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Institutional Factors Affecting Agricultural Land Markets

ABSTRACT

This paper analyses the main institutional factors affecting the rental and sales markets for agricultural land. Particular attention is paid to the effects of the common agricultural policy on land markets, and more specifically the underlying mechanism through which agricultural subsidies are capitalised into land values and farmland rents. This paper also provides a broad overview of the empirical studies that estimate the impact of agricultural support policies on land rents and land prices. Various other fundamental factors that affect agricultural land markets are discussed, such as land market institutions and regulations, transaction costs, credit market constraints and levels of profitability, the legal means of contract enforcement and land use alternatives.

FACTOR MARKETS Working Papers present work being conducted within the FACTOR MARKETS research project, which analyses and compares the functioning of factor markets for agriculture in the member states, candidate countries and the EU as a whole, with a view to stimulating reactions from other experts in the field. See the back cover for more information on the project. Unless otherwise indicated, the views expressed are attributable only to the authors in a personal capacity and not to any institution with which they are associated.

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Contents

1. Introduction.....	1
2. Impact of the common agricultural policy.....	1
2.1 Capitalisation of coupled subsidies	2
2.2 Capitalisation of decoupled subsidies	2
2.3 Determinants of subsidy capitalisation.....	3
2.3.1 Policy type.....	3
2.3.2 Policy implementation details.....	3
2.3.3 Accompanying policy measures	4
2.4 Empirical evidence on the impact of subsidies on land prices.....	4
3. Other policies	6
4. Land market institutions and regulations	6
5. Transaction costs	7
5.1 Explicit transaction costs.....	7
5.2 Implicit transaction costs.....	9
5.2.1 Imperfect competition in the agricultural land market	9
5.2.2 Imperfections in property rights.....	10
5.2.3 High withdrawal costs and unclear boundaries	12
6. Credit market constraints and profitability	13
7. Contract enforcement	14
8. Alternative land use	14
9. Social capital	15
References	16

List of Figures

Figure 1. Correlation between the share of land used by corporate farms and rented land.....	9
Figure 2. Land sales prices by size of parcel in 2005 in Slovakia (SKK/ha).....	15

List of Tables

Table 1. Estimated impact of subsidies on farmland rents	4
Table 2. Estimated impact of subsidies on farmland values	5
Table 3. Land taxes: Registration tax (% of land value)	7
Table 4. Transaction costs related to the land market in Poland	8
Table 5. Agricultural land rental prices by legal entity (€/ha)	10

Institutional Factors Affecting Agricultural Land Markets

**Pavel Ciaian, d'Artis Kancs, Jo Swinnen,
Kristine Van Herck and Liesbet Vranken***

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1. Introduction

Land values are determined by demand and supply. Factors that shift the demand for and supply of agricultural land relate to competing uses for land, changes in agricultural productivity, speculative forces, the potential of land to hedge against inflation and its amenity values.

Only a limited amount of land is offered on the market every year because individuals hold land for many other reasons than production, including prestige value, lifestyle value and family traditions, and for storing wealth if confidence in money as a repository of value is low. If land is sold, it is often for such reasons as the retirement or death of the owner.

In this paper we discuss the main institutional factors affecting the rental and sales markets for agricultural land. For the analysis, we draw upon earlier work by Ciaian et al. (2010), Swinnen and Vranken (2009, 2010) and a questionnaire sent to the different partners of the Factor Markets project.

2. Impact of the common agricultural policy

Various studies have analysed agricultural policy measures that have been implemented to support farmer income in developed countries: market price support, production subsidies, factor subsidies, both coupled and decoupled payments, etc. (see e.g. Hertel, 1989; Salhofer, 1996; Dewbre et al., 2001; Alston and James, 2002; Guyomard et al., 2004; Ciaian and Swinnen, 2006, 2009).

The general result of these studies is that the agricultural policies implemented influence (increase) farmer income, although with varying effects across policies. In addition to the direct first-order effect of increasing farmer income, most of the agricultural policies carried out also induce second-order adjustments. For example, farm subsidies have an impact not only on the employed factor reward but also, through altered farmer incentives, on factor demand, intersectoral factor allocation and factor ownership. One strand of the literature assessing second-order policy impacts considers the policy ramifications for land prices and land rents.

* Pavel Ciaian and d'Artis Kancs are working at the European Commission (DG Joint Research Centre); Johan F.M. Swinnen is a Senior Research Fellow at CEPS and Director of the LICOS Centre for Institutions and Economic Performance at KU Leuven; Kristine Van Herck is a PhD Student at the LICOS Centre for Institutions and Economic Performance at KU Leuven; Liesbet Vranken is an Assistant Professor at the Department of Earth and Environmental Sciences, at KU Leuven.

The paper draws importantly on background information and comments provided by Eleni Kaditi (CEPS). The authors are solely responsible for the content of the paper. The views expressed are purely those of the authors and may not in any circumstances be regarded as stating an official position of the European Commission.

If agricultural subsidies benefit landowners instead of farmers, negative side effects may arise. For example, policy-induced growth in land values might reduce efficiency in the agricultural sector. Given that farmers must finance a higher initial investment (entry cost) and face a risk of policy changes affecting the return on that investment, the entry barrier for potential new farmers increases. The expansion costs of existing farmers also rise. Consequently, the exchange of land among different owners is reduced, pushing up the average cost of production in the agricultural sector.

Furthermore, depending on the exact implementation mechanism, the benefits of support may accrue only to those who are landowners at the time the support was introduced. Later entrants, who have purchased land at higher prices, may benefit less from the policy support. This implies that many active farmers do not receive any or receive only a fraction of the benefits from subsidy support. Moreover, it implies that if the policy goal is intergenerational equity, support levels will have to be increased in the future, further inflating land values and entering into a spiralling circle of subsidy support that could not likely be continued forever.

