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Key Determinants of Land Rentals in Poland

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ABSTRACT

Basing on a sample of Polish rural households present paper analyses how different households' and country-specific characteristics affect farmers' decision about renting additional parcel in. An attempt is made to see if local rental markets still have potential that could be further exploited. Obtained results indicate that despite facing various difficulties rental markets succeed in transferring land to farmers with higher skills and better relative inputs' endowments. Nevertheless their scope is highly limited illustrating that there is a need for adequate measures to be undertaken.
Keywords: land markets, land rentals, equity and efficiency of land distribution, JEL:Q15.

1. Introduction

Since 1989 Central and Eastern European countries have been gradually entering a period of economic reforms laying foundations for market-oriented economy. One of the key element of this transition process was a complete transformation of agricultural sector. Measures were undertaken in order to improve quality and efficiency of agricultural production and to prepare local producers to face persistently growing international competition.

As the most favourable tool to enhance farms' efficiency one regards well functioning local land markets (Deininger and Feder, 1998). Their importance is the more needed since they may substantially contribute to relieve the rural poverty (de Janvry et al., 2001), which especially in case of transition countries would be difficult to overestimate. Moreover, as agricultural policy is very often driven by political rather than *stricte* economic factors (Metelska-Szaniawska K. and Milczarek D., 2004; Swinnen J., 1999), land markets can offer an excellent potential for correcting shortcomings of such state of affairs and secure that optimal conditions for efficient farming will be sustained.

This paper, basing on data from Polish rural households, tries to asses the main determinants of local land rental transactions. In sections to follow short description of methodology used for analysing households' leasing behaviour is presented. There comes a picture of Polish agriculture as a whole and a brief review of main characteristics of local rental arrangements. That description is followed by an empirical analysis of crucial determinants affecting households' decision on whether to rent additional parcel in and a brief summary of obtained results. Conclusions are drawn in the final section.

2. Methodology

Land markets' activity is strongly affected through two channels: institutions governing their functioning and household's endowments strongly influencing its decision on production levels (Deininger K., and Feder G., 1998). Accordingly, among crucial determinants of land markets operations one should mention, among other things, rules providing incentives for economic agents to undertake efficiency-enhancing transfers as well as household's opportunities to access either agricultural production inputs or jobs outside the farm. Last but not least magnitude of land transactions is surely heavily influenced by other markets' performance.

Numerous studies (Carter M., and Salgado R, 2001; Yao Y., 2000; Binswanger H. et al., 1995; Skoufias E., 1995) showed that credit and labour market imperfections together with high transaction costs may easily outweigh potential gains that farmers could get from land transferring and simply discourage them from making such arrangements. To begin with, rural areas are commonly affected by credit rationing. Asymmetric information together with dispersed location of potential clients as well as poor rural infrastructure make it very inconvenient for lending institutions to provide their services. As a result, farmers are left solely with their own capital, most often insufficient to cover all

necessary investments connected with cultivation. Accordingly, farmers limited by financial constraint, notwithstanding their managerial abilities and other endowments in their possession, cannot engage in land market transactions. Labour market imperfections on the other hand, manifesting themselves in lack of alternative employment opportunities in rural areas, strengthen inefficient farmers' attachment to their parcel and constitute a serious hindrance to transferring resources towards most suitable operators. As far as transaction costs are concerned, they determine the level of expenditures needed for preparation, negotiation and enforcement of contracts. If they are too high entering a rental deal is simply unprofitable.

Following conceptual frameworks presented subsequently by Eswaran and Kotwal (1986), Yao (2000), Sadoulet et al. (2001) and Vranken and Swinnen (2003) one may formulate several hypotheses concerning household's decision on whether to participate in land rental markets' transactions or not. First, it is reasonable to expect that households' willingness to lease the land in should be positively correlated with farmer's managerial skills and, having in mind moral hazard problems connected with hired workforce, family labour endowments.

