Structural change in the post-socialist transformation of Central European agriculture: Studies from the Czech and Slovak Republics
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Chapter 4

A Theory of Systemic Change in Post-Socialist Agriculture

It is easy to make fish stew out of an aquarium, but impossible to make an aquarium out of fish stew.

Soviet observers, quoted by Frederic Pryor, 1992

4.1. Introduction

We have surveyed the theoretical and empirical background of the de-collectivisation issue. We now proceed to address the research question: how do we account for the limitations on structural change and for the differences in those limitations over countries? This question implies two others. What are the causes of structural change? And how important, in a specific setting, are each of the various causes in explaining the differences? An answer to the first question requires a theory of structural change.

Because we will, in subsequent chapters, both compare two national agricultural systems and two farm types within one system, a theory of systemic change that can meaningfully be applied on both the sectoral (or national) level and on the farm level is necessary. Such a theory should incorporate the microeconomic theories focusing on property rights, incentive systems and transaction costs, but also bring into play the interaction between the polity and the economic system. The main challenge for a consistent explanation is combining the elements of individual choice and systemic change, which both have proven crucial for the outcome. Since the economic system is, in the present author’s view, more like an organism than like a machine, changes in its constituent parts (such as the state, firms, households, and other private institutions) or in the relations between the parts, are interdependent and often irreversible, as the metaphor in the motto suggests.

We need not here develop such a theory of de-collectivisation from scratch. Various specialists have written on the subject already early in the post-socialist period (Hagedorn, 1991; Schmitt, 1993; Pryor, 1992), often based on different strands of theoretical work on institutional change of a more general nature, from various methodological perspectives (North, 1990; Hodgson, 1988) or on the comparative study of farming modes (Binswanger and Rosenzweig,
1986). Also, the constant monitoring of developments by institutions and academic agricultural economists has led to important empirical generalisations (Csaki and Lerman, 1995; Swinnen and Mathijs, 1999; OECD, 1996, 1997, 1998) and analytical frameworks (Hughes, 1999; Mathijs, 2000). I will here blend ideas and findings from the above authors to present a framework for understanding differences in systemic change of agricultural sectors in a post-socialist setting.

4.2. Transformation and Transaction Costs

If we start from the standard assumption that individual behaviour reflects optimising choice given budget and technology constraints, a first basic element is the distinction between conventional transformation (or production) costs and transaction costs (North, 1990). Production costs are controlled by relative prices and the conventional production function, which is determined by natural circumstances and technology.

Transaction costs are here defined in the inclusive sense of all costs associated with concluding a transaction (on or outside of the market), other than the actual price paid in that transaction. This includes costs for information search and sharing, bargaining, and defining and protecting property rights. The level of transaction costs is determined by the institutions used. Institutions are humanly devised rules for behaviour that constrain and liberate human action (cf. North 1990:3), either formal (legislation) or informal (norms, beliefs, ideologies). Institutions are features of the social and economic system; transaction costs are their consequences on the level of individual choice.

If the institution of individual farming is considered superior in efficiency, taking both transaction and transformation costs into account, there is a case for complete de-collectivisation - a case made by Schmitt (1993). However, although the optimal outcome of the institutional change process is then unambiguous from a sector-level perspective, that is not necessarily the case from the decision maker's point of view - for example the prospective individual farmer's. Paradoxically, this is so precisely because of system features, on which particularly the level of transaction costs depends.
4.3. Networks and History

These system features prominently include network externalities and embeddedness (Pryor, 1992:266). This is to say that the whole is more than the sum of the parts and that history matters. First, an individual’s actions have consequences for other individuals operating within the same system. In particular, individuals are influenced in their decisions by the concerns that others may not take either similar or complementary action. For instance, it is difficult to ‘go individual’ if there are no, or not enough, individual farmers to co-operate with in information sharing and institution building; or if all input providing, output processing, and servicing enterprises remain geared to the needs of large-scale, wage-labour farms. Institution building must be collective action if it is to be successful.