Finally, future reform efforts to reduce support might be rendered more difficult because of the potential impact on land values. Expectations about the level of subsidy support in the future play an important role in the determination of land values. When agricultural support policies become capitalised into land values, existing landowners may resist future policy reforms because of vested interests.

Hence, to understand the effects of the common agricultural policy (CAP) on land markets, a profound and detailed knowledge about the policies and about the underlying mechanism through which agricultural subsidies are capitalised into land values and farmland rents is required.

2.1 Capitalisation of coupled subsidies

The classical model for analysing the income distributional consequences of agricultural support policies was developed by Floyd (1956). Floyd proposed a model with two factors that are used to produce one agricultural output. He assumed one land and one non-land (labour and capital) input and these inputs are combined in a constant return-to-scale production function. In his model, output market clearing and input market clearing determine the output and input prices.

The main findings of the theoretical literature on coupled policy impacts can be summarised as follows (with area payments being coupled payments as they were in the EU before the introduction of the Single Payment Scheme, SPS):

- If the land supply is fixed, then area payments are fully capitalised into land values.
- Coupled production subsidies are fully capitalised into land values if in addition to zero land supply elasticity, either the supply elasticity of non-land inputs is perfectly elastic or factor proportions are fixed.
- In other situations, the benefits from coupled subsidies are shared between land and other production factors and if demand elasticity is not perfectly elastic, the consumers too.
- The agricultural policy impact on land values may be very large (e.g. fully capturing the subsidies).

2.2 Capitalisation of decoupled subsidies

More recently, a new generation of partial and general equilibrium models has been developed to explicitly analyse the impact of decoupled subsidies. The majority of these models, which are still at an early stage of development, are based on behavioural models of profit maximisation. The two most prominent representatives of this class of models are presented in Guyomard et al. (2004) and Ciaian and Swinnen (2006, 2009).

The main findings of the theoretical literature on decoupled policy impacts can be summarised as follows:

- Fully decoupled farm policies have no impact on land values if markets are perfect.
- Decoupled policies may affect land values only in the presence of (some) market imperfections (such as transaction costs or credit constraints in the land market).
- The exact impact depends on many factors, such as the type of policy, supply and demand elasticities, accompanying policy measures, market imperfections, land use opportunity costs, institutions and expectations.

2.3 Determinants of subsidy capitalisation

The exact outcome of the policies implemented in terms of income distribution, intersectoral factor allocation and factor productivity is affected by many aspects. Policy-related factors (determinants) are the policy type, the implementation details and accompanying measures. The key exogenous determinants of comparative advantage (endowment and technology) are factor supply and substitution elasticities, as well as possibilities for intersectoral production substitution (land use alternatives). Land market-related determinants include market imperfections, land market institutions and regulations, and transaction costs. Finally, the outcome of the farm support policies implemented depends on the timescale policy-makers are looking at and on the responsiveness dynamics of these policies.

In this section, we discuss only the policy type, implementation details and accompanying measures, since most of the other determinants mentioned above also have – in addition to their interaction with agricultural policy – a direct impact on agricultural land markets.

2.3.1 Policy type

In general, different policies can be carried out to address the policy objective of supporting farmer income, such as the input subsidy, output subsidy, export subsidy, decoupled payments, input quota and output quota. An important conclusion from the theoretical literature is that one of the key factors determining the extent to which subsidies are captured in land values is the type of policy implemented. This result holds not only for decoupled versus coupled policies, but also in relation to the important differences among various coupled policies.

For example, consider the impacts of an output subsidy and an area payment. An area payment is targeted directly at land, while an output subsidy is linked to agricultural output. Because an area subsidy is directly linked to the land market, it is expected to have a stronger influence on land values than an output subsidy. It decreases farms' land costs, which in turn increases the demand for land. A land subsidy solely decreases land costs, whereas the rest of input costs are not affected. Higher land demand in turn exerts upward pressure on land prices. In contrast, an output subsidy affects land prices indirectly through higher profitability of agricultural production. Directly, it affects the output market and hence consumers' welfare. Indirectly, an output subsidy increases demand not only for land but also for all farm inputs. Thus, it affects the marginal profitability of all farm inputs equally. As a result, the effect of the subsidy is shared equally among all inputs (OECD, 2007).

2.3.2 Policy implementation details

The capitalisation rate of subsidies also depends on the policy implementation details. For example, depending on whether the subsidies are provided for a certain period or are of the 'open-end' type, their capitalisation into land values may be different. Benefits may flow to landowners but may not be capitalised into land values if they are not expected to continue in the future. On the other hand, benefits may be capitalised effectively into land values even if the benefits themselves do not flow to land per se.

2.3.3 Accompanying policy measures

In the real world, agricultural support policies are combined in policy programmes involving multiple instruments working at the same time, none of which can be considered isolated from the others. Thus, even when farm payments are fully decoupled, whether the payments are fully reflected in land rents or capitalised into land values may depend on other policy instruments. For instance, decoupled payments and 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 values is mitigated because eligibility for the subsidy requires farmers to incur certain costs.

2.4 Empirical evidence on the impact of subsidies on land prices

The empirical attempts to estimate the impact of agricultural support policies on land rents and land prices can also be grouped into two broad categories: land value/price studies and land rent studies. In general, studies use different estimation techniques depending on whether they are assessing land values or land rents.

Studies examining the impact of agricultural policies on land rents include Lence and Mishra (2003), Roberts et al. (2003) and Kirwan (2005) for the US, and Patton et al. (2008), Kilian et al. (2008), Ciaian and Kanacs (2009), Ciaian et al. (2010) and Breustedt and Habbermann (2011) for EU countries. Table 1 presents an overview of the findings on the effects of agricultural policies on land rents.

