

ORGANISATIONAL CHANGE IN AGRICULTURAL TRANSITION

Mechanisms of Restructuring Socialist Large-Scale Farms

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This article seeks to contribute to our understanding of farm restructuring in transition by trying to identify driving forces behind organisational change in agriculture. It focuses on the stakeholders' trade-off between internal transaction costs and switching costs. The article introduces factors determining the level of these two types of costs, such as the original size of the firm, inside-ownership and the type of production for internal transaction costs, and the remaining asset specificity after establishing the formal property rights for switching costs. The theoretical model is tested by data from a recent survey in two regions of the Czech Republic with both qualitative and quantitative analysis. The quantitative analysis characterises the downsizing process of distinguishable restructuring paths of 87 farms. Mechanisms of individual stakeholders' redeployment decisions are elaborated on the basis of five qualitative case studies. The article shows perspectives of further farm restructuring in European transition countries.

Keywords: reorganisation, transaction, specificity, transition, Czech agriculture

JEL classification index: L23, L33, P31, Q15

Agricultural production in transition countries has been completely reorganised in the 1990s. While in market economies agriculture is mainly organised as individual farms decreasing in number, during the transition process of Central and Eastern European Countries (CEEC) the number of organisations engaged in farming has sharply increased, and, consequently, the firms heavily downsized. Both newly founded farms and split-offs of the socialist state and collective farms caused this increase in the number of farms. However, in contrast to individual firms in Western agriculture, most agricultural assets in transition countries are still deployed by industrial-styled large-scale farms decreasing in importance for the agricultural structure. This development in post-socialist agriculture requires an explanation.

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This article will argue that two types of transaction costs (internal transaction costs and switching costs) determine agricultural firm restructuring in post-socialist countries. Contrary to other articles, this one explicitly considers the stakeholder's point of view on relevant transaction costs of running the agricultural firm and transaction costs of leaving the former socialist deployment of assets in the farm. Thus, the article seeks to answer the question of why agricultural restructuring in transition countries has mainly resulted in an increased number of organisations, which, nonetheless, can be still identified as large-scale farms. The article suggests that policies and organisational history determine the magnitude of firm restructuring in transition. As result, it is recommended that policies should be designed to assist exit options for stakeholders in order to promote firm restructuring.

The article is built up as follows: section 1 contains key elements of agricultural restructuring in transition countries, section 2 introduces the theoretical model, and section 3 provides empirical evidence for the difference between restructuring in early and advanced transition based on qualitative and quantitative analysis. Finally, the article contains a discussion of the results and policy implications (section 4) as well as final remarks (section 5).

1. AGRICULTURAL RESTRUCTURING IN TRANSITION

In the long run, stakeholders of a firm have to solve three principle problems: (a) to relate individual effort to common output, (b) to draw the organisation's boundaries by combining property rights on resources and (c) to adjust the existing organisation if changes in the institutional environment set new entrepreneurial frameworks (Adams, 1994; Carlin et al., 1995; Mathijs, 2000; Spulber, 1994). While in market economies the number of organisations engaged in agricultural production decreased over the past decades following technological progress in the sector, in CEECs we can observe a sharply increasing number of organisational units (OECD, 1999).

1.1. Problems and questions

In contrast to market economies where agricultural production is organised in individual farms such as family farms deploying only a small portion of hired labour, agricultural production in socialist countries was organised in large-scale farms where most of the labour was hired. Usually, hundreds of employees were organised in factory-styled firms, cultivating land which covered several villages,

as illustrated by the following examples (data from case studies conducted in May 2000 in Central and North Bohemia, Czech Republic):

- State Farm (SF) Lovošice: a workforce of 450 people cultivated on 5,500 hectares of land;
- Collective Farm (CF) Straškov: 375 employees farming on 3,300 hectares of land.

Table 1 additionally gives a brief characterisation of five successor farms, which were selected for qualitative case studies (see the survey description in the Appendix).

Table 1

Characterisation of five cases (legal entities) of agricultural firm restructuring

Characteristics	Case 1	Case 2	Case 3	Case 4	Case 5
Region	South Bohemia	South Bohemia	South Bohemia	North Bohemia	North Bohemia
Legal form 1989 ^a	CF	CF	SF	SF	SF
Legal form 1999 ^a	coop.	coop.	Ltd.	Ltd.	Ltd.
Shareholders 1999/2000	120	280	4	2	16
Farm size ^b	half	full	one fifth	one third	one third
Main products in 1999	milk, pork, crops	milk, pork, crops	milk, crops, horses	crops, fattened calves	crops, hop, fattening of heifer and pigs
Change in production ^c	no	no	some in animal keeping	yes, animal keeping	yes, animal keeping
Debate for assets ^d	no	no	yes	no	yes

^a Abbreviations: CF = collective farm, SF = state farm, coop. = cooperative, Ltd. = limited liability company.

^b Estimated farm size in 1999 in comparison to 1989.

^c Indicating a major change in the farm's production program; non-agricultural activities are not considered.

^d Struggle among stakeholders in early transition about the restructuring strategy.

Source: KATO Survey – own presentation.

When the individualisation of property rights over collective and state assets by means of restitution, privatisation and transformation took place (for the Czech case, cf. Ratering and Rabinowicz, 1997; Stryjan, 1998), the new individual stakeholder had to decide upon his re-deployment strategy of human and/or physical assets. This resulted in an increasing number of organisations as well as distinguishable reorganisation paths (Mathijs and Swinnen 1998).

Figure 1 illustrates two main reorganisation paths by means of selected farm characteristics over ten years of transition. The data are from the KATO survey (1999) in the Czech Republic – see the survey description in section 3.3. The two most important reorganisation paths for socialist assets are CF-Coop and SF-Ltd (MzČR 1999): CF-Coop indicates a firm that emerged from the *collective sector* (CF) and chose the legal form *cooperative* (Coop). SF-Ltd means restructuring of a *state farm* (SF) into a firm of the legal form *limited liability company* (Ltd.). Other legal forms are the public limited company (Plc), the partnership and sole proprietorship (i.e. physical entities or individual farms).

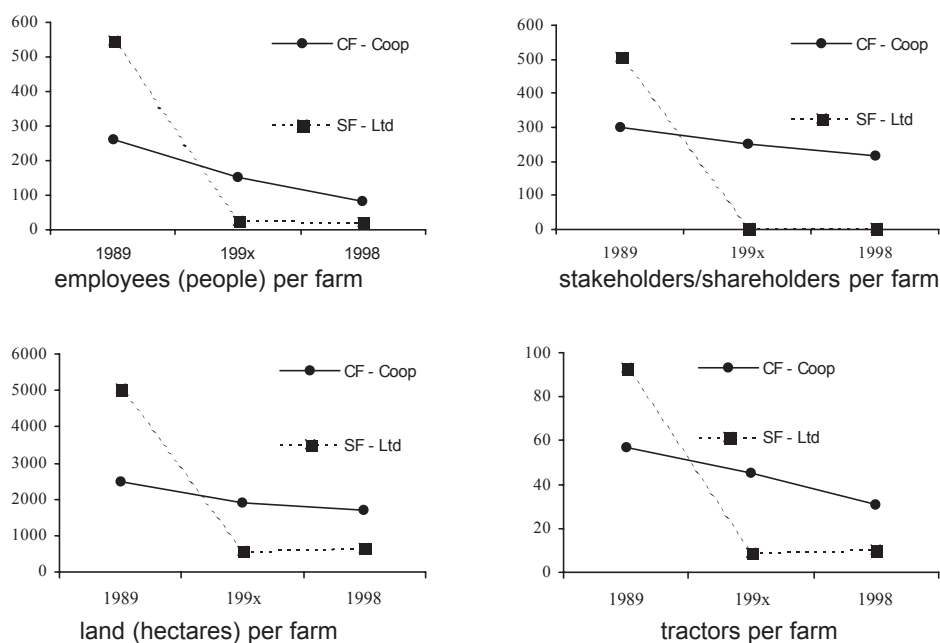


Figure 1. Selected farm characteristics by reorganisation paths during transition

Note: Number of observations: 54 cases of CF-Coop. restructuring, 13 cases of SF-Ltd. restructuring; except for variable “tractors per farm” in 1989, all means of subgroups (CF-Coop. vs. SF-Ltd.) differ in each year from each other significantly at 5%.

