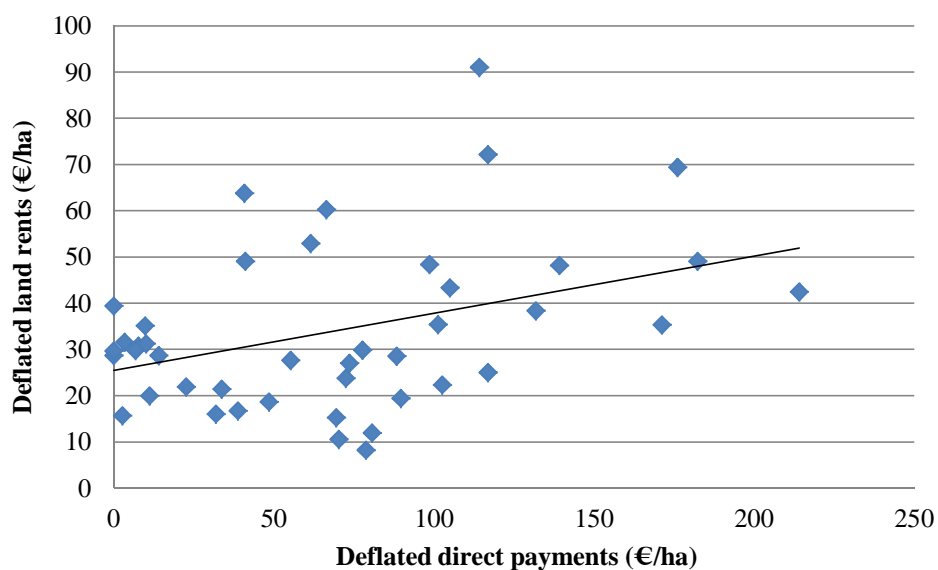
⁷ Note that we dropped the land rents observation of 2007 for Poland from the sample as this was an outlier.

we already see that there is a strong correlation between direct payments and land rents (Figure 2).

Table 2: Description of the variables in the land rents regression

Variable	Definition	Mean	Standard deviation
Land markets			
RENTS	Deflated average land rents (€/ha)	34.02	17.92
Government support			
DP	Deflated direct payments per ha (€/ha)	69.27	5536
MPS	Deflated market price support payments per ha (€/ha)	121.89	63.84
Control variables			
PPIP	Agricultural terms of trade	0.99	0.16
YIELD	Crop yield index	0.87	0.14
GDP	Deflated gross domestic support per capita (€/capita)	6200.85	3373.38
ACCESSION	Dummy for EU accession	0.09	0.29

Figure 2: Relationship between direct payments and land rents in selected NMS



4.2. Discussion of the regression results

The results of our estimation are presented in Table 3.

Direct payments (*DP*) have a positive and significant impact on land rents, indicating that there is rent extraction of government payments by land owners. The impact is not only statistically significant, it is also economically significant. An increase of 100€ per ha in direct

payments, increases land rents by 10 to 15€. This means that 10% to 15% of the direct payments are directly capitalized in the land rent. Hence, in countries where a significant proportion of the land is rented and the landowner are not the farmers, a substantial part of the direct payments will not benefit the farmers and will flow out of the agricultural sector.

The other subsidy variable, *MPS*, is not found to have a significant impact on land rental prices. Also *PPIP* is not found to have an impact on land rents, while *YIELD* is found to have a negative impact on land rents. This effect seems rather counterintuitive as increasing yields are expected to increase the marginal product of land and, in the case of factor market clearing, this will result in higher land rental payments. However, this effect can be cancelled out due to an outward shift of the agricultural commodity supply curve so that the commodity prices drop which will lower the marginal product of land.

Surprisingly, *GDP* is not found to have a significant impact on land rents, but we need to remark that there is a substantial correlation between *GDP* and *DP* (0.38). This inflates the standard errors such that it is more difficult to detect an effect.

