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Agricultural Decollectivization in Central and Eastern Europe

INTRODUCTION

Under the communist regime, agricultural production, in most Central and Eastern European Countries (CEECs), used to be organized in large-scale collective and state farms. Economic reforms since 1989 include both the privatization of agricultural assets and the restructuring of state and collective farms. Quite remarkably, the break-up of large-scale agricultural production units into individually operated farms – a process we define as decollectivization – differs considerably in the various countries. We define decollectivization in a very strict sense, as the break-up of state and collective farms into individual farms. A common critique is that, defined in this way, the issue is one of 'fragmentation' rather than 'decollectivization'. While the two concepts coincide in some cases, such as Albania, this is not necessarily the case in general. In most of the CEECs we study, many individual farms cover 100 hectares and more.

Our calculations give an index of decollectivization (DI), based on the percentage of agricultural land used by individual farms but corrected for the initial situation, which varies between 5 and 95 per cent in the different countries of Central and Eastern Europe (Table 1). The value is low in countries where large-scale successor organizations to the former state and collective farms still dominate, such as Slovakia (5 per cent), Hungary (13 per cent) and the Czech Republic (20 per cent). The index is highest in Albania (95 per cent) and Latvia (80 per cent), where a massive break-up of the collective farms resulted in a domination of individual production units. Within the CEECs there is also wide variation in the decollectivization between different regions and agricultural sub-sectors.

Are these differences random? We argue that they are not, and discuss some of the factors affecting the decollectivization process. This paper presents the intuition behind the results derived and discussed more extensively in Mathijs and Swinnen (1998). The empirical analysis is based on data from nine countries and presents remarkable correlations between decollectivization and our explanatory variables. Specifically, it suggests the importance of relative productivity, factor intensity and privatization procedures in explaining differences in decollectivization between CEECs.

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TABLE 1 *Decollectivization index (DI), 1994*

Country	Decollectivization index (%)
Albania	95
Latvia	80
Lithuania	60
Romania	47
Estonia	38
Bulgaria	36
Czech Republic	20
Hungary	13
East Germany	11
Slovakia	5

Note: The DI is calculated by dividing the difference between the share of individual farms in total agricultural land in 1994 (IND94) and in 1989 (IND89) by 100 minus the share of individual farms in total agricultural land in 1989: DI = (IND94 – IND89)/(100 – IND89). Data on land use are derived from Swinnen *et al.* (1997).

THE PROCESS OF DECOLLECTIVIZATION

The whole process is driven by the decision of collective farm members to leave the collective production framework and start up individual farms. As suggested by Carter (1987) and Machnes and Schnytzer (1993), this decision, in principle, involves comparing the expected utility of being a member of a collective farm with that of leaving and starting up an individual farm, independent of the collective farm.

Their model of the collective farm is an extension of the Ward–Domar–Vanek approach to agricultural producer cooperatives and labour-managed firms (Bradley, 1971; Israelsen, 1980). We extend their standard model by relaxing assumptions about fixed membership, a homogeneous workforce with identical labour productivity and a perfectly democratic labour-managed firm. Furthermore, we explicitly take into account the costs of leaving the collective farm and analyse how exit costs (and, thus, the decollectivization process) are affected by exogenous factors, such as farm-specific labour productivity, factor intensity, technology, asset privatization procedures and government regulations.

This framework accounts for both advantages and disadvantages in collective production emphasized in the literature. Disadvantages include high transaction costs associated with the monitoring of labour and inefficiencies due to the right of codetermination (Lin, 1988; Schmitt, 1993). Advantages of collective farms include economies of scale in risk management, the provision of information and credit, input purchasing, marketing and production (Putterman, 1985; Carter, 1987; Pryor, 1992; Machnes and Schnytzer, 1993; Deininger, 1995). However, many of these advantages can also be captured by

individual farms, for example by establishing a service cooperative (Deininger, 1995).

FACTORS AFFECTING DECOLLECTIVIZATION

A number of factors affect the decision of a member to leave, and hence the process of decollectivization. First, risk has a negative effect on decollectivization only if collective farms have an advantage of scale in dealing with risk. However, we argue that this advantage is to a great extent only temporary and conditional on the transition period, which is characterized by uncertainty and missing markets. With the development of markets, differences in risk management disappear and the adverse impact of risk on decollectivization is reduced.

Second, terms of trade improvements stimulate decollectivization, independent of risk, because the marginal income effects of an output price increase, for example, are larger for an individual producer than for a collective farm member, other things being equal. An important policy implication of this result is that government interventions to increase farm output prices, as might occur through general price support policies, would stimulate decollectivization.

Third, decollectivization is inversely related to the pre-reform average productivity of the collective farm. Members compare their productivity with the average productivity of the collective farm, and are more likely to leave if their productivity is high and/or the average collective farm productivity is low. High initial average collective farm productivity therefore reduces the incentives of members to leave.