Second, embeddedness means that past actions affect present choices – and combined with the network concept, also others’ past actions do so. For instance, individual farming may or may not be attractive depending on the existing scale and product orientation of an agricultural sector, or on the land ownership pattern - both of which directly reflect past choices. Embeddedness also implies that actions are not always costlessly reversible, because there are sunk (non-recoverable) costs on the system level.

4.4. Power

Third, there is power. Decision makers pursuing their own interest in an environment of network externalities and embeddedness are heterogeneous – not only in the sense that they have different preferences, but also with respect to their opportunities to realise those preferences, other than by means of spending their budgets. The systemic, non-atomic nature of power is reflected both in one of its conventional definitions (in which power is the capacity to control others’ choices) and in the fact that it derives not only from individual characteristics but also from an individual’s position within a social system.

Controlling others’ choices in a process of institutional change can be possible either though control over goods, or through control over procedures of change. For instance, the presence of traditional but not individual farmers at the time of defining restitution and de-collectivisation procedures increased the power of the former group during the implementation. And so, plausibly, do traditional farms managers’ effective political representation, their long-
standing contacts in politics, finance, or business, their control over land and assets to be privatised, and their control over local jobs.

4.5. Authority and Norms

Power, in the sense defined, is in principle compatible with the model of individual optimisation given constraints (although it also goes beyond that atomic approach). Someone’s power over a decision maker could be seen as an additional constraint for that person. Thus it implies a decrease in the costs of transacting or, alternatively, as the relaxation of the powerful person’s budget constraint (assuming a trade-off between monetary and power-based incentives). That interpretation is not possible for one particular form of power, namely the power to define others’ aims and preferences, or authority.

Those having authority influence others’ decisions not by limiting or extending their set of options, but by durably influencing their preferences. Durable preferences, or beliefs, can develop (or be installed) and control behaviour quite without reference to the continuously changing outcome of strictly economic incentives. In our case, if particular social groups with authority in (part of) the population (such as the government, political parties, or churches) advocate private ownership; or individual entrepreneurship; or, more general, a market-oriented attitude in economic life; or, in contrast, conservation of existing social and economic structures; then these will mould preferences of decision makers.

A similar effect is attained through the operation of norms, which can simply be defined as shared beliefs. The difference with beliefs based on authority is that norms need not originate with a recognisable social group or person. Obviously the difference is not always clear, since norms can be adopted and advocated by authorities. The point is that they can continue to exist without such explicit support.

4.6. Change and Stagnation

Applying this framework, the following conception of the process of institutional change called de-collectivisation emerges. Consider the transaction (not the individual) as the unit of analysis. The relevant transaction that is or is not made is the transfer of farm resources from a traditional to an individual farm. The relevant decisions by the actors directly involved are decisions to start
an individual farm, or to provide resources to someone trying to do so (by land owners, banks, input providers, output buyers and processors, or state authorities), or to co-operate in disbanding a traditional farm (by traditional farm managers and members, and policy makers). Since these decision makers all operate in the same system, which is a network, the various decisions have externalities, and so need to be co-ordinated for the transaction to be successful. The above framework suggests that three factors define the outcome of the process of institutional choice for each type of decision maker:

1. The nature of preferences, beliefs, and norms. These determine what, in each of the choice situations described, would be preferred by the decision maker.

2. The costs associated with choosing a particular organisation of production. These are controlled by the production function (determined by natural endowment, relative prices, and technology), and by transaction costs.

3. The level of transaction costs, in turn, is determined by

   (a) the legacy of existing formal institutions supporting production, which constitutes the historically determined, man-made complement of natural endowments;

   (b) the polity: the relative power positions of the various actors based on their control over wealth and their control over formal institutions.