Studies analysing the impact of agricultural policies on land values include Barnard et al. (1997), Gardner (2002) and Goodwin et al. (2003) for the US, and Traill (1980), Goodwin and Ortalo-Magné (1992) and Duvivier et al. (2005) for the EU. Table 2 provides an overview of the findings on the impact of agricultural policies on land values.

Table 1. Estimated impact of subsidies on farmland rents

Study	Dependent/explanatory variables	Estimated effect of (\$/£/€)1 on land rent increase
<i>Market return</i>		
Goodwin et al. (2005)	Land rent/market return (US)	0.35
Lence and Mishra (2003)	Land rent/market return (corn revenues and soybean revenues) (US)	0.30-0.38
<i>Coupled subsidies</i>		
Goodwin et al. (2005)	Land rent/loan deficiency payment (LDP) (US)	0.83
Lence and Mishra (2003)	Land rent/LDP (US)	-0.24
Killian et al. (2008)	Land rent/direct payment (DP) (Germany)	0.28-0.78
Breustedt and Habbermann (2011)	Land rent/DP (Germany)	0.38
Patton et al. (2008)	Land rent/beef and suckler cow premium (UK)	0.41-0.42
<i>Decoupled subsidies</i>		
Goodwin et al. (2005)	Land rent/Agricultural Market Transition Act production flexibility contract (PFC) payments (US)	0.29
Lence and Mishra (2003)	Land rent/PFC (US)	0.71-0.86
Lence and Mishra (2003)	Land rent/MLA (US)	0.84-0.90
Killian et al. (2008)	Land rent/SPS (Germany)	0.28-0.78 (DP) + 0.15-0.19 (SPS)
Ciaian and Kanacs (2009)	Land rents/Single Area Payment Scheme (new member states)	0.20
<i>All subsidies</i>		
Roberts et al. (2003)	Land rents/all government payments (PFCs + conservation programmes) (US)	0.34-0.41
Kirwan (2005)	Land rents /all government payments (PFCs + conservation programmes) (US)	0.20-0.40

Source: Authors' tabulation based on the respective study data.

Table 2. Estimated impact of subsidies on farmland values

Study	Dependent/explanatory variables (country)	Land price elasticity of a 1% increase in subsidies/returns	Estimated effect of (\$/€)1 on land value increase
<i>Market return</i>			
Duvivier et al. (2005)	Arable land prices/market return (Belgium)	0.18-0.24	–
Goodwin et al. (2005)	Land price/market return (US)	–	6.4-7.2
Taylor and Brester (2005)	Land prices/market return (US)	0.16-0.32	3.85-7.58
<i>Coupled subsidies</i>			
Goodwin et al. (2003)	Farmland value/loan deficiency payment (LDP) (US)	–	6.6
Duvivier et al. (2005)	Arable land prices/cereal compensatory payments (Belgium)	0.12-0.47	–
Goodwin et al. (2005)	Land price/LDP (US)	–	8.3-27.4
Latruffe et al. (2006)	Land price/direct payments (area or animal payments) (Czech Republic)	0.13	–
Goodwin et al. (2003)	Farmland value/disaster-relief payments (US)	–	4.7
<i>Decoupled subsidies</i>			
Goodwin et al. (2003)	Farmland value/Agricultural Market Transition Act (AMTA) production flexibility contract (PFC) payments (US)	–	4.9
Goodwin et al. (2005)	Land price/AMTA(PFC) (US)	–	3.7-4.9
<i>All subsidies</i>			
Barnard et al. (1997)	Cropland prices/all direct payments received per acre (US)	0.12-0.69	–

Note: The values in these columns are calculated by dividing the estimated effect of the subsidies/market return on the land price by the net present value of the subsidies/market return. If the number is equal to one it implies full capitalisation of subsidies in land prices. A value lower than one implies the partial capitalisation of subsidies in land prices.

Source: Authors' tabulation based on the respective study data.

3. Other policies

In addition to the CAP, other policies – such as rural development programmes and environmental policies – may affect land markets in the EU. This is illustrated by the following two examples.

In Finland, the introduction of start-up support grants for new farmers within the rural development programme has boosted intergenerational transfers, i.e. sales between relatives. This resulted in a large increase in the number of transactions and the transacted area in 2005 (see Ciaian et al., 2011a).

In Belgium, the ‘manure action plans’, which were developed as instruments to comply with the European Nitrates Directive (implemented in 1991), strongly affected the Flemish land market. The manure action policies forced the intensive animal-producing farmers without (or with insufficient) land to make arrangements with other landowners to internalise the environmental costs they cause, such that the profits from intensive animal breeding were captured in the farmland prices in Flanders (Le Goffe and Salanié, 2005). Intensive animal farms bought agricultural land exclusively for spreading manure in order to avoid the levies or the processing duties. The impact of increasing land demand is not only limited to the prices of land in the animal-breeding regions, but it also exerts upward pressure on land prices in the whole of Flanders. Likewise in the Netherlands, experts point out that the Nitrates Directive has strongly affected the agricultural land market.

4. Land market institutions and regulations

Land market institutions and regulations also have an impact on agricultural land markets. The most obvious regulation affecting the land market concerns that governing land prices (i.e. prices fixed by the government). This is the case for rental prices in Belgium and France for example, where there is an upper limit on the regional rental price.

In addition, there is legislation that protects the tenant in Belgium and France, stipulating long-term contracts (for a minimum of nine years). Furthermore, in these countries the tenant has a pre-emptive right to buy the tenanted agricultural land if it is for sale. These regulations have ramifications for the land rental markets; for instance in Belgium, such regulation has led to the existence of extra, ‘grey’ rental payments, as the legal maximum price is below the market price for agricultural land.

