

**Studies on the Agricultural and Food Sector  
in Central and Eastern Europe**

Martin Petrick

Theoretical and methodological topics in the  
institutional economics of European agriculture

With applications to farm organisation and rural credit arrangements





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*Martin Petrick*

Halle (Saale), June 2008



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## 1 Introduction:

### Theoretical and methodological challenges in the institutional economics of European agriculture

Contemporary economic research on European agriculture has been confronted with at least two major policy challenges that continue to occupy top positions on the scientific agenda. The first has been the unexpected breakdown of the former socialist block with its tremendous implications for restructuring in the agri-food sector after 1989. Almost overnight, issues of economic organisation and institutional reform in farming as well as up- and downstream markets were brought centre-stage. According to LERMAN et al. (2004, p. 13), about 139.7 million people living in rural areas of Central and Eastern Europe (CEE) and the former Soviet Union were affected by the collapse of socialised agricultural production. However, reform turned out to be long-lasting, and its success highly region-specific, as recent reviews by KOESTER (2005) or SWINNEN and ROZELLE (2006) document.<sup>1</sup>

The second challenge has been the fundamental re-organisation of the Common Agricultural Policy (CAP) of the European Union (EU), which was triggered by the MacSharry reform of 1992. Agricultural markets throughout the (enlarging) Union have been liberalised, and policymakers have begun to replace the traditional market and price policy by decoupled payments to farmers. At the same time, the public became more and more aware that ‘food and fibre’ production is but one function of rural areas, and that a growing policy focus should be laid on conceptually more diversified and more structurally, environmentally, and territorially oriented instruments for ‘rural development’ (AHRENS, 2004), among them credit policies. Not a small number of observers are regarding these types of policy measures as the future backbone of rural policy, although their optimal design appears to be still widely uncharted territory (SOTTE, 2005).

Realising the enormous economic and social implications of these transformations, agricultural economists in Europe began to question the usefulness of their established analytical tools. Already before the previously described challenges gained momentum, the neoclassical orthodoxy had been criticised for its strong behavioural assumptions, a too-narrow focus on well-functioning equilibrium markets,

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<sup>1</sup> In the following, references contain no specific page numbers if they refer to the overall idea, content, or result of an article or monograph. Definitions, quotations, or other specific concepts, opinions, or results are commonly referred to with page references.

and a lacking awareness of institutional diversity in real-world situations (BRANDES, 1985). In agricultural economics, there has long been a specific discontent with the inability to explain long-lasting income disparities, factor market imperfections, and delayed structural change in the farming sector. Transition to the market in CEE reinforced the need for a suitable theoretical framework to analyse organisational matters not only in agriculture, but in rural areas in general. In line with overall trends of globalisation and political devolution, concerns were raised over what the appropriate role of government in fostering the economic development of these areas should be. New rural policy agendas in Europe brought up the question of how an appropriate conceptual framework for analysing them could look like (VAN HUYLENBROECK et al., 2004a).

As a consequence, interest in approaches of a literature called ‘institutional economics’ proliferated, which broadly includes the economic analysis of complex contractual relations, property rights, and more generally the rules of human interaction. As will be illustrated subsequently, concepts of this literature have, in the meantime, been fruitfully applied to current policy matters in the agri-food sector, and partly have even become accepted as mainstream. But do institutional economists rightly claim that their approach is well suited to address the leading issues on the agricultural policy agenda? It is sometimes overlooked that institutional economics is not a uniform and homogenous theory or model. Partly due to the inherent diversity of this literature, a number of *theoretical and methodological challenges* persist to which no satisfying answer has been found so far. While institutional approaches promise to overcome some of the shortcomings of the orthodox theoretical framework mentioned above, they have weaknesses of their own which become evident not the least in applications to real-world policy problems.

This monograph is an exploration of the current state of institutional economics research on European agriculture. Our major aim is to investigate the prospects for theoretical and methodological progress in this field by studying specific conceptual challenges with concrete policy problems. In the introductory chapter, we provide a brief survey of some lines of research that have emanated within institutional economics, and attempt to identify a variety of challenges and controversies that mark the frontier of current wisdom. Among the remaining chapters of the monograph, each aims at carrying further the discussion within a single one of those scientific ‘construction sites’.

We commence with a review of the major theoretical approaches within contemporary institutional economics. A three-step procedure is followed: we first present the general theories and then discuss some motivations and applications in the field of European agriculture. The topics of the three following chapters are outlined in a final step.

## 1.1 The theoretical landscape of institutional economics

There are no ‘objective’ criteria to delineate institutional from other economic theories, and what makes a theory ‘institutional’ may be a matter of debate. Whereas NORTH’s (1990, p. 3) definition of institutions as “rules of the game in a society or, more formally, [...] the humanly devised constraints that shape human interaction” has gained widespread currency, there is no unique definition used by all researchers in the field.<sup>2</sup> At the same time, several authors use the term ‘new’ institutional economics as opposed to some ‘older’ institutional school (WILLIAMSON, 2000, p. 596). To guide the further exposition, we provide an ‘intellectual map’ of institutional economics in Figure 1-1. The figure is defined by two axes, which we label ‘positive’ and ‘normative’ axis. These two dimensions are supposed to serve as a first structuring aid for classifying the theories. That most economic theories carry both positive and normative substance has long been acknowledged in the profession, but has also been a source of heated discussion and, at times, confusion.<sup>3</sup> The positive substance concerns description and explanation, or ‘what is’ and why, whereas the normative substance has implications for what is desirable or recommendable, or ‘what ought to be’. For our comparative examination of institutional theories, we follow BLAUG’s (1992, p. 121) recommendation to carefully distinguish between these two dimensions. Each dimension is defined by two poles, which for the positive axis are *deterministic* and *evolutionary*, and for the normative axis are *status-quo* and *utopian*.

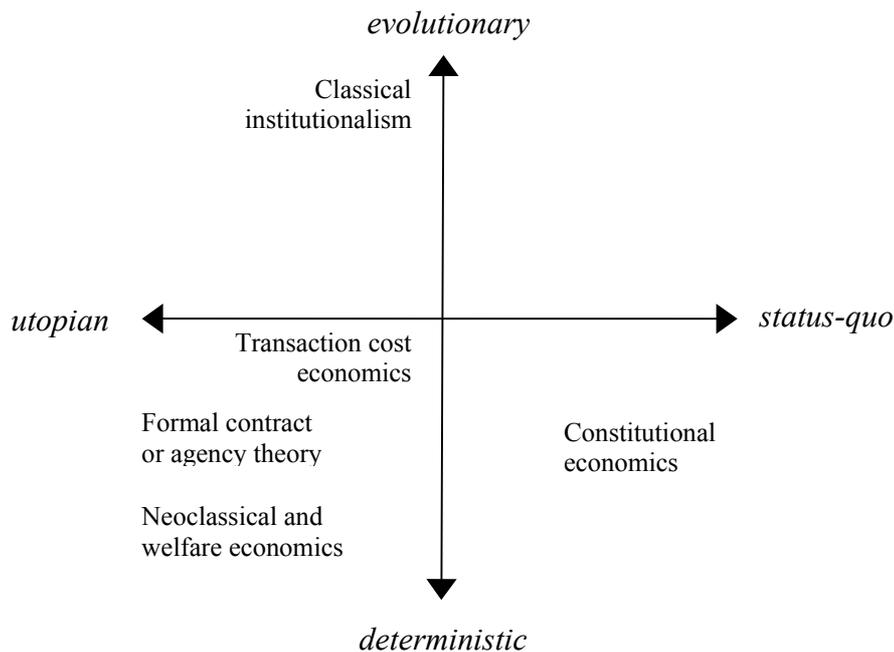
It may be easiest to explain the location of each theory in relation to the orthodox standard, neoclassical economics.<sup>4</sup> Together with its normative branch, welfare economics, this standard takes a corner position in the southwest angle, because it is perceived as both based on a deterministic behavioural model and a utopian normative reference. The deterministic model is the homo economicus of the microeconomic mainstream, or what BOWLES (2004, p. 8) calls the ‘Walrasian paradigm’:

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<sup>2</sup> Alternative definitions are discussed in VATN (2005, pp. 9-14).

<sup>3</sup> See the debate on the possibility of ‘freedom from value’ (‘Wertfreiheit’) in economics (BLAUG, 1992, pp. 112-134; PIES, 1993).

<sup>4</sup> We thus use the term ‘orthodoxy’ in the sense of WILLIAMSON (2004, p. 20) as denoting “textbook intermediate microeconomic theory”.

**Figure 1-1: Map of theories in institutional economics**

Note: Vertical = positive axis, horizontal = normative axis.

Source: Author's presentation.

“The Walrasian approach represents economic behaviour as the solution to a constrained optimization problem faced by a fully informed individual in a virtually institution-free environment. [...] The passage of time is represented simply by a discount rate; people do not learn or acquire new preferences over time; institutions do not evolve. The actions of others are represented by nothing more complicated than a given vector of market-clearing prices [...]. Property rights and other economic institutions are represented simply by a budget constraint.”

Once these assumptions are spelled out, to find the locus of optimal choice is a matter of principally straightforward calculation – there is no room and time for ‘clearing one’s mind’, spontaneity, reasoning, or deliberation, but also not for opportunism or renegotiation.

On the normative axis, a “decentralised economy motivated by self interest and guided by price signals [...]” typically defines a benchmark “that could be regarded in a well-defined sense as superior to a large class of possible alternative dispositions” (ARROW and HAHN, 1971, pp. v-vi, quoted in BOWLES, 2004, p. 208). This idea has established a “theoretical tradition in economics dating back to Arthur C. Pigou [...] which examines inefficiencies in the allocation of resources for various areas of economic life. It is a central characteristic of welfare economics that economic outcomes derived from the basic neoclassical model are used as a criterion of efficiency. Outcomes that deviate from outcomes in models based

on fully defined exclusive rights and costless transactions are called ‘inefficient’” (EGGERTSSON, 1990, pp. 20-21). Because its assumptions can never be approximated in the real world, the neoclassical model has been labelled ‘utopian capitalism’ by BOWLES (2004, p. 208), whose terminology is followed here.

A first step away from the inherent determinism of the neoclassical orthodoxy is taken by a theoretical branch called (formal) ‘contract theory’ (FURUBOTN and RICHTER, 2005, pp. 199-290) or ‘agency theory’ (BAMBERG and SPREMANN, 1987). By retaining the basic homo economicus assumption, this literature introduces risk and asymmetric information into the analysis and motivates the emergence of institutions by a principal-agent relationship and incomplete contracting. Although often still static in nature, dynamic aspects are taken into account by distinguishing between pre- and post-contracting stages, for example in the form of adverse selection and moral hazard.<sup>5</sup> Explicitly dynamic approaches allow for reputation and renegotiation opportunities (BOLTON and DEWATRIPONT, 2005). Although less deterministic in positive terms, contract theory commonly retains the ideal of neoclassical economics as a normative point of reference. Adding constraints to the orthodox model may at best lead to a new criterion of ‘constrained’ or ‘second-best’ efficiency, which acknowledges that some constraints may be unavoidable, but otherwise leaves the optimisation problem intact (FURUBOTN and RICHTER, 2005, p. 525).

A less formally oriented school in institutional economics argues that a major weakness of the neoclassical market model is its neglect of transaction costs, i.e. the costs of search and information gathering, bargaining and decision making, and supervision and enforcement of contracts (FURUBOTN and RICHTER, 2005, pp. 51-54). These costs, together with incentive structures created by varying property right schemes, are regarded as the ultimate rationale for the existence of differentiated institutional arrangements in what BARDHAN (1989, p. 4) calls the COASE-DEMSETZ-ALCHIAN-WILLIAMSON-NORTH (CDAWN) school, according to its major contributors. These authors are also grouped under the heading of ‘transaction cost economics’. Compared to formal contract theory, more emphasis is laid on imperfect contracting due to bounded rationality and the specificity of transaction-relevant assets, which may require ex-post conflict resolution mechanisms. WILLIAMSON (2000, p. 597) points out that transaction cost economics is concerned with analysing (the change of) governance structures over longer time

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<sup>5</sup> Both terms emerged within the literature on insurance markets and characterise situations in which the agent can use an informational advantage to the detriment of the principal. For example, in the adverse selection case, ill customers of insurance companies will buy more health insurance than well-off. In the moral hazard case, insured might undertake more risks than the uninsured (BOWLES, 2004, p. 250). If the information on illness and risks is private, a conflict of interest between principal and agent arises that cannot be contracted costlessly. The issue is taken up again in Section 3.3.

periods than agency theory. We consider this a further step away from the static worldview of neoclassical economics.

Building on COASE (1960), writers of this tradition have suggested that transaction costs could also be regarded as a normative criterion to evaluate which types of institutions are desirable. FURUBOTN and RICHTER (1991, p. 11) characterise this approach as follows: “It is argued that, given the cost of production and organizational knowledge, individuals seeking their own welfare will tend to choose an organizational structure (i.e., an institution) that minimizes transaction costs.” The transaction cost minimising institution is the most ‘efficient’ and thus most desirable one: “Since an efficient outcome would be achieved under any institutional or organizational arrangement in the absence of transaction costs, the merits of alternative arrangements must turn on a comparison of these costs of transacting under each” (MASTEN, 1996, p. 44). COASE (1960, p. 43) writes:

“Economists who study problems of the firm habitually use an opportunity cost approach and compare the receipts obtained from a given combination of factors with alternative business arrangements. It would seem desirable to use a similar approach when dealing with questions of economic policy and to compare the total product yielded by alternative social arrangements.”

LESCHKE and SAUERLAND (2000) argue that this is a kind of aggregate, institutional benefit-cost-approach to a normative evaluation of institutions, which preserves much association with the received welfare economic analysis.<sup>6</sup> Even so, WILLIAMSON (2000, p. 601) has recently insisted that these alternative arrangements must all be feasible to be relevant for policy analysis. We therefore draw this approach into the southwest quadrant of Figure 1-1, too, but more closely to the east, due to its focus on ‘realistic’ alternatives.

We finally consider two approaches that more radically depart from the neoclassical orthodoxy. The first has been labelled ‘constitutional economics’ and has emerged from a critique of the normative foundations of welfare economics. BUCHANAN (1959) has submitted that economists who give policy advice based on an abstract measure of aggregate welfare fail to compare realistic alternatives but, by aggregating the welfare of different individuals, also do not take into account that each individual should have the right to agree to what is desirable for society at large. By retaining a strict methodological individualism based on the rational choice model, representatives of this approach have developed “a research program that directs inquiry to the working properties of rules, and institutions within which individuals interact, and the processes through which these rules

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<sup>6</sup> Additional problems of such ‘total product’ comparison are discussed in SCHNEIDER (1987) and MILGROM and ROBERTS (1990). There may be circumstances in which high transaction costs are in the interest of society at large, for example to prevent market collusion (LESCHKE and SAUERLAND, 2000, p. 195).

are chosen or come into being” (BUCHANAN, 1990, p. 1). The behavioural foundations of neoclassical economics are maintained because they are regarded as a ‘worst case’ scenario of opportunistic behaviour.<sup>7</sup> A contractarian rather than a utilitarian approach is employed, whereby the focus is on very general rules and the consensus among individuals who are affected by constitutional change. Because such consensus may be difficult to reach, it has been argued that the approach privileges the status-quo (BUCHANAN, 2004). Hence, the location is in the southeast quadrant of Figure 1-1.<sup>8</sup>

The second of the more heterodox approaches is ‘classical institutionalism’, also sometimes called ‘American institutionalism’. In contrast to the neoclassical mainstream and also most ‘new’ institutionalist approaches, the idea of stable and exogenous individual preferences is rejected. Although apparently not ‘new’, it seems that the school may still contribute valuable insights to the current debate in institutional economics. HODGSON (2004, p. 85) demonstrates how the classical representatives of this school, including Thorstein VEBLEN, John COMMONS, Wesley MITCHELL, and Kenneth GALBRAITH, saw institutions shaping the individual will and not vice versa. The individual is “constituted” by its social and institutional environment and is no longer the best judge of his or her own welfare (HODGSON, 2004, p. 88). Path dependencies, learning, or ‘habituation’ play a major role in explaining human behaviour (HODGSON, 1998). For this reason, the approach is labelled ‘evolutionary’ in Figure 1-1.<sup>9</sup>

With regard to normative evaluation, classical institutionalists tend to be generally cautious. AVIO (1999) shows that at best a procedural ethics is offered in which participants of communication processes ‘work things out’ (pp. 526-527):

“Problems are thrown to the surface in an unpredictable fashion; it is then up to the participants to resolve these problems within the parameters set by appropriately designed social institutions. All solutions are considered to be provisional, susceptible to the force of new and better

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<sup>7</sup> It should be noted that the rational choice model is chosen here for methodological reasons, not to present a ‘realistic’ model of man. Its aim is to intellectually enlighten the citizens of a society by generating arguments that are consistent with methodological individualism and inform them about potentially superior institutional changes (PIES, 1996).

