Promoting change or preserving the status quo? - the consequences of dominating local politics by agricultural interests. Some evidence on structural change in Poland during the transition period.

Preliminary version - do not quote

JAN FAŁKOWSKI
University of Warsaw and CEAPS

Paper prepared for presentation at the 149th EAAE Seminar 'Structural change in agri-food chains: new relations between farm sector, food industry and retail sector' Rennes, France, October 27-28, 2016

Abstract

Though there is a vibrant debate about the determinants of structural change in agricultural sector, the broad consensus is that it is mainly driven by economic environment and farmers' characteristics. In this paper, we try to complement this view and study whether the pattern of farm exits is shaped by rural politics. Using local-level data for Poland, and accounting for variables commonly used in other studies, we show that in the period 1996-2010, the scope and speed of structural change in agricultural sector were heavily influenced by the extent to which municipality councils were captured by agricultural interests. More specifically, we find that in regions with higher political representation of farmers there were less exits from farming and land consolidation process was slower. Thus, our findings suggest that investigating the distribution of political resources at the local level might be as important for our understanding of structural change as studying the impact of farm size or the development of non-agricultural job opportunities.

Keywords: special-interest benefits, rural politics, structural change, Poland

1. Introduction

As commonly argued, in most societies economic growth is accompanied by many important changes. In particular, a transition process from a traditional/rural economy toward an industrial/urban economy has been emphasised (see e.g. Kuznets, 1966; or, for a succinct overview of the literature, Matsuyama, 2008). This phenomenon is expected as a result of either the changing marginal rate of substitution between different goods (related to Engel's law) or differential productivity growth across sectors (Acemoglu, 2009). Regardless of the underlying factors however, shifts in output and employment away from agriculture toward non-agricultural activities have been frequently named as important characteristics of economic development and regional convergence (see e.g. Winters et al., 2010; Caselli and Coleman, 2001).

This reallocation of labour and capital toward manufacturing and/or services obviously implies considerable adjustments in agrarian structures of countries undergoing these processes (Chavas, 2001). A notable effect related to these changes involves a gradual disappearance of farm businesses, especially the small scale ones, and the release of resources for those who stay allowing them to enlarge their holdings (Eastwood et al., 2010). Indeed, structural change in agricultural sector is often associated with the decreasing number of farms, land concentration and increasing commercialisation of agricultural production (Davidova, 2011).

That said, the existing empirical evidence shows that countries display a substantial heterogeneity in the patterns of adjustments in their agricultural structures (for the evidence on transition economies in Europe and Asia see, for example, Swinnen et al., 2005; and Spoor, 2009). In fact, although the time trend toward a smaller share of agriculture in the economy is commonly observed, both the composition of production and employment in rural areas and the evolving farm size distribution vary to a significant extent both across time and across countries (Piet et al., 2012).

To improve our understanding of these phenomena, there has been a lot of research investigating various factors which drive the scope and speed of structural change in agriculture. Most often the literature has focused on economic environment and farmers' characteristics, acknowledging in addition that technological improvements and farm-support programmes importantly contribute to this process (see e.g. Chavas, 2001; Foltz, 2004; Breustedt and Glauben, 2007; Zimmerman and Heckelei, 2013; Landi et al., 2016). These studies propose several interesting explanations for why structural change in agriculture may come with different speed. For example, they point to the importance of farmers' human capital (age and education), profitability of farm businesses, the existence of off-farm opportunities, demand for land from urban centres, or the presence of farm subsidies.

While our purpose is not to challenge these explanations, in this paper we try to complement them with a different perspective, which has been given much less attention. More specifically, we argue that structural adjustments in agricultural sector

can be importantly driven by the distribution of political power at the local level. The rationale behind this is that structural change, while involving considerable adjustments in the allocation of resources, will likely create social tensions. This is because the changes not only create new opportunities, but also destroy some productive relationships and, in effect, may endanger some individual livelihoods[1]. Natural conflicts that this may create will be solved in the political processes.[2] The latter in turn, will be determined by the distribution of political power.

Over the years there have been many important studies which use political economy approach to analyse agricultural policies and various aspects of rural development (de Gorter and Swinnen, 2002; or Anderson et al., 2013; and Akram-Lodhi and Kay, 2008). Nonetheless, to best of our knowledge, this paper is the first to empirically test whether the scope and speed of structural change in agriculture might be driven by farmers' political influences. In presenting our argument we importantly draw on the theories of interest groups and political rent seeking (Olson, 1965; Buchanan et al., 1980; Hillman, 2009). This strand of the literature shows that interest groups will try to organise politically to prevent changes in an economic environment which can erode their rents. It also demonstrates that politicians will likely offer policies to special interests in exchange of the political support. Our paper is also related to the literature on (inefficient) redistribution and policy persistence (see e.g. Dixit and Londregan, 1995; Besley and Coate, 1998; Coate and Morris, 1999; Acemoglu and Robinson, 2001) which explains why we may observe inefficient policies being implemented and why changing this inefficient status quo may not be feasible. Finally, we importantly draw on studies investigating the political economy of policy reforms (see e.g. Alesina and Drazen, 1991; Fernandez and Rodrik, 1991; Rodrik, 1996; Roland, 2002) which provide explanations for why are reforms that eventually benefit the majority of the society resisted.

[1] See, for example, Bilsen and Konings (1998); or Jackson et al. (2005) who document job creation and job destruction processes which took place in the Central and Eastern Europe after moving from a centrally planned to a market economy.

[2] This is especially the case for democratic systems.

In the empirical analysis we take advantage of local level data for roughly 1500 rural municipalities in Poland. We look at two indicators of structural change: the change in the number of farms and the growth in the average farm size. The period under study spans from 1996 to 2010 and is determined by two agricultural censuses which took place in these years. Placing the analysis in Poland and focusing on this particular period provide three important advantages. First, Poland seems to be a natural context to study structural change as agrarian overpopulation and high dependence on agriculture have been often argued to be the most important reasons for the low productivity in Polish rural areas. As a result, structural change has long been on the policy agenda and commonly advocated as a necessary condition to unlock the potential of these areas and boost their development (Zawalińska, 2002; Goraj, 2005; Wilkin, 2007; Józwiak, 2008; RDP, 2010). Second, the period under study is marked by a very profound economic adjustments following the collapse of the communist dictatorship and the introduction of a market economy. In consequence, in our analysis we cover the time when dynamic responses to new incentives alternated with the costs that the ongoing restructuring generated (see e.g. Kornai, 2006; Hellman, 1998). Thanks to this, we can study how this mixture of opportunities and threats affected farmers' political attitude to structural change in agriculture. Third, during the analysed period, Polish municipalities varied to a significant extent with respect to the distribution of political power between different groups. What follows, in some municipalities we observe farmers' representatives to dominate municipality councils. In others instead, their *de iure* influence over local authorities is much weaker. This allows us to take advantage of this variation to examine whether political representation of agricultural interests affected the scope and speed of structural change or not.

Except for the studies already mentioned, our paper is also related to the literature on economic voting. As demonstrated by Fidrmuc (2000a,b); Harper (2000) or Jackson et al. (2003; 2005), in the early phase of the transition period, voters' behaviour in Central Eastern European Countries reflected their attitude towards economic reforms and their impacts. Accordingly, voters who benefited from economic reforms tended to vote for

liberal parties, whereas those who incurred losses due to reforms opposed them and voted for non-reform parties and post-communists. In this paper, we show that this political behaviour affected not only election results, but also had notable consequences for the economic restructuring. The mechanism which we identify to transmit this impact involves controlling local government by an agricultural interest group. Two additional features distinguish our research from the existing literature on voting in the early transition period. First, instead of analysing general economic reforms, we focus on a particular case, i.e. structural change in agricultural sector. This allows us to better identify potential winners and losers from the reforms. Second, the existing studies are mostly concerned with the national level. Our analysis instead focuses on the local level. This allows us to capture important adjustments which escape one's attention when working at the aggregate level. While national reforms set the general framework for various social and economic processes, at sub-national level they can be fine tuned to the local circumstances which may give them either an additional impetus or a break (see e.g. Albertus, 2015).

The remainder of the paper is organised as follows. Section 2 presents a brief literature review and outlines the conceptual framework which we use to motivate our research. In Section 3 we describe main developments in agricultural sector in Poland during the early transition period and provide some insights on farmer's political behaviour in that time. Section 4 discusses our data and empirical strategy. Section 5 presents the results and Section 6 concludes.