In the new member states (NMS), land markets have been strongly affected by EU accession. First, when the NMS acceded to the EU, agricultural subsidies were significantly increased and were, at least partially, capitalised into land prices. Second, before EU accession, many NMS feared that when they opened their markets and integrated into the EU single market, farmers from the old member states (OMS) – who are typically less capital-constrained than NMS farmers – would benefit from the opportunity to buy cheap agricultural land in the NMS, crowding out all investment opportunities for local farmers.

Therefore, foreigners have been unable to purchase agricultural land during a transitional period of seven years after EU accession in Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania and Slovakia, and 12 years for Poland. There are differences among the countries in the implementation of these restrictions, for example in the way ‘foreigners’ are legally defined and in the conditions they must fulfil to (exceptionally) obtain agricultural land. These differences usually stem from the fact that the various restrictive regimes existing before accession were permitted to continue during the transitional period.

In the candidate countries, there are also legal restrictions on foreign ownership of agricultural land, which are to some extent comparable with the NMS. For example, in the FYROM, the restrictions are comparable with the NMS but they are much more stringent in Turkey.

Ciaian et al. (2011b and 2011c) discuss in detail the land market institutions and regulations in the different member states.

5. Transaction costs

Transaction costs may similarly have an important impact on agricultural land markets. Overall, we distinguish between two types of transaction costs:

- 1) There are ‘explicit’ transaction costs, which are the administrative costs associated with renting or buying a plot of agricultural land. These costs include registration costs, notary fees, etc. In general, these costs are more prevalent in the sales market.
- 2) There are also ‘implicit’ transaction costs associated with renting and buying agricultural land. These costs include search and negotiation fees. Such costs are especially widespread in the land markets of the NMS, which are characterised by severe land market imperfections owing to the dominance of large-scale corporate farms.

5.1 Explicit transaction costs

Taxes on the sale and purchase of agricultural land may affect land supply and demand, and hence also the price of agricultural land. High costs associated with transacting land are expected to hinder structural change in the agricultural sector as they limit the reallocation of land from less productive farms to highly productive farms. On the other hand, when there are only low costs associated with the purchase of agricultural land, it is possible that there may be more purchases for speculative purposes by non-agricultural investors.

Most countries have a registration tax if land is purchased, but there is large variation in the magnitude of this tax among countries (Table 3). In some of the OMS, this tax rate can amount to 18% of the purchase value of the plot (Italy), while it tends to be substantially lower in the NMS, where it is for example 0% in Bulgaria and Slovakia.¹ Ciaian et al. (2011b) highlight differences in registration taxes among the member states. Box 1 describes the development of a ‘grey’ market in Belgium as a consequence of the high administrative costs associated with land transactions.

Table 3. Land taxes: Registration tax (% of land value)

Old member states	(% of land value)
Belgium	10-12.5
Finland	4*
France	5.09
Germany	3.5
Greece	7-9
Ireland	9
Italy	11-18
Netherlands	0
Spain	6-7
Sweden	30% on two-thirds of sales value
UK	0-4

¹ Note that the registration tax is only one of the taxes that needs to be paid in the event of a purchase. If one takes into account all transaction costs, the land transaction costs are in fact higher in the NMS.

Table 3. (cont'd)

New member states	(% of land value)
Bulgaria	0
Czech Republic	3
Estonia	n.a.
Hungary	0.5-1
Latvia	0.5-3
Lithuania	0.5-1
Poland	2-5
Romania	n.a.
Slovakia	0

* Exemption for farmers

Sources: Ciaian et al. (2010) for the OMS; Swinnen and Vranken (2009, 2010) for the NMS.

Box 1. The development of the grey land market in Belgium

The high transaction costs associated with the purchase of agricultural land have led to the development of a grey market in some countries. For example, in Belgium, the high administrative costs have provided an incentive to the purchaser of agricultural land to pay part of the purchase price to the seller 'in an envelope' (without paying any taxes on this amount). By comparing the data for auctions and private sales in the period 1990–2004, provided by FOD Economie, KMO, Middenstand en Energie, one can roughly estimate the envelope payment as the difference between the price paid in an auction (publically determined) and in a private sale (by mutual, private agreement). This reveals that approximately 20% of the purchase price is paid as black money (in an envelope). It is important to note that there is an incentive for the buyer to limit the envelope payment, since the buyer can be fined by the registration office if the sales price differs too much from the average regional sales price of agricultural land.

In addition to the registration fee, there are other 'administrative' costs associated with the transfer of agricultural land, such as notary fees and other taxes and administrative charges. When taking these costs into account, land transaction costs in the NMS are relatively high compared with the OMS, ranging between 10% and 30% of the value of the land transaction (Prosterman and Rolfes, 2000; World Bank, 2001; Swinnen and Vranken, 2010).

For example in Poland, buying (selling) land is connected with several costs. These are related to the civil law action tax, legal costs (for a motion to set up a mortgage register and registration), notary fees and additional expenses (remuneration for an intermediary or assessor). Table 4 lists the maximum levels of these costs.

Table 4. Transaction costs related to the land market in Poland

Civil law action tax	2% of property value, usually paid by the buyer
Legal costs	200 PLN – for a motion to set up a mortgage register (+22% VAT); 6 PLN – for the extract of a deed (+22% VAT) 60 PLN – for setting up a mortgage register 100 PLN – for deleting the mortgage 150 PLN – for a motion to advise of rights and claims
Notary fees	100 PLN + 3%-0.25% of the price (+22% VAT), depending on the value of the transaction, usually paid by the buyer
Additional costs	
• Intermediary costs	Not regulated, usually 2.5-3% of the transaction value (+22% VAT)
• Fixing border lines	Around 1,000 PLN or more
• Income tax	10% of income, paid by the seller

Source: Zagórski (2006).