Second, due to difficulties with organising working capital, resulting from credit market's imperfections, one may assume that entering rental transactions should be subjected to household's initial wealth, goods which could be potentially used as collateral as well as off-farm income opportunities. Since things just mentioned relieve household's liquidity constraints they are supposed to stimulate its propensity to lease additional parcel in. Higher initial wealth can favour becoming a tenant also through other channels. Farmers very often have few assets, which could serve as a collateral. Therefore, lenders, who aim to reduce losses coming from borrower's default, may confine their offer to the wealthier landholders. Moreover, as Bardhan and Udry (1999) point out, household's initial wealth may have an influence on whether the transaction of tenancy is made at all, since potential landlords prefer richer potential tenants. However, neither the effect of household's wealth nor impact of its off-farm income opportunities is straightforward and unambiguous. To begin with, farmer's wealth may have a negative effect on his incentives to work. It could be argued that the richer the farmer the less he is motivated to farm in a productive way. As a result, in order to reduce losses coming from inefficient cultivation he might look for renting his land out and make use of better performing tenants. Moreover, gradual accumulation of wealth may enable farmer to move up on the "agricultural ladder", that is to progress subsequently from agricultural worker to tenant in order to become landowner (and potential landlord) at the end (Sadoulet et al., 2001). With regard to alternative employment opportunities one has to remember that supplying labour to the market considerably confines time which household may devote to farming. Consequently, at some point, depending on household's labour endowments, taking advantages of off-farm employment, notwithstanding additional financial capital it may provide, would stop farmer's eagerness to renting land in.

Third, since rural inputs' markets are usually either entirely missing or heavily underdeveloped it could plausibly be argued that engagement in land markets activities will be positively correlated with farmer's machinery and storage facilities.

As far as the effect of household's land endowments on its leasing behaviour is concerned, it is ambiguous. On the one hand, the larger the amount of land owned the more probable access to credit becomes. In this case, it would contribute to relieving farmer's financial constraint and thus should promote renting additional parcel in. On the other hand however, in absence of considerable economies of scale optimal size of a farm would be relatively small and hence having large holdings should lead rather to leasing out (Deininger H. and Feder G., 1998) .

Last but not least, operation of land markets should be viewed in the light of all sorts of country specific arrangements as well as a wide spectrum of regional settings.

3. Agricultural issues in Poland

The general status of Polish agriculture appears to reflect not only the geographical factors but also historical determinants. Regions with relatively big proportion of land formerly cultivated in accordance with the Soviet model differ significantly from those dominated by private ownership in terms of average farm size, share of land under state control or unemployment. In addition, quite

unfortunately, since land issues concern in Poland substantial amount of people, agricultural sector has become something of a continuous political football.

The current average size of agricultural holding, when units larger than 1 ha are taken into account, is 8,33 ha, which is slightly bigger than the one observed in 1996. This increase in average farm's area has been accompanied by a decline in number of agricultural holdings, which now is roughly less than 2 million. It must be noted, however, that there is considerable variability of both sizes and numbers of agricultural holdings among regions. In southern districts typical individual farm has less than 4 hectares, whereas in northern parts its average size exceeds 16 ha.

In addition to the relatively small farm size the other important factor which characterises Polish agriculture and heavily influences performance of local farmers is the number of separate plots cultivated. According to Agricultural Census 2002 only 25% of farmers operated on a single parcel. This share, although higher than the one observed in 1996 (16%), is still very low and further integration of agricultural holdings seems to be desirable. The need for consolidation is even more evident when one would take into consideration households farming 4 or more plots which account for as much as 37% of the total (in 1996 43%).

What is worth noting as well is the fact that in comparison with 1996 one could observe slow but continuous polarisation of Polish farms. Gradual increase in number of households operating on less than 5 ha and more than 20 ha might be seen as a way of adjusting households' land endowment to both current needs and economic conditions. On the one hand, we can observe the growing number of bigger commercial farms, whereas on the other hand, there is a still growing number of subsistence farmers, who earn their living mainly by either undertaking some non-agricultural activities or pensions.

3.1. *Land rentals in Poland*

Although the years of transition, together with integration into the EU, have brought significant changes to Polish agricultural environment there is still a need for further reforms as still a lot remains to be done. One of the most critical bottlenecks in transforming towards more efficient farming is agrarian overpopulation resulting in serious fragmentation of agricultural holdings. Share of completely inefficient households, not fitting to survive from economic considerations, assessed at roughly 50% (Ziętara W., 2001), is a good illustration of the magnitude of this problem. To facilitate disappearance of unprofitable farms and to ensure that freed resources are used for profitable operations smooth operation of land markets is indispensable.