Ancona - 122nd EAAE Seminar
"Evidence-Based Agricultural and Rural Policy Making"

Table 3: Regression results

	Model A		Model B		Model C		Model D	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Subsidies								
DP	0.15	(8.33)***	-	-	0.13	(9.39)***	0.10	(2.72)***
MPS	-	-	-0.02	(3.84)	0.00	(0.17)	0.01	(0.40)
Control variables								
PIIP	-	-	-	-	6.63	(0.34)	10.05	(0.42)
YIELD	-	-	-	-	-9.44	(-1.89)*	-9.77	(-1.82)*
GDP	-	-	-	-	-	-	0.00	(1.20)
ACCESSION	-	-	-	-	8.48	(2.68)***	7.66	(1.64)*
Dum2007	-	-	-	-	13.05	(3.51)***	10.53	(3.24)***
Country dummies		Yes		Yes		Yes		Yes
Constant	23.80	(3.22)***	36.12		24.18	(1.21)		
R ²		0.15		0.02		0.19		0.40
Observations		43		43		43		43

*significant on 10%, **significant on 5% and *** significant on 1%

We used bootstrapped standard errors.

Source: authors' calculations based on the constructed sample

Finally, both the accession dummy (ACCESSION) and the dummy for the year 2007 (DUM2007) have a significant impact on land rents. This indicates that EU accession may have caused sudden changes in institutions and markets, which had positive impact on land rents and also the sudden increase in the prices of agricultural products in 2007 seem to have a positive impact on land rents.

5. CONCLUSION

While agricultural subsidies were introduced to increase the income of the farmers, agricultural subsidies also induce second-order adjustments so that they alter farmers' production incentives and thus factor demand. In this paper, we estimate the second order effect of one particular type of subsidy, being direct payments, on the rural land market in selected NMS. We present the empirical evidence of a natural experiment being the accession of several countries to the EU where as a result of accession CAP measures have been introduced. This resulted in a considerable change in the level and type of subsidies paid in the NMS and allows to estimate the impact of the increase in direct payments on land rental prices. We find that direct payments (*DP*) have a positive and significant impact on land rents, indicating that there is rent extraction of government payments by land owners. This impact is not only statistically significant, it is also economically significant. An increase of 100€ per ha in direct payments, increases land rents by 10 to 15€. Since renting is widespread in several NMS and since most land owners are so called *absentee* landowners who live in urban areas or who are no longer active in agriculture, the payments are to a large extent missing their goal of improving the livelihoods of rural inhabitants in the NMS.

REFERENCES

- Acemoglu, D. Johnson, S. and J.A. Robinson (2005), "Institutions as a Fundamental Cause of Long Run Growth", Handbook of Economic Growth, Vol. 1, Part 1, pp. 385-472.
- Alston, J.M. and J.S. James (2002), "The Incidence of Agricultural Policy", in B.L. Gardner and G.C. Rausser (eds), Handbook of Agricultural Economics, Vol. 2B, Amsterdam: Elsevier, pp. 1689-1749.
- Ciaian, P. and J.F.M. Swinnen (2006), "Land Market Imperfections and Agricultural Policy Impacts in the New EU Member States: A Partial Equilibrium Analysis", American Journal of Agricultural Economics, Vol. 88, No. 4, pp. 799-815.
- Ciaian, P. and J.F.M. Swinnen (2009), "Credit Market Imperfections and the Distribution of Policy Rents", American Journal of Agricultural Economics, Vol. 91, No. 4, pp. 1124-1139.
- Ciaian, P. and D. Kancs (2009), "The Capitalization of Area Payments into Farmland Rents: Theory and Evidence from the New EU Member States", EERI Research Paper Series 04/2009, Brussels.
- Ciaian, P., D. Kancs and S.G. Paloma (2010), "Distributional Effects of CAP Subsidies: Micro Evidence from the EU", EERI Research Paper Series 05/2010, Brussels.
- Ciaian, P., D. Kancs and J.F.M. Swinnen (2010), EU Land Markets and Common Agricultural Policy, CEPS Publications, Brussels.
- Chau, N.H. and H. de Gorter (2005), "Disentangling the Consequences of Direct Payment Schemes in Agriculture on Fixed Costs, Exit Decisions, and Output", American Journal of Agricultural Economics, Vol. 87, pp. 1174-1181.