Although explicit transaction costs tend to be more significant in the sales market for agricultural land, there may also be transaction costs in the rental market.

Usually, a rental contract is a mutual agreement between two parties, but in some cases it needs to be registered. This can be on a voluntary basis, as is the case in France, Ireland and Italy, or it can be mandatory, as in Germany, the Netherlands and Hungary. Furthermore, there are also contracts that need to be certified by a notary, such as long-term (>12 years) rental contracts in France and long-term *arenda* contracts in Bulgaria.

5.2 Implicit transaction costs

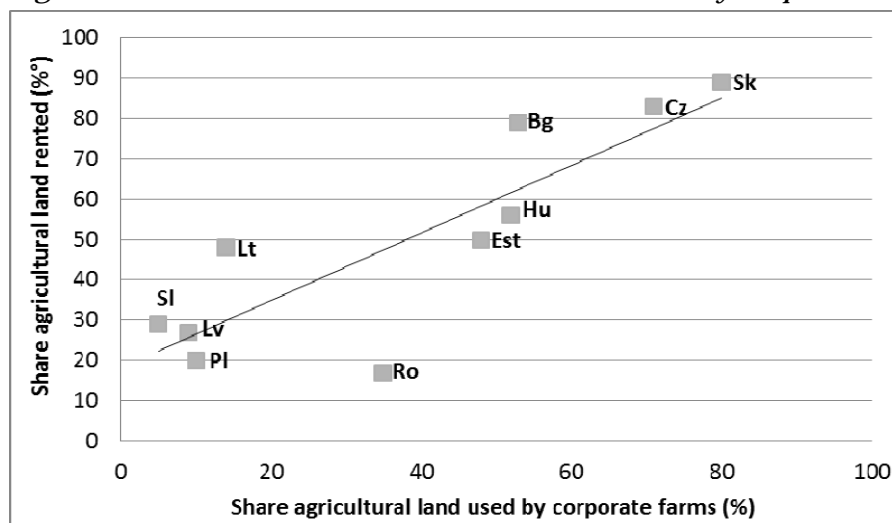
Especially in the NMS, there are high, implicit transaction costs, which are closely related to the privatisation and land reform process that began at the start of the 1990s. There are three important implicit costs associated with this process: i) imperfect competition in the land market; ii) imperfections in property rights (such as unresolved ownership and co-ownership); and iii) high withdrawal costs and unclear boundaries. These transaction costs are already extensively described in Ciaian et al. (2011b), but for the completeness of our analysis we repeat them below.

5.2.1 Imperfect competition in the agricultural land market

After transition, agricultural land was restituted to former owners. The majority of these new owners are not (or are no longer) active in agriculture and may be retired or living in urban areas. For example, in Hungary 'passive owners' (a category that includes village-based pensioners, landowners who are not active in the cooperatives and those living outside the village in which their land is located) received around 71% of privatised agricultural land (Swain, 1999) in the land reform process. In many cases, they opted to rent out the land they received in the restitution process to the historical users of the land, particularly to large-scale corporate farms.²

This tendency is reflected in the high share of rented land in some of the NMS and the strong correlation between farm structure and agricultural land use: in countries where more land is used by corporate farms, more land is rented (e.g. Slovakia). Figure 1 shows the correlation between the share of agricultural land used by corporate farms and the share of rented land in different NMS in 2007.

Figure 1. Correlation between the share of land used by corporate farms and rented land



Source: Eurostat.

² New landowners may face significant transaction costs if they want to withdraw their land from the farms and reallocate it.

Not surprisingly, the dominance of large corporate farms in the land market also leads to imperfect competition. Large farm corporations use their market power in local or regional land markets to influence land prices and rental contract conditions in their favour. This is reflected by the large difference in rental prices between corporate farms and individual farms in Slovakia and the Czech Republic (Table 5).

Table 5. Agricultural land rental prices by legal entity (€/ha)

	1997	2001	2005
Czech Republic			
Individual farms (€/ha)	16	23	35
Corporate farms (€/ha)	9	17	30
Price gap in € ($P_{IF}-P_{CF}$)	7	6	5
Price gap in % ($(P_{IF}-P_{CF})/P_{CF}$)	73	37	15
Slovakia			
Individual farms (€/ha)	–	18	24
Corporate farms (€/ha)	–	6	17
Price gap in € ($P_{IF}-P_{CF}$)	–	13	7
Price gap in % ($(P_{IF}-P_{CF})/P_{CF}$)	–	229	45

Sources: FADN for Slovakia and VUZE for the Czech Republic.

Besides differences in the rental prices, there are also differences in the contract conditions. For example in Slovakia, an unregistered family farm typically rents land for shorter periods, while large-scale corporate farms rent land for longer periods to effectively lock in agricultural land (Swinnen et al., 2006).

Hence, transaction costs generally lead to lower land prices, while the CAP policy may reverse this effect, given that subsidies are capitalised into land prices and lead to higher prices. As long as there is competition between corporate farms and individual farms, the dominance of the land market by corporate farms and transaction costs will not affect the fact that subsidies are capitalised into land prices. When agricultural subsidies are distributed unequally, however, for example because small farmers have problems in fulfilling the requirements for obtaining subsidies, small farmers may even be net losers from the subsidies, while large corporate farms may gain, as well as landowners (Ciaian and Swinnen, 2006).

5.2.2 Imperfections in property rights

Imperfections in property rights may also be considered a factor affecting land markets. In the NMS, there are two important causes of imperfections in property rights. First, although the majority of the land is privatised, there is still agricultural land that needs to be restituted to the former owners. Second, for the land that has been restituted, problems persist that follow from co-ownership of land and the difficulty of unknown owners.