Finally, exit costs are costs related to the withdrawal of productive assets and reduce the benefits of leaving the collective farm. Their size is influenced by the capital intensity of production and the property rights distribution of the collective farm. It is easier and less costly for a member to withdraw from a more labour-intensive collective farm than from one which is more capital-intensive. The privatization procedure affects the allocation of production factors in the presence of transaction costs and therefore influences the decollectivization process. As a result of high transaction costs for former owners who left agriculture under communism, so-called 'outsiders', restitution of land does not necessarily lead to a fragmentation of farm structures. The opposite may happen: restitution may lead to consolidation of large-scale farms as these outsiders prefer to lease their land to the collective farm. Transaction costs are lower for members, or 'insiders', who also have more incentives to start up an individual farm. Therefore we predict that distribution of assets to members stimulates decollectivization, while restitution to outsiders may hinder decollectivization. Privatization and decollectivization policies can decrease exit costs, by facilitating the withdrawal of assets from the collective farm, or increase exit costs if they have the opposite effect. The latter is most frequently observed in practice. Less productive members and management also try to increase exit costs (a) by influencing the regulations for privatization of property rights and factor allocation at the government decision-making level and (b) by slowing down and limiting the implementation of the registration at the farm level.

EMPIRICAL EVIDENCE

The quality and quantity of the available information, as well as the nature of the transition, do not, as yet, allow a sophisticated empirical analysis to be attempted. Therefore the empirical evidence has to be interpreted as being indicative, rather than conclusive. The reasons are listed below.

First, there are no consistent data to calculate the impact of *prices and risk* on decollectivization. We do observe that the adverse movement in the agricultural terms of trade in 1989–91 has stabilized throughout the CEECs, and that the situation has improved substantially for some commodities since 1991. We can also conclude that price variation has reduced substantially since 1992, and that agricultural producers generally have a better understanding of the emerging market economy (Jackson and Swinnen, 1995). Both developments are correlated with increased decollectivization in CEECs.

Second, to analyse the impact of *average collective farm productivity*, we considered the relationship between the decollectivization index (DI) and pre-reform value added per farm worker (as a proxy for average collective farm productivity). Figure 1 shows that CEECs with low productivity on collective farms, such as Albania, have a significantly higher degree of decollectivation than those where collective farm productivity was higher, such as Hungary. Figure 1 is based on 1993 data on gross agricultural product (GAP) per worker.

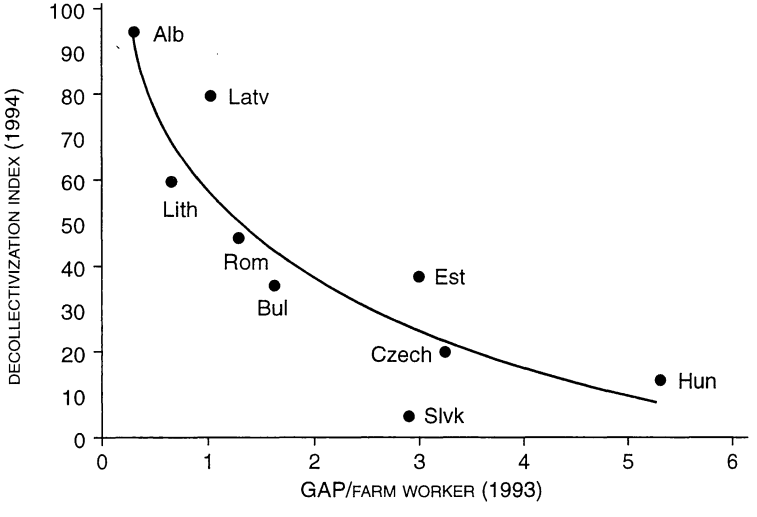

FIGURE 1 *Relationship between decollectivization in 1994 and gross agricultural product (GAP) in ECU per farm worker in 1993*

A better indicator would have been pre-reform GAP/collective farm worker data. However, necessary data for calculating this indicator were unavailable for several CEECs. A sensitivity analysis based on those CEECs for which necessary data were available suggests that there is no fundamental change in the relationship if pre-reform estimates of average productivity are used.

Third, to deal with the relationship between decollectivization and *factor intensity*, we used the share of agriculture in employment as a proxy for labour intensity: a high share implies a labour-intensive agriculture, generally characterized by a low degree of mechanization, making it easier to decollectivize. Figure 2 shows a positive relationship between decollectivization and the share of agriculture in employment, consistent with our expectations that decollectivization is more likely to occur where labour intensity is higher. Notice that the three Baltic countries are all above the curve in Figure 2. Latvia especially stands out. Its high rate of decollectivization has been further enhanced (a) by the egalitarian pre-1945 land distribution which implies that restitution of land returns land mostly to insiders, and (b) by the active restitution and decollectivization policy of the government. Latvia's active policy was inspired by nationalistic motivations, with land going to native Latvians in a country with a very high share (46 per cent) of ethnic non-Latvians in the population (see Rabinowicz, 1997, for extensive discussion and Swinnen, 1997, for an analysis of ethnic impacts on CEEC privatization choice). The Latvian