Ancona - 122nd EAAE Seminar
"Evidence-Based Agricultural and Rural Policy Making"

- Dewbre, J., J. Anton and W. Thompson (2001), "The transfer efficiency and trade effects of direct payments", *American Journal of Agricultural Economics*, Vol. 83, No. 5, pp. 1204-1214.
- Floyd, J.E. (1965), "The Effects of Farm Price Supports on Returns to Land and Labour in Agriculture", *Journal of Political Economy*, Vol. 73, pp. 148-158.
- Goodwin, B.K. and F.N. Ortalo-Magné (1992), "The Capitalisation of Wheat Subsidies into Agricultural Land Value", *Canadian Journal of Agricultural Economics*, Vol. 40, pp. 37-54.
- Guyomard, H., C. Le Mouël and A. Gohin (2004), "Impacts of alternative agricultural income support schemes on multiple policy goals", *European Review of Agricultural Economics*, Vol. 31, No. 2, pp. 125-148.
- Hennessy, D.A. (1998), "The Production Effects of Agricultural Income Support Policies under Uncertainty", *American Journal of Agricultural Economics*, Vol. 80, pp. 46-57.
- Hertel, T.W. (1989), "Negotiating reductions in agricultural support: Implications of technology and factor mobility", *American Journal of Agricultural Economics*, Vol. 71, No. 3, pp. 559-573.
- Kilian, S. and K. Salhofer (2008), "Single Payments of the CAP: Where do the Rents Go?", *Agricultural Economics Review*, Vol. 9, No. 2.
- Kilian, S., J. Anton, N. Röder and K. Salhofer (2008), "Impacts of 2003 CAP reform on land prices: From Theory to Empirical Results", Paper presented at the 109th Seminar, Viterbo, Italy, November 20-21st, 2008.
- Kirwan, B. (2005), *The Incidence of US Agricultural Subsidies on Farmland Rental Rates*, Working Paper 05-04, Department of Agricultural and Resource Economics, University of Maryland.
- Lence, S.H. and A.K. Mishra (2003), "The Impacts of Different Farm Programmes on Cash Rents", *American Journal of Agricultural Economics*, Vol. 85, No. 3, pp. 753-761.
- Patton, M., P. Kostov, S. McErlean and J. Moss (2008), "Assessing the Influence of Direct Payments on the Rental Value of Agricultural Land", *Food Policy*, Vol. 33, No. 5, pp. 397-405.
- Roberts, M.J., B. Kirwan and J. Hopkins (2003), "The Incidence of Government Program Payments on Land Rents: The Challenges of Identification", *American Journal of Agricultural Economics*, Vol. 85, pp. 762-769.
- Robison, L.J., R.J. Myers and M.E. Siles (2002), "Social Capital and the Terms of Trade for Farmland", *Review of Agricultural Economics*, Vol. 24, No. 1, pp. 44-58.
- Salhofer, K. (1996), "Efficient Income Redistribution for a Small Country using Optimal Combined Instruments", *Agricultural Economics*, Vol. 13, pp. 191-199.
- Sumner, D.A. and C.A. Wolf (1996), "Quotas without Supply Control: Effects of Dairy Quota Policy in California", *American Journal of Agricultural Economics*, Vol. 78, pp. 354-66.
- Swinnen, J.F.M., Dries, L. and K. Macours (2005), *Transition and Agricultural Labour*, *Agricultural Economics*, Vol. 32(1), pp. 15-34.
- Swinnen, J.F.M. and L. Vranken (2009), *Land and EU Accession: Review of the Transitional Restrictions by New Member States on the Acquisition of Agricultural Real Estate*, CEPS Publication, Brussels.
- Swinnen, J.F.M. and L. Vranken (2010), *Review of the Transitional Restrictions maintained by Bulgaria and Romania with regard to the Acquisition of Agricultural Real Estate*, CEPS report prepared for the European Commission, Brussels.
- Swinnen, J., Vranken, L. and V. Stanley (2006), "Emerging Challenges of Land Markets. A Review of the Available Evidence for the Europe and Central Asia Region", *Chief Economist's Regional Working Paper Series Infrastructure Department (ECSIE)*, Vol. 1, No 4.
- Vranken, L., Macours, K., Noev, N. and J. Swinnen (2011), "Property Rights Imperfections, Asset Allocation, and Welfare: Co-Ownership in Bulgaria", *Journal of Comparative Economics*, forthcoming.
- Whitaker, J.B. (2006), "The Effects of Decoupled Government Subsidies on Farm Household Well-Being", Department of Economics, Utah State University.