Unresolved ownership

A substantive share of agricultural land is still owned by the state and may be subject to future privatisation and restitution. The current decision-making and uncertainty about future ownership has an effect on the (lack of) transactions associated with such land and its use.

This situation can be seen in Poland for example, where the agricultural property agency still owns around 3 million ha of agricultural land, corresponding to circa 19% of all agricultural

land in Poland. Sales by the agency continue to be limited to some extent by restitution claims. Since 1997, there has been a ban on the sale of state property claimed by former owners or their successors, so around 0.5 million ha of land (or 18% of the agricultural land owned by the agency) has been withheld from the sales market.

In the Czech Republic, about 0.45 million ha (or 13% of the Czech utilised agricultural area, UAA) remained under the administration of the land fund in 2007, although around 0.26 million ha of this will be privatised in the near future. Not surprisingly, sales of state agricultural land has had a substantial impact on the average land sales price, as the administrative prices (which are used for privatisation) are considerably lower than the market prices. Owing to the increased supply of land for sale, the latter prices have fallen in the last few years.

In Lithuania, the share of privately-owned land increased by more than 60% from 2000 to 2006. About 1 million ha of land was privatised from 2002 to 2006. By the end of 2011, an additional 0.9 million ha will have been privatised by restoring ownership rights or selling state-owned land to its users.

In Slovakia, the state owned 13,816 ha (or 7% of the UAA) in 2006 while the owners of a further 437,665 ha (23% of the UAA) were not known. Land that is owned by the state or of unknown ownership is managed by the land fund and might be subject to restitution or privatisation. State-owned land might also be subject to sale, but this is not the case for land of unknown ownership.

In Hungary, the state owned 2 million ha (around 22% of the total agricultural land) in 2006. Currently, it is managed by the national land fund, which rents it out on a long-term basis. But according to the land policy, it might be subject to privatisation.

In Latvia, ongoing land-privatisation programmes have no or hardly any influence on the sales market for agricultural land. The state and municipalities own respectively 30.1% and 4.8% of the total agricultural land. State and municipal land is used by forest organisations, educational and research institutions, the army and other governmental bodies. This type of land is of minor importance for the agricultural sector, and it is highly unlikely that such land will be subject to any privatisation process in the near future.

In Estonia, the land reform and privatisation process is basically completed. That does not mean that all restitution and privatisation transactions have been entered into the cadastre, however. The cadastral register has information on 83% of the total agricultural area. According to the information presently available from the cadastre, around 40% is owned by the state or municipalities, but it is unlikely that this land will be subject to privatisation processes in the near future. Thus, it has little impact on the development of the land market.

In Bulgaria, the land restitution process was completed by 2006 and today land titles are distributed and land plots are clearly defined and delineated. Approximately 240,000 ha of agricultural land (8% of the UAA) are owned and managed by the state land fund.

In Romania, more than 10 million ha of land have been restituted to more than 4 million beneficiaries over the past two decades. The restitution process is virtually completed and approximately 1.6 million ha (or 12% of the UAA) remain in state and municipal ownership and will be rented out to private operators.

Unknown ownership and co-ownership

Other problems follow from co-ownership of land and the difficulty of unknown owners. In all the NMS, land ownership registration was poorly maintained if at all, and in many areas a process of land consolidation occurred, wiping out old boundaries and relocating natural identification points (such as old roads and small rivers). The loss of information on registration and boundaries resulted in a large number of unknown owners in some transition countries (Dale and Baldwin, 2000).

In addition, unsettled land inheritance within families during the socialist regime gave rise to widespread fragmentation in land ownership and a high number of co-owners per plot of land. In Slovakia, for example, in 2003 there were approximately 9.6 million registered plots, of roughly 0.45 ha per plot, and each plot was owned on average by 12 to 15 persons (OECD, 1997). In the Czech Republic, there were 4 million ownership papers registered in 1998 for 13 million parcels, with an average parcel size of 0.4 ha. Many of these co-ownership issues still have not been resolved. In Bulgaria, the average size of an agricultural plot is 0.6 ha, ranging from 0.3 ha in the Smolyan region to 3.0 ha in the Dobrich region. This high level of land fragmentation affects the sales market because buyers are more reluctant to buy dispersed parcels of land (Kopeva, 2003).

In the FYROM, there is a predominately bipolar farm structure, which is also reflected in the average plot size. The land used by private farmers is fragmented, with an average plot size of 0.5 ha in 2007, while the average plot size of land used by agricultural enterprises was 113 ha in 2007 (Swinnen and Van Herck, 2009). Furthermore, land use is also fragmented (Noev et al. 2003). Land use fragmentation, together with the application of different cultivation procedures and treatments on neighbouring parcels, has a negative impact on the quantity and quality of output.

These factors raise the costs of land exchanges, for both sales and rentals, as land withdrawal from the corporate bodies normally requires agreement from the co-owners. As far as we know, there is no systematic evidence of the effects of these ownership problems in the NMS, although a detailed and survey-based assessment of co-ownership problems in Bulgaria (where 50% of the plots are co-owned in some regions) showed that co-owned plots of land are more likely to be used by corporate farms and less likely to be used by or rented out to other farms (Ciaian et al., 2011d). Moreover, the probability of land being used by a cooperative or being abandoned increases with the number of owners, and the impact of co-ownership depends on whether the co-owners are living within or outside the village. Coordination problems worsen when co-owners are living farther away.

5.2.3 High withdrawal costs and unclear boundaries

As a consequence of the privatisation and land reform process in the early 1990s, which restituted land to its previous owners (or heirs), there are important transaction costs in the form of high withdrawal costs and unclear boundaries related to the agricultural land market.