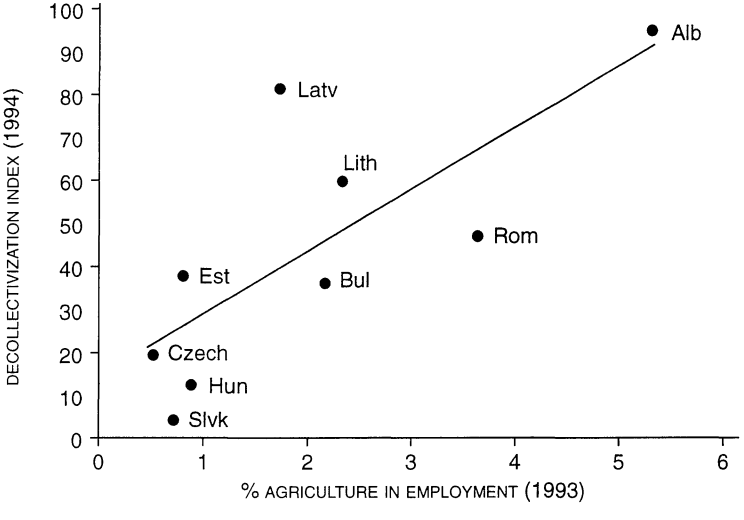

FIGURE 2 *Relationship between decollectivization in 1994 and the share of agriculture in total employment in 1993*

TABLE 2 *Various indicators of land reform and transformation regulations*

	Decollectivization index 1994	Share in total agricultural land (in %)				Share of agriculture in total employment 1993	Exit costs due to government regulations*
		Individual farms 1989	Privatized land by		State-owned land 1994		
			restitution	distribution			
Albania	95	4	—	93	3	53	1
Latvia	80	4	64	30	2	17	1
Lithuania	60	9	69	21	1	23	2
Romania	47	14	43–58	15–30	13	36	2
Estonia	38	4	74	22	—	8	2
Bulgaria	36	13	81	—	7	22	2
Czech Republic	20	—	79	—	13	5	2
Hungary	13	14	62	19	5	9	3
East Germany	11	10	82	—	8	na	2
Slovakia	5	—	74	—	20	7	3

Note: *Own estimate of exit costs induced by farm transformation regulations (1 = low, 2 = medium, 3 = high), based on case studies in Swinnen (1997) and Swinnen *et al.* (1997).

Source: Own calculations based on European Commission (1995), OECD (1996) and Swinnen *et al.* (1997).

reform regulations specify that individual farms are given the highest priority in land allocation. The lowest priority is given to reforming collective farms (quite unlike the case in many other CEECs, where collective farms receive preferential treatment).

Fourth, data on the impact of *land reform and transformation regulations* appear in Table 2 and suggest that decollectivization is more important where (a) more of the land was distributed to farm workers, (b) the share of agriculture in employment is high, and (c) exit costs are low. It is remarkable to see how the two countries at the extremes of the spectrum are exactly opposite in these three factors. Albania, where decollectivization is highest, distributed land to farm workers, has a high share of agriculture in employment and low policy-induced exit costs. Slovakia, where decollectivization is lowest, restituted land to former owners, has a low share of agriculture in employment and high policy-induced exit costs. These observations confirm the expectation that decollectivization is more likely when assets are distributed to insiders than to outsiders.

Finally, another factor which affects the relationship between land reform policies and decollectivization is the *pre-collectivization land ownership distribution*. A more fragmented pre-collectivization land distribution implies more transaction costs for potential farmers to set up a farm of a given size. This factor may also partly explain the difference in decollectivization between Slovakia and the Czech Republic. Inheritance rules were different in the two countries. In Slovakia, it was based on the Napoleonic code, which stipulates that all sons receive an equal piece of land upon their father's death. This resulted in a stronger fragmentation of land ownership than in the Czech Republic, where the eldest son inherited all the land. As a result, former owners received smaller plots in Slovakia than in the Czech Republic and faced more transaction costs to take out their land from the collective farm.

CONCLUSION

Important differences in decollectivization can be observed both between CEECs and between sectors and regions within these countries. This paper summarizes several factors that affect decollectivization. These include general economic factors, such as terms of trade and risk, and organizational factors that result in differences between collective and individual farms, such as differences in effective output prices, risk management and labour supply. We further show that productivity and the exit costs which a member faces when wishing to withdraw assets from the collective farm are important factors influencing the decision of collective farm members to stay or to leave and start up an individual farm.

Available data show empirical evidence consistent with our propositions. A relative improvement in terms of trade since the beginning of transition and gradual reduction of price variability and transition-related risk have induced an increase in decollectivization throughout CEECs. Our index of decollectivization is positively related with proxies for several of our explanatory variables. More specifically, the empirical analysis supports the conclusions

(a) that the average productivity of collective farms has a negative impact on decollectivization, (b) that decollectivization is less in capital- and land-intensive production activities, and (c) that privatization policies affect decollectivization.

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