Source: KATO Survey.

The observation of several reorganisation paths raises two questions addressed by this article:

(a) Why is agricultural production in most socialist countries restructured with an increasing number of farms, which are smaller in size?

(b) Apart from the average farm size, why do reorganisation paths of assets differ from each other, depending upon the origin from state or collective farm?

In order to model properly, I shall restrict the questions as follows.¹ Regarding question (a) the article deals with the restructuring of existing large-scale farms, whereas the emergence of new farms is not considered so far. While this will result in a narrowed focus, the underlying understanding is that each new farm deploys assets formerly used by one of the socialist farms, particularly when considering agricultural land (to the knowledge of the author, land not used during socialism has only been occasionally re-cultivated during transition in CEECs). Therefore, understanding the emergence of new farm types first requires understanding the mechanisms of restructuring farms having existed during the period of late socialism and transition. Question (b) does not primarily address the managers' decisions on how to transform large-scale farms during transition. The implicit understanding of firm restructuring is that decollectivisation and privatisation policies as well as internal farm characteristics significantly determine the managers' decisions for a certain restructuring path. Finally, exit options for labour, land, and non-land assets are crucial for our understanding of restructuring. The model seeks to cover exiting from the sector by its "switching cost" arguments, although this does not cover the whole story of exit problems in transition. For example, off-farm work opportunities are not explicitly incorporated into the discussion.

1.2. Theoretical review

Since transaction cost arguments deliver the basis of this article, arguments referring to transaction cost economics about the organisation and structure of agricultural production will be briefly reviewed. There are various theories explaining the organisation of agricultural production by using transaction cost arguments (e.g. Beckmann, 2000; Hagedorn, 1996; Johnson and Pasour, 1981; Mathijs, 2000; Rabinowicz and Swinnen, 1997; Swinnen, 1997). The organisation of agricultural production in industrialised, non-socialist economies is often explained by the relative superiority of individual ownership and the low agency costs of agricultural production in individual farms (Roumasset and Uy 1987, Schmitt 1993).

Roumasset (1995, p. 165) distinguishes agricultural firms "... according to the governance structure controlling the shirking of labour and the abuse of land and capital assets." Since principal-agent relationships bear the cost of moral hazard

¹ I am very grateful to anonymous referees highlighting these aspects.

such as shirking and cheating as well as free-riding problems, agricultural production may be efficiently organised in individual farms (Barzel, 1997, pp. 33–54) where these costs are relatively lower than in organisations with a large number of principal–agent relationships.² Without moral hazard, gains of specialisation would tend to drive the organisation of agricultural production into larger farms where labour is governed, based on labour contracts and where residuals can be easily identified. However, coherent with transaction cost arguments, since economies of scale in agricultural production are relatively small they can be exploited by the individual farm’s labour input (e.g. farmer’s family) in sharp contrast to industrial branches such as automotive or computer chip production (Alchian, 1950; Allen, 1991; Coase, 1937; Falaschetti, 1999; Schmitt, 1997; Simon, 1978; Swaan, 1994; Williamson, 1985, 1996).

Allen and Lueck (1998) argue that, because of its biological and thus stochastic nature, agricultural production may be most efficiently organised in individualised firms if it is difficult to relate individual effort to the firm’s output. Following their model, the conversion from individual farming into corporate farming occurs when the respective task makes it less costly for the residual claimant to relate individual effort to commonly produced results. This may be mainly the case for in-house agricultural production such as poultry keeping, hog fattening, or greenhouse production. Here, gains of specialisation prevail over costs of monitoring, controlling and enforcing contractual arrangements. In fact, even though technology in agriculture advanced in recent decades and, therefore, production units had become larger in size, agricultural production in economies based on market principles usually has not been changed into factory-styled organisations.

Contrary to established market economies, however, agriculture in socialist countries before 1989/90 was organised in large-scale factory-styled units by political force (e.g. Csáki and Lerman, 1997; OECD, 1999; Stryjan, 1998; Wolz et al., 1998). Following the arguments which seek to explain individual farming in form of family farming as outlined above, agricultural production in post-socialist countries was expected to be reorganised into individual farms after withdrawing soft-budget constraints and introducing market principles such as private ownership, market prices, and entrepreneurial freedom. However, the introduction of formal market principles and privatised property rights over state and collective assets have not resulted in the creation of individual farms.

Some scholars try to explain this phenomenon of continued large-scale farming with the risk argument: the large-scale governance structures may effect the

² The term “efficient” is controversial in agricultural economics. I bypass this discussion by defining that limitedly rational individuals seek optimal solutions in organising production but they do so limitedly because of their bounded rationality. Then, the question is how to get efficient rather than how efficient an organisation already is.

risk perception of decision makers directly and output levels of their farms indirectly (e.g. Bezemer, 1999; similar Hagedorn, 1996). Others employ the argument that large farms are more efficient than individual farms by using economies of scale (Tillack and Schulze, 2000). Balmann et al. (2000) use the argument of sunk costs for the explanation of post-socialist farming continued in large-scale, industrialised farms. As sunk costs are directly linked with irreversible investments, high switching costs may result in the durable governance structure large-scale farming (Brem and Allen, 2000; Mathijs and Swinnen, 1998). The logic behind this is that investments are usually irreversible and, therefore, may cause sunk cost problems.

Keeping the specificity of those assets, which were accumulated over time until the end of socialism, may cause costs to the individual stakeholders and change the organisational form for their assets. Particularly, this might be the case if an alternative redeployment (organisational change) is connected with a devaluation of assets. By using the concept of sunk costs, it is of importance for the analysis of post-socialist restructuring to take into account specific investments in both physical and human capital. This makes the link to the impact of social capital in organisations (Ben-Ner and Putterman, 1998). Summarising the theoretical concepts outlined above, the basic idea of the following model will be that the mechanism of restructuring large-scale agricultural firms lies in the stakeholder's trade-off between costs of running the agricultural firm and switching costs. The former type of costs drives agricultural production into individual farms, the latter one retards structural change by taking into account that there is an existing organisational structure of industrialised firms costly to switch.

2. MODELING THE REORGANISATION OF AGRICULTURAL ASSETS

To illustrate both the tendency to restructure by means of downsizing and the relative durability of large-scale factory-styled farming, the model emphasises costs of reorganising the use of a given set of resources. Combining resources of several owners for common production (e.g. hiring labour, leasing land, investing capital) needs partial or outright transfer of property rights through a contract (Cheung, 1970). However, institutions such as the formal replacement of socialist ownership by individual ownership may cause a shock therapy resulting in formal individual property rights over resources, for which the socialist firm was the residual claimant until the end of socialism. As a result, the number and complexity of hazardous coordinational relationships among stakeholders may significantly increase the costs of running the existing large-scale firm (Foss and Foss, 2001). Although economies of scale and size may favour large farms, be-

cause of its stochastic nature the internal transaction costs such as relating individual effort to common output may increase faster with the size of the agricultural firm. Thus, the individual stakeholder who provides labour, land and/or non-land assets to the organisation may prefer individual farming.