However, up till now embarking on improving agrarian structure through intermediary of land markets gave only moderate results. The main reason for that is a persistent insufficiency of off-farm employment opportunities in rural areas, and consequently small number of land transactions. Inefficient farmers simply do not want to part with their land since it is the only source of income they can rely on (Wilkin J., 2002). The other reason, certainly less relevant but which may play a role here as well, is the fact that the problem of restitution of property seized under communist rule still remains not fully solved.

According to Agricultural Census 2002 tenancy is used by approximately 16% of individual households while the rest of them, that is roughly 1,6 million, farm only their own land. These figures almost accurately resemble those provided by agricultural census conducted six years earlier. Comparison between these statistics gives the idea about the pace of change in Polish agrarian structure. It also illustrates the scope of local land rentals, leading to the conclusion that, at least over those six years, it remained fairly stable. Worth noting here is also the fact that official statistics report that only slightly more than 1% of households decide to rent their parcels out. Such limited supply on rental market is surely serious impediment to its development but should be seen more as a consequence of other markets' imperfections rather than as a cause in itself. Statistic just mentioned, even if one would assume too low and not accurately reflecting reality, clearly indicates that land markets face forceful barriers which do not let them flourish.

Relatively low number of reported tenancies might be also attributed, beside various market imperfections, to all sorts of transactions basing on informal enforcement mechanisms, which are not officially registered but still quite common. Contracts in such deals are predominantly made within a

given community and very rarely include outsiders. Most often they take form of oral agreements allowing for flexible change in order to suit different situations (Hurrelmann A., 2004).

Scope of Polish land rentals is, in addition, naturally diminished by all land transfers taking form of legacies and donations. Considerable amount of land changes the owner as some of the farmers decide to retire and live on a pension. One may expect that this process could intensify after the EU accession as substantial amount of money assigned for financing Common Agricultural Policy will be spent now on older farmers in order to induce them to quit cultivation and transfer their land to younger users.

As far as participants of rental transactions are concerned majority of rental contracts are signed between private operators. Nevertheless, more than a half of total rented area comes from state reserves despite the fact that share of public sector in land ownership accounts for roughly 5%. As a result of such state of affairs, magnitude of rental transactions is regionally diversified being the lowest in southern districts, where state reserves have been very much limited, and the highest in northern Poland where state property has been the largest.

This uneven regional division of state owned land has, among others, one main consequence for the farmers. Experts agree on the fact that the pace of adapting to new economic reality, first after collapse of communism and nowadays after accession to EU, has been inevitably connected with the size of agricultural holding. Now, in order to become competitive with foreign farmers Polish ones need to operate on reasonably big parcels. Therefore, agricultural holdings in Poland must undergo the process of at least partial consolidation. In situation where the supply of arable land is concentrated in western and northern regions only some of the farmers have chances of quick augmenting their farms while the majority can reach the optimal size only gradually.

Importance of state on rental markets stemmed from at least several reasons. Firstly, since most of its resources came from the former state farms it could offer potential tenants large, organised and thus very attractive parcels. Secondly, it allowed its clients to pay for the tenure by instalments and gave them very preferential credit terms. Finally, it attracted potential tenants with moderate prices. Transactions using public offer both augmented already existing holdings as well as contributed to formation of large market-oriented estates. While the former situations concerned mainly deals made with natural persons the latter related mostly to agreements with legal persons.

Above discussion clearly indicates that the scope of Polish land markets is highly stimulated by public offer. However, it could also serve as a good illustration that local land markets still have great potential to be exploited. The next section tries to analyse what determinants affect individual household's decision about entering transactions of renting land in.

4. Empirical analysis

The description presented below bases on the sample consisting of 915 observations. They come from a survey of Polish rural households which was conducted in 2000 by Institute for Agricultural and Food Economics (Instytut Ekonomiki Rolnictwa i Gospodarki Żywnościowej – IERiGŻ) while collecting indispensable information for farm accountancy system. The survey provides detailed information on financial and economic situation of private farms. It must be stressed however, that the group of surveyed farmers is not statistically representative for the whole country. Sampling is very likely to be warped a bit because of tendency towards more market-oriented farmers as well as the fact that selected households have to keep voluntary accounting records. This condition is usually accepted by those performing better than the average. Nevertheless, notwithstanding shortcomings mentioned above, analysed survey remains to be the only collection with so many information about Polish individual rural households. Main characteristics of households included in examined sample are summarised in table 1.

Table 1 Households' characteristics with respect to their activity on rental market.