<sup>8</sup> For a more detailed discussion of constitutional economics see Chapter 3 of this monograph. Starting with BUCHANAN and TULLOCK (1962), another branch of this research programme has developed into the literature of ‘public choice’. Following FURUBOTN and RICHTER (2005), we do not include this field into our survey of institutional economics.

<sup>9</sup> We hereby follow the conventional terminology in mainstream economics, which regards ‘evolutionary’ as an antonym to ‘comparative static’ or ‘deterministic’. Nevertheless, it should be noted that this type of evolutionary economics does not necessarily endorse a Darwinian natural selection. For a discussion of the latter-type approaches see VROMEN (2004). Alternatively, one could call the evolutionary pole one of structural or institutional determinism (HODGSON, 2004, p. 86), as opposed to individual determinism.

arguments. Legal-political institutions and the economy evolve in the process, and not necessarily toward a static general equilibrium state.”

It is here where influences of American philosophic pragmatism become evident (HANDS, 2001, pp. 213-260).<sup>10</sup> On the normative axis of our stylized map, classical institutionalism takes a middle position: on the one hand, there is a clear distance to any ‘objective’ benchmark or ideal for evaluating what ought to be. On the other hand, an environment where ‘good reasons’ can be brought to bear does not emerge without preconditions and does not necessarily prevail in the status-quo. It requires certain standards such as transparency, equal rights to communicate, and absence of violence, which after all may only be achieved in ideal circumstances.<sup>11</sup> However, it is a central aim of classical institutionalism to identify the sources and applications of power, or “whose interests are to count” (AVIO, 1999, p. 516; see also BROMLEY, 1989). For this reason, the separability of distributional and efficiency concerns is denied,<sup>12</sup> and the distinction between positive and normative issues is blurred.

## 1.2 Institutional economics of European agriculture

Since the early 1980s, as was noted above, the dissatisfaction with the orthodox (neoclassical) approach to agricultural change and policy has stimulated a search among agricultural economists in Europe for theories of agriculture-specific institutional arrangements and decision-making processes in agricultural policy. HAGEDORN (1996) provides a comprehensive review of this literature. More recently, the range of applications has broadened further, with a focus on topics such as the organisation of upstream- and downstream industries in agriculture, agricultural transition, environmental and public goods effects of food production and their political implications, and bottom-up rural development processes (VAN HUYLENBROECK et al., 2004). This broadening of scope notwithstanding, there are continuing efforts to provide a generic theory of agricultural organisation (ALLEN and LUECK, 2002) and there is now an established body of literature

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<sup>10</sup> BROMLEY (2006) has recently elaborated an institutional theory that is explicitly based on this foundation.

<sup>11</sup> This has been pointed out by HABERMAS (1983; 1984, pp. 174-183), whose discourse ethics also draws on American pragmatism. AVIO (1997; 2002) has identified various parallels between the normative aims of constitutional economics, discourse ethics, and classical institutionalism and has suggested the necessity of a more elaborated dialogue between these theoretical camps. VANBERG and BUCHANAN (1989) as well as DENZAU and NORTH (1994) provide starting points for such dialogue. It should be added, and this is a limit of the presentation in Figure 1-1, that pragmatists use a procedural ideal, whereas welfare economists use a substantial ideal for normative evaluation.

<sup>12</sup> Starting from a critique of efficiency-based explanations of institutional change, KNIGHT (1992) has developed a theory of institutions based on distributional conflict that has some resemblance to this view.

on the political economy of agricultural policy (see the survey by DE GORTER and SWINNEN, 2002).

Within the limits of this introductory chapter, we cannot provide a comprehensive overview of the literature. Building on the theoretical map put forward in the previous section, we will rather attempt to illustrate the diversity of approaches and applications by comparing typical examples of institutional analysis in the recent agricultural economics literature. We do this by briefly presenting a single research article from each of the institutional camps on our map, which allows us to highlight the characteristics of each approach. The selection of articles is to some extent arbitrary and serves primarily a comparative purpose, which will be used, in the final step of this chapter, to identify a number of open questions in current institutional economics research on European agricultural development.

Before we discuss these articles, we should note that the neoclassical mainstream is still considered the backbone of agricultural economics by many professionals. There are widely used textbooks on agricultural economics that explicitly endorse a neoclassical approach to the analysis of structural change and policy in the agricultural sector, such as HENRICHSMEYER and WITZKE (1991; 1994) or JUST et al. (2004). In the final chapter of the *Handbook of Agricultural Economics Vol. 2B*, GARDNER and JOHNSON (2002, p. 2226) write:

“The standard conceptual framework for normative analysis of policies is welfare economics, with the central issue being the Pareto optimality of unregulated market prices as the coordination signal for production and consumption decisions.”

We will not investigate contributions using this framework in more detail, but wish to point out its continuing influence.

The illustrative articles are listed in Table 1-1. For each of the remaining four major theoretical approaches, we attempted to find a typical representative in the European agricultural economics literature. At the same time, these articles cover some of the major areas of institutional economics research on European agriculture.

OZANNE et al. (2001) use a contract-theoretical model to analyse the effects of asymmetric information and risk aversion on the compliance of farmers participating in voluntary agri-environmental schemes. With the recent policy shift toward ‘rural development’, this instrument has gained importance throughout the EU’s member countries.

**Table 1-1: Examples of institutional economics research on European agriculture**

<i>Theoretical approach</i>	<i>Illustrative example</i>
Formal contract theory	OZANNE, Adam; HOGAN, Tim; COLMAN, David (2001): Moral hazard, risk aversion and compliance monitoring in agri-environmental policy, <i>European Review of Agricultural Economics</i> , Vol. 28, pp. 329-347.
Transaction cost economics	BOGER, Silke (2001): Quality and contractual choice: A transaction cost approach to the Polish hog market, <i>European Review of Agricultural Economics</i> , Vol. 28, pp. 241-261.
Constitutional economics	BREUSS, Fritz; ELLER, Markus (2004): The Optimal Decentralisation of Government Activity: Normative Recommendations for the European Constitution, <i>Constitutional Political Economy</i> , Vol. 15, pp. 27-76.
Classical institutionalism	BROMLEY, Daniel W.; HODGE, Ian (1990): Private property rights and presumptive policy entitlements: Reconsidering the premises of rural policy, <i>European Review of Agricultural Economics</i> , Vol. 17, pp. 197-214.

Source: Author's compilation.

The authors present the problem as a typical principal-agent relationship: because the environmental authority (the principal) does not know whether the farmer (the representative agent) who is paid to provide environmental public goods actually does so after the contract is concluded, a moral hazard problem arises. Therefore, a fixed fine is levied on fraud, and a positive probability of detection is assumed. Furthermore, the farmer is assumed to be averse to the risk of being caught cheating, but otherwise is modelled as a standard expected utility maximiser. The authority monitors compliance, whereby monitoring costs may vary with effort. In order to represent the 'public interest', the (utilitarian) environmental authority is assumed to maximise a social welfare function. In a benchmark case without moral hazard, compliance monitoring, and risk aversion, the welfare function sums the value of abatement depending on restricted input use by the farmer, the farmers' surplus due to compensatory payments, and the (abstract) social marginal costs of public funds, subject to an individual participation constraint (OZANNE et al., 2001, p. 333). Solving this problem yields a 'first-best solution', in which the marginal social benefit of the scheme equals the marginal social cost of abatement. The authors then show how the introduction of moral hazard, compliance monitoring, and risk aversion modify the welfare function and lead to lower optimal input abatement and compensation payments. Therefore only a 'second-best solution' can be attained. By comparing these more restrictive scenarios with the first-best, and by making assumptions about the parameter values of the model, the aggregate social net benefit in euro per ha and

hence the ‘informational inefficiency’ (p. 336) is quantified by means of numerical simulations. The authors conclude that, to the extent that their assumptions were appropriate, real-world compliance monitoring will never be able to deliver a first-best outcome.<sup>13</sup>

In this article, we find all the constituting elements of formal contract theory mentioned above. In behavioural terms, the assumptions of the neoclassical orthodoxy are maintained throughout, perhaps extended by risk aversion of the agent. However, a specific form of ex-post contractual hazard due to asymmetric information and the institutional arrangements to avert it are modelled, by using established methods of formal microeconomics. In normative terms, the received concept of a social welfare function is employed, which serves to provide a ‘first-best’ standard to judge other, ‘second-best’ scenarios arising from the specific assumptions of the contractual relationship. Society’s ‘welfare’ is condensed into a single, computable number.

Next, BOGER (2001) is taken as an example for a transaction cost analysis of downstream arrangements in the agricultural sector. The author aims to explain why Polish hog farmers choose different arrangements from a set of specified marketing channels and contractual schemes, given an imperfect quality grading system. The available channels include the three options of local slaughterhouse, large processor, and trader, whereas the contractual forms of spot market, formal written contract, and oral contract are distinguished. These ‘governance structures’ are then analysed in the framework of a contracting scheme due to WILLIAMSON (1998), and are explained by asset specificity, uncertainty and the availability of safeguarding mechanisms.<sup>14</sup> Based on survey data from Polish hog producers, BOGER uses multinomial logit and cluster analyses to identify the determinants of channel choice and the interrelations between various contractual variables, among them asset-specific investment, contractual forms as listed before, quality, and price. She argues that farmers and processors alike have little incentive to invest in high-quality hog production if there are no market safeguards that reward this effort. Her results show that private governance schemes in Poland partly fail to take market uncertainty into account. She concludes that public regulation, for example in the form of a standardised grading system, or even state ownership of enterprises may therefore be required to reduce the transaction costs in Polish hog markets (BOGER, 2001, pp. 259-260).

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<sup>13</sup> The authors do consider a case of extremely high risk aversion, or a sufficiently high disutility from being caught shirking, in which the moral hazard problem disappears. Under these circumstances, the limited fine achieves the desired deterrence, and the second-best solution converges to the first-best.

<sup>14</sup> ‘Governance structures’ seem to be the more or less synonymous Williamsonian counterpart to ‘institutional arrangements’.

The study is typical for a transaction cost economics approach in its analysis of discrete institutional alternatives (i.e., marketing channels) and its focus on a particular set of explanatory variables. This is a clear step beyond the frictionless world of perfectly predictable and costlessly enforceable contracts and sheds light on several important aspects of downstream arrangements under uncertainty. Compared to formal contract theory, the characteristics of the transacted commodity are analysed in great detail, and the sequencing of contracting steps are explicitly taken into account. BOGER (2001, pp. 258, 259) follows the main idea of this literature in suggesting that desirable institutional arrangements are those which minimise transaction costs. However, transaction costs are not made operational or explicitly measured, the term rather seems to be a metaphor for the contractual hazards that are dealt with in this approach.<sup>15</sup> Whereas the earlier transaction cost literature has been criticised for a lack of empirical rigor (SIMON, 1991, p. 27), the study by BOGER (2001) employs an econometric methodology based on specifically collected survey data. Although the assumed cause-effect relationship in her logit model is not entirely convincing, because some of the explanatory variables may well be the result rather than the determinant of the chosen marketing channel, this is a clear step towards a quantitative analysis of institutional arrangements.

BREUSS and ELLER (2004) represent the constitutional economists in our selection of articles. Against the background of the ongoing debate concerning the establishment of a European Constitution, they raise a typical question of constitutional design: how can the competencies between the EU and the Member States be delimited in a way that is in the best interest of its citizens? The authors attempt to answer this question by providing an overview of arguments from the literature on fiscal federalism, which commonly uses mainstream behavioural assumptions and normative concepts. They thus decide (without much reflection) to concentrate on allocative efficiency as a normative criterion for evaluating the desirability of alternative designs. The authors then present the various theoretical advantages and disadvantages of fiscal decentralisation, based primarily on the trade-off between the consideration of local preferences and the realisation of scale effects (p. 30). Furthermore, they survey the empirical literature on the topic, which, according to BREUSS and ELLER (2004), fails to identify an unambiguous and automatic relationship between decentralisation and growth (p. 52). Because recommendations therefore have to be case-specific, the authors move on to examine various policy areas of the EU, among them the CAP. Based on studies by ALESINA et al. (2001) and HOELLER et al. (1996), the authors identify agricultural policy as an area with strong discrepancies between actual EU competencies and

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<sup>15</sup> See the discussion of this point in PETRICK (2004, pp. 45-6). MÉNARD and VALCESCHINI (2005) stress the relevance of the transaction cost minimisation logic for the choice of governance structures in the agri-food industry, but suggest that a satisfying answer to the problem of measuring these costs is still lacking (p. 426).

normative recommendations, where hence a stronger decentralisation is recommended. The two main arguments are that agriculture does not provide public goods in the classical sense (at least not necessarily on a European level, we presume), and that specific sectoral policies are incompatible with a single internal market (p. 55). With regard to the Constitutional Treaty, the authors conclude that the current allocation of policy functions to the different administrative levels is, in their view, less important than the procedural provisions of the treaty that will determine how future competencies will be allocated.

It comes immediately to mind that this is a less common topic for agricultural economists, and agricultural policy issues are only dealt with in passing by these authors. Indeed, due to the sectoral focus, it is difficult to find genuine constitutional economics applications in the agricultural economics literature.<sup>16</sup> On the other hand, the process of constitutional design on the European level is an obviously relevant field for this theoretical approach, and at the same time has much to do with the current shape of agricultural policies in Europe. Compared to the elaborated position of other constitutional economists (as quoted in the previous section), BREUSS and ELLER (2004) treat the normative foundation of their recommendations rather lightly. The fact that there has been a well-defined, political process behind the formation of the European constitution (fixed in the Laeken Declaration of the European Council) may be an excuse for this. However, two characteristics of the constitutional economics approach become apparent in this article. The first is to acknowledge that the economist is but one advisor in a (potentially multidisciplinary) group of scientist speaking to a constitutional convention, which may or may not agree to his/her proposals. BREUSS and ELLER (2004, p. 28) explicitly support this view, which is also endorsed by other constitutional economists such as BUCHANAN (2004, p. 139). One may argue that BREUSS and ELLER come closer to this ideal than most constitutional economists before them, due to the exceptional occasion of the European constitutional debate. The second characteristic is the insight formulated by the authors that the evidence on desirable constitutional rules is inconclusive, that constitutional design is a highly complex process, and that it is therefore very cumbersome and long-lasting to reach a consensus beyond the status-quo.

Finally, BROMLEY and HODGE (1990) offer a provocative and, in view of the more recent debate on cross compliance and good agricultural practices, farsighted reconsideration of property rights in agricultural land.<sup>17</sup> This reconsideration is claimed necessary in order to cope with changing preferences for the goods and services provided by farmers in the Western world. Starting from the observation

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<sup>16</sup> RUDLOFF (2002) provides an application of environmental federalism to the design of agri-environmental policy in Europe, but does not analyse constitutional matters.

<sup>17</sup> Although a bit dated, we chose this paper due to its clear commitment to classical institutionalism and a lack of more recent alternatives.

that private property rights in land are a product of earlier times when greater priority was given to food and fibre production, they argue that these historical rights have nowadays been translated into “presumptive entitlements in the policy arena” (p. 199), namely a favoured treatment by agricultural policy makers. At the same time, BROMLEY and HODGE point out, preferences of citizens have shifted towards a higher recognition of what the authors call “countryside and community attributes (CCA)”, that is a specific rural milieu that exhibits certain visible and environmental quality attributes. While a protective public policy stimulates the production of food and fibre in abundance, as the authors argue, these CCA are indeed becoming scarce. They therefore suggest to adjust property rights to altered preferences by shifting them from the farmer to the collective of citizens. As BROMLEY and HODGE elaborate in some detail, the desired level of CCA under the new property rights regime would be determined by local collective action, whereas food and fibre would be a kind of by-product created by private farmers. However, these farmers would have to respect the locally administered property rights in land and would have to pay the public for digressing from the predefined level of CCA. As a result, payments to deviate from the status-quo would flow in the opposite direction than in a system where farmers are compensated for environmentally motivated input abatement. At the same time, the environmental externalities of the existing agricultural system would have been internalised (BROMLEY and HODGE, 1990, p. 207).