More specifically, internal transaction costs are economic (e.g. time) and psychological (e.g. burden) costs for the stakeholder to identify and to measure the “real” residual belonging to his assets deployed in the farm. Because of moral hazard behaviour of other stakeholders, he may never be able to identify and measure the real residual (foregone) benefits. As a consequence, he may favour deploying his assets in small agricultural firms where these transaction costs are lower subject to his asset input. However, by the event of deciding about reorganisation, he may trade-off the possible decline of internal transaction costs with an expected loss of his assets’ value due to the division of physical assets, lack of complementarities, and costs of acquiring physical and human assets missing for the new deployment (e.g. new farm).

Following Field’s (1989) analysis on the evolution of common and individual property right use, let us consider a fixed resource R , e.g. 100,000 hectares of agricultural land, in a given region with corresponding labour and non-land assets. Let n be the number of organisational units in agricultural production farming on R with $1 < n < N$ and N is the maximal number of farms.³ Let us consider three points of time t : the end of socialism t_s , where large-scale farming is dominant, i.e. only a few organisational units farm on R ; early transition, t_{eT} , when socialist doctrine was successfully expelled and stakeholders were legally allowed to recombine their individual assets by splitting off parts of the farm; and, advanced transition or late transition t_{aT} , when further institutional and organisational development took place in the region.⁴ Adjusting the property rights structure according to the legal framework of the transition law results in n organisational units.

³ For example, each person who received property rights would start his own farm of a size similar to Western countries. N could also represent the number of those individual farms with one owner who is simultaneously the only worker. At this point, let us also assume a constant structure of vertical and horizontal integration into the agri-food system so that the number of tasks and coordination problems and, therefore, the number of transactions remain constantly for farming on R .

⁴ The whole period covers approximately one decade, even though transition is still continuing. However, within the period of ten years, two important aspects can be considered, namely the immediate organisational change caused by the institutional shock after the velvet revolution, and further organisational adjustments after this initial shock (for the frequency of decision making on different levels of the economics of institutions cf. Williamson 1998, 2000).

Assume, for the moment, that all units are equal in size ($R = rn_i$ where r is organisation i 's portion of R); later in this analysis we shall relax this assumption. Moreover, assume that n redeploys all human and non-human resources R . The possible outcome of restructuring be between 1 (*combined farming*) and N firms (*individual farming*) which control R . While N represents the maximal number of organisational units that emerge from the socialist structure, n is the realised number so that $n < N$. The opposite of N firms is 1 indicating that only one organisation coordinates and controls R . This organisation would deploy all the assets of the given region over which property rights were individually established through the formal property rights change at t_r . Since empirical observation shows that restructuring agriculture in transition is rarely similar to the situations 1 or N , the question arises what determines $1 < n < N$?

Let us now focus on two types of costs of governing transactions in agricultural transition as introduced above: (1) the costs of running the organisation which will be labeled internal transaction costs, and (2) the costs of recombining resources (= costs of reorganising assets) which are switching costs in order to redeploy resources into farms more "efficiently" with respect to the new institutional environment. For a given R , the model says that with increasing n , internal transaction costs (1) decrease and switching costs (2) increase. Transferred to CEECs where large-scale farming was predominant in the end of socialism (t_s), reorganising agricultural production into many farms may provide lower internal costs for a given resource but is a costly act of exiting from the current organisational structure. As these two cost types are not yet susceptible for an empirical analysis, the following section contains more in-depth discussion of the nature of both the internal transaction costs and switching costs of farming.

2.1. Internal transaction costs in agricultural production

Farming causes transaction costs such as seeking information, negotiating with partners, enforcing contracts for labour, land, and capital, timing production, monitoring output and relating it to individual effort. Particularly in agricultural production where natural effects do not allow completely standardised tasks, the individual stakeholder may gain "clearness" on his residual when the number of coordination in the firm is small and the residual on land and capital input can be directly assigned to him by inside ownership. We shall denote them internal transaction costs M , referring to moral hazard problems and free-riding (Jensen and Meckling, 1996). With a given technology resulting in economies of scale relatively small in comparison to non-agricultural sectors such as automotive production, N organisational units may farm on R more preferably than one

unit.⁵ The reason is that governing all transactions relating to farming on R within one firm, results in larger M for the individual stakeholder than farming in separate units (Prendergast, 1999). Curve $M_{(n)}^H$ in Figure 2 will demonstrate the level of internal transaction costs depending upon the number of organisational units subject to a constant R and in a world of *hard budget constraints* (H and S indicate hard and soft budget constraints). Let us consider $M_{(n)}^H$ as the benchmark for internal transaction costs in agricultural production in a market economy.

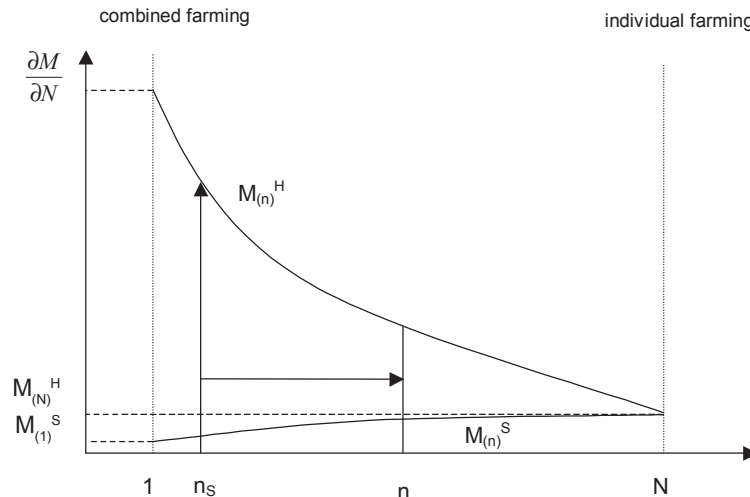


Figure 2. Internal transaction costs (M) by number (n) of organisations

In contrast to market economies, socialist ideology granted the firm soft budget constraints (Kornai, 1995; Braguinsky and Yavlinsky, 2000). Thus, the state rather than the stakeholder faced shirking, cheating and free-riding what results in diminished residuals to the residual claimant (the state). Since markets for land, labour and capital were strongly suppressed, the stakeholder missed a real alternative to deploy his labour, land or non-land capital in the socialist farm. Concerning the deployment of assets during socialism, socialist farms can be understood as the stakeholder's trade-off between the gains of diseconomies of large-scale farming and subsidised internal transaction costs.⁶ $M_{(n)}^S$ indicates this in

⁵ The issue of the theoretical analysis is farm restructuring with its "standard" technology in the late socialist era. Technological change may alter the relative magnitude of M and therefore the size of resources that an individual and an industrial organisation may farm. Technological change and innovation are not yet introduced in this model.

⁶ If a third-party enforcer (e.g. the state) provides soft budget constraints, internal transaction costs may be smaller than diseconomies accompanied with those large-scale farms.