			Households renting land		
			IN	NOT	All
Number of observations			530	385	915
% of the sample			58	42	100
Age of head of a hh	years	*	45.09	48.08	46.35
% of heads of a hh with no agricultural education			27.36	36.36	31.15
% of heads of a hh with secondary or higher agricultural education			34.54	24.8	30.38
Land owned	ha	*	23.75	16.11	20.54
Land purchased	ha	*	11.72	5.04	8.91
Number of adult hh members		*	3.02	2.67	2.87
Number of hours spent by family and hired labour on farming		*	4753	3253	4122
Land utilised/hours spent on farming		*	0.0073	0.0047	0.0062
Consumption expenditures	PLN	*	33300	26110	30275
Value of machinery	PLN	*	54788	25694	42546
Value of buildings	PLN	*	117946	73290	99156
% of hh taking opportunity of full-time off-farm job			73	66	70
% of hh having access to loan			71	50	62
% of hh obtaining state subsidies			18	9	14
% of hh obtaining pensions			40	55	46

* Conducted t-tests allowed to reject the hypothesis of equal means at a 1% significance level.
Source: Own calculations based on the survey

Looking at statistics just presented already allows one to spot the main differences between households renting additional parcels in and those not participating in rental transactions at all (information in the sample unfortunately did not allow to make such comparison with farmers renting their parcels out). However, presented figures are group averages. Therefore, there is a concern that they may build up a picture, which would not be too precise. Hence, in order to get more reliable and accurate description of determinants of household participation in the rental market an econometric model is used.

4.1. *Econometric model*

For the purposes of present analysis Tobit regressions censored at value zero were estimated. The set of regressors included variables representing households' individual characteristics as well as those capturing the effect of some external factors, such as land quality or geographical localisation. Results presented in table 2 (the model 1A should be treated as a basic one) provide at least several interesting information about characteristics of Polish tenants.

Table 2 Tobit regression with land rented in as the dependent variable

	Model 1A			Model 1B			Model 1C			Model 1D		
	Coefficient	t-value		Coefficient	t-value		Coefficient	t-value		Coefficient	t-value	
AGE	-0.253	-2.47	**	0.110	0.16		-0.253	-2.48	**	-0.372	-3.28	***
AGE2				-0.003	-0.55							
EDUCATION	0.341	0.45		0.881	0.32		0.355	0.47		0.117	0.14	
EDUCATION2				-0.103	-0.23							
LAND OWNED	-0.479	-4.40	***	-0.485	-4.44	***	-0.483	-4.43	***	-0.202	-1.73	*
LAND PURCHASED	0.445	3.87	***	0.452	3.91	***	0.446	3.88	***	0.573	4.55	***
SOIL	-16.063	-4.19	***	-16.116	-4.20	***	-15.890	-4.15	***	-15.173	-3.56	***
PLOTS	-6.720	-3.11	***	-6.737	-3.12	***	-6.623	-3.07	***	-8.001	-3.33	***
LABOUR	0.903	1.09		0.709	0.79		0.912	1.10		-0.127	-0.14	
MACHINERY	0.0001	8.00	***	0.0001	8.00	***	0.0001	7.91	***			
MARKETED	10.678	1.53		10.430	1.49		10.635	1.52		18.649	2.40	**
CROPSPEC	8.638	2.82	***	8.722	2.84	***	8.786	2.86	***	6.352	1.87	*
LIVESTOCKSPEC	-6.914	-1.91	*	-6.883	-1.90	*	-6.915	-1.91	*	-7.735	-1.93	*
OFF-FARM							-3.876	-2.12	**	-5.019	-2.50	**
JOB	4.634	1.99	**	4.690	1.99	**						
SUBSIDIES	9.125	3.30	***	9.186	3.31	***	9.145	3.31	***	9.888	3.22	***
CONSUMPTION	0.0003	4.83	***	0.0003	4.86	***	0.0003	4.90	***	0.0006	8.04	***
INVEST	0.00005	4.32	***	0.00005	4.30	***	0.00005	4.37	***			
LOAN	5.141	2.28	**	5.074	2.24	**	5.162	2.29	**	6.999	2.80	***
REGION1	4.350	1.33		4.531	1.38		4.326	1.32		7.697	2.14	**
REGION2	9.880	3.00	***	9.924	3.01	***	9.947	3.03	***	6.249	1.72	*
CONSTANT	-8.851	-1.15		-16.782	-1.09		-4.549	-0.59		-9.276	-1.08	

Source: Own calculations

*,**,*** denote significance at the 10%, 5% and 1% level respectively

Firstly, leasing land is affected by farmer's age. *Ceteris paribus*, the older the farmer the less he is willing to rent additional parcel in. This fact may be indicative of rental market facilitating adjustments in farm size according to current needs and enabling smooth replacement of older generations. It shows also quite promising picture of rental market being used by younger farmers, who are supposed to have higher entrepreneurial skills, so required by today's farming.