The article exhibits several characteristics of what we defined as classical institutionalism in the previous section. Although BROMLEY and HODGE (1990) do not discuss the precise nature of the evolutionary forces that shape individual preferences, they explicitly appeal to the two-way interaction between individual wants and institutions (pp. 207; 209; 211):

“The proposal under discussion is simply a reflection of new tastes and preferences, and new scarcities relating to the agricultural sector and its use of land and natural resources. ... [S]hifting preferences among the citizenry have a major influence on changes in the allocation of property rights. ... Constraints are initially introduced over actions where, because of shifting values, social costs are regarded as exceeding private benefits. Where those actions are regarded as ‘normal’ compensation will be paid. Once the constraints become regarded as normal – and especially where the level of environmental quality is still regarded as suboptimal – the rationale for compensation becomes weaker and may no longer be accepted.”

The public consensus of what is acceptable or ‘normal’ hence carries normative weight, whereas the authors are very sceptical with regard to the traditional efficiency criterion: “Economic efficiency will not suggest which is the ‘correct’ property rights structure, for the ‘correct’ property regime will depend upon one’s assessment of whose interests ought to be protected by the state (BROMLEY, 1989)”.

However, BROMLEY and HODGE (1990) are very clear about how the status-quo in property rights translates into an asymmetry of power in the political discourse (p. 199):

“When the agricultural sector ... resists efforts to alter the prevailing property rights position then a struggle occurs between the presumed ‘right’ of a landowner to do as he/she wishes, and the ‘right’ of other members of society to be free from the unwanted effects of agricultural land use. ... [G]iven the apparent sanctity of property rights in land, any negotiations with the agricultural sector will start from a position of political weakness.”

It is interesting to note the similarities and differences between the constitutional economics and classical institutionalism positions concerning the status-quo. Whereas constitutional economists indeed concede each individual a right to veto any proposal for rule change, classical institutionalists are concerned about the possibly unjust authority the status-quo gains by this veto right. Although they agree with constitutional economists in rejecting any normative standard that is detached from individual assent, they apparently perceive it as legitimate to propose institutional changes which produce losers. While representatives of both theoretical camps stress the need to generate arguments for a discourse of informed citizens who are the final decision-making body, only constitutional economists believe that such arguments can be derived from a rational choice analysis.

### **1.3 Theoretical and methodological challenges and overview of the monograph**

We are now in a position to identify a number of current challenges in institutional economics research on European agriculture. In view of the remaining chapters of this monograph, we focus on three aspects:

1. A first area of controversy is located on the vertical or positive axis of Figure 1-1. It concerns the question to what extent individual preferences are exogenous to the institutional environment or whether they are influenced and shaped by it. We have seen how classical institutionalists endorse the latter view, while the mainstream approach in economics is to regard preferences as stable and to presume that individuals are the best judges of what is good for them.
2. A second area of debate concerns the horizontal or normative axis of Figure 1-1. Among the approaches outlined previously, constitutional economists and classical institutionalists have formulated particularly pronounced critiques of orthodox welfare economics. But if the ‘utopian’ standard of the traditional model is regarded as unsatisfying, the question arises what concept or standard can take its place?

3. A third area explores the potential for econometric applications in institutional economics. Among the four articles from recent literature presented in the previous section, only one contained a quantitative analysis based on real-world data, although the latter is traditionally considered a hallmark of agricultural economics research (HERRMANN, 2005). According to WILLIAMSON (2000, p. 607), “more and better empirical work” in institutional economics is needed. However, many institutional economists appear to shy away from econometric analysis, partly because it puts specific demands on data and the operationalisation of concepts.

Each of these areas describes the starting point of one of the subsequent chapters in the monograph, in which constructive proposals to address these challenges are offered. In general, we do not seek a radical break with the mainstream, but aim at a ‘friendly amendment’ of standard approaches, thus trying to make institutional economic arguments fruitful for a microeconomic analysis of agricultural policy issues.

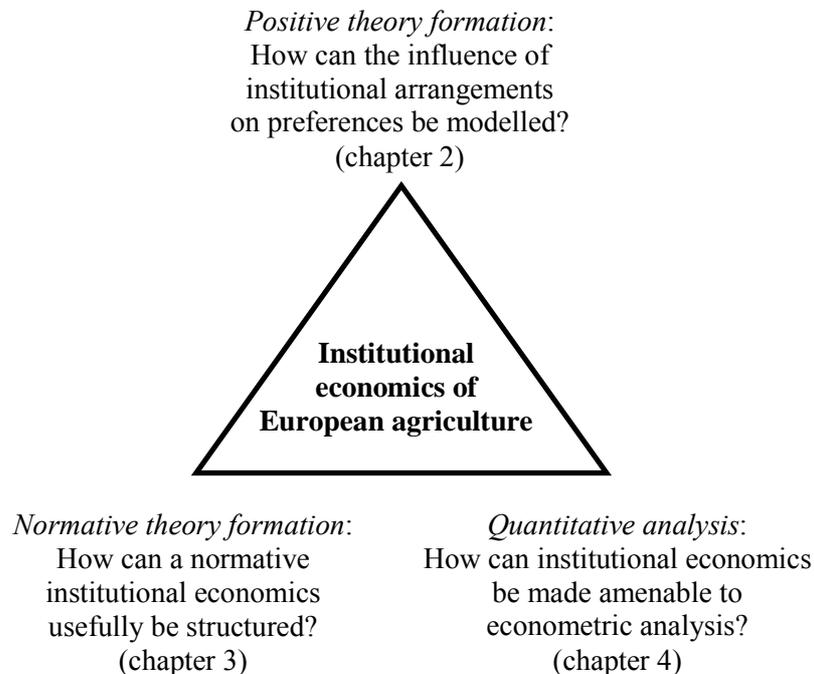
In Chapter 2, we address the issue of endogenous preferences and how they may be malleable as a consequence of power asymmetries among agents, which in turn emerge from a historically determined institutional environment. We present a model of collective farm restructuring in the successor countries of the Former Soviet Union. In this model managers, due to their entitlements inherited from the previous political system, have some latitude to influence the will of farm workers who are facing the choice of staying in the collective or establishing a private farm on their own. The model is put forward as a proposal to enrich standard microeconomic models by institutional feedback mechanisms and power asymmetries among agents, taking into account insights from other social science disciplines.

In Chapter 3, we explore the potential for an alternative normative framework enabling the evaluation of institutional arrangements. We offer some thoughts on how the constitutional economics approach could be made productive for a normative analysis of sub-constitutional arrangements. The chapter develops a social dilemma heuristic that is compatible with much of the current positive institutional economics literature, but seeks to be explicit about its normative foundations. At the same time, its ability to generate arguments for a political discourse is discussed. An illustrative example from rural credit policy complements the otherwise more conceptual presentation.

Chapter 4 turns to questions of quantitative analysis. It attempts to show how the concept of hedonic pricing, which is well-established in other areas of economic research, could be used to motivate an empirical investigation of credit arrangements and the effects of structural policies in the agricultural sector. Based on unique survey data from agricultural credit contracts in Poland, the monetary value of single contractual attributes, including that of participation in a government programme, is quantified. This technique could also be extended to other areas where differentiated contracts are important.

The three areas of institutional economics research and their place in the monograph are summarised in Figure 1-2.

**Figure 1-2: Selected theoretical and methodological challenges of institutional economics research and where they are addressed in the monograph**



Source: Author's presentation.

As a final proviso it should be noted that it is not the aim of this monograph to develop *the* correct and comprehensive institutional approach to the agricultural sector in Europe that is likewise theoretically and empirically tractable. Such an ambition would be unlikely to succeed and is, at the same time, incompatible with a pluralistic epistemology in economics (HANDS, 2001; PETRICK, 2004a). What we wish to provide is a structuring of ideas and concepts along the three topics given in Figure 1-2, with motivation taken from and applications developed for current problems in European agriculture.



## **2 Positive theory formation:**

### **Endogenous preferences, power asymmetries, and the persistence of collective farms in post-Soviet agriculture**

After one and a half decades of agricultural transition in the former Soviet Union, economists continue to be puzzled by the lack of change in farming organisation in all but a few successor countries. The persistence of large farms is particularly outstanding in Ukraine and Russia. Although entrusted with formal property rights in land and assets, agricultural workers as the new owners seem to be quite hesitant to establish smaller family farms. Due to their prevalence in most market economies, these have commonly been regarded as a blueprint for farm restructuring (KOESTER, 2005). However, as LERMAN et al. (2004, p. 123) note in a recent monograph on the state of agricultural transition in this region,

“The overwhelming majority of farm workers in Russia, Ukraine, and Moldova prefer to keep their land and asset shares in the former collective, which in the meantime has reregistered as a corporate farm with a new market-sounding name. They waive their right of exit, at least for the time being, and pool their resources to create a corporate structure.”

A common explanation for this absence of change has been that exit costs for individual workers are too high, because they lack the physical and human resources to take the risk of running a business on their own, and because up- and downstream markets are still largely geared to large collective successor farms (See MATHIJS and SWINNEN, 1998 and RIZOV, 2003 for expositions of these arguments).

There is no doubt that lacking resources and pervasive market imperfections are major reform obstacles. However, this explanation remains unsatisfying or at least incomplete because it is unable to deal with a number of observations that have been made in the course of transition.

First, why is it that not only the managers of large farms, but also the group of agricultural workers apparently stand united to oppose the establishment of smaller private farms in those countries where reform is stagnating? KOESTER (2005, p. 109) summarises the attitude of managers as follows:

“Managers were used to feeling socially responsible for the employees on the farm. ... [They] believe in a specific role of the state, namely to accept social responsibility for the survival of the large farms.”

With regard to farm workers, LERMAN et al. (2004, p. 158) report that:

“Only 6-7% of respondents in household surveys in Russia and Ukraine indicate that they would like to exit the farm enterprise with their share of land and assets and establish a private farm. Nearly half the respondents in Ukraine (47%) are even opposed in principle to the right of exit with land and asset shares, although this right is protected by existing laws.”

Second, why is it that local up- and downstream markets do not develop to better serve the needs of small farmers? If family farms are a superior mode of organisation, economic incentives exist to overcome prevailing market imperfections. An explanation is hence required why individual entrepreneurs do not emerge to set up a more favourable business environment for private farmers, as it does exist in most Western economies.

Third, why do we observe such a striking duality in reform patterns across the Commonwealth of Independent States (CIS)? Whereas large farm structures remained more or less untouched in Ukraine, Russia, Belarus and the Central Asian republics, there has been a complete dismantling of collectives and a far-reaching individualization of agriculture in the Baltics and the Trans-Caucasian countries Armenia, Azerbaijan and Georgia (SWINNEN and ROZELLE, 2006). It seems that resource endowments and market failures are matters of degree, so that more evenly distributed reform outcomes across countries and regions would have been expected.

This chapter offers an alternative explanation for the persistence of pre-reform farming structures in the CIS countries that is consistent with these observations. It is based on the argument that corporate farm managers exploit the tendency of workers for conformity within the collective to cement their own power. Building on commonplace observation and theories of social psychology, we argue that farm workers have preferences for behaving in conformity with peers. We then assume that farm managers benefit from the pre-reform status quo, because it assures them access to income, local power and prestige. These managers may find it expedient to manipulate their workers in a way that they reject any organisational change as being not conform with the norm. It is suggested that workers either receive monetary benefits in exchange for behaving loyally to the manager, or managers may actively keep the horizon of farm workers limited. They do this by withholding information concerning privatisation rights, preventing political organisation, not allowing outsiders to invade the village or start businesses with defecting workers, and by stressing the necessity of ‘collective solutions’ to problems.

By modifying a framework due to SCHAFFNER (1995), these arguments are formalised and their theoretical implications derived. It is shown that farm managers have an incentive to employ workers that are loyal to them and to alienate outsiders

who might undermine this loyalty, and that they may be willing to sacrifice farm profits for benefits that arise from keeping the pre-reform structures. Workers in turn may find the status-quo organisation of agriculture just ‘normal’ and thereby perpetuate its existence, although a higher paying reform alternative exists. Whether farm managers pay workers higher wages to keep them loyal or whether they sequester them depends on the relative costs of both options, and a mixture of both strategies may prevail in a given region. A regional equilibrium is derived in which either all corporate farms in a given area remain intact or all farms are dissolved. These implications are shown to be largely consistent with the evidence.

The chapter is organised as follows. In the following section 2.1, we motivate our approach by summarising recent evidence on social interaction effects and authority structures in post-Soviet rural areas. Section 2.2 presents the formal model. Sections 2.3 and 2.4 derive its implications with regard to loyalty elicitation strategies and the formation of regional reform equilibria. In section 2.5, the model results are confronted with further empirical evidence. Section 2.6 concludes.

## **2.1 Group conformity and patronage in the post-Soviet countryside**

Introspection and casual empirics confirm that a human tendency for conformity is ubiquitous in everyday life. It has its theoretical foundations in the social psychology literature and can be defined as the dependence of individual preferences on the behaviour of a social reference group. According to ARONSON (1992, pp. 13-33), conformity is reinforced if the majority of the group has an unanimous opinion, if the other group members are important and comparable to the individual, or if the individual fears social punishment by peers. SCHAFFNER (1995, p. 249) hence argues that it is particularly strong in rural communities where the individuals’ work, kinship, social and religious groups are almost coincident. In addition, people have a tendency for conformity if the environment of the individual becomes increasingly uncertain, so that the behaviour of others provides guidance on what is the right thing to do (ARONSON, 1992, p. 28). In the transitional context of farm restructuring in the CIS, this is likely to be a relevant factor.

It is therefore not surprising that a number of studies have found evidence in favour of deeply rooted preferences for group conformity in rural areas of the former Soviet Union. The strong social consensus on the rules of the Russian village is described by PAXSON (2002), who mentions the moral obligation to work together and to help each other in the village community; a generally strong emphasis of reciprocity; and the resentment to carry out cash transactions with a socially close individual. She also reports that the subordination of one’s own will to that of the group is a virtue explicitly endorsed by villagers.

Of particular importance for the moral economy of the Russian village seems a socially sanctioned, egalitarian wealth distribution (PAXSON, 2002). HAIMSON (1988) stresses how homogenous and self-contained peasant communities were at the eve of collectivisation in the early twentieth century. This led to a strong refusal

of the idea that land is treated as a commodity that could be sold to outsiders of the community. SCHULZE (2002) cites a number of recent polls which consistently show that the rural population rejects buying and selling of land. Acquiring land for personal benefit is seen as ‘conflicting with the norm’ (p. 314). SCHULZE argues that this attitude goes back to the traditional land commune *obshchina*,<sup>18</sup> and that it was probably reinforced by the comparatively long period of collectivised agriculture in the Soviet Union. SCHMEMANN (1997, p. 314) writes, based on experiences in a central Russian village:

“The communal mentality of the prerevolutionary countryside was only strengthened by collectivization, and those peasants who stayed on the land stayed there precisely for the sense of collective security offered. To grab a large piece of land for oneself and to milk it for money was to spit in the face of the collective and to lose its protection.”

These insights suggest that it may be a shortcoming to neglect the importance of group-based social norms and their influence on individual decision-making in the post-Soviet countryside.

The hierarchical authority structures in post-Soviet rural areas are another fact frequently mentioned in the literature.<sup>19</sup> In discussing the reasons for the lacking restructuring of collective farms, LERMAN et al. (2004, p. 149) argue that:

“[A] factor that must not be ignored is the traditional power of the manager, both as an omniscient community leader who decides everything in the village and as a representative of the outside authorities (regional or federal). In many instances, the manager exercises influence to prevent deep restructuring and preserve the large-scale organization as a way to keep his power and his perquisites. Personal survival is a behavioral factor that influences and motivates the decisions of managers in all corporations, and farm managers in transition economies are not an exception.”