2. Literature review

There have been many studies concerned with structural change in agricultural sector and factors which are likely to affect its pace and direction. The literature to date has been predominantly occupied with investigating the role of economic environment and farmers' characteristics (for the literature review see Chavas, 2001; Eastwood et al., 2010 or Piet et al., 2012). For example, it has been argued that exits from farming are

more likely to be observed among older farmers since farms are often closed down as farmers retire and do not have a successor (see e.g. Gale, 2003; Zimmerman and Heckelei, 2013; Landi et al., 2016). Similarly, the restructuring process is positively affected by technological improvements (Chavas, 2001). This is because technical innovations induce the change in production factors and require financial resources for investments, which, especially in the presence of credit constraints, can be more easily acquired by larger farms. Further, it is widely recognised that structural change is affected by non-agricultural job opportunities. The existing evidence however is inconclusive on whether it should encourage or discourage farm exits (Weiss, 1999; Kimhi, 2000; Goetz and Debertin, 2001; Breustedt and Glauben, 2007; Mishra et al., 2014).[3] The existing studies seem to also suggest that larger farms are less likely to quit than small-scale farms, presumably due to greater sunk costs and higher productivity related to the presence of some economies of scale (Ahearn et al., 2005; Hoppe and Korb, 2006; Huettel and Margarian, 2009; Mishra et al., 2014). In addition, there seems to be a general consensus that structural change is slowed down by farm-support policies although the effects of public policies may not be trivial and depend on the instrument choice (Rahelizatovo and Gillespie, 1999; Goetz and Debertin, 2001; Foltz, 2004; Ahearn et al., 2005; Key and Roberts, 2006; Breustedt and Glauben, 2007; Olper et al., 2014).

While the explanations provided in these studies definitely improve our understanding of different patterns of restructuring in agricultural sector, at some point they seem to be seriously incomplete. This is because they largely ignore the fact that structural change could be endogenous to special interests of groups which are affected by the ongoing processes and to objectives of politicians who are likely to focus on particular constituencies of voters to maximise the probability of being (re)elected (Hillman, 2009). In particular, structural change may be slowed down if opposed by farmers,

[3] On the one hand access to off-farm jobs may facilitate farm exits as those who decide to quit from farming can find employment in other sectors. On the other hand though, non-farm income can be used to accumulate capital for farm investments, or serve as a complementary source to farm income if the non-agricultural job opportunities are perceived as highly unstable or are dominated by offers for unskilled workers.

provided that they are able to accumulate sufficient political power. As we try to argue in this paper, this precisely seems to be the case in the Polish transition context (see further).

From a theoretical point of view one can think of several arguments for why farmers may wish to defeat structural change. A first rationale comes from the studies on the political economy of policy reforms (for a literature review see Rodrik, 1996). As widely recognised, the key feature of policy reform is that the identity of many of the gainers from reform cannot be determined ex ante. As demonstrated by Fernandez and Rodrik (1991), this uncertainty may block policy reform even despite the fact that the majority of the population is stand to gain from it. The reason for this is that individuals who face uncertain gains also constitute the majority. Since their expected benefit from the reform is negative, and there is no credible commitment assuring that losers will be compensated, they will try to block it. Given the frequent changes in power and huge uncertainty with respect to the outcomes of the reforms undertaken in Central and Eastern Europe at the beginning of the transition from communism (Fidrmuc, 2000a,b; Jackson et al., 2005; Kornai, 2006), this scenario seems to fit quite well to what was happening in the early phase of the restructuring in agricultural sector in Poland (see also further).

The second reason for why farmers may refrain from supporting structural change is again closely related to the political commitment problem. As shown by Dixit and Londregan (1995), a relocation between sectors might not occur even for individuals who are certain to achieve productivity gains from working in a new sector. This is because the relocation involves moving costs which the relocated individuals will not be able to recoup. The reason for this is the fact that politicians, notwithstanding their declarations, will have incentives to redistribute the monetary value of these productivity gains towards less productive workers in exchange for their political support. Anticipating this, individuals who could be better off by switching to a new activity will remain in their original sector. In our context, this argument is particularly interesting as it allows to explain why the migration of workers from farming to other

sectors might be slow even despite the fact that wages in manufacturing and/or services may be greater than that observed in agriculture.

Further, two additional arguments suggest that moving costs to non-agricultural sector might be quite high and thus potential productivity gains from the relocation can be relatively small (Acemoglu, 2009). On the one hand, especially in the early phase of economic changes, only a few individuals might have the ability or the required (human) capital to move to the new industrial/service sector. On the other hand, an additional barrier may be the difference in organisational structures which are used to govern collaborative action in urban and rural areas. In rural areas enforcing agreements is more often based on informal institutions and relies primarily on social embeddedness (Granovetter, 1985). In urban areas instead enforcement mechanism is more dependent on impersonal mechanisms based on formal arrangements, often utilising third parties (Williamson, 1975). Both these barriers may additionally discourage farmers from leaving agricultural sector and thus to oppose its restructuring.

Overall therefore, it is reasonable to assume that farmers would look for ways to slow structural changes down. As suggested by the literature on special interests and political rent seeking, they may try to achieve it by exerting pressure on politicians (Buchanan et al., 1980; Hillman, 2009). Capturing the control over the government with own representatives is another way to do so. Essentially, especially in democratic systems, the political power of a given group will increase with its size. Accordingly, the chances for capturing the government with agricultural interests would depend on the number of farmers. In this context, slowing down structural changes in agriculture presents additional, and perhaps the most important, advantage. More specifically, it helps to maintain a critical mass of farmers in the industry to preserve their political influence (Acemoglu and Robinson, 2001). This has also important implications for politicians' behaviour. In fact, politicians who traditionally look for support among farmers would not like to see their numbers to shrink. This is because the declining number of farms would decrease their chances for being (re)elected. As a result, they have strong

incentives to introduce solutions favourable to agricultural interests which are inclined to defend the status quo (Coate and Morris, 1995; 1999).

That said, while the group size may definitely determine group's political power, it has been argued that larger groups may face serious free-rider problems. Indeed, as discussed by Olson (1965) the fact that voters share a common interest in some aspect is not sufficient to guarantee that they will involve in a collective action. This should be easier in smaller groups as the costs of political organisation in this case are lower. In addition, smaller groups have also greater expected per-capita returns from achieving a common goal.[4] These arguments notwithstanding, conditional on being able to solve the collective action problem, larger groups will be more politically powerful.

Overall, the discussion presented above suggests that farmers have important reasons to oppose structural change in agricultural sector. Further, they may try to slow it down by capturing control over the government. Given that farmers' distribution is not uniform across the country, it seems plausible to assume that it might be much easier for an agricultural interest group to capture power at the local level than at the country level. This is because at the local level, especially in rural areas, farmers often constitute a (much) bigger share of the total electorate than at the national level. In consequence, their political support might be decisive for winning local elections, whereas at the national level this is unlikely to be the case.[5] This, in turn, implies that they may use their voting instrumentally (Hillman, 2010) and seek the benefits from controlling local government.

In the rest of the paper we try to test whether the scenario sketched above might have taken place in Poland during the early phase of the transition. To do so, we study whether capturing local governments with agricultural interests negatively affected the rate of decline in the number of farms.

[4] In our empirical approach we explicitly take these concerns into account (see further).

[5] Unless there is a high level of political competition and farmers can be regarded as swing voters (see e.g. Dixit and Londregan, 1998). As we show in the next part of the paper this seems to be unlikely in our case as during the period under study farmers, in great majority, consistently supported one party, namely the Polish Peasant Party - PSL (Mach and Jackson, 2006).

3. Structural change in Poland

In this part, we briefly discuss the evidence which shows that the theoretical arguments presented above match well the situation in agricultural sector in Poland in the early transition period. We start with reporting farmers' attitude towards economic reforms. In the next step, we present some data and arguments to account for it. We also report basic statistics which illustrate the developments in the number of farms.

3.1. Farmers' attitude to economic reforms

To begin with, it should be noted that the existing evidence unanimously points that farmers deeply disliked liberal economic policies and their economic consequences. Indeed, as reported by Jackson et al. (2003; 2005), in the 1990-ties, farmers in Poland were opposing privatisation and their general assessment of economic changes was bad.[6] Similarly, farmers had a (very) negative assessment of the situation in agriculture and a very critical attitude towards the agricultural policies of subsequent governments. For example, in 1992, 72% of farmers were of the opinion that governmental policies were not in interest of rural areas (Rosner, 1993). In 1999, as reported by Wilkin (2000), this share was even higher and amounted to 85%. In addition, according to findings presented in the latter study, 96% of farmers assessed the situation in agricultural sector as bad or very bad. Further, only 23% of them were of the opinion that prices should be set by markets. This evidence is in line with the argument that Polish agriculture 'was not adapting to the new rules and incentives (Mach and Jackson, 2006, p. 484)'. What should be noted, this negative attitude was quite stable over time. As reported by Czapiński and Panek (2004) in 2003, 75% of rural inhabitants still evaluated the changes that emerged after the collapse of the communist regime as very or rather

[6] As documented by Kunovich (2002) and Przeworski (2001), attitude towards economic reforms in Poland was strongly affected by regional unemployment level and collective assessment of economic conditions (for similar evidence on other transition counties see Fidrmuc, 2000a,b; Harper, 2000). This in turn suggests that farmers' negative attitude towards reforms could be driven by their unsatisfactory economic situation. This is fully consistent with the fact that during the transition period farmers' incomes drastically deteriorated in relation to incomes of those employed outside agriculture (Woś, 2000; Wilkin and Nurzyńska, 2002; Wilkin, 2007, see also further).

unfavourable. It is also worth noting that this share was higher than that observed for various groups of urban inhabitants.