The above approach can thus be applied to the process of change in one particular institution, i.e. the farming mode. A graphical representation of this conception is given in box 4.1.
In the analysis of a short-term choice process, natural conditions, the nature of current formal and informal institutions, the polity, and the distribution of power within it, determine transaction and production costs. For instance, politicians, induced by constituencies, interest groups and — perhaps - private interests, may change prices through policy, and support or discourage the development, introduction and application of technologies. Temperature, soil quality, sunshine and precipitation affect the efficiency, timing and level of food production, and so its transformation costs. Agricultural and general economic institutions (including credit cooperatives, marketing boards, futures markets, extension services, the Ministry of Agriculture, international treaty organisations, etcetera) influence transaction costs. Transaction and transformation costs jointly determine total costs of different options in the short-term process of institutional choice, and thereby its outcome.

In addition to these short-term determinants, there are longer-term feed-forward and feedback mechanisms (not denoted by arrows in the box in the interest of legibility), in
numerous ways. For instance, production in a particular institutional setting implies a decision on the production and distribution of wealth which may differ from the current distribution, and thus over time alter relative power based on wealth. Also, the farming modes determines which supporting institutions producers need. Creating or adapting these also changes the formal institutional structure of the economy.

Likewise, each farming mode has a specific impact on the natural and cultural environment, and through that influence can undermine or enhance its own viability - e.g. through deforestation, soil erosion, contamination or improvement, or changes in landscape. Sometimes such impacts are entirely physical. For instance, intensive irrigation in dry areas may lead to soil salification, necessitating a change in production techniques and often also in productive institutions. Sometimes such changes occur via social changes (partly) induced by the externalities of food production, such as the political pressure by the environmental movement in Western Europe, which constrains opportunities for further intensification of production. Moreover, all four basic factors at the top of box 4.1 interact and hence change, mostly in the longer term, sometimes in the short run. One can think of a change in policy preferences and its impact on formal institutions; of natural disasters and climatic change and their impact on the production function as well as on social organisation; and of changes in norms, beliefs and ideologies and their expression in formal institutions.

Feed-back and feed-forward mechanisms can reinforce choices once they are made through a decrease in total costs of operating a productive institution, and so increase its viability. An example is the Western European family farming system in post-war years, which was until recently increasingly supported by both private institutions (information sharing and extension services, marketing boards, input and credit co-operatives, lobby groups) and public institutions (research institutions, the EU Common Agricultural Policy, effective political representation). But changes (or lack of it) in the environment can also cause an increase in total costs and so undermine existing productive institutions or abort fledgling processes of change. Examples of the latter include failed land reform operations or attempts at technological innovation in many developing countries.

In sum, the physical and institutional environment of a particular productive institution is always changing, and that change can either be supportive of its viability, or undermine it. An 'institutional lock-in', i.e. a system that does not endogenously generate institutional change, occurs if changes in the distribution of power, in (informal) beliefs and values, and/or in the (formal) institutional legacy cause a net decrease in transaction costs of present institutions relative to its alternatives from the perspective of the more powerful agent or agents. In contrast,
if such changes, on balance, increase transaction costs of current institutions, agents will seek to adapt them or establish new ones.

This theory can be used to identify causes of institutional change or stability, and, in the latter case, to explore whether stability is temporary or perhaps likely to be a durable lock-in. As such, it is an answer to the first research question. We will address the second research question - how relevant were the different possible causes actually? - in a comparison of the national agricultural sectors of the Czech and Slovak Republics during transformation in chapter 7.

4.7. A Specification on the Farm Level

While the above framework is sufficiently detailed to describe system change on the sector level, for an account on the farm level some further specification is helpful. In contrast to most farm level analyses, this specification must incorporate the systemic and dynamic aspects outlined above. One can assess the organisational alternatives for farm production and their performance according to some criterion such as efficiency, profitability, or institutional viability, and make a static comparison of success, in these terms, in order to explain the observed dominance of one type (as in Hughes, 1999; Rizov et al., 1999). As repeatedly observed, the problem with this approach is that the continued dominance of traditional farming is not in line with its allegedly inferior technical efficiency. That is, in any case, the situation in the Czech and Slovak Republics.