For example, with respect to the withdrawal procedure, which is usually stipulated by law, the practical implementation of it is partly determined by the willingness of the corporate farms (Mathijs and Swinnen, 1998). Interviews with country experts confirm that the difficulty of withdrawing land is highly dependent on the location of the plot. The withdrawal of a plot that is situated in a consolidated field makes the process more problematic and costly. The cooperative farm and the landowners have to agree on the physical demarcation of the plot. If the plot is located in the middle of a consolidated field, they will typically try to agree on a comparable parcel along the border of that field. In this context, it is important that the farm management is accommodating in relation to the withdrawal procedure. According to the legislation, corporate farms have no right to block such withdrawals. Yet in practice, they are not always so supportive. Although the difficulties between the withdrawal of physical land plots and land shares are not that dissimilar, there are indications that the withdrawal of land shares is even more challenging, especially for land owned by individuals who are not connected with the corporate farms (non-members/non-partners). In general, these problems increase the costs for the landowner, since s/he can be deterred from withdrawal by being offered a plot located far from his/her operation or a plot of lower soil quality.

Nevertheless, there is some indirect, anecdotal evidence that when markets become more mature, transaction costs decrease. Data on the differences in land prices paid by corporate farms and individual farms – which one could consider an indicator of transaction costs – show a reduction from 73% in 1997 to 15% in 2005 in the Czech Republic and from 229% in 2001 to 45% in 2005 in Slovakia (see Table 5 above). Czech land markets explain this price decrease by declining land transaction costs as a result of improved awareness and information among owners along with land consolidation, which has led to more rental transactions and increased prices for owners.

6. Credit market constraints and profitability

Poor access to capital is a major constraint, not just for land sales markets but also for land rental markets. Lack of farm profitability and imperfect credit markets both constrain farms' access to capital. There is extensive literature on land markets showing theoretically and empirically that credit market imperfections are a major cause of land market imperfections. Capital market imperfections may restrict the development of land sales markets in several ways. First, where capital markets work imperfectly, land purchases typically have to be financed out of own savings. Second, where financial markets do not work well, or where confidence in money as a repository of value is low, land may be used to store wealth and may be acquired for speculative purposes. Third, land may be purchased or held as a hedge against inflation, or as an investment asset in the absence of alternative investment or hedging options. Fourth, with constrained access to credit, investment in land ties up much-needed capital in land, and prevents farmers from using these savings for investment in technology, equipment or quality inputs. These factors mean that the sale price for land will typically be higher than the productive value of land.

It is well known that imperfections in rural credit markets have been widespread in transition countries, especially during the 1990s (e.g. Gow and Swinnen, 1998). These problems have been mitigated substantially with EU accession, because credit from banks and other rural financial institutions, along with contracts with agribusinesses, have reduced credit constraints for farms. But in many poorer transition countries these constraints remain very important. In addition, farms' access to credit is constrained in the old member states as well. In an empirical study of French farmers, Blancard et al. (2006) found that two-thirds of the farmers in the sample were credit-constrained in the short run and all were credit-constrained in the long run.

Related to this, the profitability of agriculture plays an important role in land markets. When credit markets are imperfect, land transactions have to be financed out of savings. Obviously, when profitability in agriculture is low, this is a major additional constraint. Profitability has improved in many countries in recent years because of either EU accession, increased productivity and improved terms of trade (the latter particularly in countries affected by the 1998 Russian financial crises, which caused major exchange-rate effects) or enhanced demand for agricultural products with growth in the rest of the economy.

There is an interaction between credit market imperfections and agricultural policy as well (Ciaian and Swinnen, 2009). When farms are credit-constrained, the introduction of agricultural subsidies will lead to a higher level of capitalisation of payments than if the farm is not credit-constrained. This is because the subsidies will reduce the farms' credit constraints, and thereby increase the marginal productivity of land and thus land demand. This will increase land prices in addition to the direct subsidy effect. For example, there is anecdotal evidence that farmers in the NMS use the subsidies of the Single Area Payment Scheme (SAPS) as collateral for bank loans in Slovakia and Romania.

7. Contract enforcement

In most countries, legal contract enforcement involves a costly and lengthy procedure. First, there are administrative costs. Second, if an expert opinion is required there are costs for an authorised expert. Third, in some countries like Germany, court action also requires that both parties need to have a legal adviser, which is also costly.

Yet in other countries, tenancy disputes are dealt with by a small claims court, which provides an inexpensive, fast and easy way for citizens to resolve disputes without the need to employ a legal adviser. For example, in Belgium this small claims court – the *vrederecht* – only deals with claims under €1,860. Since one does not need to have a legal adviser, the cost is limited to an administrative fee of €35.

In this regard, EU accession has also had a major effect on rental markets in the Central and Eastern European accession countries. The combination of improved security of tenancy and ownership rights and improved legal frameworks for transactions has resulted in an inflow of foreign capital into the land markets directly or indirectly through agri-food industry investment.