The negative attitude of Polish farmers towards economic changes during the transition could be explained on the following grounds.[7] First, due to a decrease in agricultural production and unfavourable terms of trade for agricultural products, farm real incomes were decreasing and remained constantly below income levels observed outside agriculture (Woś, 2000; Wilkin, 2007). Second, at the onset of the transition period mobility of rural population was seriously hampered by low human capital (Frenkel, 2003; Szafraniec, 2006). As a result, there was a huge uncertainty about finding a job outside agriculture. In fact, in 1999 (2002) 34% (37%) of farmers were afraid of becoming unemployed (Fedyszak-Radziejowska, 2002). Consistent with that, many authors have argued that agriculture has played a buffer role during transition by absorbing the excess labour from other sectors and by providing food and social security (Woś, 2000; Lerman et al., 2004; Macours and Swinnen, 2005; Wilkin, 2007). In addition, the specificity of rural attitudes, beliefs and values was distinct than that characterising urban population (Wilkin, 2000; Bukraba-Rylska, 2004; Szafraniec, 2006, part 4; Herbst, 2008), which additionally decreased potential willingness to support the ongoing restructuring.

Importantly given our focus, farmers' attitude towards economic changes translated into their political behaviour. Consistent with the literature documenting the role of economic factors in affecting voters' choices during 1990-ties in the transition countries (Fidrmuc, 2000a,b; Harper, 2000; Jackson et al., 2005), voting behaviour of Polish farmers reflected their discontent with policies pursued at the beginning of transformation. Indeed, according to findings presented by Mach and Jackson (2006) who analysed Polish national elections in 1993 and 1997, farmers were least likely to vote for liberal parties. Interestingly, they were also unlikely to support post-communist

[7] While we do not provide a general literature review of the restructuring of Central and Eastern European agriculture in the 1990s, we refer the reader to existing reviews (see e.g. Rozelle and Swinnen, 2004; or Lerman et al., 2004).

parties.[8] Instead, they constituted a political bloc organisationally associated with the Polish Peasants Party - PSL which strongly opposed economic reforms and consistently campaigned in favour of continued subsidies for farmers (Jackson et al., 2003; Mach and Jackson, 2006). Importantly from our perspective, this voting pattern was quite stable during all the 1990-ties.

Except for trying to lobby for protection and assistance with voting for PSL in national elections, farmers could have also exerted their influence through local elections. As we try to argue in this paper, capturing the control over local government might have been not only easier, due to geographical concentration of farm holdings, but also important for affecting, at least to some extent, the speed of the restructuring initiated with the policies decided at the national level. Accordingly, below we briefly describe the organisation of local elections in Poland. The description of farmers' political representation in local governments during the period under study follows shortly after.

3.2. Local elections

After the collapse of the communist regime, first local elections were held in Poland in December 1990 and since then they have been organised every four years. In principle, the elections to local governments (municipality councils) are organised according to mixed electoral rules. In smaller municipalities electoral formula is based on plurality rule, whereas in larger municipalities it is based on proportionality rule. Rural municipalities however, which are the focus of this study, are less populated and, with only a very few exceptions, have used majoritarian voting.

This fact is important as in systems using a majoritarian rule the preference of the majority of the voters decides about who wins the elections. What follows majority

[8] Except for farmers previously employed on state owned farms (Jackson et al., 2003). The latter however constituted a relatively small fraction in the total population of farmers. In 1989, state farms employed around 435 000 people (Milczarek, 2002), whereas in 1990 there were 3.8 million of individual farms (2.1 million larger than 1 ha). In contrast to most transition countries, the share of state-owned/collectivised land in Poland was very limited and never exceeded 20-25% (Lerman et al., 2004). Instead, local agriculture remained largely based on (very) small individual holdings throughout the communist period.

groups have advantageous positions. In effect, capturing the political control over the local government by special interests is the more likely the larger the group size.

An additional aspect to notice is that during local elections in 1990 and 1994 political parties were not allowed to propose their candidates. This does not imply that identifying a candidate with a any given political platform was not possible. It made it however more difficult. It is reasonable therefore to assume that during these two elections farmers' voting behaviour could have been more strongly driven by their group identity, which had its source in occupation[9]. This in turn again allows to link the probability of capturing the local government with farmers' group size.

3.3. Farmers' political influence

During the period under study, people attached in some way or another to agriculture represented a very large fraction of constituents, especially in rural areas. In fact, in 1988 i.e. just before the end of the communist dictatorship, households with some members being involved in farming (not necessarily on full time basis) represented 58% of all rural households. In 2002, i.e. in the middle of the period which we cover in our analysis, this share still accounted for 50% (GUS, 2003, p. 56). This share has been still remarkably high even if we narrow our view to households leaving mainly from agriculture (i.e. when we do not classify as farm households those households for which farming did not provide a main source of income). In 1988 it accounted for 33.3%, in 2002 for 14.3%, whereas in 2011 for 11.2% (GUS, 2003, p. 44; 2014, p. 82). Further, given that the incidence of intergenerational families has been the highest among farm households (GUS, 2003, p. 50), one can assume that the share of potential constituents in these households was even higher than that showed by the statistics just mentioned.

This likely translated into the political influence of farmers at the local government level. While, at least in the quantitative terms, farmers' political power has been decreasing over the years, it definitely was not negligible. Obviously, since the distribution of

[9] On group identity and voting behaviour see Hillman (2010). We are not aware of any study which would analyse the effect of farmer's occupation on electoral success neither in the Polish nor in the Central and Eastern European context. For the positive evidence from local elections in Germany see Mechtel (2014).

farmers was not uniform across the country, some regions showed greater concentration of farmers than others. Accordingly, farmers' political influence varied across municipalities. In the period under study, the median share of farmers' representatives in municipality councils varied between 40% after elections in 1994 and 26% after elections in 2010. The share of municipalities with farmers representatives having more than 50% seats in the council in turn varied between 35% after elections in 1994 and 24% after elections in 2010. The evolution of farmers' political representation in municipality councils over time is reported in Table 1.

Table 1. Farmers' representation in municipality councils in Poland 1994-2010

	Elections 1994	Elections 1998	Elections 2002	Elections 2006	Elections 2010
Median of the share of farmers in municipalities' councils[a]	0.4	0.39	0.33	0.33	0.26
Share of municipalities with more than 50% of seats taken by farmers	0.35	0.32	0.31	0.28	0.24

[a]The share of seats occupied by farmers in the total number of seats in the municipality council.

3.4. Political rents

The benefits that farmers might have expected from controlling local governments could have taken various forms. First, municipality councils were responsible for passing a local budget. Thus they decided about the rules concerning both the allocation of funds for projects or taking up loans. In that sense capturing the local authority with agricultural interests might have resulted in the preference for projects providing targeted benefits to farmers (e.g. investing in irrigation systems). Second, municipality councils were responsible for passing local development plans which directly affected the character of land usage. On the one hand it concerned public land owned or administered by the municipality. On the other hand, local authorities have been also involved in the decision making process about converting private agricultural land to non-agricultural use. Third, local councils were responsible for managing municipalities'

properties, which again might have had some direct implications for the development of non-agricultural businesses in rural areas. Fourth, although indirectly, municipality councils could have affected farmers' access to non-agricultural jobs also by deciding about public transport connecting a given municipality with an urban centre.

The available data unfortunately do not allow us to discriminate between these different forms of rents. Thus we are not able to say which of them was most often used by agricultural interest groups to advance their goals. That said, the examples mentioned above clearly illustrate that farmers could have tried to benefit from capturing local government notwithstanding the decisions and policies pursued at the national level. Below we attempt to document this in a more systematic way.

4. Data and empirical strategy

4.1. Data

The data which we use for the purposes of this study come from three sources. The majority of the data on municipalities' socio-economic characteristics come from two agricultural censuses conducted in 1996 and 2010. Some additional information comes from the Local Data Bank provided by the Polish Statistical Office. As far as the data on local elections are concerned, they come from the National Electoral Commission, which is in charge of supervising elections in Poland. The dataset contains 1571 observations for all rural municipalities in Poland.[10] However, as some data is not available for all municipalities-years, some regressions use slightly smaller sample.