An alternative approach is to explain the existence of productive institutions not so much by comparing differences in the final states as by exploring the path that leads from one institution to another. This is the approach taken here. What facilitates the transition from traditional to individual farming, and what hinders it?

This approach derives from the distributional explanation of institutional change developed in Knight (1997), Levi (1988) and writings of the later North (see e.g. Knight and North, 1997). In keeping with the theory outlined above, it starts from the postulate that actors, with different degrees of power within a social system, attempt to change institutions in pursuit of their goals. Actor interests and relative power distributions thus control the institutional outcome. This theory appears better suited to explain short-term institutional change than its alternative, the efficiency approach, associated with the early North. Libecap (1989) and Barzel (1989), among others. These theorists assume near-perfect competition of interest groups in the ‘production’ of new institutions, largely ignoring political mechanisms and power distributions.
In consequence, institutional, and in particular property rights change is seen as driven by and improving efficiency.

In contrast, a crucial element in the first theory, as in the perspective developed here, is the notion that agents in the process of institutional change have power which they use to induce, curb or hinder that process. As noted, power can be based on either actor attributes or on features of the change process. In this farm-level analysis, sources of power of the first type include an agent’s discretion over resources, over procedures of change, or on superior information or relevant ‘tacit’ (i.e. experience-based, non-transferrable) knowledge (Polanyi, 1967). Features of the institutional change process that may allow one party to have power over another include its transaction cost (the height of which is typically open to manipulation by the powerful agent) and the political constellation governing the change process.

The distribution of agents’ power and their goals jointly determine the shape of an evolving formal institution. As agents interact repeatedly in the framework of that new institution, their actions and reactions become increasingly mutually predictable, eventually embodying implicit rules for behaviour: a new informal institution has evolved. Since such informal institutions necessarily emerge later and also more slowly than the formal institutions that evoke them, there typically are initial matching problems between ‘old’ informal and ‘new’ formal institutions.

Applying this approach to the evolving formal institution of the individual farm - which, in turn, is predicated on a set of more general formal institutions such as individual property rights and contract legislation - the elements of the above general account can be specified as follows. Management of traditional farms find it, in general, not in their interest to co-operate in the establishing of individual farms. Moreover, they have power over prospective individual farmers deriving, to different degrees, from both features of the restitution process (providing scope for manipulation of the prospective farmer's transaction costs) and from their position in the traditional, dominant farming system. This position implies control over wealth (endowment of farm land and assets) and over procedures.

Moreover, existing informal institutions support the traditional rather than the individual farming mode. Informal institutions supportive of individual farming – individualism, independence, risk taking, or more generally: an ethos of entrepreneurship – arise more slowly than the individual farming mode itself. There may thus be a mismatch. In this view the individual farm institution is unlikely to come to dominate post-socialist farming in the short term – unless the entire present institutional framework is changed radically or collapses.
While the traditional management's aims may seem rather obvious - preservation of the traditional farm -, their power is hard to identify or measure empirically. The focus in the analysis in chapter 6, which builds on this framework, will therefore be on the sources of that power, particularly the transaction costs, or - more generally - barriers to change that the prospective individual farmers experiences. In order to explore the transition from traditional to individual farming in this vein, we will consider an individual's incentive structure with regard to the switching decision from present, traditional farm employment to the individual-farming occupation (the relevance of this professional starting point will be demonstrated empirically in the analysis). The first premise then is that individuals compare ex ante their well-being, in a broad sense, over both states and decide accordingly. This is a standard component of most approaches to the problem and will remain implicit here.

The second premise is that switching is costly. There are barriers to change quite apart from the levels of well-being in the present and future occupation. Consideration of these costs of change as well as the static comparison of the alternatives is assumed to control the outcome. Since this second assumption is in previous studies usually not explicitly assessed empirically, a description of the nature and importance of such switching costs is in order.

### 4.8. Costs of Change

Switching costs are controlled by the institutional arrangements in the economy in general, and by the conditions in the individual's present occupation in particular. Since a considerable share of present individual farmers used to be employed in traditional farms, the features of these organisations are likely particularly important institutions controlling the extent of de-collectivisation. Switching costs can be broken down to costs of leaving the present occupation (exit costs), costs of establishing the new farm (investment costs) and costs of operating the new farm in a given environment (integration costs).