Figure 2 where the distance between $M_{(n)}^H$ and $M_{(n)}^S$ expresses the relative advantage of asset deployment in soft over hard budget constraints.⁷ When H replaces S at t_{eT} , the stakeholder of the socialist structure n_s consequently bears full internal transactions costs depending upon the size of the firm (or, vice versa, n) indicated by the upwards shift from $M_{(n)}^S$ to $M_{(n)}^H$. This shift requires restructuring in terms of downsizing the existing large-scale organisational structure, which farms on R at the end of socialism.

The necessity for downsizing the organisation inherited from socialism depends upon the amount of resources farmed by the respective organisation. This turns our focus to the size of the organisation at the end of socialism. In most transition countries, two types of socialist large-scale organisations of agricultural production existed: a very large organisation SF , indicating a state farm, controlling more resources at t_s than the organisation CF , indicating a collective farm. This difference in size causes distinguishable levels of internal transaction costs when H replaces S . Figure 3 shows the distance between $M_{(SF)}^S$ and $M_{(SF)}^H$ for organisation SF , which is larger than the distance of $M_{(CF)}^S$ and $M_{(CF)}^H$ for organisation CF .

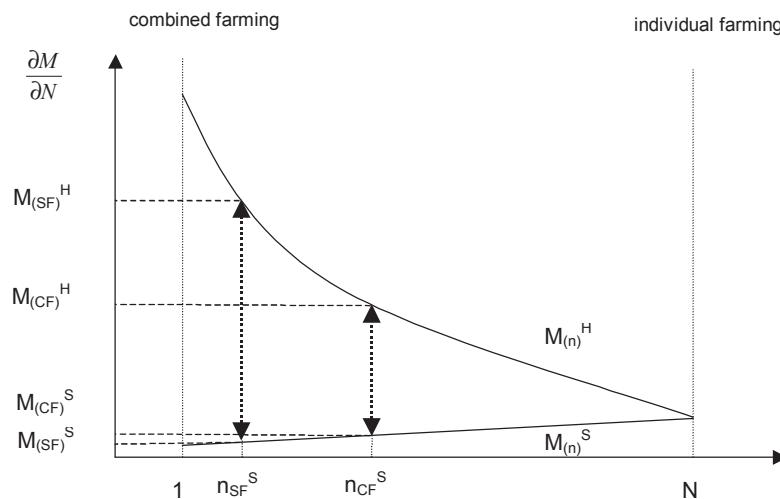


Figure 3. Internal transaction costs (M) in transition by initial farm type

⁷ This is the stakeholder's and/or the organisation's point of view regarding the relative advantage. The analysis does not focus on the society level. The threshold $M_{(N)}^H$ indicates internal costs in an agricultural structure with N organisations. Since curve $M_{(n)}^S$ is even below the threshold $M_{(N)}^H$, the socialist firm, ceteris paribus, could successfully run its large-scale factory-style agricultural production – successfully even compared to market economies as long as externalities (e.g. degradation of land, social shortcomings, water and air pollution) did not burden the farm.

2.2. Switching costs of reorganising agricultural production

Following the model outlined above in a straightforward sense, we should observe individual farming as restructuring outcome. Since this is rarely the case in transition countries, switching costs of reorganising the transactions may cause an organisational structure with $n < N$ farms. The concern of the stakeholder at t_{eT} and t_{aT} to redeploy his individualised assets in an organisation without facing burdensome hazards inherited from the oversized socialist farm has its cost because investments in human and physical assets existing at the end of socialism are specific to large-scale farming. Breaking up an organisational type and setting up one or more new organisations by recombining resources calls for devaluing specificities and irreversible investments, including the employees' organisational knowledge accumulated with time. This devaluation of existing values is what active restructuring is all about (Sedik et al., 2000). For example, Kröger et al. (1999, pp. 74–82) define active restructuring as offensive reorganisation while passively restructuring firms are forced by external factors (Cappelle-Konijnenberg, 1995).

Since (socialist) specificity of assets causes the sunk cost problem of irreversible investments (Balmann, 1996; Schaub, 1997), the break-up of the former deployment in the existing large-scale farm in order to redeploy them in n more efficient farms has to overcome these sunk costs. Note, however, that asset value does not only consist of physical assets but also of human ones, well-trained routines, tacit knowledge, and stakeholders' networks and their social capital. Despite the sheer art of measuring the influence of those factors, we should take them into account when theorising on transition. Let us denote E as the discounted part of costs which can be considered as the current value of irreversible assets at t_{eT} originating from the former socialist organisation. Thus, given an agricultural structure with socialist large-scale firms, E will increase with n . While curve $E_{(n)}^{IF}$ represents the benchmark for minimal reorganisation costs in a world without switching costs, $E_{(n)}^{IF}(Y)$ are switching costs with respect to the influence of the factors such as decollectivisation policy, human and physical asset specificity including social assets inherent in organisational structure, divisibility and complementarities (*IF* for Individual Farming).

If $n = 1$ at t_s , $E = 0$, whereas if $n = N$ at t_s , E is very small. In the case of $n = N$ at t_s , reorganisation is not necessary at all in terms of adjusting the organisation to an optimum of M . Depending upon the respective factors of vector Y , $E_{(n)}^{IF}$ turns upwards in direction to $E_{(n)}^{IF}(Y)$ (*Figure 4*).

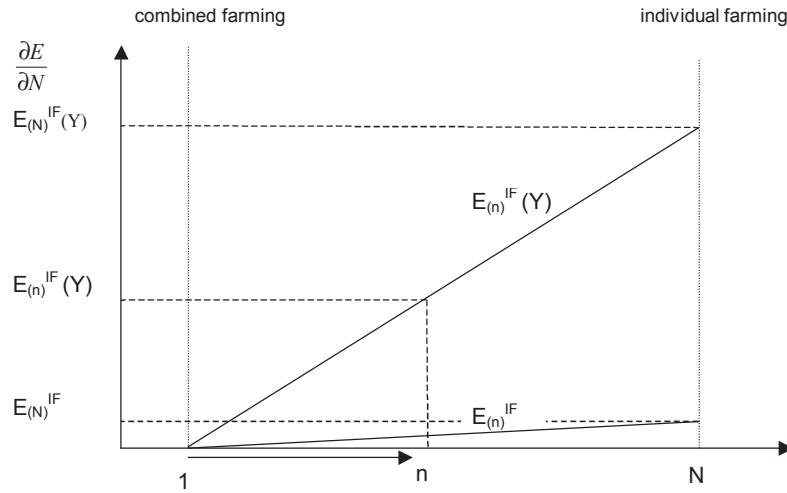


Figure 4. Costs of reorganising assets (E) by the number of organisations

2.3. Linking internal transaction costs to switching costs

Understanding agricultural restructuring requires considering costs M and E , which results in the stakeholder's trade-off between costs of continuing the deployment in the socialist-styled firm and costs of redeploying in a more efficient firm. The intersection of both curves in *Figure 5* will indicate this trade-off, which results, when analysing the level of R , in n firms emerging from the socialist structure. Following the basic relationship for redeploying assets in transaction costs economics (e.g. Williamson, 1996, 2000; Menard, 1997), the more specific assets are, the higher will be the costs of redeploying these assets in an alternative organisation. Transferred to the reorganisation problem, the hypothesis is: the more specific the assets in the existing deployment are, the more important are the switching costs of redeploying these assets into an organisational form where the stakeholders could get rid of the organisational legacy inherited from the socialist-style firm. However, as elaborated by curve $M_{(n)}$, the driving force of internal transaction costs pressures the stakeholder to reorganise his asset deployment.