Our dependent variable is the rate of decline in the number of farms between 1996 and 2010. More specifically we define it as the ratio between the difference in the number of farms in 2010 and 1996 and the number of farms in 1996. What follows, the variable takes mostly negative values reflecting the fact that, in the analysed period, in the vast majority of municipalities the number of farms have decreased. Indeed, the positive

[10] According to the Eurostat classification Polish municipalities correspond to Local Administrative Units 2 (LAU 2).

values are observed only for 12% of the sample. In some additional specifications, we also take a closer look at an alternative measure of structural change and look at the land consolidation process. The dependent variable in these models is defined as the ratio of the average farm size in 2010 and the average farm size in 2002. With the exception for 5% of municipalities, an increase in the average farm size was observed.

Our key explanatory variable measures the extent to which a given municipality council was dominated by farmers' representatives. We express this as a share in the total seats and define as the number of seats won by farmers over the total seats in municipality councils. The information about the profession of council members comes from the National Electoral Commission. More specifically, each member reports its profession and is classified into one occupational group. It should be noted that farmers are classified together with forestry workers and gardeners. However, compared to the number of farmers, the number of forestry workers or gardeners is very tiny. For example, as reported by the Polish Statistical Office, the number of people employed in 1995 in agriculture, hunting and forestry amounted to 4.193 mln, of which 4.126 mln (i.e. 98.5%) worked in agriculture (GUS, 2008, p. 220). Therefore we do not think that merging these occupations together may seriously bias the interpretation of our results. Nevertheless this should be kept in mind.

It is important to note that our measure of the influence of farmers' interest group is different from the absolute number of farms in a given municipality (which we also control for in our models). This allows us to take into account potential concerns related to arguments first advanced by Olson (1965) that larger groups may face the free-rider problem and thus have difficulties in organising politically. In consequence, the higher number of group members will translate into more political power only if they are able to solve the collective action problem. Looking at farmers' political representation in the municipality council helps to address this concern. In fact, it allows us to assume that what we observe is precisely the outcome of how efficient farmers in a given region were to solve the collective action problem.

4.2. Empirical strategy

To investigate the impact of capturing the local government by agricultural interest group on structural change, we estimate a basic econometric model of the form:

$$farm\ exits_{i,1996-2010} = \alpha_j + \beta political\ representation_{i,1994} + \mu X_{i,1996} + \varepsilon_i$$

where the variable $farm\ exits_{i,1996-2010}$ measures the decline in the number of farms between 1996 and 2010 in municipality i as defined above, and $political\ representation_{i,1994}$ captures the share of farmers' representatives in the municipality council (for the detailed definition see above). $X_{i,1996}$ is a vector of various observable characteristics which were found to affect the speed of structural change in previous studies. Importantly, in all our models we include a vector of regional fixed effects α_j, which control for cross-regional differences in history and economic structures. Depending on a specification we either use fixed effects at the *voivodship* level (NUTS 2) or *powiat* level (LAU 1 - former NUTS 4). Finally, ε_i is an error term.

Trying to estimate the impact of farmers' political representation on the speed of structural change rises two important concerns. One of them is that the change in the number of farms might be higher in regions where initially there was more farm businesses. At the same time the number of farms in the region determines the share of farmers in the local constituency and thus may affect who is elected. This may result in an upward bias of the coefficient on the farmers' political representation variable. To mitigate this problem, in all our regressions we control for the number of farms in a given municipality in 1996. Further, as the speed of structural change might also depend on the initial land concentration, in all our specifications we control for some features of farm size distribution observed in each municipality in the past. This way we can be sure that our results are not driven by historical factors which could shape the pattern of structural change thanks to their close relationship to the initial distribution of land. Depending on a specification we include a variable capturing either the existence of large-scale farms (a dummy indicating whether there are farms larger than

100 ha) or the (logarithm) of the number of farms larger than 15 ha, both referring to the situation in 1996.

The second concern is the following. As argued above, in our empirical analysis we want to exploit the fact that different groups in municipality councils have different incentives and preferences over structural change. That said, the speed of structural change may affect who is elected. In that case there could be a reverse causality problem. To mitigate it, in our investigation we use political variables from the period preceding the observed structural change. More specifically, our main variable of interest reflects the distribution of political power after elections in 1994. This rests on the assumption that unobservable factors which were likely to affect structural change in the period 1996-2010 were not correlated with shocks affecting the electoral outcome prior to that. To make this assumption more probable, in some specifications we increase the period between the election results and the observed structural change. In that case we use the 1994 election data to explain structural change over the period 2002-2010.

In addition to that we control for a range of municipalities' observable characteristics to deal with potential sources of omitted variables. In particular, to capture the importance of agriculture for the local economy we include the share of agricultural land in the total area. Further, to acknowledge that different types of farmers may have different preferences over the decisions of local government we try to control for their heterogeneity. For that purpose we include in our models variables measuring the share of farms (in the total number of farms) defined as specialised in crop production and the share of farms specialising in animal production. Those with mixed production serve as a reference category. This allows us to capture the fact that, depending on specialisation pattern, farms differ with respect to input mix (e.g. animal farms are more labour intensive than crop farms) or are exposed to different risks (e.g. prices for animal production tend to be more volatile). Therefore, they may prefer different responses in terms of public policies towards agricultural sector. In addition, to take into account that farmers' susceptibility and attitude towards structural change may be driven by their relationship to the market, our models include the share of farms producing mainly for

sales. Thanks to this we are able to capture the fact that exits from farming might be more prevalent among households earning their leaving outside agriculture and producing agricultural goods only or mainly for themselves. Finally we carefully control for the linkages between rural and urban areas. This is to assure that we capture potential impact that urban centres may exert on labour relocation from rural areas (by offering greater off-farm opportunities, see e.g. Goetz and Debertin, 2001; Breustedt and Glauben, 2007; Landi et al., 2016). For that purpose we include in the models the distance between a given municipality and the capital of the voivodship or a variable indicating the number of urban municipalities bordering with a given municipality. In some regressions we also control for population density.

Table 2 shows the descriptive statistics for the main variables used in our estimates.

Table 2. Descriptive statistics for the main variables

Variable	Mean	Standard dev.	Min.	Max.
% change in the number of farms 1996-2010	-0,21	0,19	-0,93	0,59
Political representation 1994	0,41	0,24	0,00	1,00
% municipalities with farms>100 ha (1996)	0,41	0,49	0,00	1,00
Agricultural land as a % of total area (1996)	0,65	0,17	0,04	0,95
% of farms specialised in crop production (1996)	0,31	0,16	0,04	0,97
% of farms specialised in animal production (1996)	0,22	0,14	0,00	0,83
% of farms producing mainly for sales (1996)	0,50	0,24	0,00	0,92
Distance from the capital of the voivodship (km)	62,75	30,24	7,66	178,56
Number of urban municipalities with a common border	0,43	0,70	0,00	5,00
% of population at post-working age (2002)	0,16	0,03	0,06	0,40
% of population at pre-working age (2002)	0,25	0,02	0,13	0,35

5. Results and discussion

Before we move to the results of an econometric modelling, we start with some descriptive analysis.

5.1. Descriptive analysis

When we look at farmers' representation in municipality councils after election in 1994 (i.e. the last election before our study period) and link it to various statistics describing the speed of structural change the following picture emerges. If we split the sample into municipalities where farmers' representation was higher than 50% and remaining ones

(541 and 1001 observations respectively) it appears that in the former group the number of individual farms decreased in the period 1996-2010 on average by 18% whereas in the latter group by 22%. Similarly, the former group experienced, on average, smaller decrease in agricultural area. Over the period 1996-2005 in municipalities with farmers' share in seats in municipality councils exceeding 50% agricultural area decreased by 1.5% whereas in municipalities with lower farmers' representation by 2.6%. We also observe that in the period 2002-2010 the process of land consolidation was slower in municipalities belonging to the former group. In municipalities with higher representation of agricultural interests in local authorities the average farm size grew, on average, by 32%. In municipalities where farmers had weaker representation instead an increase of 47% was observed.[11] In all these cases the difference between the means of the two groups is statistically significant at 1% level. Although based on simple averages, these observations are fully consistent with the idea that political representation of agricultural interest in municipality councils could have slowed down the speed of structural change. With this in hand, we now move to test whether these relationships hold once we control for a number of characteristics which are likely to influence the pace of the restructuring in agricultural sector.

5.2. Econometric evidence

Our main results are presented in Table 3. Throughout the paper all standard errors are robust and clustered at the *powiat* (LAU 1) level to allow for a potential serial correlation in the residual error term. In column one we just include the variable measuring the effect of farmers' political representation, the logarithm of the number of individual farms in 1996 and regional fixed effects at the voivodship level (NUTS 2). The coefficient of interest is 0.058 (statistically significant at 5% level), indicating that municipalities with greater farmers' political representation in 1994 experienced a slower rate of decline in the number of farms between 1996 and 2010 (please recall that

[11] It should be noted though that in the former group the average farm size in 2002 and 2010 was larger than in the latter group. Average farm size in both groups in 2002 was 7.98 ha and 5.63 ha respectively, whereas in 2010 it was 10.42 ha and 8.07 ha respectively.

the dependent variable is positive when the number of farms in 2010 was greater than the number of farms in 1996 and negative if the opposite was true). The coefficient on the initial number of farms is negative as expected (thus potentially implying a faster restructuring in municipalities with more farm businesses), but it is not statistically significant at conventional levels.