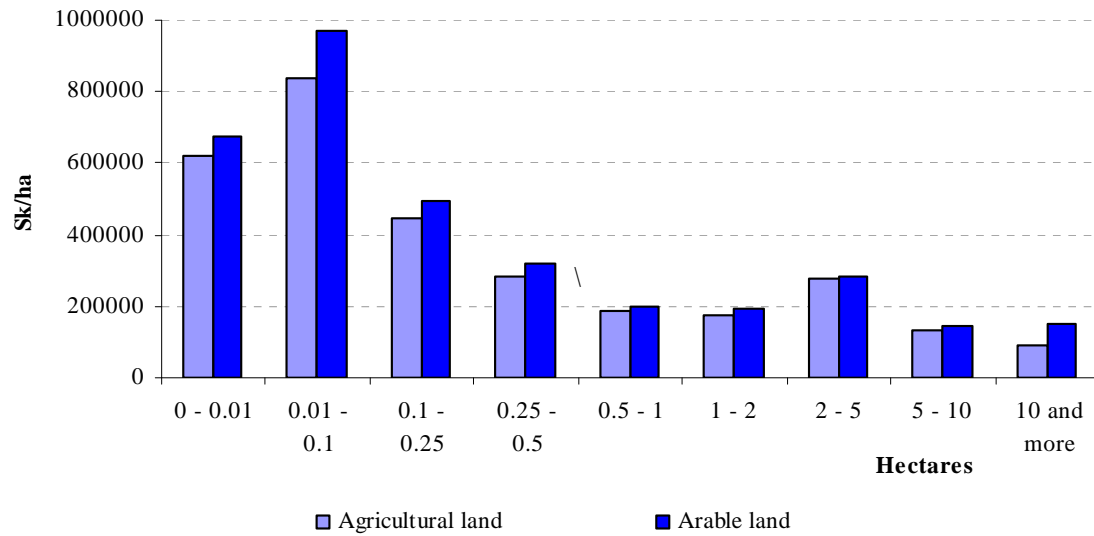
8. Alternative land use

Usually, land can be used not only for agriculture but also for other sectors of the economy. If there is such an opportunity, land values will reflect this potential, alternative land use. In a competitive market, land values reflect returns from the most profitable use of land. If the most profitable use of land is non-agricultural, e.g. urban housing, then land values will be determined by the profitability of urban housing. If, however, the non-agricultural use of land is expected to be profitable in the future, then the current land price will reflect the sum of the discounted stream of rents from agriculture up to the time of conversion plus the discounted stream of expected rents from non-agricultural use from that time onwards (Plantinga et al. 2002).

There is evidence of speculation based on changes in land use, and for example in Greece, Spain and Bulgaria, plots close to coastal areas are more expensive than plots in more remote areas, since they are often used for non-agricultural purposes (e.g. for tourism or residential development). Also in Ireland, experts believe that non-agricultural use (residential and public infrastructure) was a main driver behind the price increase of agricultural land in the 1990s. In the Netherlands, a highly urbanised country with an extremely dense population, land prices are influenced by the implicit ‘call option’ that is embedded in the land price. This call option is the chance to develop agricultural land outside agriculture and depends on the probability that this transformation becomes possible. Land close to urban areas should carry a higher premium than peripheral land. Dutch zoning regulation classifies land into sectors with regard to future land use, ranging from land ready for development (red label) to regular agricultural land without development prospects (green label). The option value follows along the lines of this classification.

Speculation about changes in land use is also reflected by the fact that in general, the price of smaller plots is substantially higher than for larger plots. For example in Slovakia, the average price of a parcel smaller than 1 ha was more than 60,000 SKK/ha in 2005, while the price of a parcel between 1 and 5 ha fluctuated between 40,000 SKK/ha and 20,000 SKK/ha. The largest parcels (of 5 ha or more) were by far the cheapest, as the average price was 10,000 SKK/ha or less (Figure 2).

Figure 2. Land sales prices by size of parcel in 2005 in Slovakia (SKK/ha)



Source: VUEPP obtained from Swinnen and Vranken (2009).

9. Social capital

Farmers are working and living not only in an economic but also in a social and cultural system. Therefore, the actions of farmers in markets are influenced by the intensity and kinds of social relations among the parties involved in transactions and by the societal norms and cultural context (Robinson and Flora, 2003). Studies for the US show that social capital is a pivotal factor for the land market, influencing the types of transactions (e.g. Rainey et al., 2005), the price of the land (Robison et al., 2002) and the partners involved in the transactions (Siles et al., 2000).

Transactions of land occur mainly between relatives or friendly neighbours (Siles et al., 2000). This group receives a rebate on the price ranging from 10% (Robison et al., 2002) to 43% (Tsoodle et al., 2006) compared with strangers. According to Tsoodle et al. (2006), the influence of social capital has increased over the years. With respect to rental contracts, social capital influences the type of the contract, while the rental price is inversely correlated to the duration of the relation between the landowner and tenant (Rainey et al., 2005).

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Comparative Analysis of Factor Markets for Agriculture across the Member States

245123-FP7-KBBE-2009-3

The Factor Markets project in a nutshell

Title	Comparative Analysis of Factor Markets for Agriculture across the Member States
Funding scheme	Collaborative Project (CP) / Small or medium scale focused research project
Coordinator	CEPS, Prof. Johan F.M. Swinnen
Duration	01/09/2010 – 31/08/2013 (36 months)
Short description	<p>Well functioning factor markets are a crucial condition for the competitiveness and growth of agriculture and for rural development. At the same time, the functioning of the factor markets themselves are influenced by changes in agriculture and the rural economy, and in EU policies. Member state regulations and institutions affecting land, labour, and capital markets may cause important heterogeneity in the factor markets, which may have important effects on the functioning of the factor markets and on the interactions between factor markets and EU policies.</p> <p>The general objective of the FACTOR MARKETS project is to analyse the functioning of factor markets for agriculture in the EU-27, including the Candidate Countries. The FACTOR MARKETS project will compare the different markets, their institutional framework and their impact on agricultural development and structural change, as well as their impact on rural economies, for the Member States, Candidate Countries and the EU as a whole. The FACTOR MARKETS project will focus on capital, labour and land markets. The results of this study will contribute to a better understanding of the fundamental economic factors affecting EU agriculture, thus allowing better targeting of policies to improve the competitiveness of the sector.</p>
Contact e-mail	info@factormarkets.eu
Website	www.factormarkets.eu
Partners	17 (13 countries)
EU funding	1,979,023 €
EC Scientific officer	Dr. Hans-Jörg Lutzeyer