Following this model, n (the outcome of agricultural restructuring at t_{eT} on a given R) is larger than n at t_s but smaller than in an agricultural structure where only individual farms exist. To understand the phenomenon of prevailing large-scale farms differing in size and ownership structure, let us now adjust the previous assumption on homogeneously sized farms. We can identify different paths

of downsizing agricultural firms in transition (see *Figure 1*). Therefore,

let $R = \sum_{i=1}^N r_i$ with r_i equal to that portion of R which is farmed by i 's organisation.

This means that the analytical focus is now shifting from the previous meso-level considering R into the micro-level studying the respective firm.⁸ This analytical shift allows us in the following section to discuss in detail the factors of recombining resources determined by internal transaction costs and switching costs.

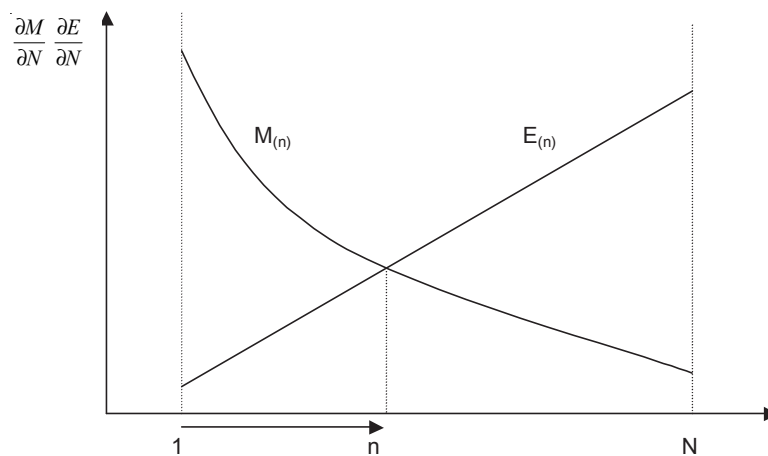


Figure 5. Internal transaction costs (M) and costs of reorganising assets (E) by the number of organisations

3. RESTRUCTURING AS DOWNSIZING OF SUCCESSOR FARMS

The need for restructuring in a dynamic *transaction-cost* world by means of downsizing the direct successor farm and/or recombining the use of resources in different new farms may differ between firms depending upon certain farm-specific characteristics (North, 1998). This section links the theoretical analysis with empirical evidence on dynamic restructuring. The scope of the analysis is only

⁸ Another reason for the shift of the analytical focus is that I do not have data on all farms emerging from a given set of resources, i.e. the former state or collective farm.

on downsizing between t_s and t_{eT} (early restructuring) and between t_{eT} and t_{aT} (late restructuring). Although the model would allow empirical analysis at three levels, i.e. at the regional, the firm, and the transaction level, one can derive firm-related propositions based on these two types of costs. These propositions refer to (1) the initial size of the farm in the late socialist period, (2) the costs of relating output to individual effort measured as “standardisability” of agricultural production, (3) the ownership structure and its agency costs, and (4) the human and physical asset specificity inherited through the fragmentation of socialist physical assets. While (1) to (3) are supposed to be proxies for internal transaction costs, (4) is proxy for switching costs.

3.1. Early firm restructuring

Responding to the shift in the institutional environment, which caused a change of internal transaction costs in early restructuring (shift from M^S to M^H), the firm feels the impact of *hard budget constraints* between t_s and t_{eT} and, thus, has to adjust its organisational structure (e.g. size, internal and external governance structure for transacting).⁹ To make sure that restructuring can be measured, downsizing of the respective firm undergoing restructuring is now the focus of the analysis. Column 2 and 3 of *Table 2* presents propositions for early restructuring translating M and E (column 1) into observable variables (column 5 shows the names as further dealt with in the analysis). The basic idea for explaining early restructuring in agricultural transition is that the over-fragmentation of formal property rights would result in non-viable individual units and, therefore, cause the individual stakeholder to reorganise effectively, because asset specificities burden him. So we can constitute that E increases in case of fragmented property rights. As a result, the stakeholders may postpone restructuring from an early to a later decision.

⁹ Liquidation and exit is not considered here in an explicit way. However, restructuring on a firm level, measured as downsizing, is a decision to exit part of a farm. Whether this part is redeployed in an alternative farm is analysed elsewhere.

Table 2

Propositions for downsizing in different phases of transition and variable names

Column 1	Column 2	Column 3	Column 4	Column 5
		Period: early restructuring (from t_s and t_{eT})	Period: late restructuring (from t_{eT} and t_{aT})	
Theoretical concept	Condition	Consequence on downsizing	Consequence on downsizing	Variable name
(1) Size (M -related) preserved size (postponed restructuring)	<ul style="list-style-type: none"> The larger the farm size in t_s As the farm was not yet down-sized at t_{aT} 	the more ^a (+) N.A.	the more ^a (+) the more ^a (+)	LAND9x TRACT9x EMPL899x
(2) Standardisability of agricultural production (M -related)	<ul style="list-style-type: none"> As the ratio “livestock units per land” at t_{eT} decreases 	the less ^b (-)	?	STANDA9x
(3) Inside-ownership (M -related)	<ul style="list-style-type: none"> As the ratio “shareholders working on the farm by all employees” at t_{eT} decreases 	the less ^b (-)	?	INSEMP9x
(4) Preserving socialist specificity of human and physical assets (E -related)	<ul style="list-style-type: none"> As the property rights change resulted in viable farming units at t_{eT} 	the more ^a (+) the less ^b (-)	the more ^a (-) the less ^b (-)	SPECIF1 SPECIF2

^a Read: The larger the farm size in t_s , *the more* the downsizing “in early restructuring”.

^b Read: The larger the farm size in t_s , *the less* the downsizing “in early restructuring”.

3.2. Further restructuring in late transition

As developed above, the driving force of reorganising agricultural production is slowed down in early transition by the legacy of socialist organisational structure if formal property rights are over-fragmented. However, the model then predicts that because of the decreasing importance of the irreversibility of socialist investments, the organisational change between t_{eT} and t_{aT} should be continued in the direction of a farming structure where the number of stakeholders (e.g. employees, owners, managers) per farm decreases. Together with improved factor markets for labour, land, and capital in transition countries, in this model driving forces of restructuring tend to further downsizing the large-scale farm (and, if

resources are deployed by other farms, to increase the importance of individual farms). However, recapitulating the restructuring process requires taking into account the past restructuring achievements of the respective firm in early transition. Missed restructuring in early transition can be characterised as postponed restructuring. Therefore, the signs of coefficients indicating variables of asset specificity are expected with the roles reversed since firms, which did not spend effort in active restructuring between t_s and t_{eT} , are considered to have to catch up in restructuring between t_{eT} and t_{aT} . This leads to further propositions for late restructuring as shown in Column 4 of *Table 2*. The expected signs of STANDA9x and INSEMP9x are not yet predicted prior to the estimation. Therefore, they are indicated with a question mark.

3.3. Empirical evidence for the Czech case

The Czech part of the KATO survey provides data for testing the propositions on the influence of selected *M* and *E* variables by coefficient estimations of linear regression models and binomial logit estimation. An overview of the national Czech farm structure in 1989 and in 1997 is provided in *Table 3*.