Table 3. Decline in the number of farms between 1996 and 2010 and farmers' political representation in 1994, OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political representation 1994	0.0583**	0.0598**	0.0817***	0.108***	0.0821***	0.0958***	0.0809***	0.0588**
	(0.0267)	(0.0266)	(0.0265)	(0.0283)	(0.0284)	(0.0281)	(0.0262)	(0.0260)
Log of number of farms 1996	-0.0223	-0.0209	-0.0230	-0.0264*	-0.0270*	-0.0232	-0.0197	-0.0141
	(0.0147)	(0.0147)	(0.0148)	(0.0153)	(0.0147)	(0.0150)	(0.0156)	(0.0157)
Municipalities with farms >100 ha 1996		-0.0207**		-0.0132	-0.0162	-0.0123	-0.0120	-0.0161
		(0.0103)		(0.0108)	(0.0108)	(0.0107)	(0.0106)	(0.0106)
Share of agric land 1996				-0.00946	-0.0552	0.0191	0.0227	0.106**
				(0.0456)	(0.0421)	(0.0455)	(0.0437)	(0.0514)
Share of farms producing for sales 1996				-0.0985**		-0.0813*	-0.0897*	-0.137***
				(0.0457)		(0.0464)	(0.0471)	(0.0479)
Log of number of farms >15 ha 1996			-0.00729					
			(0.00722)					
Share of farms living only from agriculture 1996					-0.107			
					(0.109)			
Share of crop farms 1996						-0.133**	-0.111*	-0.0954
						(0.0624)	(0.0610)	(0.0607)
Share of animal farms 1996						-0.00154	-1.99e-05	0.00536
						(0.0592)	(0.0582)	(0.0583)
Distance from the capital of voivodship							0.000492**	0.000338
							(0.000248)	(0.000251)
Number of urban neighbours							-0.0143	-0.00733
							(0.0105)	(0.0103)
Log of population density 2002								-0.0483***
								(0.0183)
Constant	-0.147	-0.139	-0.120	-0.0654	-0.0578	-0.0461	-0.0927	0.0357
	(0.103)	(0.102)	(0.103)	(0.109)	(0.104)	(0.106)	(0.108)	(0.110)
Observations	1,546	1,546	1,475	1,407	1,404	1,407	1,407	1,407
R-squared	0.190	0.192	0.196	0.193	0.191	0.201	0.209	0.216

In columns (2) and (3), we include in our regressions variables capturing the initial farm size distribution (i.e. a dummy for municipalities with farms larger than 100 ha and the

logarithm of the number of farms larger than 15 ha, respectively). In column (2), the magnitude of the coefficient on farmers' political representation is very similar to that observed in column (1), whereas in column (3) it is slightly bigger than previously. In both columns the coefficients of interest are statistically significant (at 5% and 1% level respectively). Further, the rate of decline in the number of farms was faster in municipalities with farms larger than 100 ha. On the other hand, the initial number of farms larger than 15 ha does not seem to have a statistically significant effect. Column (4) adds two variables which try to capture the importance of agriculture in local economy and farm households' budgets. One of them is the share of agricultural land in the total area. The other one is the share of farms which produce only or mainly for sales (i.e. those that can be considered as commercial producers). As reported, the coefficient on our main variable of interest remains positive, of similar magnitude as in column (3), and statistically significant at 1% level. In column (5) we further test the robustness of these results and instead of the share of commercial farms we use the share of farm households larger than 1 ha that declared agriculture to be their only source of income. Again, our main results remain unchanged. In column (6) we check if our findings hold if we control for farm-specialisation patterns. For that purpose we include in the regression variables capturing the share of farms specialised in crop and animal production. While we do find that in municipalities with a higher share of farms specialised in crop production the rate of restructuring was faster, the impact of our key variable of interest is qualitatively similar as before. Further, in column (7) we control for the proximity of urban areas by adding two variables: one measuring the distance to the capital of the voivodship and one measuring the number of urban municipalities having a common border with a given rural municipality. As reported, these additional variables do not affect our previous findings and the variable measuring farmers' political representation remains positive and highly significant. We also find that in municipalities closer to the capital of the voivodship the rate of restructuring was faster. Finally, in column (8) we additionally control for the density of population.[12] Consistent

[12] As the data for 1996 was not available, we use here the data for 2002.

with findings from other studies (e.g. Goetz and Debertin, 2001, Landi et al., 2016), we observe that municipalities more densely populated experienced faster structural change. That said, the coefficient on farmers' political influence, although slightly smaller in magnitude than before, remains positive and precisely estimated.[13] Overall, our results show that farmers' political representation in local authorities had a negative impact on structural change in agricultural sector. This in turn is consistent with the hypothesis that in municipalities where agricultural interest groups could have captured the power, local governments acted in the interest of farmers' lobby.

Table 4 investigates the robustness of our findings and repeats the same analysis but without municipalities in which we observe an increase in the number of farms between 1996-2010. This is done to address a potential concern that these municipalities may greatly differ from the municipalities which experienced a decrease in the number of farms. In consequence it might be argued that what we capture with our measure of political influence is the effect of these unobservable differences between the two types of municipalities. As reported in Table 4 however, after dropping the municipalities with a positive change in the number of farms over the analysed period, our results remain very robust and qualitatively similar to the baseline estimates. In other robustness test (not reported[14]), we control for potential outliers by excluding from the sample 1% or 5% of extreme observations from the bottom and the top of distribution of the dependent variable. Our findings remain robust to these exercises.

Table 4. Decline in the number of farms between 1996-2010 and farmers' political representation in 1994, sub-sample, OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political representation 1994	0.126***	0.127***	0.117***	0.121***	0.127***	0.109***	0.0887***	0.0578**

[13] In additional robustness tests which we do not report here we also checked if our results hold when we control for the share of people in post- and pre-working age. Our results are robust to this inclusion and the coefficient of interest is 0.047 with standard deviation 0.025. Further, we find that the higher the share of population in post-productive working age the slower the rate of restructuring. The data on age structure however are available only for 2002 and thus may raise some concerns related to the reverse causality problem. This is because exits from farming and migration processes this can cause may have profound impact on the age structure of those who remained in rural areas. This needs to be taken into account when interpreting our results.

[14] We do not report these results for brevity reasons. They are, however, available upon request.

	(0.0218)	(0.0218)	(0.0225)	(0.0251)	(0.0248)	(0.0247)	(0.0230)	(0.0224)
Log of number of farms 1996	0.000831	0.00152	-0.00675	0.00208	-0.00577	0.00400	0.00737	0.0156
	(0.0116)	(0.0117)	(0.0122)	(0.0119)	(0.0120)	(0.0117)	(0.0121)	(0.0116)
Municipalities with farms >100 ha 1996		-0.0117		-0.0101	-0.00934	-0.00971	-0.00876	-0.0155
		(0.00916)		(0.00985)	(0.00992)	(0.00980)	(0.00967)	(0.00941)
Share of agric land 1996				0.0128	0.0187	0.0424	0.0438	0.166***
				(0.0408)	(0.0377)	(0.0403)	(0.0375)	(0.0422)
Share of farms producing for sales 1996				0.00131		0.00992	0.00237	-0.0686*
				(0.0396)		(0.0407)	(0.0406)	(0.0411)
Log of number of farms >15 ha 1996						-0.105**	-0.0828*	-0.0588
						(0.0498)	(0.0487)	(0.0489)
Share of farms living only from agriculture 1996						0.0339	0.0305	0.0414
						(0.0519)	(0.0506)	(0.0506)
Share of crop farms 1996							0.000608***	0.000393**
							(0.000198)	(0.000198)
Share of animal farms 1996							-0.0190**	-0.00860
							(0.00959)	(0.00939)
Distance from the capital of voivodship			0.00663					
			(0.00573)					
Number of urban neighbours								-0.0727***
								(0.0137)
Log of population density 2002	-0.342***	-0.337***	-0.315***	-0.349***	-0.291***	-0.334***	-0.381***	-0.186**
	(0.0810)	(0.0802)	(0.0822)	(0.0836)	(0.0817)	(0.0810)	(0.0824)	(0.0897)
Observations	1,358	1,358	1,305	1,236	1,234	1,236	1,236	1,236
R-squared	0.220	0.221	0.227	0.227	0.226	0.238	0.256	0.277
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