In an in-depth study of two rural regions in Ukraine and Russia, ALLINA-PISANO (2002) finds that these tendencies have been reinforced during the transition period (pp. 310-11):

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<sup>18</sup> The *obshchina* or *mir* was a communal organization based on joint ownership of land that emerged from ancient tribal communities in rural Russia. As a special legal relationship between landlords, state and labourers, it had the power of local jurisdiction and periodical land redistribution, according to family size. Members were collectively responsible for taxes levied against the *obshchina*. The system was practised until the beginning of the Russian civil war (see PAXSON, 2002; SCHULZE, 2002 for overviews).

<sup>19</sup> An early articulation of the idea that emerging private farmers threaten the local power of established farm chairpersons who therefore might steer the reform process according to their own interest is VAN ATTA (1993). More recently, VALENTINOV and NEDOBORVSKY (2005) have reaffirmed this point for Ukraine.

“Declines in production meant that many of the lines of interdependence that support household and enterprise economies became lines of mere dependence. The flexible *quid pro quo* ... came to resemble a precarious entitlement system that requires workers to be on good terms with managers as much as possible at all times. With his control of inputs for household production, his connections with district administration, his ability to conduct informal large-scale transactions for fuel, sugar, and other commodities on behalf of the enterprise, the chairman of a farm literally holds the fate of its workers in his hands. As every villager learns, ... ‘it’s better to keep silent or ‘say yes sir’”.

She concludes (p. 314):

“Farm managers and district administrators – as gatekeepers to the exercise of enterprise members’ ownership rights – gained *de facto* ownership of land and with it, the autonomy and economic incentive to persist in their new roles as leaders in a quasi-feudal system.”

In ALLINA-PISANO (2004, pp. 501-7), the author describes how chairmen of collective farm successors and other local authorities were intimidating those who left to set up their own private farm. Apparently common harassment practices included attempts to turn public opinion against private farming by launching critical articles in the local press, publicly belie it as something strange, suspicious and worthy of ridicule, up to acts of open violence against family members of private farmers.

Furthermore, it is shown how authorities used the notion of the stranger and outsider as an instrument to drive a wedge between the (loyal) rural population and private farmers. The fact that many of these independent farmers emerged from marginal groups of the rural society, such as single women or members of ethnic minorities, was publicly denounced, and representatives were insulted and called ‘Gypsies’.

There are hence various ways in which social and political pressure is exerted to force villagers into a behaviour that is supportive of the goals of local authorities. Dependence on the latter “cowers people into what is quite rational political passivity in the circumstances”, as HUMPHREY (2002, p. 155) notes.

Building on these observations of local power structures, we examine their interaction with the commonly observed tendency among villagers to behave in conformity with their peers, which makes it particularly easy for the farm chairperson or manager to manipulate his or her workers.

## 2.2 A model of manager-induced organizational stability in post-Soviet agriculture

Our model formalises the idea that corporate farm managers exploit the tendency of workers for conformity within the collective to cement their own position and power. It has been inspired by an approach due to SCHAFFNER (1995), who analyses the stability of servility arrangements in feudal, pre-capitalist agriculture. SCHAFFNER argues that if workers prefer to do what their peer workers do, farmers of large estates may have an incentive to limit the day-to-day contact between their own labour force and non-servile workers in order to create a servility culture on the farm. She thus introduced the notion of ‘keeping the horizons limited’ as a strategy to secure power relations within an administrative hierarchy. We adopt this idea and apply it to post-Soviet agriculture which, according to several authors mentioned in the previous section, displays a number of parallels to feudal agricultural systems. In contrast to SCHAFFNER, and more in line with reality, we focus on a one-tier labour market and do not model alternative wage contracts. Instead, we introduce the possibility that farm workers may leave the collective and set up their own individual farm. In addition, to keep the model simple, we abstract from enforcement problems related to labour effort on the collective farm.<sup>20</sup>

### 2.2.1 Individual vs. social utility

Despite its intuitive plausibility, economists have only recently paid increasing attention to the formal modelling of social interaction effects (see BROCK and DURLAUF, 2001 for an overview). A standard approach has been to split the utility function into an individual and an additively separable social component. Furthermore, it is commonly assumed that deviations far from group average are penalised more strongly (JONES, 1984). Given a choice variable,  $\lambda \geq 0$ , the resulting composite utility function,  $u^*$ , may then be represented as follows:

$$u^* = u(g(\lambda)) - v((\lambda - \bar{\lambda})^2), \quad (2-1)$$

with individual utility  $u(\cdot)$ , social utility  $v((\lambda - \bar{\lambda})^2)$ .  $g(\cdot)$  transforms  $\lambda$  into a utility-relevant magnitude, for example income, and  $\bar{\lambda}$  is average behaviour in the social reference group. Moreover,  $u', v' > 0$ .

As will be discussed in detail below, (2-1) formalises the idea that individuals have preferences for conformity with their peers, or doing what is the normal thing to do in a given social reference group. Both increasing positive or negative deviations from group average cause increasing discomfort, but there is no discomfort if everybody in the group behaves identically and chooses the same  $\lambda$ . As a result, outcomes will likely be homogenous within a social reference group, but may be radically different between groups.

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<sup>20</sup> The author is grateful to Michael R. CARTER for valuable advice on the formal modelling part of this chapter.

JONES (1984) and SCHAFFNER (1995) introduce a third utility component into (2-1), according to which choice of a higher  $\lambda$  also has an intrinsic disutility. While this may be plausible for applications to work effort and servility services, we neglect this in the current application to workers' loyalty. A major reason to model workers as indifferent to loyalty as such is that loyalty causes little physical effort and appears much less personally humiliating than servility as described by SCHAFFNER. Under our assumption, however, it is individually less attractive to deviate from group norms.

### 2.2.2 Social reference groups and the geography of the model

We distinguish two major reference groups that may influence the behaviour of villagers, which we denote *narrow* and *wide*. The narrow reference group is the community of people living in geographical proximity to the individual. We pragmatically identify this with the county or *raion*, which has been the lower level of the two-tiered administrative system throughout the former Soviet Union. In most rural regions of Ukraine and Russia, each collective farm forms the economic and social centre of a village, and a *raion* contains a dozen or so collective farms. Sociological field work in rural Russia has shown that there has been some mobility within localities, for example because villages were abandoned by the government and the population forced to relocate to nearby places. However, most rural people spend their entire life in a certain area, where they are surrounded by their relatives (O'BRIEN et al., 2000, p. 95). People living in a region are more likely to meet in person on a regular basis and hence form a natural social reference group.<sup>21</sup> Social interaction within this reference group, and information flow in particular, is hard to manipulate by local authorities.

As a second reference group we posit a wider, potentially non-rural population that provides an alternative blueprint for what is the right thing to do and how to behave. With regard to de-collectivisation in agriculture, the mode of behaviour of this social reference group is codified in the national reform legislation, which gives an individual worker the right to leave the collective and withdraw his/her assets. It is identified with a reform-oriented, urban majority, and with family farms in Western Europe or North America, which are presented as a model for agricultural restructuring. In countries with a strong tradition of individualised farming prior to collectivisation, the members of former generations may constitute part of the reference group. Information about this social reference group is primarily transmitted via the media, through television or newspaper, through tradition, but also via agents of change who enter a community, in village congregations, or by

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<sup>21</sup> In addition, many regions are homogenous in ethnic terms, some of them officially recognised as autonomous areas subject to the ethno-territorial principle of both the former Soviet and the current Russian constitutions (STADELBAUER, 1996, pp. 42-49).

word of mouth.<sup>22</sup> In contrast to the narrow reference group, interaction with the wide reference group can assumedly be influenced by the local farm manager. He may or may not keep the horizon of his workers limited by withholding information concerning privatisation and other civil rights, preventing political organisation of farm workers, not allowing outsiders to invade the village, inhibiting the creation of support networks or businesses for private farmers, frightening defectors, and stressing collective identity and local ‘collective solutions’ to problems.<sup>23</sup> The degree to which the manager keeps horizons limited determines how strongly farm workers identify themselves with the wider, reform-minded reference group, as will be formalised below.

### 2.2.3 Workers’ and managers’ choice

Farm workers have preferences,  $u$ , for income,  $y$ , and additive preferences,  $v$ , for conformity with other workers in their reference group. Their income depends on a binary loyalty decision,  $\lambda$ . They may either stay on the local corporate farm,  $\lambda = 1$ , in which case they support the farm manager in local politics, e.g. voting for him in the farm assembly, and do not exert their right in asset shares of the farm. Loyal workers receive an annual wage,  $w$ . Labour contracts can be enforced costlessly by the corporate farm manager and there is no other employer in reach for farm workers than the local corporate farm. Alternatively, workers may choose to become independent farmers and withdraw their assets from the corporate farm,  $\lambda = 0$ , in which case they receive an income from private farming,  $f(\bar{\lambda}^{nar})$ , with  $f' < 0$ . The marginal product from private farming depends on how many other workers in the narrow reference group are reform-minded and hence disloyal to the corporate farm manager, with  $\bar{\lambda}^{nar}$  the share of loyal workers in the region. This is thought to be due to various types of network externalities, for example the necessary political support for restructuring up- and downstream

<sup>22</sup> In Russia, this reference group has been represented by the reform-oriented Association of Peasant Farms and Agricultural Cooperatives of Russia (AKKOR). According to WEGREN (1995, pp. 28-29), AKKOR had a network of branches in every oblast by the mid 1990s, held annual congresses, and published an own weekly newspaper, ‘The Russian Farmer’. It supports private property and freedom of land use. Although its primary constituents are private peasant farmers, it appears to have more support in urban than in rural areas. Similar movements exist in other CIS countries.

<sup>23</sup> CSAKI and LERMAN (1997, p. 4) describe how farm managers use information control to keep horizons limited: “The beneficiaries in the land sharing process appear to be uninformed concerning the rights attached to their land shares. Thus, only 8% of respondents with shares report that it is allowed to sell land shares. ... On the other hand, most respondents (80%) know that they are allowed to ‘invest’ their land shares in the farm enterprise, thus becoming shareholders of a new corporate entity... The option of investing the shares in the farm enterprise is recognized by almost all respondents because it has been repeatedly emphasized by farm managers, who are apparently the main source of information about land reform and who very conveniently have omitted to mention the other legally available options for internal restructuring.” Similar evidence is provided by KOESTER (1999).

markets for private farmers, and learning processes and information spill-overs among reform oriented entrepreneurs to reduce uncertainty and ambiguity in decision making.<sup>24</sup>

It is assumed that farm workers make comparisons among each other with regard to how loyal they are to the corporate farm management. An individual perceives the more discomfort the stronger he/she deviates from average group behaviour in terms of loyalty, expressed by the share of loyal workers in the reference group,  $\bar{\lambda}$ . Utility is assumed to decrease with the composite term  $(\lambda - \bar{\lambda})^2$ . For simplicity it is assumed that both utility functions are linear, hence  $u', v' = \text{const} > 0$ .

A farm manager allocates the labour force of his farm, consisting of  $N$  workers, and assets,  $A$ , to produce composite farm revenue, by using a concave technology  $F(\sigma N, \sigma A)$ . Corporate farm assets are the sum of all individual asset shares, and asset shares can be withdrawn by workers if they wish. Accordingly, the share

of loyal workers in village  $j$  is defined as  $\sigma_j = \frac{1}{N_j} \sum_{i=1}^{N_j} \lambda_{ij}$ . The manager is as-

sumed to be the residual claimant of farm profit.<sup>25</sup> A manager therefore benefits from the loyalty of farm workers, who support him politically, perpetuate the existence of the collective farm and thus secure his income and local power. Although not modelled formally here, benefits for the manager may also be of a psychological nature.<sup>26</sup>

Being aware of social reference group effects among his/her workers, a manager can deliberately keep the horizon of farm workers limited by sheltering them from the wider reference group and by exerting explicit or implicit political and social pressure on them, as described above. Let  $\theta = 1$  if the manager actively keeps the horizon of his loyal workers limited and  $\theta = 0$  otherwise, with  $\theta \in [0..1]$ . Limiting the horizon has an influence on which reference group farm workers use to assess their utility from behaving loyally to the manager. If workers' horizon is kept limited, they compare their own behaviour with that of all other workers in the region,  $\bar{\lambda} = \bar{\lambda}^{nar}$ . If the horizon is not kept limited, they

<sup>24</sup> While there is now an established body of literature on economic network effects in agglomeration, only more recently has interest increased in how social interactions foster the emergence of entrepreneurs in a given region (see MINNITI, 2005 for an overview).

<sup>25</sup> Little is known about the remuneration of the core management of corporate farms. KOESTER (1999, p. 216) reports that many of the farm chairmen appear to enjoy a respectable living standard despite the poor economic situation of agriculture. It is hence assumed that they are the de facto residual claimants of profits.

<sup>26</sup> Psychological benefits may arise because managers enjoy being the 'head of a commune' (AMELINA, 2000, p. 503). The manager may also have a preference for seeing agricultural production organized in corporate farms. This could be the case if he/she has professional concerns that the farm's dissolution will be economic mischief and lead to a food crisis (KOESTER, 2005, p. 109).

compare their behaviour with the wider reference group,  $\bar{\lambda} = \bar{\lambda}^{wide}$ . The wide reference group is assumed to be at least moderately reform-minded on average, so that  $\bar{\lambda}^{wide} < 0.5$ . As a consequence, workers who accept the wider social reference group always experience less discomfort from choosing disloyalty than from remaining loyal to the manager. It is assumed that  $\bar{\lambda}^{wide}$  is exogenous and can not be influenced by decisions of individual farm workers. By choosing  $\theta$ , the manager determines the relative weight of the two possible reference groups of workers:  $\bar{\lambda} = \theta\bar{\lambda}^{nar} + (1 - \theta)\bar{\lambda}^{wide}$ . How costly it is to keep horizons limited is given by a cost function  $C^\theta = C^\theta(\theta, R)$ . Costs may arise from own political activity of the manager to turn down reform-minded influences from outside the region, or bribes to public authorities who might stand up for civil rights of workers. This function depends on a vector of regional characteristics,  $R$ , that includes the existence of conservative vs. reform-oriented political networks in a given region, strength of collective vs. individual traditions, distance to urban centres, climatic and technological dimensions of agricultural production, etc (such differences are discussed, e.g., by AMELINA, 2000). It is assumed that  $C_1^\theta > 0$  and  $C_{11}^\theta > 0$ , implying that it is marginally costlier to achieve higher levels of sheltering. The survival of the corporate farm in a given village depends on the ability of its manager to assure loyalty of a sufficient number of workers in that village, subject to a budget constraint.

The optimisation problem for a farm worker is hence:

$$\text{Max}_{\lambda} u^w = u(y) - v((\lambda - \bar{\lambda})^2), \quad (2-2)$$

subject to

$$y = \begin{cases} w & \text{if } \lambda = 1 \\ f(\bar{\lambda}^{nar}) & \text{if } \lambda = 0 \end{cases}, \text{ and} \quad (2-3)$$

$$\bar{\lambda} = \theta\bar{\lambda}^{nar} + (1 - \theta)\bar{\lambda}^{wide}. \quad (2-4)$$

The optimisation problem for a manager in village  $j$  is:

$$\text{Max}_{\theta, w} U^m = U(\Pi_j), \text{ subject to}$$

$\Pi_j = F(\sigma_j A_j, \sigma_j N_j) - C^\theta(\theta, R) - w\sigma_j N_j$ , the corporate farm's budget constraint, and

$u^w(\lambda = 1) \geq u^w(\lambda = 0)$ , the loyalty or participation constraint.

Managers make decisions concerning  $\theta$  and  $w$ , to which workers react by choosing  $\lambda$ , according to the utility they derive from behaving loyally or disloyally to the manager. Because the decision of a single worker not only depends on the manager's offer but also on the behaviour of other individuals in his/her social

reference group, identical offers by managers may lead to different workers' response in different regions. This is analysed in further detail below.

To summarise the intuition, workers' relative remuneration is, in two distinct ways, influenced by social interaction effects. First, there is a *market effect*. The latter may be described as a network externality or critical-mass phenomenon that influences the monetary returns from independent farming. The more workers turn into private farmers, the easier it is, both economically and politically, to establish independent farming as an accepted organisational mode. Second, there is a *psychological effect*, according to which non-conformity with the reference group causes discomfort. This may usefully be analysed by focusing on the polar cases of  $\bar{\lambda} = 1$  (all workers in the reference group are loyal to the manager) and  $\bar{\lambda} = 0$  (nobody is loyal). In the first case, switching from  $\lambda = 0$  to  $\lambda = 1$  means making one's own behaviour conform with all the others in the reference group, so that the disutility from nonconformity completely vanishes. In the second case, however, the worker switches into nonconformity, and this may outweigh monetary benefits from loyalty. Conversely, if most people in the reference group are loyal to the manager, switching into disloyalty causes discomfort but yields the opportunity to benefit from private farming. In his/her loyalty decision, the worker thus weighs the utility from wage payments or higher earnings from private farming against the potential disutility from non-conform behaviour. Which reference group is used to make this assessment can be influenced by the manager who may opt to keep the horizons of his/her workers limited.