Secondly, negative correlation of land rented in and household's land endowment suggest that tenancy agreements are used predominantly by owners of smaller holdings allowing them to augment their farms up to optimal size. One may treat it as an evidence of rental market facilitating more equal land distribution. This result would suggest also that having too large farms, presumably because of moral hazard problems and insufficient physical and financial capital resources, is simply unprofitable. Consequently, land is transferred to households less land abundant but relatively better endowed in other inputs.

Thirdly, households accessing land thanks to rental transactions take also advantage of land purchases. This would imply that ownership still provides farmers with much more conveniences than does the tenure, notwithstanding the difference between the costs of rent and purchase. These conveniences, e.g. providing job security, protection against poor nutrition or allowing wealth accumulation, result from imperfections observed on various rural markets. Therefore, the obtained result indicates that there is still a lot to do as far as broad agricultural environment is concerned.

Other observations from empirical analysis clearly confirm this statement. Renting land in is heavily affected by both labour as well as credit market imperfections. Leases are definitely less common among households without access to loan, or capital in general, and those having numerous off-farm job opportunities.

Fourthly, a strong positive relationship between owned machinery stocks and the amount of land rented in is found as well. This result may be indicative of two things. On the one hand, it shows that rental market succeeds in transferring land towards better equipped farmers. On the other hand, it clearly implies that there is a lack of rental markets for inputs (machines, technologies). The latter conclusion suggests also that closer co-operation between farmers should be facilitated.

Fifthly, obtained results provide also arguments that land rental market may significantly help farmers to overcome problems connected with cultivating many separated and presumably distant plots. Renting land in is more common among households having more than one parcel, which may suggest that thanks to market intermediary they are able to access plots more conveniently situated, that is in nearer proximity.

Finally, one can refer as well to the relationship between participation in rental market and governmental subsidies. Positive correlation between amount of land rented in and the fact of receiving subsidies to production illustrates that distortions created by the government on food market are indirectly affecting also transactions on rental market. This observation underlines that efficacy of land markets may be very easily warped and so can benefits they generate. Therefore, the more cautious one should be when pursuing agriculture policies.

5. Conclusions

It is commonly asserted that Polish agriculture has been struggling for a long time with a problem of overpopulation. For that reason, it remains to be very fragmented. Accordingly, farms' performance in terms of their efficiency, when compared to other countries from EU, is relatively low (Wilkin J., 2003). The agrarian structure though, undergoes rather slow changes. It seems that smooth operation of land markets should help, at least partly, to overcome this problem and allow land resources to be farmed by the most efficient operators. Furthermore, it is reasonable to believe that they can substantially contribute to equity of land distribution as well. However, in the presence of lack of off-farm employment opportunities, high transaction costs, ill-defined property rights, still unsolved problem of restitution of property seized under communist rule, or overall economic instability land markets' activity is very likely to be considerably impeded. Therefore, in order to support both proper and desirable development of agricultural sector, there is a need for an adequate policy response that would address these problems, though without creating new sources of inefficiencies. The focus of attention should be on institutions regulating both functioning of land

markets, which provide incentives for farmers to engage in land transferring, as well as broader agricultural environment.

Meeting obligations of EU membership has surely initiated deep structural changes in whole Polish agricultural sector. One may also argue that adopting regulations of Common Agricultural Policy with respect to limited scope for governmental intervention, food safety and quality standards as well as implementation of harmonised trade tariffs will indirectly accelerate a difficult process of transition to effective individual use of land. However, integration with EU apart from numerous advantages brings also stiff competition. Moreover, WTO agreement on trade liberalisation in food products is more and more probable, which would make situation of Polish farmers even more complicated. Therefore, one should definitely not count only on benefactions coming from integration but try one's best to make every effort in order to address the issue of farm's efficiency by oneself. Sound governmental policies backing up the activity of land markets could be one of them.

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