As mentioned above, our identification strategy rests on the assumption that that unobservable factors which were likely to affect structural change in the period 1996-2010 were not correlated with shocks affecting the electoral outcome in 1994. To make this assumption more probable we increase the period between the election results and the observed structural change. In that case we use the 1994 election data to explain structural change over the period 2002-2010. The relevant results are presented in Table 5. As clearly shown, the coefficient of interest is still positive and highly significant. Importantly, these results are robust to excluding 1% or 5% of extreme observations

from the top and the bottom of the distribution as before. That said in the latter case the coefficients are slightly less precisely estimated.[15]

Table 5. Decline in the number of farms between 2002 and 2010 and farmers' political representation in 1994, OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political representation 1994	0.124***	0.125***	0.113***	0.0920***	0.104***	0.0762***	0.0528**	0.0469*
	(0.0229)	(0.0229)	(0.0229)	(0.0250)	(0.0244)	(0.0249)	(0.0238)	(0.0246)
Log of number of farms 1996	-0.0245*	-0.0236*	-0.0312**	-0.0172	-0.0310**	-0.0131	-0.00625	-0.00474
	(0.0133)	(0.0133)	(0.0134)	(0.0137)	(0.0129)	(0.0131)	(0.0132)	(0.0134)
Municipalities with farms >100 ha 1996		-0.0142		-0.0182*	-0.0161	-0.0169*	-0.0157*	-0.0168*
		(0.00939)		(0.00979)	(0.00996)	(0.00960)	(0.00950)	(0.00954)
Share of agric land 1996				-0.0389	-0.0149	-0.000876	0.00214	0.0243
				(0.0434)	(0.0405)	(0.0427)	(0.0401)	(0.0452)
Share of farms producing for sales 1996				0.0996**		0.121***	0.106**	0.0938**
				(0.0435)		(0.0434)	(0.0431)	(0.0420)
Log of number of farms >15 ha 1996			0.0102					
			(0.00704)					
Share of farms living only from agriculture 1996					0.167*			
					(0.0890)			
Share of crop farms 1996						-0.172***	-0.139***	-0.135***
						(0.0507)	(0.0477)	(0.0478)
Share of animal farms 1996						0.00338	0.00511	0.00655
						(0.0540)	(0.0527)	(0.0529)
Distance from the capital of voivodship							0.000660***	0.000619***
							(0.000192)	(0.000194)
Number of urban neighbours							-0.0271***	-0.0252***
							(0.00929)	(0.00933)
Log of population density 2002								-0.0129
								(0.0151)
Constant	-0.157*	-0.152	-0.150	-0.208**	-0.106	-0.184*	-0.252***	-0.218**
	(0.0935)	(0.0929)	(0.0955)	(0.0995)	(0.0910)	(0.0958)	(0.0951)	(0.100)
Observations	1,546	1,546	1,475	1,407	1,404	1,407	1,407	1,407
R-squared	0.161	0.163	0.171	0.168	0.167	0.186	0.210	0.211

[15] When we exclude 5% of the top and the bottom observations the coefficient of interest is significant at 10% level in two regressions (regressions 6 and 8) and not significant in one regression (regression 7). In the rest of the models the level of significance is at least 5%. These additional results can be obtained upon request.

As a final robustness test, and to further address the endogeneity issue, we investigate the relationship in question using instrumental variables approach. To build our instrument for farmers' political influence we take advantage of two sources of variation in the data. First, we note that farmers' chances to introduce their representatives to the local government is higher in municipalities where agriculture plays more important role in the local economy. This is because we may assume that in these municipalities people earning their living in agricultural sector constitute a relatively large fraction of the electorate. Second, the chances for winning political representation are the higher, the higher is the voter turnout. Accordingly, our instrument is an interaction term between the share of agricultural land in the total area and voter turnout. The identification strategy in this case relies on the interaction term being exogenous conditional on the observable characteristics which we control in our regressions. It seems reasonable to assume that voter turnout does not have a direct effect on structural change, except through its impact on the composition of the local government. To make the assumption about the exogeneity of the importance of agricultural sector more probable we measure it using the variable referring to the past. More specifically, our dependent variable in this model is the relative change in the number of farms between 2002 and 2010. Our instrument on the other hand is the interaction term between the voter turnout from elections in 2002 and the share of agricultural land in the total area in 1996 (the earliest data available). Results from this exercise are reported in Table 6. As presented, they are fully in line with the previous findings and strongly support the hypothesis that farmers' political representation significantly slowed down the speed of restructuring in the agricultural sector.

Table 6. IV 2SLS estimates (second stage), decline in the number of farms between 2002-2010 and farmers' political representation in 2002

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political representation 2002	0.284***	0.293***	0.342***	1.252***	1.468**	1.191***	1.209**	1.474*
	(0.0849)	(0.0850)	(0.110)	(0.397)	(0.612)	(0.439)	(0.612)	(0.895)
Log of number of farms 1996	-0.0154	-0.0139	-0.0133	-0.000963	0.0558	-0.000972	-9.37e-05	-0.0119
	(0.0146)	(0.0147)	(0.0171)	(0.0194)	(0.0431)	(0.0185)	(0.0187)	(0.0217)
Municipalities with farms >100 ha 1996		-0.0178*		0.00393	-0.00926	0.00315	0.00401	0.0177
		(0.00999)		(0.0172)	(0.0173)	(0.0170)	(0.0187)	(0.0294)

Share of agric land 1996				-0.0406	-0.318**	-0.0269	-0.0304	-0.238
				(0.0549)	(0.146)	(0.0545)	(0.0566)	(0.184)
Share of farms producing for sales 1996				-0.654**		-0.616**	-0.626	-0.646
				(0.264)		(0.298)	(0.395)	(0.470)
Log of number of farms >15 ha 1996			-0.00985					
			(0.0106)					
Share of farms living only from agriculture 1996					-1.501*			
					(0.775)			
Share of crop farms 1996						-0.0341	-0.0377	-0.0615
						(0.0923)	(0.0943)	(0.0968)
Share of animal farms 1996						0.0315	0.0308	0.0186
						(0.0846)	(0.0862)	(0.0954)
Distance from the capital of voivodship							-0.000199	1.24e-05
							(0.000537)	(0.000499)
Number of urban neighbours							-0.00179	-0.0145
							(0.0166)	(0.0127)
Log of population density 2002								0.118
								(0.0894)
Constant	-0.253**	-0.251**	-0.243**	-0.233*	-0.622**	-0.232*	-0.219	-0.526**
	(0.114)	(0.113)	(0.118)	(0.131)	(0.271)	(0.132)	(0.138)	(0.265)
Observations	1,406	1,406	1,342	1,406	1,403	1,406	1,406	1,406
R-squared	0.132	0.130	0.117					

In addition to the results based on the change in the number of farms over the period 1996-2010 as our outcome variable, in Table 7 we report the effect of farmers' political representation in local authorities on the restructuring in agricultural sector measured as the ratio in the average farm sizes in 2010 and 2002. The evidence we provide is fully consistent with the previous pattern and shows that in municipalities where farmers' political influence was stronger, land consolidation process proceeded more slowly. This is indicated by the negative and statistically significant coefficient on the main variable of interest.

Table 7. Land consolidation process between 2002 and 2010 and farmers' political representation in 1994, OLS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Political representation 1994	-0.245***	-0.247***	-0.287***	-0.243***	-0.186***	-0.222***	-0.121*	-0.0930
	(0.0597)	(0.0606)	(0.0754)	(0.0838)	(0.0696)	(0.0816)	(0.0683)	(0.0714)
Log of number of farms 1996	-0.0353	-0.0364	-0.0186	-0.00257	-0.00590	-0.00735	-0.0527	-0.0598
	(0.0422)	(0.0439)	(0.0434)	(0.0369)	(0.0356)	(0.0374)	(0.0414)	(0.0421)
Municipalities with farms >100 ha 1996		0.0182		0.0578	0.0646	0.0562	0.0434	0.0486
		(0.0515)		(0.0432)	(0.0444)	(0.0427)	(0.0391)	(0.0397)

Share of agric land 1996				-0.560***	-0.448***	-0.617***	-0.600***	-0.704***
				(0.163)	(0.147)	(0.179)	(0.156)	(0.198)
Share of farms producing for sales 1996				0.300*		0.281	0.365**	0.424**
				(0.171)		(0.174)	(0.182)	(0.194)
Log of number of farms >15 ha 1996			0.00779					
			(0.0186)					
Share of farms living only from agriculture 1996					0.491			
					(0.358)			
Share of crop farms 1996						0.202	0.0729	0.0535
						(0.141)	(0.122)	(0.124)
Share of animal farms 1996						-0.0683	-0.0683	-0.0750
						(0.161)	(0.157)	(0.158)
Distance from the capital of voivodship							-0.00156***	-0.00137***
							(0.000482)	(0.000444)
Number of urban neighbours							0.170***	0.161***
							(0.0634)	(0.0611)
Log of population density 2002								0.0606
								(0.0490)
Constant	1.916***	1.909***	1.786***	1.862***	1.880***	1.845***	2.083***	1.922***
	(0.319)	(0.309)	(0.307)	(0.247)	(0.253)	(0.253)	(0.276)	(0.288)
Observations	1,546	1,546	1,475	1,407	1,404	1,407	1,407	1,407