First, exit costs may include material components such as a loss in income, but also psychological or political factors, often grounded in informal institutions. Technically, someone with a non-agricultural job or a background in a large traditional farm with a highly specialised labour force is not likely to master easily the array of skills that individual farming requires, and will experience a loss in productivity and income upon switching. Psychologically, a long period of communal life may have installed an emotional appreciation for group membership, a strong sense of loyalty to (perhaps even pride in) the organisation, and a dislike for inequality (Bardhan,
Politically, various connections with individuals with some power may be both vital to a member's well-being and dependent on traditional farm membership through networks (Carter, 1984). This is especially true in an economic system that inherited a good deal of politicising of economic decisions - see e.g. Ellman (1979:21-23) on this aspect of the former system in general and Csaki et al. (1999: xx) on connection-based subsidy allocation in Czech agriculture.

Second, investment costs are the one-off costs of acquiring farm land and assets in the restitution process or in the market. This is costly not only in terms of money but also time. Third, the existence of integration costs implies that success in farming will also depend on the degree to which new entrepreneurs, after establishing the new business, succeed in using the existing economic institutions or - alternatively - in creating new routines and organisational arrangements serving their particular production and transaction needs.

Integration costs are investments in access to the economic system. They exist because the transaction environment is not an open and atomistic market, but is characterised by network interdependencies between transaction partners imposing a transaction cost premium on new entrants. In a system that is institutionally dominated by the traditional-farming mode, integration costs are largely costs of replacement, in three senses: replacement of access to productive resources, to financial resources, and to market relations. Consider these in turn.

Factors of production in traditional agriculture are typically size-specific and suitable for wage-labour farming. Physical restitution may then create a compatibility problem. Farm land and assets are moreover typically interdependent, and restitution of only part of a complementary set of factors of production implies a loss of productive capacity. Because of these limitations, there will be continuing integration costs in addition to initial conventional investment costs. The new entrepreneur will have to gain access to productive resources and to funds, which depends on the quality and accessibility of the market for farm land and assets and for external finance (credit and subsidies). Both types of access are known to be problematic. Land and assets markets hardly exist. Nor do genuine and effective agricultural banks, while subsidy allocation is typically not transparent and biased in favour of established farms. Individual farms have to compete for funds at a disadvantage in the existing system, or bear the costs of setting up their own channels.

The third type of integration costs concerns market relations, which include contracts and personal ties that the traditional farm as an entity has with upstream and downstream industries. The costs of replacing them with many separate contracts are typically transaction costs, which the supplier or seller will try to pass on to the individual farm. These costs arise from: (1)
acquiring knowledge about the new trading partner, (2) bargaining and formulating new contracts, and (3) adjusting to scale-specific aspects of packaging, processing and transporting. Input suppliers or output purchasers will only trade with individual farms if these can bear the extra costs. If that is not the case, newly established farms are dependent on existing channels that go via the traditional farm and are accessible at a cost only. In either case there is a premium on costs of transacting for the individual farm.

### 4.9. Summary and Conclusions

#### 4.9.1. Summary

We have considered a theory of systemic change in farming modes and a specification of it on the farm level. On the sector, or national level, four factors are considered as basic, as the environment in which farming modes function: (1) natural conditions, (2) the polity and the power distribution within it, (3) current formal institutions and (4) current informal institutions. In the short term, these factors control the level of transaction and transformation costs. These two cost types in turn jointly determine the viability of current agricultural productive institutions.

In the longer term, the functioning of those institutions, i.e. the creation and distribution of wealth with use of natural resources, changes the physical and institutional environment. Together with other influences, change in the environment over time either increases the viability of current farming modes, or decreases it. Farming modes may thus be unsustainable because they themselves imply high levels of transaction or transformation costs, given the environment; or because they change the environment so as to increase the level of these costs; or because the environment changes due to factors wholly exogenous to the consequences of operating that farming mode.