### 2.3 Least-cost elicitation of loyalty

To understand the logic of the model, it is useful to interpret it as a cost minimisation problem for the manager who wants to secure the loyalty of his/her workers ( $\sigma_j = 1$ ). This can be captured as follows:

$$\text{Min}_{\theta, w} C^m = wN_j + C^\theta(\theta, R), \quad (2-5)$$

subject to

$$u^w(\lambda = 1) - u^w(\lambda = 0) = 0, \quad (2-6)$$

that is the participation constraint is just binding in the optimum.

After introducing the function  $P$  as a shorthand for the participation constraint,  $P = u^w(\lambda = 1) - u^w(\lambda = 0)$ , the total differential of the cost function yields the following first-order condition:

$\frac{C_\theta^m}{P_\theta} = \frac{C_w^m}{P_w}$ , which in the optimum state is equal to the marginal cost of securing loyalty of workers.

This describes how  $\theta$  and  $w$  jointly contribute to ensure workers' loyalty and can also be written as:

$$\frac{d\theta}{dw} = \frac{C_w^m}{C_\theta^m} = \frac{P_w}{P_\theta}. \quad (2-7)$$

The second term of the latter equation describes an isocost curve of securing loyalty. The third term describes an isoeffect curve, that is the locus of all  $\theta, w$  combinations where the joint effect of  $\theta$  and  $w$  just suffices to make  $u^w(\lambda = 1)$  as high as  $u^w(\lambda = 0)$ . Analysing the single components of the optimality condition allows us to be more precise with regard to the shape of the isocost and isoeffect curves. From the definition of  $C^m$  in (2-5) follows that  $C_w^m = N_j = \text{const}$ , that is the costs of a marginal wage increase is determined by the number of workers. Furthermore, given our earlier assumption about the costs of limiting the horizon,  $C_\theta^m = C_1^\theta > 0$ . The more  $\theta$  is used, the costlier is the marginal increase. The isocost curve therefore has a concave shape (Figure 2-1).  $w_u$  is the upper bound of  $w$ . It denotes the locus at which  $w = f$  for a given  $\bar{\lambda}^{nar}$  if  $\theta = 0$ , that is loyalty elicitation occurs only through wage payments.<sup>27</sup>

Because  $C^\theta$  is also dependent on regional characteristics,  $R$ , different regions exhibit different isocost curves. The leftward shift shown in Figure 2-1 is induced by relatively increasing costs of limiting the horizon vis-à-vis the wage costs.

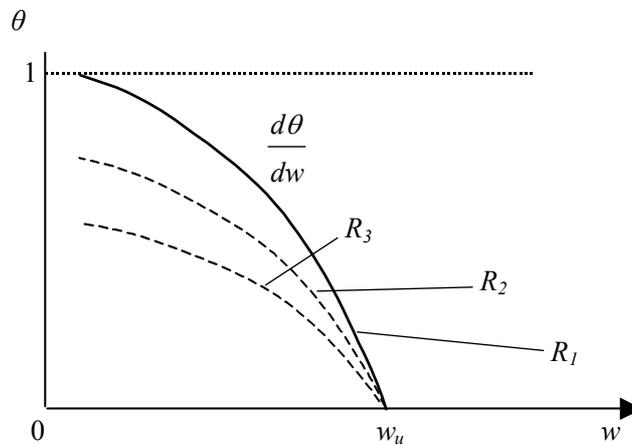
It is also possible to determine the shape of the isoeffect curve. To ease the analysis, we assume that  $\bar{\lambda}^{wide} = 0$ . After inserting (2-2) to (2-4) into  $P$ ,  $P = u(w) - v((1 - \theta\bar{\lambda}^{nar})^2) - u(f) + v((\theta\bar{\lambda}^{nar})^2) = u(w) - u(f) - v + 2v\theta\bar{\lambda}^{nar}$ .

It follows that  $P_w = u^w = \text{const}$ , that is the effect of an increased wage is just the (assumedly constant) marginal utility of income for the loyal worker. Moreover,  $P_\theta = 2v\bar{\lambda}^{nar} = \text{const} \geq 0$ . In words, how effective it is to keep horizons limited in a given region depends on how many workers are (still) loyal. The previous result also implies that the isoeffect curve, within the  $[0..1]$  boundaries, is a straight line. Keeping horizons limited is a perfect substitute for increasing wages, as long as there are loyal workers in the region and as long horizons are not yet fully limited.

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<sup>27</sup> In actual practice, a part of the wage may be paid in-kind, including inputs and machinery access for the worker's household plot and other non-monetary benefits, such as discounted meals in the corporate farm's cafeteria or access to health services.

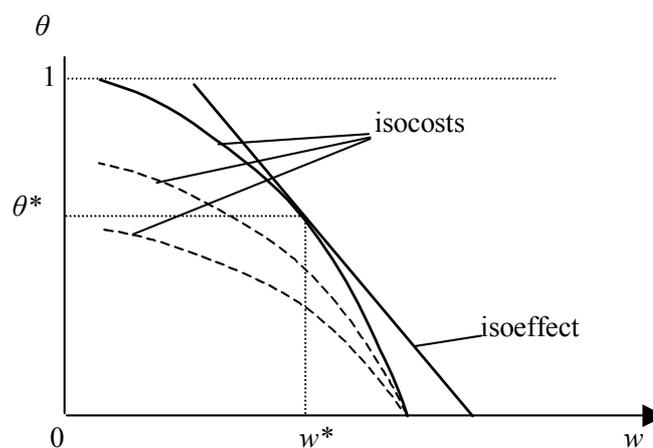
**Figure 2-1: Isocost curves for securing the loyalty of workers**



Source: Author's figure.

Both the isocost and isoeffect curves may now be drawn into one figure, in which the tangency point satisfies the optimality condition (2-7) and thus determines the optimal choice of  $\theta$  and  $w$  for securing loyalty of workers (Figure 2-2), denoted with asterisks. This figure also implies that different isocost curves in different regions lead to varying optimal elicitation strategies. Regional characteristics determine how managers elicit loyalty and how costly it is. In regions where politically influential managers cannot afford to pay higher wages, they will resort to a strategy of keeping horizons limited in order to secure the survival of their corporate farm.

**Figure 2-2: Optimal choice of  $\theta$  and  $w$  for securing loyalty of workers**



Source: Author's figure.

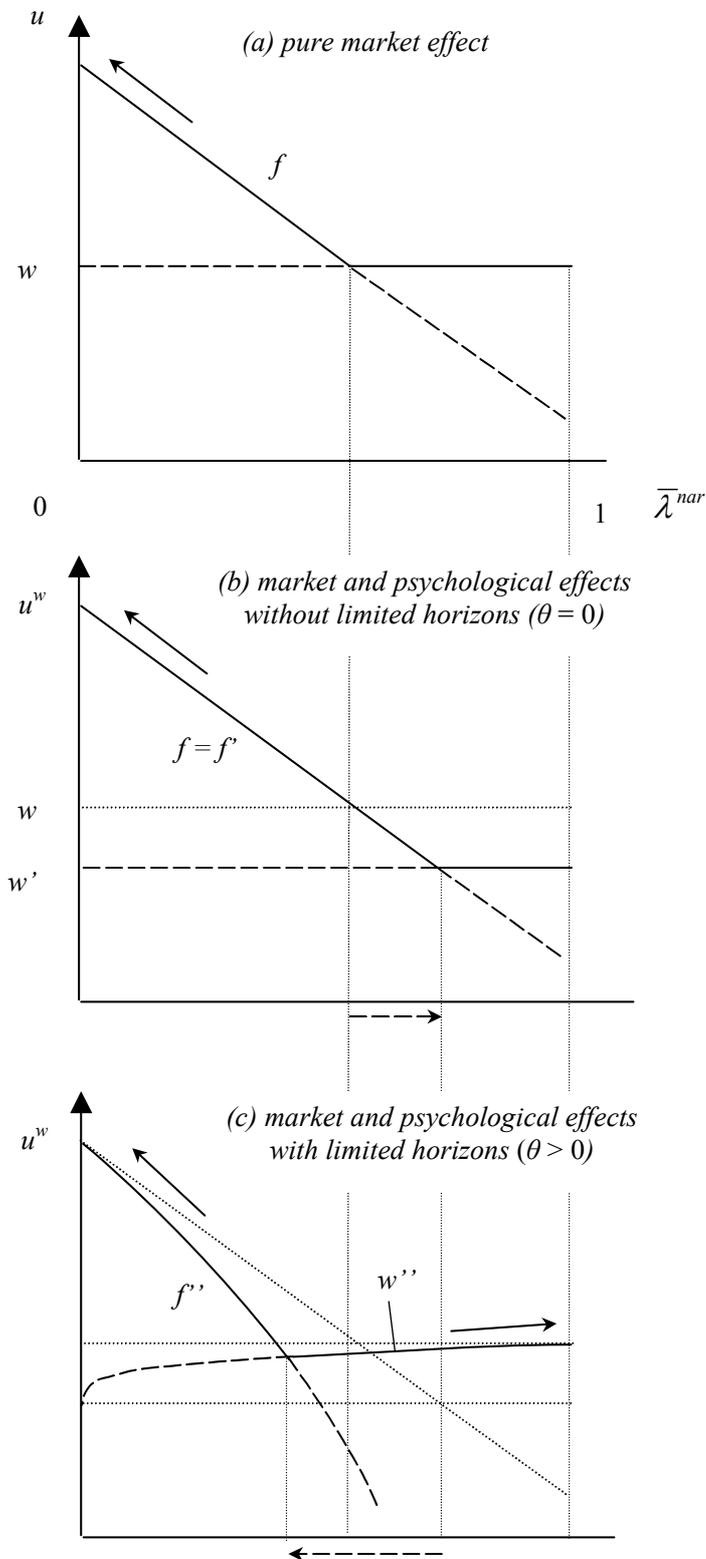
## 2.4 Regional reform equilibrium with social interaction effects

In the following, we analyse how interaction between managers and workers and among workers drives reform choices in the model and show how polar equilibria may be induced, with either all or no farm workers loyal to corporate farm managers. We proceed in three steps that are illustrated by the three charts in Figure 2-3. First, we investigate the pure market effect of social interaction. After that, the psychological effect and the effect of limiting horizons are added.

Charts (a) to (c) in Figure 2-3 display the utility pay-offs for workers as a function of the regional share of loyal workers,  $\bar{\lambda}^{nar}$ . In chart (a) we set  $v' = 0$ , so that the two lines show the pure monetary or market effect of each worker's loyalty decision. Line  $w$  represents the constant wage payment each loyal worker obtains. Line  $f$  illustrates how positive network externalities from establishing independent private farms lead to higher pay-offs if more workers choose disloyalty. The key implication of this externality is indicated by the solid arrow: the more workers have already chosen disloyalty and established a private farm, the more attractive it becomes for the marginal worker to do the same. On the other hand, workers who are loyal and receive a wage income are indifferent to what others do. The long-run equilibrium will therefore be that all workers coordinate on the disloyalty decision. However, coordination on this full de-collectivisation equilibrium may be difficult and long-lasting if, in a given region, only few workers have chosen to leave the collective farm. As shown in chart (a), a critical mass of reform-minded workers is required to reach the upward-sloping part of the solid line, in which case the reform equilibrium is self-reinforcing. For this reason, even though independent farming yields higher pay-offs, external forces, for example an information campaign, may be necessary to reach this equilibrium. How likely it is that private farms emerge depends on the location of the flip point, or kink in the pay-off axis. The further this is on the left, the higher the probability that collective farms remain intact.

The situation changes if psychological benefits from conformity are allowed for, that is  $v' > 0$  (chart (b)). For the moment, we (unrealistically) assume that there is no limiting of horizons at all. Workers therefore adopt the wide social reference group, which in our model means that they are influenced by pro-reform groups and feel uneasy with behaving loyally. In the chart, this is illustrated by a parallel downward shift of the wage line, from  $w$  to  $w'$ . Every loyal worker lives in disharmony with the reform-minded average and thus experiences a utility loss (that is independent of what others in the region do). Workers can evade this discomfort by leaving the collective farm. Because the kink has shifted to the right, as indicated by the dashed arrow, this is now more likely than in chart (a). In this case, behaviour in the narrow reference group is assimilated with behaviour in the wide, pro-reform reference group.

**Figure 2-3: Regional loyalty equilibrium with different social interaction effects**



Source: Author's figure.

The previous circumstances are a threat for the existence of the collective farm and hence the income base and power of the manager. He or she can therefore undertake steps to avert this ‘farmer threat’ (VAN ATTA, 1993). In our model, the manager can either make loyalty more attractive by increasing wages, or influence the social reference group of workers by actively limiting their horizon. The latter effect is displayed in chart (c), where  $\theta > 0$ . In the first place, the pay-offs for both loyal and disloyal workers are thereby altered. Starting from the left of the chart, disloyal workers who chose independent farming now feel increasingly unhappy with their situation the more workers remain loyal. This is not only because of diminishing network externalities from private farming, but also because they feel a marginally increasing discomfort from non-conformity. Loyal workers, on the other hand, experience the highest utility loss if the majority in the reference group chooses disloyalty. They no longer feel uneasy with their loyalty if more and more others are loyal as well. For intermediate values of  $\bar{\lambda}^{nar}$ , loyal workers feel a decreasing disharmony with their fellow villagers, and the wage line  $w^c$  approaches the initial  $w^r$  on the right.

By changing the pay-offs, keeping the horizons limited has another profound effect on the regional equilibrium which is very much in the interest of the manager: it establishes a second polar equilibrium. Once the majority of workers has decided to remain loyal, this process is self-reinforcing, as indicated by the increasing wage curve and the additional solid arrow. By stressing the collective identity of workers and keeping away any reform-minded attitudes from villagers, the manager can establish a stable equilibrium that guarantees the existence of the collective farm. Because workers feel comfortable with doing what is, in the community, the normal thing to do, they have an incentive to choose loyalty if the majority did so already. With regard to workers’ pay-off, however, the polar loyalty equilibrium as drawn in chart (c) is inefficient as compared to the full de-collectivisation outcome. Even so, because limiting the horizon shifts the kink of the pay-off curve back to the left, it makes it even more likely that a loyalty equilibrium occurs.

## 2.5 Testable implications and empirical evidence

Given our basic assumptions concerning social interaction effects among workers and managers’ incentives to keep horizons limited, the model provides a number of testable implications:

1. Within a pool of regions with comparable social and geographical characteristics, there are either regions which totally de-collectivise, so that there are no loyal farm workers and a widespread establishment of private farms, or regions which keep collectives completely intact, so that there are only loyal farm workers and a ‘loyalty culture’ persists. Because only polar reform equilibria are stable, there will be no intermediate or mixed restructuring outcomes, *ceteris paribus*.

2. Persisting loyalty equilibria can only be overcome if a sufficient number of workers decide to leave the collective farm, utilise the network externalities in private farming posited by the model and thus ‘jump’ over the kink in the pay-off curve. If managers keep horizons limited, marginal improvements in the relative returns to independent farming have no effect on workers’ loyalty.
3. Depending on the relative costs of monetary incentives vis-à-vis limiting horizons in a given locality, managers use different mechanisms to elicit loyalty. Where costs of sequestering villagers from external influences are lower, managers will – ceteris paribus – reduce wage levels and more strongly keep horizons limited. Where keeping horizons becomes exceedingly costly because widespread access to information and unambiguous reform policies ease coordination on a de-collectivisation equilibrium, collective farms will dismantle unless managers are able to offer higher wages.