5.3. Discussion

While we document that the process of structural change has been slower in municipalities where the distribution of political power was skewed towards representatives of agricultural interests, we do not analyse what welfare implications this might have brought about. Often, structural change is expected to be accompanied by efficiency gains which should follow the reallocation of resources. If these assumptions are correct then one could argue that slowing down the process of agricultural change, despite being favourable to (small-scale) farmers, would bring welfare losses for the society as a whole. In other words, if one assumes that structural change is associated with reallocation of resources from less productive to more productive sectors than slowing down this process may be perceived as reducing overall welfare and thus as socially undesirable. That said, it should be noted that there is a lot of debate in rural sociology and anthropology whether adopting structural change paradigm in agricultural and rural development policies is correct. In fact some authors

argue that especially in the long run small scale farms are indispensible factor assuring the strength of the farming community as well as vitality in rural areas in general (see e.g. Edelman and Haugerud, 2005; Akram-Lodhi and Kay, 2008; or EU, 2016).

6. Conclusions

There is a lot of debate about potential factors that are likely to discourage or encourage structural change. Much of the literature focuses on the role played by various aspects of the economic environment. While we do not aim at challenging these explanations, we try to complement them and argue that political factors may be also important. In this context, special attention should be paid to the distribution of political power and the possibility that agricultural interest groups can capture political power and control local governments.

By highlighting the impact of rural politics on structural change we also aim to improve our understanding of the reasons for a huge diversity in farm structures emerging from the transition period in Central and Eastern Europe. In fact, as argued by some authors, the patterns of farm structures' development in transition countries have been different from the ones which were expected *ex ante* (see e.g. Swinnen, 2009).

Using municipality level data from Poland, in this paper we show that structural change in agricultural sector may indeed have been driven not only by economics, but also, and perhaps more importantly, by local politics. In particular, we provide evidence that during the transition period from a centrally planned to a market economy the net exit rate from farming was lower in regions where farmers had stronger political representation in municipality councils. This result is consistent with two basic predictions of the political rent seeking theory: 1) that interest groups will take actions to prevent changes that are likely to threaten their rents and political influence and 2) that politicians will cater to the needs of these special interests in order to maximise their chances of being (re)elected.

While we find that farmers might have influenced the pace and direction of structural change through their presence in local politics, we do not analyse the welfare impacts of

this phenomenon. Consequently, our analysis abstracts from the fact whether this was done at the expense of the rest of (rural) population or in favour of local development. Future studies which would try to assess these issues could serve as an example of research which may complement the analysis presented in this paper.

References

Acemoglu, D. (2009). *Introduction to Modern Economic Growth*, Princeton: Princeton University Press.

Acemoglu, D., Robinson, J. A. (2006). Economic Backwardness in Political Perspective, *American Political Science Review*, 100 (1), 115–131.

Acemoglu, D., Robinson, J. A. (2001). Inefficient Redistribution. *American Political Science Review*, 95 (3), 649–661.

Ahearn M. C., Yee, J., Korb, P. (2005). Effects of Differing Farm Policies on Farm Structure and Dynamics, *American Journal of Agricultural Economics*, 87 (5), 1182–1189.

Akram-Lodhi, H., Kay, C. (eds.) (2008). *Peasants and globalisation: political economy, rural transformation and the agrarian question.* London: Routledge.

Albertus, M. (2015). The Role of Subnational Politicians in Distributive Politics: Political Bias in Venezuela's Land Reform Under Chavez, *Comparative Political Studies*, 48 (13), 1667–1710.

Alesina, A., Drazen, A. (1991). Why Are Stabilizations Delayed?, *American Economic Review*, 81, 1170–1188.

Anderson, K., Rausser, G., Swinnen, J. (2013). Political Economy of Public Policies: Insights from Distortions to Agricultural and Food Markets, *Journal of Economic Literature*, 51 (2), 423–477.

Bilsen, V., Konings, J. (1998). Job creation, job destruction and employment growth in newly established firms in transition countries: survey evidence from Romania, Bulgaria and Hungary. *Journal of Comparative Economics*, 26, 429–445.

Breustedt, G., Glauben, T. (2007). Driving Forces behind Exiting from Farming in Western Europe, *Journal of Agricultural Economics*, 58 (1), 115–127.

Buchanan, J., Tollison, R. D., Tullock, G. (eds.) (1980). *Toward a Theory of the Rent Seeking Society*, College Station: Texas A&M University Press.

Bukraba-Rylska, I. (ed.) (2004). *Polska wieś w społecznej świadomości*, Warszawa: IRWiR PAN.

Caselli, F., Coleman, J. (2001). The U.S. Structural Transformation and Regional Convergence, *Journal of Political Economy*, 109, 584–616.

Chavas, J.-P., (2001). Structural Change in Agricultural Production: Economics, Technology and Policy, in: Gardner, B., Rausser, G. (eds.) *Handbook of Agricultural Economics*, Vol. 1, Amsterdam: Elsevier Science, 263–285.

Coate, S. T., Morris, S. E. (1995). On the Form of Transfers to Special Interests, *Journal of Political Economy*, 103, 1210–1235.

Conning, J. H., Robinson, J. A. (2007). Property rights and the political organization of agriculture, *Journal of Development Economics*, 82, 416–447.

Czapiński, J., Panek, T. (2004). *Diagnoza społeczna 2003. Warunki i jakość życia Polaków*, Warszawa: Wyższa Szkoła Finansów i Zarządzania.

Davidova, S. (2011). Semi-Subsistence Farming: An Elusive Concept Posing Thorny Policy Questions, *Journal of Agricultural Economics*, 62 (3), 503–524.

De Gorter, H., Swinnen, J. F. M. (2002). Political Economy of Agricultural Policies, in: Gardner, B., Rausser, G. (eds.) *Handbook of Agricultural Economics*, Vol. 2, Amsterdam: Elsevier Science, 2073–2123.

Dixit, A., Londregan, J. (1995). Redistributive Politics and Economic Efficiency, *American Political Science Review*, 89 (4), 856–866.

Dixit, A., Londregan, J. (1998). Ideology, tactics, and efficiency in redistributive politics. *Quarterly Journal Economics*, 113(2), 497–529.

Drazen, A., 1996. The political economy of delayed reform. *Journal of Policy Reform* 1 (1).

Eastwood, R., Lipton, M,. Newell, A. (2010). Farm size. In: Pingali, P., Evenson, R. (eds.), *Handbook of Agricultural Economics*. Vol. 4,. Amsterdam: Elsevier Science, 3323–3397.

Edelman, M., Haugerud, A. (eds.) (2005). *The anthropology of development and globalisation: from classical political economy to contemporary neoliberalism*. Oxford: Blackwell.

EU (2016). *Research for Agri Committee - Structural Change in EU Farming: How Can the CAP Support a 21st Century European Model of Agriculture?*, Brussels: European Parliament.

Fedyszak-Radziejowska, B. (ed.) (1995). *Wieś i jej mieszkańcy*, Warszawa: IRWiR PAN.

Fedyszak-Radziejowska, B. (2002), Charakterystyka społeczno-ekonomiczna mieszkańców wsi, in: Kolarska-Bobińska, L. (ed.), *Mieszkańcy wsi o integracji europejskiej: Opinie, wiedza, poinformowanie*, Warszawa: Instytut Spraw Publicznych, 7-24.

Fernandez, R., Rodrik D. (1991). Resistance to Reform: Status Quo Bias and the Presence of Individual Specific Uncertainty, *American Economic Review*, 81, 1146–1155.

Fidrmuc, J. (2000a). Political support for reforms: economics of voting in transition countries. *European Economic Review*, 44, 1491–1513.

Fidrmuc, J. (2000b). Economics of voting in post-Communist countries. *Electoral Studies* 19, 197–217.

Foltz, J. D. (2004). Entry, exit, and farm size: assessing an experiment in dairy price policy, *American Journal of Agricultural Economics*, 86 (3), 594–604.

Frenkel, I. (2003). *Ludność, zatrudnienie i bezrobocie na wsi. Dekada przemian*, Warszawa: IRWiR PAN.

Gale, H. F. (2003). Age-specific patterns of exit and entry in U.S. farming; 1978–1997, *Review of Agricultural Economics*, 25, 168–186.

Goetz, S. J., Debertin, D. L. (2001). Why Farmers Quit: A County-Level Analysis, *American Journal of Agricultural Economics*, 83 (4), 1010–1023.