Table 3

Characteristics of the agricultural structure in the Czech Republic^a

Legal form	1989			Legal Form	1997		
	Number of farms	Share of land ^b	Average ha/farm		Number of farms	Share of land ^b	Average ha/farm
Plots ^c	3,205	0.4	5	Family farms ^c	22,850	23.1	36
–	–	–	–	Corporations (Ltd.)	1,349	23.5	613
–	–	–	–	Public liability comp. (Plc.)	484	11.4	833
CF	1,204	61.4	2,578	Cooperatives (Coop.)	1,011	38.7	1,349
SF	204	38.2	6,259	State farms	22	0.5	864
–	–	–	–	Other	30	2.8	333
Total	4,613	100.0	970	Total	25,746	100.0	671

^a Exact figures differ in literature, particularly for the year 1989 (for comparison and further descriptive information, see also Rättinger and Rabinowicz, 1997, pp. 78–91).

^b Percentage of total agricultural land farmed by the respective type of organisation (according to the legal form).

^c Family farms during communism were household plots used for families' additional food supply. After the transition, family farming became one legal form of farming.

Source: own presentation based on Doucha and Jurica (1998) for year 1997 and Filip (1994) for year 1989.

The reorganisation paths of 87 *Czech Legal Entities* engaged in agricultural production are reconstructed on the basis of farm characteristics in the year 1989 representing t_s , the year of the farm's registration after the Velvet Revolution representing t_{ar} and constantly indicated by 9x and 199x, and the year 1998 standing for t_{ar} . This analysis employed a stepwise selection of cases for the quantitative analysis. First, North and South Bohemia of the Czech Republic were selected as survey regions. North Bohemia counted for 234 legal entities active in agricultural production (the sum of physical and legal entities was 2,082), whereas 379 legal entities (of 3,632) operated business in South Bohemia by September 1995 (ČSU 1995). Second, in accordance with the relative share of agricultural employment of these regions (ČSU 1995), the absolute number of farms per region was determined on the basis of trade-offs between limited financial resources. These data had to be collected for the study and the expected benefits of the quantitative analysis. The absolute number was 90 farms. According the Czech statistics, three-fifths were assigned to South Bohemia (54 farms), two-fifths to North Bohemia (36 farms).¹⁰ *Table 4* shows the population and the actual sample size of farms, whereas *Table 5* presents the sample size according the legal forms of farms selected.

Because of missing values, mainly for the year 1989, the regression is run on the basis of 64 and, respectively, 67 observations. *Table 6* delivers the variables,

Table 4

Total number of farms and sample size

	North Bohemia		South Bohemia		Czech Republic
	Population	Sample size	Population	Sample size	Population
Physical entities	1,848	–	3,253	–	24,109
Legal entities	234	24	379	63	2,701
Total	2,082	–	3,632	–	26,810

Source: ČSU 1995; own data based on KATO Survey.

¹⁰ A third step was intended to select farms according to the distribution of agriculture in the region in order to respect the natural inhomogeneity “within” both regions (plain areas vs. mid-hill areas). However, it turned out during the study that this criterion did not allow finding enough farms in the mid-hill regions since their interest in participating in the study was limited. We therefore selected relatively more farms from the plain areas in order to fill the number of farms. Moreover, the sample is biased towards South Bohemia because corporate farms in North Bohemia were less willing to participate than those in South Bohemia.

Table 5

Choice of the legal form by socialist origin of the farm in 1999*

Socialist origin of the farm 1989	Agricultural cooperative (Coop.)	Limited liability company, corporation (Ltd.)	Public liability company, joint-stock company (Plc.)	Total sample
Collective farm	54 (80.6%)	8 (11.9%)	5 (7.5%)	67 (100%)
State farm	2 (12.5%)	13 (81.3%)	1 (6.3%)	16 (100%)
Others	1 (25.0%)	1 (25.0%)	2 (50.0%)	4 (100%)
Total	57 (65.5%)	22 (25.3%)	8 (9.2%)	87 (100%)

* Number of observations (N = 87) in brackets, percent of total observation by line.

Source: KATO Survey.

their definitions and descriptive statistics. *Table 7* presents the estimated coefficients and characteristics of the regressions (Model I to VI). It should be mentioned that the quantitative analysis may provide only limited insight into the mechanisms. One reason is the scarce sample structure covering only two regions of the Czech Republic; the other reason is that the quantitative part of the analysis is dedicated to the firm level whereas reorganisation is a matter of the stakeholders' decisions on the level of coordinating transactions.

Dependent variables: The dependent variables of the OLS estimations are the differences between employment in 1989 and 199x (EMPL899x in Model I and II), between employment in 199x and 1998 (EMPL9x98 in Model III and IV), and between employment in 1989 and 1998 (EMPL8998 in Model V). Additionally, the dichotomous variable LEGALF serves as a proxy for downsizing and active restructuring estimated by means of a logit regression, where 1 indicates a farm of legal form Ltd. (limited liability company), and 0 for all other firms in the sample (Model VI). The logit regression on LEGALF estimates the probability to observe a farm with legal form Ltd. Following studies on agricultural restructuring in transition, corporations of the legal form Ltd. often indicate active restructuring, which will be tested here.

Independent variables: Variable EMPL899x is also used as independent variable in model III and IV for approximating the change in the farm size in the early restructuring process, which is considered to influence late downsizing as postponed restructuring (negative sign). The variables LAND89 and TRACT89 shall indicate the size of the farm in 1989. STANDA9x measures internal transaction costs in dependence upon the production program of the farm. The variable's number is large if the term livestock units per hectare is large. As animal husbandry is generally in-house production, and therefore more controllable

Table 6
Variable names, measures and descriptive statistics

Variable	Proxy for	Description and units	Observations	Mean	Standard deviation	Minimum value	Maximum value
Dependent variables used in regressions							
EMPL899x	<i>M^a</i>	Difference of employees in 1989 minus employees in 199x ^b [<i>dependent variable model I and II</i>]	66	173.93	275.74	-134.00	1,190.00
EMPL9x98		Difference of employees in 199x minus employees in 1998 ^b [<i>dependent variable model III and IV</i>]	87	49.67	58.89	-114.00	246.00
EMPL8998		Difference of employees in 1989 minus employees in 199x ^b [<i>dependent variable model V</i>]	66	223.60	264.75	-114.00	1,187.00
LEGALF		1 if corporation; 0 otherwise [<i>dependent variable model VI</i>] [<i>dependent variable model VI</i>]	87	.25	.44	.00	1.00
Independent variables used in regressions							
EMPLOY89	<i>M</i>	Employees in 1989	81	310.77	256.21	26.00	1,200.00
LAND89	<i>M</i>	Agricultural land in 1989 (hectares)	76	2809.12	2038.48	529.00	12,000.00
TRACT89	<i>M</i>	Number of tractors per farm in 1989	77	59.43	38.89	4.00	200.00
STANDA9x	<i>M</i>	Measure for standardisability of agricultural production as livestock units per 100 hectares in 199x	82	51.58	31.12	.00	171.96
INSEMP9x	<i>M</i>	Owners working on farm by all employees in 199x (inside-ownership)	78	51.40	37.67	.00	100.00
SPECIF1	<i>E</i>	Dichotomous variable: 1 if state farm in 1989, 0 otherwise	87	.23	.42	.00	1.00
SPECIF2	<i>E</i>	Inside shareholder per 100 hectares land in 199x	82	4.37	3.87	.00	14.22

^a EMPL899x is also used as independent variable for Model III and IV.

^b 199x indicates the year of foundation or registration, which varies across the sample.
Source: own presentation and KATO Survey.