In the following, we present some evidence that is consistent with these implications. Because there has been little systematic research on the relevance of social interaction effects in our context, the results are tentative and more detailed empirical treatments remain for future work.<sup>28</sup> To ensure consistency with the reform choice as specified in the model, we focus on countries with *redistributive* de-collectivisation policies, as opposed to countries that opted for *restitution* to former owners (for details see LERMAN et al., 2004, pp. 85-93; ROZELLE and SWINNEN, 2004, pp. 421-429). In a simplifying view, asset redistribution, at least formally, provided a fairly large but well-defined group of rural residents the option to appropriate a share of formerly socialised assets. It was practised in all CIS countries and in some Central European countries, notably in Albania. Restitution, on the other hand, restricted the group of eligible recipients and introduced former and possibly absentee owners or their heirs as additional stakeholders. This mode of restructuring prevailed in most other European transition countries. However, the more complex conflicts of interest in asset restitution have not been incorporated in the model so far.

### 2.5.1 Duality of reform outcomes in former Soviet countries

A first piece of evidence that is broadly consistent with the hypothesis of polar de-collectivisation results comes from a simple comparison of reform patterns in Table 2-1. All countries given in the table started from the Soviet model of large-scale collective and state farms, which usually allowed individual farming only in the form of subsidiary household plots. In the first group of countries given in the table, the overwhelming share of land was individualised already five years

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<sup>28</sup> An alternative would be to rely on micro data concerning individual reform choices and directly test the relevance of social interaction effects econometrically (BROCK and DURLAUF, 2001; FLETSCHNER and CARTER, 2008). The data requirements and methodological subtleties of such an approach are challenging, however.

after reforms had started.<sup>29</sup> On the other hand, farm restructuring has been almost absent in all of the bigger successor countries, where the share of individual farms rarely has passed the 20-percent mark of total land use even ten years after the start of reforms. Moreover, a large share of this is represented by the millions of attached household plots that already existed during Soviet times, and it is unclear how much land has simply been abandoned.

**Table 2-1: Share of individual farms in total agricultural land of some former socialist countries (percent)**

	<i>Pre-reform</i>	<i>5 years after start of reforms</i>	<i>8-10 years* after start of reforms</i>
<i>Examples for de-collectivisation equilibria:</i>			
Albania	3	95	n.a.
Armenia	7	95	90
Georgia	12	50	44
Latvia	4	81	87
Lithuania	9	64	85
<i>Examples for loyalty equilibria:</i>			
Belarus	7	16	12
Russia	2	8	13
Kazakhstan	0	5	24
Moldova	7	12	20
Ukraine	6	10	17

Note: \* Depending on data availability.

Source: Data compilation taken from ROZELLE and SWINNEN (2004, p. 426).

This broad comparison does not take into account the various differences in initial conditions which were present despite a common Soviet heritage and which may have explanatory power for reform outcomes. For example, ROZELLE and SWINNEN (2004, p. 439) argue that in countries with labour-intensive technologies, individualisation yielded substantial gains in technical efficiency and thus induced restructuring. However, in line with the theoretical implications of our model, even in adjacent regions with similar production conditions, highly different reform outcomes emerged. A first example are the orchard, vineyard and tobacco growing regions of Transcarpathia, Moldova, the Crimea and parts of Caucasus. These continued to be cultivated by corporate farms in Ukraine and Moldova throughout the 1990s, while a widespread parcellisation took place in the Trans-Caucasian

<sup>29</sup> Also Georgian agriculture is largely dominated by individual farming. Comparatively low figures in the table are due to the fact that a considerable share of land lies idle in former state farms, which ceased to operate during the civil war 1992-94 (LERMAN et al., 2004, p. 123).

Republics (see KEGEL, 1997 for Georgia). A second examples is the Baltic dairying and pig rearing region. This most western region of the Russian forest zone now covers Latvia, Lithuania, Belarus and Northern Ukraine (STADELBAUER, 1996, p. 481). Whereas production is still dominated by collective farm successors in the latter two countries, individualisation has progressed substantially in the Baltic countries (MEYERS and KAZLAUSKIENE, 1998).<sup>30</sup>

In addition, it would be desirable to have cases of varying reform patterns *within* one of the newly emerged countries, which appears to be most promising in the land-rich countries such as Russia and Ukraine. Although there are certain regional variations in terms of reform outcomes within these countries (see CRAUMER, 1994 for Russia), the overall picture is one of widespread reluctance to become engaged in individual farming (in contrast to household plot production). However, UZUN (2005, p. 89) notes that even in Russia there are single islands of radical de-collectivisation: “In Saratov Oblast, the agriculture in some districts is ‘totally individualized’: all the corporate farms have been liquidated and their land and assets have passed to peasant farmers.” This finding supports our hypothesis of polar equilibria and merits further research into its causes.

### 2.5.2 How de-collectivisation equilibria have emerged

More direct evidence on the role of individualisation examples and the emergence of a critical mass of disloyal workers can again be derived from the countries classified as displaying a de-collectivisation equilibrium in Table 2-1. Unfortunately, the literature describing de-collectivisation processes at the local level in these countries is very scarce. However, the following examples provide some preliminary insights that support the implications of our model.

KEGEL (1991) is an account of reform processes that took place in the last months of the then Georgian Socialist Soviet Republic (SSR).<sup>31</sup> At the outset, she notes the above-average role of household production in the Georgian SSR compared to other Soviet republics.<sup>32</sup> She then describes how, in August 1989, a decree by the Republic administration was issued according to which *kolkhozes* and *sovkhoses* should be liquidated and individual farms be introduced in six *raions* of the Republic. According to the author, this was a move by the government to counteract the notorious inefficiencies in socialised food production of the Republic.

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<sup>30</sup> Contrary to all other countries listed in the table, Latvia and Lithuania implemented a reform approach based on restitution to former owners. It seems plausible that a not too distant history of family farming or even the appearance of claimants to individual farms that had been expropriated under the Soviet regime makes limiting of horizons very costly and coordination on a de-collectivisation equilibrium much more likely.

<sup>31</sup> Georgia declared independence from the USSR on April 9, 1991.

<sup>32</sup> Between 1986 and 1988, household production contributed on average about 47 percent of gross agricultural output of the Georgian SSR. For the USSR in total this share was only 26 percent (KEGEL, 1991, p. 369, based on official statistics).

Decisions on de-collectivisation were to be made by majority vote of the collective's general assembly. Contrary to most of the later experience in Russia and Ukraine, almost all collectives and state farms in the reform regions were formally dissolved by January 1, 1990. As a result of delays in formal land distribution, spontaneous parcellisation by single farm workers occurred in spring 1990. KEGEL (1991) reports a locally strong demand for land by former workers, as a result of which hundreds of individual farms were established in the reform regions.

This reform pattern exhibits a number of interesting characteristics that are consistent with our model. First, the Georgian public was used to the fact that individual production was a major food supplier in the Republic. Furthermore, the power of local farm directors was held in check due to the still widely intact hierarchy of the Georgian socialist government. Finally, spontaneous individualisation attempts provided the examples for the majority of rural dwellers to follow suit, which led to a complete break-up of the former collective structures. All this made it prohibitively costly or impossible to keep horizons limited and led to the apparent move towards a de-collectivisation equilibrium in these regions.

A similar description is provided by CUNGU and SWINNEN (1997) for Albania, where people had a relatively fresh memory of individual farming at the time of the collapse of the communist regime. Because the ultimate collectivisation wave had occurred only in 1967, there was still a broad support for family farms as an organisational mode. Compared to other socialist countries, the beginnings of reform in the agricultural sector which had been initiated by the last socialist government were late and superficial. Furthermore, they were orchestrated by a severe economic crisis and food shortages in rural areas. In spring 1991 a spontaneous break-up of collectives and an illegal appropriation of assets by individuals gained momentum. This could only partly be controlled by a newly elected reform government, which introduced formal restructuring legislation. CUNGU and SWINNEN (1997, p. 72) report that, by abusing the liquidation authority given to them by the new government, some of the former collective farm managers retained the most valuable parts of assets for themselves, whereas others tried to delay the reform process in order to keep their power and privileges. However, it was impossible to halt the dismantling process and more than 90 percent of former collective land had been distributed to family farms by August 1993. Similar to the Georgian case, the fact that individual farming was an accepted way of food production, coupled with the spontaneous re-emergence of individualisation examples – apparently led by former managers –, made the swift transition to a de-collectivisation equilibrium possible.

### **2.5.3 Variations in managers' strategies to keep collectives intact**

We finally look at some evidence on how managers have tried to keep the collective farm operating and how varying cost relations have affected their strategies.

Data on the cost of limiting horizons is not available, we therefore have to rely on indirect evidence.

Based on sociological fieldwork, PERROTTA (2002) analyses the variety of internal governance mechanisms that exist despite a structurally similar appearance of corporate farms in Russia. A first result is that the farms she surveyed varied in the extent to which official share certificates had been issued to farm workers. Her analysis directly supports the idea of what we have called limiting horizons (p. 125):

“There have been significant delays in the actual distribution of legal share certificates: this is often said to be due to ‘shortages of paper’, or of the necessary funds for printing large numbers of certificates. These ‘shortages’ often reflect ongoing power struggles between local authorities and federal level policy makers: the former try and pass the cost of privatisation on to federal level authorities and/or use the excuse of shortages to delay confirmation of changed ownership.”

She further shows how farm managers use varying mixtures of financial or political mechanisms, that is monetary incentives or hierarchical pressure, to ensure survival of the collective (pp. 126-7):

“The other critical factor which distinguishes one collectively occupied farm from another is ... the personality of the farm director. These lie along a spectrum from uncommunicative autocrat to democratic manager, responding to the interests of shareholders. If he ... wishes to ignore the changed status of the members and/or trivialise the meaning of land and property share ownership, farm populations usually fail to evince any sign of changed attitudes or behaviour. On the other hand, if the farm director is enthusiastic and communicative, farm members are more likely to explain that ‘the land is now ours, the profit are now ours, so it is worth working harder’. ... Agricultural wages are excessively low throughout Russia. On farms where decisions are made autocratically by farm directors, members simply complain, and state that they are being treated even worse than ‘before’. ... The more progressive farm director is more likely to acquire and distribute share certificates than the autocrat; rents and dividends are more likely to be paid to land and property share owners, where their rights are publicly acknowledged.”

This is consistent with our result that, within the pool of collective farms, transparent decision making and access to information about legal rights go hand in hand with financial incentives for workers, whereas wages on farms with highly centralised power structures tend to be low.

## 2.6 Conclusions

Based on explicit theoretical modelling of social interaction effects among farm workers and the hierarchical power relations between managers and workers, we have shown how several outcomes of de-collectivisation in former Soviet countries can be derived that have been neglected by previous authors. In particular, our model provides a rationale for the persistence of widespread support to collective farm organisation among workers and managers, despite the availability of a more efficient individual farming option. The model explains why managers have an incentive to keep horizons of workers limited by sheltering villages from external influences and how different loyalty elicitation strategies may be determined. It generates polar reform equilibria that have been demonstrated to be largely consistent with the spatial patterns of reform in the group of post-Soviet transition countries.

The presence of limited horizons has implications for the design of policies aiming at the establishment of independent farms. Given a loyalty equilibrium, it is not sufficient to improve managerial resources and relax factor market constraints for prospective individual farmers, as argued e.g. by RIZOV (2003). The effect of marginal improvements in individual farm profitability on the loyalty equilibrium in our model will be nil. Crucial for reform in the present model is the formation of a critical mass of workers who are willing to establish independent farms. This could possibly be achieved by support programmes which make loyal farm workers aware of the fortune of successful non-loyal workers, which lead to the emergence of individual consciousness raisers among the group of loyal farm workers (and not only to the spread of disembodied ideas), or which make it more costly for farm managers to keep the horizons of workers limited. In other words, a 'big push' in reform attitudes among workers is a precondition for reaching the full de-collectivisation equilibrium, which may be induced by a sufficient number of positive examples of independent farming in a region. Whether fifteen years of stagnation in the non-reforming countries have reinforced or eroded existing norms of collective production may be an interesting issue for empirical research.

In addition to stimulating a critical mass of individual farmers, reform averse managers could be compensated for their foregone benefits. However, the exact design of such a scheme is likely to be a highly controversial matter, and it remains unclear whether managers would indeed exchange their prestige and power for a monetary reward.

Following SCHAFFNER (1995), our theoretical model represents a subtle departure from the traditional assumption of exogenous preferences. By keeping horizons limited, a manager can shape the social reference group of workers and thereby influence what they regard as the normal thing to do. Moreover, the manager can, for his or her own benefit, deprive workers of a more productive reform option. Workers then evaluate individual farming by referring to their current reference group, although they would be exposed to a different reference group if they left

the collective farm. Workers who for some reason escape the limited horizon find themselves better off than they thought they would be, and better off than they had been. We consider this an interesting and fruitful way of combining economic analysis with social psychology and broader ethnographic and sociological insights to uncover the power asymmetries prevalent in the post-Soviet countryside, which may find useful applications in other contexts as well.



### **3 Normative theory formation:**

The heuristic value of social dilemmas in a search for rules that secure gains from cooperation

Perhaps even more than in other economic subfields, traditional welfare theory has been regarded as the mainstream reference framework for prescriptive policy analysis in agricultural economics. It implies as a normative benchmark the neo-classical efficiency criterion, according to which the operation of a set of competitive markets yields, under certain conditions, a Pareto-optimal equilibrium outcome that maximises the welfare of society.

Institutional economists have questioned this approach as being unable to provide a relevant framework to base policy recommendations on. DEMSETZ (1969, p. 1) criticised the comparison of existing institutions with an ideal norm as a ‘nirvana approach’ and called for a ‘comparative institution approach’, where the relevant choice is between alternative real institutional arrangements. The latter alternative has been advocated by less formally inclined authors, such as WILLIAMSON (1996), and has found its way into agricultural and rural economics (see e.g. BECKMANN, 2000; VAN HUYLENBROECK et al., 2004a). However, this literature largely focuses on positive analysis and has not developed a systematic normative framework informing about the kind of arrangements that are socially desirable.<sup>33</sup> FURUBOTN and RICHTER (2005, p. 548) hence suggest that a satisfactory normative framework for evaluating economic institutions is currently not in sight: “... one consequence of the movement into the territory of the New Institutional Economics is that we are left without a standard that can be described as comprehensive in its applicability and rigorous in its formulation”. An implication of this lacking normative framework is that institutional economists have difficulties in contributing constructively to public policy debates. EGGERTSSON (1998, p. 336) notes:

“The new institutionalism, so far, has spent most of its energy explaining social outcomes, both analyzing the effects of alternative institutional arrangements and attempting to explain institutional change. ... [B]ut the literature seldom offers lessons for government policy, except perhaps implicitly.”

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<sup>33</sup> To the extent that it has, this framework has several weaknesses (see the references given in Section 1.1 on transaction cost economics).

In this chapter we challenge the view that institutional economists are left without a normative standard. We build upon insights of *constitutional economics*, an alternative to welfare theoretic reasoning that has not been followed by the mainstream of institutional economists (BUCHANAN, 1987; PIES, 1996). Central to this approach is a distinction between actions on the one hand and the constitution that guides action on the other. Within the constitution, actions are solely determined by individually optimising behaviour. The normative question is posed whether there are alternative, preferable constitutional rules that find the *consent* of the involved agents. Due to its focus on very general rules and its emphasis on the assent of each individual citizen, the approach may privilege the status-quo (BUCHANAN, 2004). Whereas the welfare economic standard tends to be utopian,<sup>34</sup> constitutional economics might be criticised for being overly conservative. We nevertheless are convinced that its democratically motivated focus on individual incentive compatibility of arrangements and its emphasis on comparing realistic policy alternatives offer a number of valuable insights that can inform a normative analysis of sub-constitutional institutional arrangements.

We propose a theoretical framework that acknowledges the ‘frictions’ present in the institutionalist world-view without abandoning all normative aims.<sup>35</sup> The central notion of our approach is a *social dilemma*, such as the prisoners’ dilemma widely analysed in game theory. However, compared to game-theoretic analysis which examines optimal strategies for individual agents, the focus of our approach is to look for institutional arrangements that are desirable for all players. We use the social dilemma as a heuristic to search for institutions *that secure gains from cooperation*. This normative institutional perspective is based on the elementary insight that gains from cooperation at the same time *legitimise* institutional reform and facilitate its *implementation*. The new perspective has a number of distinct analytical advantages: Using the social dilemma as a theoretical a-priori guarantees that the incentives of all involved individuals are systematically taken into account and that reform proposals are focusing on realistic alternatives. We therefore propose to reconstruct *any* economic interaction as an existing or repealed social dilemma. In this interpretation, the social dilemma represents a unifying, parsimonious framework that allows to identify the normative implications of established institutional-economic arguments. Furthermore, it also offers new perspectives for institutional economists to participate in public policy debates.