Goraj, L. (2005). Ekonomiczno-rynkowe uwarunkowania przekształceń w sektorze indywidualnych gospodarstw rolnych, *Wieś i Rolnictwo*, 4(129), 31–40.

Granovetter, M. (1985). Economic Action and Social Structure: The Problem of Embeddedness, *American Journal of Sociology*, 91(3), 481–510.

Grossman, G. M., Helpman, E. (2001). *Special Interest Politics*. Cambridge: MIT Press.

Grüner, H. P., Muller, D. (2016). Measuring political information rents: Evidence from the European agricultural reform. *European Journal of Political Economy*, 43, 107–126.

GUS (2003). *Ludność i gospodarstwa domowe. Stan i struktura społeczno-ekonomiczna 2002*. Warszawa: ZWS.

GUS (2008). Rocznik statystyczny rolnictwa i obszarów wiejskich 2007. Warszawa: ZWS.

GUS (2014). *Ludność i gospodarstwa domowe. Stan i struktura społeczno-ekonomiczna. Część II. Gospodarstwa domowe. Narodowy Spis Ludności i Mieszkań 2011*. Warszawa: ZWS.

Harper, M. (2000). Economic voting in post-Communist Eastern Europe. *Comparative Political Studies*, 33, 1191–1227.

Hellman, J. S. (1998). Winners Take All: The Politics of Partial Reform in Post-Communist Transition, *World Politics*, 50 (2), 203–234.

Herbst, J. (2008). Wieś obywatelska, In: Wilkin, J, Nurzyńska, I. (eds.) *Polska wieś 2008. Raport o stanie wsi*, Warszawa: Scholar, 159–179.

Hillman, A. L. (2009). *Public Finance and Public Policy: Responsibilities and Limitations of Government*. 2nd edition. New York: Cambridge University Press.

Hillman, A. L. (2010). Expressive behaviour in economics and politics, *European Journal of Political Economy*, 26, 403–418.

Hoppe, R. A., Korb, P. (2006). Understanding U.S. farm exits. Economic Research Report 21, United States Dept. of Agriculture, Washington DC.

Huettel, S., Margarian, A. (2009). Structural change in the West German agricultural sector, *Agricultural Economics*, 40, 759–772.

Imbs, J., Montenegro, C., Wacziarg, R. (2012). Economic integration and structural change, unpublished manuscript.

Jackson, J. E., Klich, J., Poznańska, K. (2003). Economic transition and elections in Poland. *Economics of Transition*, 11, 41–66.

Jackson, J. E., Klich, J., Poznańska, K. (2005). *The Political Economy of Poland's Transition: New Jobs and Reform Governments in Poland*. Cambridge: Cambridge University Press.

Józwiak, W. (ed.) (2008). *Efektywność funkcjonowania, aktywność inwestycyjna i zdolność konkurencyjna polskich gospodarstw rolnych osób fizycznych*, Raport PW nr 108, Warszawa: IERiGŻ-PIB.

Key, N., Roberts, M. J. (2006). Government Payments and Farm Business Survival, *American Journal of Agricultural Economics*, 88 (2), 382–392.

Kongsamut, P., Rebelo, S., Xie, D. (2001). Beyond balanced growth, *Review of Economic Studies*, 48, 869–882.

Kornai, J. (2006). The great transformation of central and eastern Europe: success and disappointment, *Economics of Transition*, 14 (2), 207–244.

Kunovich, R. M. (2002). Throwing the rascals out: macroeconomic conditions, personal economic hardship, and protest voting. In: Słomczyński, K.M. (Ed.), *Social Structure: Changes and Linkages*. Warszawa: IFiS PAN, 201–220.

Kuznets, S. (1966). *Modern Economic Growth*. New Haven, Conn.: Yale University Press.

Mach, B. W., Jackson, J. E. (2006). Employment change, attitude evolution and voting during Poland's transition: Longitudinal evidence. *European Journal of Political Economy*, 22, 472–502.

Matsuyama, K. (2008). Structural change, in: Durlauf, S. N., Blume, L. (eds.) *The New Palgrave Dictionary of Economics*, 2nd ed. New York: Macmillan.

Mechtel, M. (2014). It's the occupation, stupid! Explaining candidates' success in low-information elections. *European Journal of Political Economy*, 33, 53–70.

Milczarek, D. (2002). *Privatization as a process of institutional change. The case of state farms in Poland*, Aachen: Shaker Publisher.

Mishra, A. K., Fannin, J. M., Joo, H. (2014). Off-farm work, intensity of government payments, and farm exits: Evidence from a national survey in the United States, *Canadian Journal of Agricultural Economics*, 62 (2), 283–306.

Landi, C., Stefani, G., Rocchi, B., Lombardi, G.V., Giampaolo, S. (2016). Regional Differentiation and Farm Exit: A Hierarchical Model for Tuscany, *Journal of Agricultural Economics*, 67 (1), 208–230.

Lerman, Z., Csaki, C., Feder, G. (2004). *Agriculture in Transition: Land Policies and Evolving Farm Structures in Post-Soviet Countries*, Lanham: Lexington Books.

Przeworski, A. (2001). Public support for economic reforms in Poland. In: Stokes, S.C. (Ed.), *Public Support for Market Reforms in New Democracies*. Cambridge: Cambridge University Press, 103–127.

Olper, A., Raimondi, V., Cavicchioli, D., Vigani, M. (2014). Do CAP payments reduce farm labour migration? A panel data analysis across EU regions, *European Review of Agricultural Economics*, 41 (5), 843–873.

Rahelizatovo, N. C., Gillespie, J. M. (1999). Dairy farm size, entry, and exit in a declining production region, *Journal of Agriculture and Applied Economics*, 31, 333–347.

RDP (2010). *Polish Rural Development Plan 2007–2013*. version from March 2010. available at the webpage of the Ministry of Agriculture and Rural Development: www.minrol.gov.pl.

Robinson, J. A., Verdier, T. (2013). The Political Economy of Clientelism, *Scandinavian Journal of Economics*, 115 (2), 260–291.

Rodrik, D. (1996). Understanding economic policy reform. *Journal of Economic Literature*, 34 (1), 9–41.

Roland, G. (2002). The Political Economy of Transition, *Journal of Economic Perspectives*, 16 (1), 29–50.

Rosner, A. (ed.) (1993). *Rolnicy '92. Rolnicy wobec zmian systemowych*, Warszawa: CBOS.

Rozelle, S., Swinnen, J.F.M. (2004). Success and failure of reform: insights from the transition of agriculture, *Journal of Economic Literature*, 42 (2), 404–456.

Saint-Paul, G., 2000. *The Political Economy of Labour Market Institutions*. Oxford: Oxford University Press.

Spoor, M. (ed.) (2009). *The political economy of rural livelihoods in transition economies. Land, peasants and rural poverty in transition.* London: Routledge.

Szafraniec, K. (ed.) (2006). *Jednostkowe i społeczne zasoby wsi*, Warszawa: IRWiR PAN.

Swinnen, J. F. M. (2009). Reforms, globalization, and endogenous agricultural structures, *Agricultural Economics*, 40 supplement, 719–732.

Swinnen, J. F. M., Dries, L., Macours, K. (2005). Transition and agricultural labor, *Agricultural Economics*, 32, 15–34.

Weiss, C. R. (1999). Farm growth and survival: Econometric evidence for individual farms in Upper Austria, *American Journal of Agricultural Economics*, 81, 103–116.

Wilkin, J. (2000). Postrzeganie przez ludność wiejską roli państwa w transformacji polskiego rolnictwa, In: Instytut Spraw Publicznych (ed.), *Chłop, rolnik czy farmer? Przystąpienie Polski do Unii Europejskiej - nadzieje i obawy polskiej wsi*. Warszawa: Instytut Spraw Publicznych, 80–86.

Wilkin, J. (2007). Przemiany na obszarach wiejskich w Polsce w okresie transformacji systemowej i integracji europejskiej, in: Kłodziński, M., Błąd, M., Wilczyński, R. (eds.) *Odnowa wsi w integrującej się Europie*, Warszawa: IRWiR PAN.

Wilkin, J., Nurzyńska, I. (eds.) (2002). *Polska wieś 2002. Raport o stanie wsi*, Warszawa: FDPA,.

Williamson, O. (1975). *Markets and Hierarchies*. New York: Free Press.

Winters, P., Essam, T., Zezza, A., Davis, B., Carletto, C. (2010). Patterns of rural development: A cross-country comparison using microeconomic data, *Journal of Agricultural Economics*, 61(3), 628–651.

Woś, A. (2000). *Rolnictwo polskie 1945-2000. Porównawcza analiza systemowa*, Warszawa: IERiGŻ.

Zawalińska, K. (2002). A Review of Quantitative Studies on the Competitiveness of Polish Agri-Food Products, 1990-2000, IDARA Working Paper 2/10, January 2002.