Table 7
Estimated coefficients for downsizing in different phases of transition

Models ^a	I	II	III	IV	V	VI
Independent variables	EMPL899x	EMPL899x	EMPL9x98	EMPL9x98	EMPL8998	LEGALF
CONSTANT	79.413 (1.154)	159.798 ** (2.328)	-13.019 (-.707)	-17.760 (-.965)	59.671 (.911)	-1.450 (.543)
EMPL899x	N.A.	N.A.	-.085 ** (-2.495)	-.083 ** (-2.474)		
LAND89	.038 *** (2.801)	.039 ** (2.793)	.001 (-.029)	.001 (.265)	.035 *** (2.684)	.001 (1.456)
TRACT89	3.068 *** (4.351)	3.195 *** (4.386)	.666 *** (3.115)	.552 ** (2.565)	3.475 *** (5.175)	.031 (1.535)
STANDA9x	-1.441 ** (-1.441)	-1.368 ** (-1.877)	.516 *** (2.673)	.434 ** (2.255)	-.803 (-1.197)	-.050 * (3.478)
INSEMP9x	-2.083 *** (-2.083)	-2.102 ** (-2.632)	.355 * (1.925)	.090 (.414)	-1.552 ** (-2.531)	-7.174 ** (4.828)
SPECIF1	133.730 ** (2.059)		-20.450 (-1.149)		101.959 (1.648)	6.265 *** (7.600)
SPECIF2		-6.409 * (-1.630)		2.510 ** (2.433)		
observations	66	64	66	64	66	67
R ²	.720	.722	.473	.504	.713	.537 ^b
F statistic	31.326 (df = 5)	30.677 (df = 5)	8.974 (df = 6)	9.839 (df = 6)	30.336 (df = 5)	

^a *t*-statistics in brackets (Model VI: Wald-statistics).

^b Cox Snell R²; -2Log-likelihood = 22.037; Goodness of Fit = 23.662.

Significance: * 10%, ** 5%, *** 1%.

Source: KATO Survey.

regarding stochastic negative effects from natural conditions (especially cereal cropping), a large value of this variable will indicate the need for downsizing. This is perhaps the weakest measure of the empirical analysis, because it does not reflect the initial situation of the farm in 1989, but it contains information after some years of restructuring (199x); however, data were not available for the corresponding variable in 1989. INSEMP9x indicates internal transaction costs by measuring inside-ownership; the more the shareholders work on the farm, the less are the incentives among the workforce for shirking, cheating and free-riding. SPECIF1 measures the legal type of the socialist farm. If it was a state farm (=1), the privatisation process may have resulted in viable units that can be interpreted as a flat E -curve. If it was a collective farm (=0), the property rights changed according to the Czech transformation law, resulting in a fragmented asset structure where the stakeholder preferred to leave his individual assets in the socialist-styled firm (steep rising E -curve). Additionally, SPECIF2 is intended to measure fragmentation and, thus, asset specificity determined by the legal framework; here the number of shareholders per 100 hectares in 199x is used. While SPECIF1 is a measure based on the initial situation in 1989, SPECIF2 shows the result of the change of property rights.

The linear estimations (Model I to V) and the binomial logit regression (Model VI) show the following results:

- *Early restructuring:* Model I and Model II show the predicted signs with significant coefficients. Based on t -statistics, the initial size seems to play a crucial role in downsizing, as predicted. This is especially true for variable TRACT89 since it approximates not only the size but also the inflexibility of coping with work peaks over the season and, therefore, it represents the need for restructuring in transition.¹¹ Moreover, the model shows that fragmentation of assets of the former socialist farm indicated by SPECIF1 and SPECIF2 leads to less downsizing (interpret: large slope of E).
- *Late restructuring:* Model III and Model IV illustrate that stakeholders will undergo painful restructuring in the form of downsizing in late transition if it was missed in early transition. Restructuring postponed from early transition (in the form of non-downsizing in early transition) will be made up in the late transition period, which is significantly supported by the coefficient signs of STANDA9x, INSEMP9x, SPECIF1 and SPECIF2. Interestingly, STANDA9x and INSEMP9x have the opposite sign in comparison to the esti-

¹¹ In general, during socialism each tractor driver was assigned to a tractor; his task was only driving the tractor and sometimes assisting to maintain machines. However, even though tractor driving is a seasonal job merely to be done at a certain time, the driver was generally not laid off during the off-season, but employed over the whole year.

mation of Model I and II. This may demonstrate that downsizing in late transition does take place even if standardisability of production and inside ownership would reduce the need for downsizing. In other words, downsizing cannot be prevented.¹²

- *Restructuring over the total period of transition:* model V estimates coefficients on total downsizing of employment. Accordingly, the size of the farm in 1989 and the inside ownership in 199x play a major role, while the standardisability and asset specificity have no effect on downsizing. Again, this can be considered as supportive of the model in that restructuring: firms have to be downsized because of their unfavourable legacy in size and incentive structures (internal transaction costs); however, over the whole period of transition, asset specificity diminishes in importance, thus reducing switching costs and allowing for further downsizing.
- *Legal form of the restructured firm:* Model VI estimates the probability of observing a firm as a limited liability company. Contrary to the previous estimations, size in 1989 does not affect this probability. Since this model widely contradicts estimated coefficients of model I to V, it needs further analysis on how important the legal form of the firm is in restructuring and reorganisation (Brem and Kim, 2000; Brem and Allen, 2000). Based on qualitative analysis in the Czech case, it should be noted at this stage that the legal form of a firm does not necessarily provide sufficient information on capital provision and firm behaviour, especially when transition is the institutional framework of firm restructuring.

Here, I shall notify that the theoretical model and the empirical analysis gained a lot from qualitative analyses based on five case studies. Applying the theoretical model and the empirical analysis to these case studies have provided a deeper understanding on processes behind redeployment decisions of individual stakeholders. In *Table 1* the main characteristics of the direct successor farms of the selected cases have already been illustrated. In general, case studies are more context-sensitive and allow analysing the redeployment of socialist assets in a broader and also more in-depth way than quantitative analysis. By means of interviews, the decision-making and behaviour of managers, employees with and without shares, restitutions, outside owners, and villagers can be reconstructed

¹² Thanks to the comment of an anonymous referee, I was again running the regressions of Model III and IV replacing EMPL899x by LAND899x (the difference in agricultural land between 1989 and 199x). In Model III, the signs and significances of coefficients remain the same except for SPECIF1, which becomes insignificantly positive ($R^2 = .604$). In Model IV, the coefficients of STANDA9x and INSEMP9x get a negative sign, the former one insignificantly, the latter one significantly ($R^2 = .782$).

for modeling purposes. Some mechanisms resulting from the qualitative analysis are outlined below (details can be found in Brem, 2001).

In early transition, promises from the managers as well as credible commitments play a significant role in redeploying assets in the direct successor firm. Because of the overall uncertainty in the institutional environment, these promises result in less downsizing and a smaller n of firms emerging from a given socialist firm. Such information lowers transaction costs for the individual stakeholder to safeguard his specific investments of the past. The stakeholder feels less need to counter against possible opportunism coming from the firm. However, along with emerging factor markets (particularly, markets for leasing land) individuals decide to redeploy their assets alternatively to the direct successor, resulting in continued organisational and structural change.

Where managers of the corporate farm could promise to pay rents or dividends, individual assets were left in the organisation. If commitments were not (sufficiently) credible, individual owners were stimulated to start their own farm or, if possible depending upon the markets on land and labour, to lease out their land to another farmer (e.g. new corporate farm or an individual farm) and to redeploy the human assets outside the agricultural sector (exit). In addition to a lack of credible commitments, qualitative statements clearly show that conflicts among the stakeholders determine the organisational change. Unsolved conflicts on the restructuring strategy encourage certain stakeholders to take out the assets and to (re-)start a new farm by splitting up from the direct successor farm, whereas intra-organisational harmony rather binds the stakeholder and his assets to the firm.