On the farm (rather than the sector) level, we compare the path from traditional to individual farming, and investigate the incentives and barriers to travel that path. The focus is again on what impacts natural conditions, the political system, and formal and informal institutions have on the viability of both farming types. These impacts are now expressed in the height of different costs categories connected to the decision to take up individual farming, categorised as exit costs, investment costs, and integration costs. In the comparative analysis of Czech individual and traditional farmers in chapter 6, these three categories will be explicitly investigated.
4.9.2 Applications

In order to illustrate the possible uses of this framework, consider a few applications to concrete processes of institutional change. The collectivisation of agriculture in the newly communist states of Central and Eastern Europe starting in the late 1940s, was caused by exogenous changes in the polity which imposed high levels of transaction costs on other forms of farming. The inefficiency of collective and state owned farms in subsequent decades undermined the economic viability of that productive institution. Production (or transformation) costs were overly high due to lack of attention to natural conditions and lack of adequate technologies. Transaction costs were high because of the use of wage-labour and management in the farm and because of the central planning environment. Only a reduction in relative prices through subsidies, supported directly by the current formal institutional structures and indirectly by the polity, assured continued operation of socialist farms.

The de-collectivisation of farming in the region since 1990, to the extent that it occurred, was a result of that undermined viability as well as external polity changes. The challenge now is to explain why actual (rather than formal) de-collectivisation was in general more limited than intended and expected by policy makers and analysts. The present framework suggests a systematic way to investigate the factors behind that development. These we will follow in the actual comparative analysis of the Czech and Slovak cases.

4.9.3 Evaluation

The above framework is eclectic, and as such perhaps offensive to readers adhering to a particular methodological approach to economic problems. It starts with the standard neoclassical postulates of individual optimising choice given natural conditions and relative prices. Less standard, still neo-classical components like heterogeneity of preferences, externalities, and interpersonal interaction were added. Subsequently, factors transcending individual choice such as the impact of history, power, and authority in the process of conscious choice are considered. Finally it was asserted that also exogenous influences and elusive factors such as beliefs should be taken into account.

This broad approach results from two factors. First, it follows from the present author’s methodological position that the central elements in the various schools in economic theory are informative of economic reality and can be sensibly applied. None should be ruled out beforehand. However, they can also be misapplied. The temptation to do this is of course greatest when alternative methodologies or methods are *a priori* out of the question. Acceptance
of an '–ism' derived from one economic theory, or set of theories, as a general research guideline precludes methodological evaluation and choice. One should always have several ideas, approaches and techniques ready for use.

Second, then why not leave most of those ideas and techniques in the toolbox, after selecting the most appropriate one, rather than using several? That would indeed greatly simplify analysis and presentation and allow a more thorough analysis of the one aspect considered. The answer is that the research question itself is broad, and requires a broad-based framework for analysis. In many cases more restraint in methodology is valid and helpful, as will be demonstrated in this book, in the study of particular sub-problems related to de-collectivisation (chapter 9) or of de-collectivisation from one particular angle (chapter 10).

But on the broad question of why we observe a particular structure of productive institutions, one cannot ignore natural conditions; or the political constellation; or the distribution of power on the farm level; or even ideologies and norms. Especially in transition studies, it is increasingly acknowledged that the willingness to change perspective is indispensable for progress in understanding both the broad picture and particular problems (e.g. Lerman, 2000). It is hoped to demonstrate the necessity of this inclusive approach in its applications in the subsequent analytical chapters. We will reconsider its usefulness in the concluding chapter 11.
Notes to chapter 4

1 Note that this is complementary to other explanatory models such as Mathijs and Swinnen (1998) who study a model in which individual choice only is decisive, testing it with macro-level data. Hughes (1999) considers re-allocation by resource owners, applying that approach to the present data. Rizov et al. (1999) study individual and environmental factors for the Romanian case, using survey data on individual farms only.