The plan of the chapter is as follows. In Section 3.1 we briefly discuss the normative approach of constitutional economics. Drawing on the latter, we introduce

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<sup>34</sup> For a detailed discussion see chapter 6 on ‘utopian capitalism’ in BOWLES (2004).

<sup>35</sup> This approach has been inspired by various discussions with Ingo Pies, to whom the author is indebted for an introduction to a line of thought laid down in PIES (2000; 2001); SUCHANEK (2000); and HOMANN and SUCHANEK (2005). His comments were also very helpful for structuring the argument in this chapter. The following is based on PETRICK and PIES (2007).

our own proposal for a social dilemma heuristic in Section 3.2. We move on to discuss the strengths and limitations of this approach and its implications for economic policy advice. Section 3.3 contains an illustrative application to institutional arrangements in rural credit markets. Section 3.4 concludes.

### 3.1 Comparative normative analysis in constitutional economics

BUCHANAN (1959) opens a line of criticism of the efficiency notion of neoclassical economics on the ground that it employs an inappropriate concept of the policy process and applies an idealised evaluation criterion disconnected from the wants of individual people. In this and subsequent writings, BUCHANAN first calls into question the assumption of a benevolent dictator which is implicit in much of the early welfare economic literature.<sup>36</sup> He regards this as a violation of *consistency* in the behavioural assumptions of economic vis-à-vis political analysis. Second, he criticises the *normative foundation* of welfare economics. The comparison of a theoretical ideal with reality is supposed to miss the relevant alternatives, and social welfare maximisation as a guide for public policy is rejected as undemocratic because it ignores the assent of the actually affected people. Third, he claims that due to a lacking consent orientation, the problem of *implementation* of policy measures is unresolved in welfare economics.

BUCHANAN and TULLOCK (1962) pioneered the rational choice approach to politics and thus tried to solve the problem of consistency. The trajectory was to extend ‘private choice’ to ‘public choice’ and to put homo economicus at work not only in private but also in political, and thus ‘non-market’, decision-making. However, beginning in the mid 1970s, BUCHANAN (self-)critically realised that the public choice approach to work out the consistency problem made it more difficult to tackle the normativity and implementation problems: The welfare economics of the private sector had been extended to a welfare economics of the public sector, and market failure as a deviation from the efficiency ideal was now accompanied and reinforced by political failure. Neither economic nor political real-world actors were regarded as being capable of achieving a socially optimal allocation of resources. As a consequence, the normative orientation function of the efficiency criterion was entirely lost. BUCHANAN (1987, p. 585) concluded that a strategic re-orientation of research was necessary to cope with this dilemma:

“We now know that under some conditions ‘markets fail’ when evaluated against idealized criteria. ... We also know that ‘politics fails’ when evaluated by the same criteria. Any positive analysis that purports to be of use in an ultimate normative judgment must reflect an informed comparison of the working properties of alternative sets of rules or constraints. This analysis is the domain of Constitutional Economics.”

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<sup>36</sup> See the concise overview in PIES (2000, pp. 276-287).

Constitutional economics changes the neoclassical approach to normativity in two fundamental ways: First, it aims at a comparison of *realistic* alternative institutional arrangements, and second it uses the *consensus* of citizens as a criterion to choose between alternatives. This follows from the idea that both the economic and the political domain shall be analysed in an analogous and thus consistent manner, however no longer under the ‘maximisation paradigm’ of welfare economics but under an ‘exchange paradigm’ of what is called the ‘contractarian approach’ (BRENNAN and BUCHANAN, 1985, chapter 2).<sup>37</sup> The market is conceptualised not as an *allocation mechanism* to maximise social welfare, but as a *coordination process* of individual maximisation strategies. It is then useful to distinguish the rules *of* and the moves *in* the game of market exchange. Whereas market participants compete over scarce resources in their actions, they have a common interest in a market order that enables mutually beneficial trade. The political sphere is understood in the same two-stage structure: political entrepreneurs seek their self-interest in the polity system, but there is a common interest in the constitutional rules that make up the political order and shape political competition. Both in the market and the polity an exchange or contract of mutual agreement *to* the rules is required before mutually advantageous trade *within* the rules can take place. In this analytical framework, the relevant choice is between different rules, not outcomes, because under currently given rules outcomes are pre-determined by rational behaviour. Moreover, the relevant normative criterion is the consent of the involved actors, and not an abstract social welfare. Accordingly, the task of the economist is to suggest improvements in rules which can be assented by the citizens. ‘Since ‘social’ values do not exist apart from individual values in a free society, consensus or unanimity (mutuality of gain) is the only test which can insure that a change is beneficial.’ (BUCHANAN, 1959, p. 137).

In line with these conceptual modifications of the neoclassical approach, also the basic normative terms are redefined. ‘Efficiency’ is no longer regarded as an objective, external measure of social desirability, but is completely based on the subjective values of the affected individuals, and hence transformed into a process-internal criterion. It follows that ‘efficiency, as an attribute, is necessarily present when there is a demonstrated absence of possible agreed-on changes.’ (BUCHANAN, 1975a, p. 227). Closely related, the Pareto criterion is now applied to alternative sets of (attainable) rules. It is thus useful to speak of Pareto-*superior* rules instead of Pareto-*optimal* outcomes.

Against this background, the question emerges whether the proposals for improved rules can indeed be implemented. The *constitutional* orientation of the ‘contractarian approach’ is aiming at precisely this point. First, as explained previously, the focus on rules addresses the interest of all participants in the *process* of mutual trade and not primarily in the distribution of outcomes. Because the

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<sup>37</sup> The ‘contractarian approach’ is distinct from ‘contract theory’ mentioned in section 1.1.

more abstract level of rules stresses the general over the particular interest, it tends to assure the assent of real-world actors. Especially the earlier constitutional economics literature pushed this point to the extreme by limiting its domain to the *highest possible level* of societal rules, the constitution (*nomen est omen*). At this most abstract level, it is reasonable to assume that particularised interests of individuals are completely subordinated to the general interest and that this ‘veil of uncertainty’ enables full individual consent to the constitutional rules (BUCHANAN and TULLOCK, 1962; BUCHANAN 1975b).

### 3.2 The social dilemma heuristic

Given the positive insights of institutional economics and the normative concept of constitutional economics, we now attempt to develop the nucleus of a *normative institutional economics* that exploits the strengths of both approaches but avoids their flaws. In the following, we subject the social dilemma to an institutional economics interpretation and then show how it can be used as a policy-oriented heuristic for both positive and normative analysis of sub-constitutional institutions.

#### 3.2.1 The social dilemma in an institutional economics perspective

We define a social dilemma as a situation in which, as a result of an unresolved conflict, actors as a group do not make full use of their opportunities. Technically speaking, it is a situation of human interaction in which the equilibrium outcome is Pareto-inferior. Actors in the social dilemma hence remain in a situation of *collective self-damage*.<sup>38</sup>

Situational incentives, i.e. the rules that channel individual moves, can be modified in such a way that social dilemmas are overcome. This potential to shape situations of strategic conflict by way of institutional reform makes social dilemmas and their game-theoretic analysis the central building block for our approach. First, by way of the familiar positive analysis, the functioning of institutional arrangements can be studied and reconstructed as solution of strategic interaction problems. Second, by way of normative analysis, common interests of conflicting parties can be identified and be used to evaluate these arrangements. Finally, as

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<sup>38</sup> The classical case of a social dilemma is the equilibrium outcome of pure strategies in the one-shot prisoners’ dilemma. However, we are not primarily interested in a specific game, but generally in situations that lead to a Pareto-dominated equilibrium outcome. This can arise in various contexts. For example, in the one-shot ‘assurance’ game, one of the two equilibria is Pareto dominated. In indefinitely repeated games, the equilibrium outcome of frequently used games such as ‘chicken’ or ‘battle of the sexes’ may be Pareto-inferior as well (BINMORE, 1994, pp. 113-117). The structure of the particular game is thus of secondary importance. Due to its popularity and simplicity, we continue to take the one-shot prisoners’ dilemma as an illustrating example in the following.

will be shown in Section 3.2, an analysis based on the social dilemma heuristic can be used to generate arguments which, from a methodological point of view, are compatible with Max Weber's notion of freedom from value ('Wertfreiheit') and at the same time, from a political point of view, are compatible with democracy.

In comparison to traditional welfare economic reasoning, an analysis in terms of social dilemmas puts emphasis on the following:

- Rather than focusing on *allocation* outcomes that result from the parametric reaction functions of individuals, the *interaction* of behaviour is emphasised. The simultaneous existence of both common and conflicting interests is made visible. Furthermore, it becomes clear that actors have only partial control over outcomes, which can be described as non-intended consequences of intentional behaviour. Unexploited mutual advantage can therefore only be realised by way of better rules.
- The exogenous variables in this model are the individual pay-offs, which are hence the control variables for policy action. However, policy is no longer guided by the desire to attain the ideal of a perfect market. It rather aims at the *establishment of an (attainable) institutional arrangement* that allows the realisation of mutual gains. A comparison with an abstract first-best world is therefore avoided.
- The opportunity of mutual improvement creates a *basis for consensus* and a common interest in the according rules. This means, however, that all parties involved must in fact gain from an institutional alternative and can rely on the rule-abiding behaviour of all others. This is the precondition for individual assent, and thus a key difference to the welfare economic approach.

The social dilemma hence captures the basic problem of social order: How can potential gains from cooperation be realised by way of institutional reform? The fundamental criterion for the normative evaluation of institutional arrangements inherent to this structure is that *a desirable institution provides all involved actors with incentives that allow the realisation of mutual gains*. These gains at the same time *legitimise* institutional reform and facilitate its *implementation*. A 'good' institution hence brings to bear the interests of all affected individuals, who are the only source of values in this approach.

However, our approach makes no commitments concerning the substance of these values. In line with BECKER (1976), we treat the rationality assumption as a methodological device that allows a useful complexity reduction, instead of providing a phenomenological mapping of human preferences. As such, the homo economicus construct is a theoretical, pre-empirical a-priori of a situational analysis (POPPER, 1967). By assuming that humans typically do not act against their personal interest, which have to be stated on an application-specific basis, we use the

rationality criterion to evaluate the incentive structures of institutional arrangements.<sup>39</sup>

The choice between alternative sets of rules and the consensus of affected parties as the relevant normative criterion are emphasised by both the social dilemma heuristic and the constitutional economics approach. Compared to the latter, we stress the following advantages of our approach:

- The social dilemma heuristic provides an explicit formal framework concerning the *specific alternative that can be agreed upon by the involved parties*. In this sense, the above-mentioned problems of normativity and implementation are solved simultaneously. It is not necessary to ensure consent by limiting the choice of rules to the exchange of rights at the abstract level of the constitution, where a ‘veil of uncertainty’ prevents exploitation by particular interest groups or the most powerful (BUCHANAN, 1975b). In the social dilemma, the situational structure is such that achieving the institutional alternative is beneficial to *all* participants. Therefore, all involved players have a joint interest to change the rules.
- Using the formal framework of modern game theory, the relevant alternatives and the strategic interaction of the involved parties can be made transparent. Our approach therefore allows a stronger formalisation of constitutional economics arguments. On the other hand, it emphasises the normative aspects of institutional design, which are often neglected by traditional game theorists.

### 3.2.2 The methodological status of the social dilemma heuristic

The aim of our approach to normative institutional economics is to provide a link between positive reconstruction, normative evaluation, and public policy advice. This ambitious task is subject to a number of methodological constraints, among which we already mentioned freedom from value and compatibility with democratic principles. Moreover, it is useful to strip the approach of dispensable aspects and to focus on the fundamental problem structure that cannot be reduced further. In order to extract the *indispensable* ingredients of the structure, a problem-oriented, pragmatic reduction of complexity is required (SUCHANEK, 1994). In capturing the essence of the problem under investigation, the structure should be precise and simple. Given our intention to use the approach (also) as an argumentation scheme for public discourse, this latter aspect is of particular importance. On the other hand, the structure should be sufficiently flexible to allow a methodologically controlled differentiation and application to empirical phenomena.

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<sup>39</sup> Within this framework, the insights of current institutional economics research provide (additional) restrictions for individual choice. Examples include imperfect or asymmetric information, incomplete property rights, or social norms. For an overview of this style of modelling see BOWLES (2004, pp. 23-55).

Based on these considerations, we can formulate the fundamental hypothesis of our approach as follows:

*For a normative analysis that aims to be free from arbitrary value judgements and compatible with the democratic principle of normative individualism, it is useful to reconstruct any economic interaction in terms of social dilemmas.*

Because the dilemma structure captures the essential tension between common and conflicting interests in institutions in a precise and simple way, we propose that a normative analysis of institutions should begin with a *search for dilemma structures*. The applicability of our approach is conditional on the success of such a search. In this sense the methodological status of the social dilemma can be characterised as a *heuristic* of normative institutional economics: It provides guidance concerning the search for solutions to the problem of what the characteristics of a ‘good’ institution are and how desirable institutional reform could be accomplished.<sup>40</sup>

There is a widespread consensus in the social science literature that social dilemmas, in particular the prisoners’ dilemma, are indeed a ubiquitous phenomenon. MILLER (1992, p. 35) regards the management of social dilemmas as the single fundamental problem of economic organisation. NALEBUFF (1998, p. 89) notes that ‘what makes the prisoners’ dilemma so intriguing is its apparent universal applicability to business, politics, and everyday life.’ TULLOCK (1985, p. 1079) goes one step further in asserting that ‘it is likely that almost all interactions between human beings can be drawn as prisoners’ dilemmas.’ We take these views as underpinning for our proposal to systematically search for dilemma structures in *all* human interactions.

There are three natural objections to this suggestion, which we discuss in the following to further clarify our approach: (1) not all interaction is characterised by mutual defection, which is the equilibrium outcome of a social dilemma; (2) unresolved conflicts about the distribution of gains from cooperation may prevent the players from escaping a Pareto-inferior situation; and (3) not always is cooperation in social dilemma situations a desirable outcome.

Ad (1) (Omnipresence of social dilemmas): Of course, not all *observed* interaction is characterised by mutual defection. In particular, voluntary market exchange is one of the prime examples of mutually beneficial cooperation, and hence gains from trade. But this does not invalidate our argument: We fully agree that *there are* institutional arrangements in the real world that overcome dilemma structures

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<sup>40</sup> We use the term heuristic in a way similar to LAKATOS’ (1970) ‘positive heuristic’ as a set of suggestions to direct and develop research further and to provide guidance on how to process ‘anomalies’, i.e. facts that at first glance seem to be inconsistent with the theory or model within the positive heuristic. ‘The positive heuristic guides researchers toward the right questions to ask and the best tools to use in answering them.’ (HANDS, 1993, p. 114).

and that allow to gain from cooperation. Governance and control of social dilemma situations is the very reason for the establishment of institutions, as has been shown by various contributions of the institutional economics literature (see in particular the discussion in Section 3.3). What we emphasise is that the underlying dilemma structure of interaction *keeps on living* below the surface of the existing institution and remains latently present. Once the institution breaks down, the entire set of problems related to the dilemma comes to life again; one could say it is permanently ‘lying in wait’ (HOMANN and SUCHANEK, 2005, p. 384). ORDESHOOK (1986, p. 235) puts this insight as follows:

“Often we might not find prisoners’ dilemmas in a specific situation or institution because certain rules or traditions evolve to avoid them. But this absence of dilemmas does not make an understanding of their logic less relevant, because the only way to understand why such rules and traditions persist is to discern the dilemmas that arise without them.”

There are various reasons for such a revival of social dilemmas due to the vanishing impact of formal or informal rules and institutions (HOMANN and SUCHANEK, 2005): Conventions, values, and religious norms may erode; existing control-systems may become ineffective as a result of imperfect enforcement, evasive activities, revolution, or poor government; individuals may gain new scope of action due to technological or social innovations. Instantaneously, dilemma structures liven up again, and social interaction undergoes a phase of more or less instability until a new arrangement of rules is institutionalised. We agree with HOMANN and SUCHANEK that in one way or the other all prevalent problems of the real-world – poverty, hunger, migration, environmental damage, unemployment – can usefully be interpreted in terms of dilemma structures, for which so far no appropriate solutions that allow a move to the Pareto-superior equilibrium have been found and implemented.