4. DISCUSSION OF RESULTS AND POLICY IMPLICATIONS

The results of the quantitative and qualitative analysis can be summarised as follows:

- The (re-)organisational outcome of agricultural firm restructuring is downsizing of the direct successor farm, which results in an increasing number of organisations. However, although individual farming is of increasing importance, large-scale farming where resources are still controlled by many stakeholders predominates post-socialist agriculture if large-scale farming was also the prevailing organisational form at the end of socialism.
- The type of large-scale farm restructuring (early vs. late restructuring) and, therefore, the type of reorganising agricultural production in transition countries depends upon the size and origin of the socialist farm, of course taking into account the timing and scope of privatisation and decollectivisation. If socialist assets were individualised into large viable units (e.g. by privatising

state owned assets), the new shareholder could get control over a large piece of resources allowing him to adjust the organisation to the new environment. Alternatively, if property rights over socialist assets were formally distributed over many stakeholders, the farm sought to keep them together since effective restructuring was prohibitively costly.

- Moreover, a large size of a socialist farm gives economic pressure to downsize. However, inside ownership and the type of production significantly effects downsizing but in different phases of the transition period.

Notwithstanding the shortcomings mentioned in the data set, we can summarise that transition obviously provides a rich realm for economists to understand the behaviour of complex organisations (firms) under institutional change. Therefore, three messages result from the analysis:

- The most important message emerging from this analysis is that a set of institutional changes, which lead to asset specificity by fragmenting the formal property rights, do not support restructuring in early transition. Then, restructuring takes place in a later period of transition. This reveals that downsizing, as being one of the important features of firm restructuring, cannot be avoided in agricultural transition where the opportunity for factor re-allocating and factor markets evolve over time due to effects of liberalisation policies. We can see that the firm and its stakeholders adjust to market conditions step-by-step in order to exploit an existing value of human and physical assets. Here, (agricultural) economists and policymakers can learn from transition economies that not only physical but also human assets including “organisational assets” count in organisational design and re-design (cf. the modern literature on leadership and business strategies, e.g. Kotter, 1999; Luthans et al., 2000; Warren, 1994).
- Organisational structure preserved in the early transition period will (or needs to) undergo restructuring in late transition if factor and product markets along with competition emerge in the transition economy. Vice versa, a deep output decline caused by disorganisation in early transition may influence negatively the acceptance of economic reforms. Therefore, understanding (agricultural) restructuring and designing transition needs to accept that organisational change away from socialist firms is necessary and will occur; however, it is a process and it requires time.
- For future policy-making in a time of deep firm restructuring in the economy, this analysis supports arguments that investment promotion can also have distorting effects. The reason is that uncertainty about the future entrepreneurial environment is high and the stakeholders may have not yet collected experi-

ence and knowledge regarding an adequate market behaviour. Thus, there is, on the one hand, a considerable probability that individual decisions on investments are incorrect during transition. On the other hand, successful transition urgently needs assets usually limited in the sector (e.g. land from an “old” farm for such a farm in which the manager intends to grow the business; or capital from rural banks). Deployable resources from existing firms could be those available assets. Therefore, it seems rather necessary to generate exit promotion policies by means of supporting stakeholders in giving up their existing asset deployment if they wish to do so. As a result of promoting exit, assets will be available for redeployment in a new combination and a new organisational setup. However, this argument does not favour policies which simply seek to cut off existing organisations, neglecting the impact of human capital coherent on the organisation. Rather, exit policies should merely provide “options” rather than “forces” to leave the farm.

5. CONCLUSIONS

Why, in general, is agricultural production in transition countries neither organised in firms within the same boundaries of the socialist farm nor solely in individual farms? This was the question posed to understand restructuring agricultural firms in transition. The theoretical model focuses on the trade-off between costs incurred by the huge number of principal–agent relationships versus costs of leaving the socialist-styled organisation. The former type of cost was called *internal transaction* costs and relates to information, measuring, controlling and enforcing intra-firm transactions in agricultural firms where stochastic effects determine output and, thus, the residual. These transaction costs are considered low if standardisation, inside ownership and trustful relationships characterise the coordination problem between actors concerning contracting labour, land, and capital.¹³ The latter type of cost is related to the sunk cost problem caused by the irreversibility of assets. The history of the socialist farm and the respective transitional institutions determine the fragmentation of socialist assets, the structure of stakeholders of the farm, and attributes of established property rights such as divisibility and complementarities. All these factors determine *switching costs*. The central hypothesis was that large organisations suffer from internal transaction costs but the change from the organisational form of *socialist farming* into

¹³ All entrepreneurial organisations – either in transition countries or established market economies – potentially face the disadvantages of coordinating actors and the actors’ moral hazard behaviour (cf. for the argument of trust Fukuyama, 1995; North, 2000; Raiser, 1999).

the organisational form of *individual farming* is often (too) costly at the individual level. Therefore, at the firm level we observe gradual restructuring in agriculture rather than abrupt adjustments. Moreover, inside ownership does not seem to prevent downsizing although it affects downsizing at different phases of transition.

Implications of these results are straightforward: restructuring is based on both the institutional environment and the internal characteristics of the farm. A certain transition strategy can erase an existing asset specificity, which in consequence may result in a faster reorganisation of the sector. However, this also means the devaluation of asset values. On the other hand, over time firms in transition economies with emerging markets have to get rid of the legacies of socialism in order to be competitive on both the factor and the product market. Moreover, it seems for agricultural production that factory-styled organisations with their huge number of owners and employees per firm have a hard time competing with smaller firms, since the diseconomies of large size and scale apparently outweigh the economies of size and scale of a corporate organisation, subject to a given technology.

This does not imply that large firms with hired labour are impossible organisations in agricultural production. Instead, technological progress can contribute to the evolution of these firms; moreover, trust, reputation and networks may reduce internal transaction costs. Modern farm organisation goes together with integrative processes of both the up- and downstream side. Looking ahead at the technological and managerial progress in agricultural production (e.g. precision farming technologies, genetically modified organisms, modern communication technologies) leads one to conclude rather contrarily. Because these modern technologies will presumably reduce the level of internal transaction costs in relation to external transaction costs, agricultural production is likely to be organised in larger, corporate-styled firms in the future of today's transition countries. Undoubtedly, we are just starting to understand the boundaries of the agricultural firm. Transition gives an outstanding lesson to continue this line of work.

APPENDIX SURVEY DESCRIPTION FOR THE QUALITATIVE STUDY

In order to understand and explain agricultural restructuring in its complexity, five case studies from North and South Bohemia, Czech Republic, deliver data for the qualitative analysis. A case is regarded as resources emerged from the selected state or collective farm and reorganised during the transition period in a successor farm. Case studies were non-randomly selected based on contacts with experts from the *District Agrarian Chamber* as well as on theoretical objectives. Five cases of reorganising agricultural production are presented here.

Interviews were tape-recorded with different stakeholders, i.e. managers of the farm, employees with shares and without shares, shareholders not working on the farm, restituted without employment on the farm, individual farmers whose assets derived from the former socialist farm, and experts in the region. The tapes were transcribed after finishing the qualitative study in August 1999 and May 2000, then codified and categorised (Flick, 1995; Miles and Huberman, 1994; Strauss and Corbin, 1990). *Table 1* shows the main characteristics of these farms.

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