In particular, voluntary market exchange crucially depends on the establishment and enforcement of basic property rights, otherwise the individuals find themselves in a world of anarchy. To overcome this prime example of a social dilemma is thus the necessary condition for enabling the socially beneficial working of the ‘invisible hand’ (TULLOCK, 1985). However, the smooth functioning of competitive markets is in no way guaranteed. In fact, market *failures* have been central to economic analysis for decades. After an extensive survey of the sources of these ‘failures’, namely public goods, externalities, increasing returns to scale, incomplete information, and unemployment, INMAN (1987, p. 672) concludes (emphasis added):

“A careful analysis of agent behavior in market failure problems reveals non-cooperation to be the dominant strategy of each self-seeking, utility-maximizing player. *The generic form of market failures is the Prisoner’s*

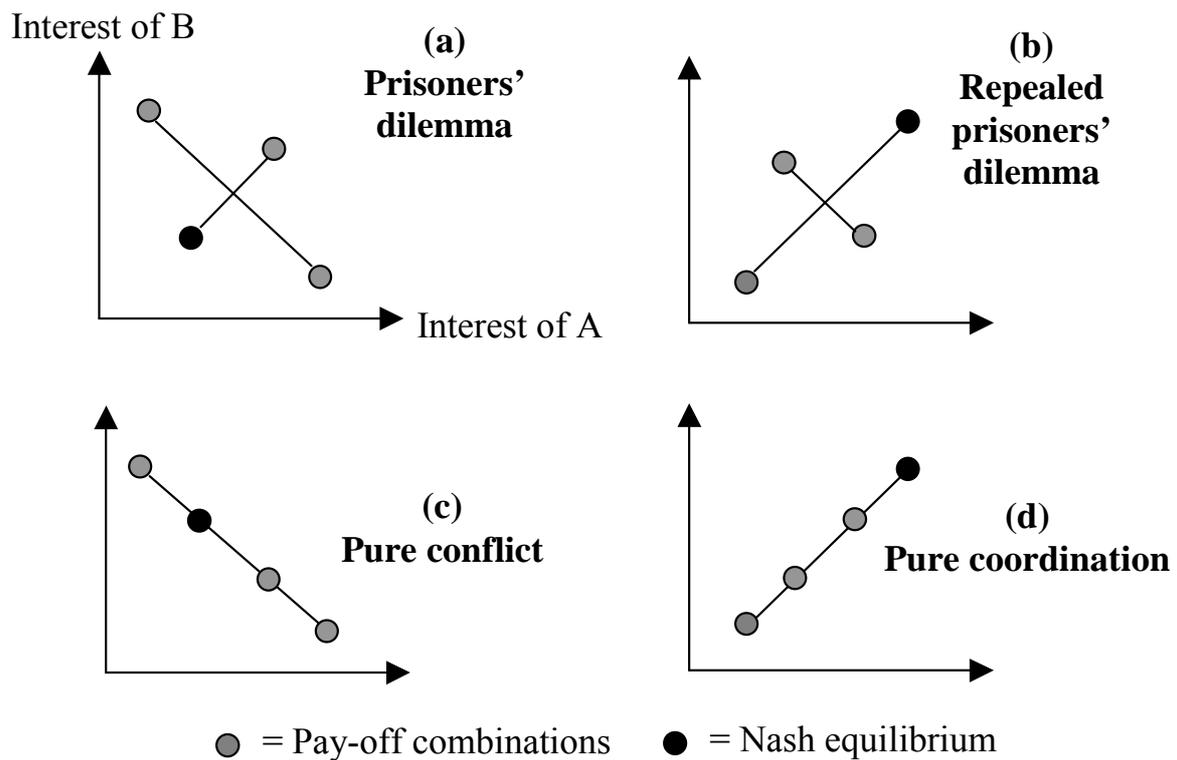
*Dilemma game repeated a finite number of times between many strangers.*  
The equilibrium strategy in this game is to play non-cooperatively.”

The central role of dilemma structures for human interaction can be demonstrated more systematically by referring to a classification due to SCHELLING (1960, pp. 88-89). He identifies two limiting cases of interdependent decisions: a *pure conflict* situation with a *fixed sum* of outcomes as one extreme and a *pure coordination* or common-interest situation with *fixed proportions* of outcomes as the other extreme. Represented on a two-dimensional diagram where the outcomes for the players are given by the two coordinates of a point, the points of the pure conflict display a decreasing line, whereas the points of pure coordination display an increasing line. All *intermediate* situations are characterised by *both common and conflicting interests* (mixed motive games). We seek to establish that *the simultaneous existence of common and conflicting interest is the typical case of human interaction.*<sup>41</sup> This means that at least one pair of points denotes a negative slope and at least one pair a positive slope. If one treats the absence of institutional regulation as the systematic starting point for analysis (BUCHANAN, 1975b), conflicting interests dominate the common interests, as illustrated by the prisoners' dilemma (Figure 3-1 (a)). If, due to specific situational circumstances, common interests are completely eliminated, the pure conflict case obtains (Figure 3-1 (c)). If, on the other hand, the common interests are step-wise strengthened, the prisoners' dilemma can be transformed into a situation where cooperative behaviour is the dominant strategy, i.e. the prisoners' dilemma is repealed (Figure 3-1 (b)). In the extreme case, conflicting interests are entirely absent, and a pure coordination game results (Figure 3-1 (d)).

In this view, any cooperating and likewise any competing interaction is based on an existing or repealed dilemma structure. Except for the limiting cases of pure conflict or pure harmony, cooperation and competition are both characterised by the simultaneity of common and conflicting interests. They differ only with regard to the dominating interest (PIES, 2001, pp. 182-184).

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<sup>41</sup> According to RAWLS (1999, p. 109), human interaction in society ‘is typically marked by a conflict as well as an identity of interests. There is an identity of interests since social cooperation makes possible a better life for all than any would have if each were to try to live solely by his own efforts. There is a conflict of interests since men are not indifferent as to how the greater benefits produced by their collaboration are distributed, for in order to pursue their ends they each prefer a larger to a lesser share.’

**Figure 3-1: The systematic place of the social dilemma in strategic interaction**

Source: Author's figure motivated by SCHELLING (1960) and PIES (2001).

Ad (2) (Role of distributional conflicts in Pareto superior rule changes): Recent experimental evidence has supported everyday wisdom that people are not indifferent towards the distribution of gains from a joint endeavour (see e.g. FEHR and SCHMIDT, 1999). If this is the case, positive gains for every single player may not suffice to assure unanimous agreement to a Pareto-superior institutional arrangement. What are the consequences for the usefulness and applicability of a social dilemma heuristic? If fair-mindedness and distributional conflicts are believed to be relevant in a given context, these convey individual value judgements and as such should be *incorporated as additional constraints* into the situational logic. The growing literature on the subject suggests several ways how this may be accomplished. For example, inequality aversion may be modelled as a loss of individual utility, which is no contradiction to the unspecified and possibly non-monetary utility notion used here. FEHR and SCHMIDT (1999) suggest a utility function that accommodates social preferences by punishing the individual for pay-off inequalities among players. Another approach is followed by VANBERG (1994), who augments individual preferences by a category of 'subjective constraints' (p. 50), which may reflect the moral disposition of the individual. It is important to note that such additional constraints may have fundamental consequences for the underlying structure of interaction. In a game with standard prisoners' dilemma pay-offs, BOWLES (2004, p. 120-121) shows how inequality aversion prevents players from exploiting their co-operatively inclined opponents.

This effectively transforms the prisoners' dilemma into a coordination game, which in Figure 3-1 implies a move from (a) to (d). In other circumstances, one may conceive that seemingly Pareto-superior outcomes are rejected by the players because they are incompatible with their fairness norms.

In our view, the existence of distributional conflicts does not limit the usefulness of the social dilemma heuristic for providing a perspective on mutually beneficial rule changes, given that all relevant constraints of the particular situation are taken into account. It is, however, clear that such subjective constraints may be more difficult to modify by agreed-on rule changes than more conventional, 'objective' incentive structures.

Ad (3) (Desirability of defection in social dilemmas): Following RAWLS (1999, p. 74), society should be conceptualised as a "cooperative venture for mutual advantage", that is "a public system of rules defining a scheme of activities that leads men to act together so as to produce a greater sum of benefits." In terms of our approach, good societal rules allow the acquisition of mutual gains from cooperation. This does not mean, however, that in all games played in society the cooperative solution is always the desirable one. Collusion of particularised interest groups may well be to the detriment of third parties and therefore not in the interest of society at large. The formation of cartels is a prime example for the social *undesirability* of cooperation in social dilemma situations (NALEBUFF, 1998, p. 90). However, this is *subordinate* to the goal of achieving gains from trade with actors on the other side of the market. It is thus necessary to apply the social dilemma model in a sufficiently differentiated way. We hold it to be a major strength of our approach that it indeed allows to shed new light on the role of competition as a key institutional arrangement for social cooperation. Market competition suggests a situation of conflict between rivals, but it also offers the opportunity to engage in mutually advantageous exchange with a third party. To acquire this advantage, individuals will be willing to expose themselves to the pressure of competition, provided that others are forced to do so as well. There is an incentive to form a cartel to escape competitive pressure. However, this would imply that gains from cooperation with the other market side cannot be acquired. Market participants can therefore agree to a rule that prevents the establishment of cartels. Thus, market competition is an example where conflict and the establishment of a social dilemma situation is *desirable* to achieve a common societal goal (PIES, 2001, pp. 155-176). Undermining collusion or cartellisation (first-order cooperation) is hence regarded as a way of conflict resolution that can be used to achieve gains from trade (second-order or meta-cooperation).

The social dilemma as a structure is thus normatively ambivalent. The undesirability of cooperation in the dilemma can emerge as soon as the group of players immediately *involved* is not identical with the group of individuals *affected* by this game. It is here where the shift of the consensus criterion to the sub-constitutional level requires a careful analysis of who bears the effects of reform. This illustrates the

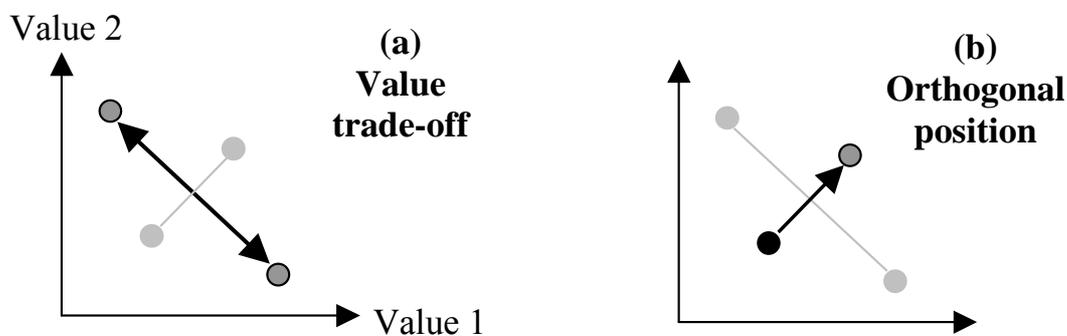
general principle that the relevant criterion for evaluation is the consensus of *all affected* individuals.

### 3.2.3 Implications for public policy advice<sup>42</sup>

The essential insight of the social dilemma heuristic for policy discourse is that it allows to see the common interest in situations that are apparently characterised by pure conflict. Very often, these conflicts are dominated by controversial value judgements. Examples include the dualisms of liberty versus social justice, capital versus labour, or profit maximisation versus social responsibility. In these apparent value trade-offs, our approach can serve as a grammar of argumentation, as a structuring aid that allows to rationalise political discourse. In particular, it can be used for the systematic derivation of *orthogonal positions* in value-loaded policy debates of the democratic public. An orthogonal position means not to take side within such a trade-off but to help overcome the very trade-off.

One of the basic problems of scientific policy advice is that the advisor must avoid a positioning *within* the value trade-off, because otherwise advice would necessarily result in a controversial value judgement which is in conflict with one or the other position under dispute. Corresponding to the analysis of strategic interaction in the previous section, this value trade-off is displayed by the decreasing line of the prisoners' dilemma in Figure 3-2 (a), which is based on Figure 3-1 (a).

**Figure 3-2: Value trade-off and orthogonal position in the prisoners' dilemma**



Source: Author's figure based on PIES (2001, p. 222).

One possible approach to deal with this value trade-off is based on welfare economic reasoning and models the group of addressees of policy advice as a collective which has a higher common goal, the overall social welfare. The fundamental difficulty of this approach is that the actual conflict of interest is not solved. At best, it is concealed by the social definition of welfare. As a result, the generated

<sup>42</sup> This section draws on PIES (2001, pp. 219-225).

recommendations do not answer the question why addressees should sacrifice individual goals for collective goals.

In the social dilemma heuristic proposed here, advice is sought orthogonally *to*, not as a compromise *in* the conflict. This is denoted by the increasing arrow in Figure 3-2 (b). It requires that the conflicting positions are not taken at face value. To the contrary, the one-dimensional perception of the conflict is extended into a two-dimensional perception, which allows to identify a common interest apart from the dominating conflicting interest. By referring to situational win-win constellations, common and conflicting interests can be simultaneously charged and can be located on different levels. Key is the difference between moves in the game and rules of the game, or between actions and conditions for actions. The conflict of actors' interest in the game constitutes the common interest in a change of rules to achieve a more productive game. Hence, not higher goals, but common goals are sought. The common goals are not related to individual action but to the rules that coordinate individual action. Based on an alternative set of rules, the Pareto-superior outcome is identified and the perception of a fixed-sum game is transformed into a perception of a positive-sum game, which implies a move from Figure 3-2 (a) to Figure 3-2 (b).

In summary, the argumentation scheme of a social dilemma identifies a Pareto-inferior Nash equilibrium as the starting point for rationalising public discourse. The lever of advising arguments is not placed – via a concept of social welfare – in abstract Nirvana, but – via incentive analysis – in the status quo. Departing from a conflict that results from actual behaviour guided by situational incentives, we seek to approach rules that improve the incentives to act. Thus, common rule interests are the goal from which orthogonal positions in public value conflicts are derived and political discourse can be rationalised.

### 3.3 An illustrative application: Institutional arrangements on rural credit markets<sup>43</sup>

Poor households often remain poor because they do not have access to income-enhancing resources. Policy makers have therefore paid much attention to financial markets in less developed rural regions, traditionally in developing countries but recently also in countries of Central and Eastern Europe that are plagued by substantial urban-rural disparities. Rural credit markets are often characterised by a dual structure of both *formal* banks and a network of *informal* institutions and arrangements, including interlinkages between credit and product markets, credit associations, village moneylenders, and regionally segmented markets.

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<sup>43</sup> The purpose of this section is to illustrate the previously outlined normative approach. It is not intended as a representative survey of the literature on rural credit markets. The author provides a more substantial discussion of this literature in PETRICK (2004).

Rural credit markets are thus a prime example of the economic relevance of complex institutional arrangements. In the following we take the problem as a case to demonstrate how our approach can be used to analyse and evaluate these arrangements in order to derive policy recommendations.

At the outset, it is instructive to note that until the mid 1980s, rural credit policy was dominated by the view that informal finance was something evil that should be suppressed and replaced by (governmentally-promoted) formal lending institutions. In the centre of the critique was the ‘usurious moneylender’ and his monopolistic power. Behind this view was the simplistic notion that long-term, relational credit markets function the same way as spot markets for chairs and tables and that all that mattered was the infusion of additional, often subsidised funds into rural areas. This policy grossly failed and informal finance continued to be an important source of funds for households that were rationed by formal lenders.

As a consequence, the question which policy recommendations can be given to overcome credit rationing has been posed anew. Most of the current literature either shies away from a theoretically founded answer to this question or clings to traditional welfare economic reasoning (PETRICK, 2004). But how far does this reasoning take? At about the same time when failure of the above policies became evident, economists started to develop a new understanding of the complex nature of institutional arrangements on rural credit markets. A central feature of this more recent credit market literature is the assumption of an *asymmetric distribution of information* between market participants. Asymmetric information may lead to a substantial misallocation on credit markets, including an equilibrium excess demand for credit (STIGLITZ and WEISS, 1981). The typical welfare economic response to such problems of market failure is to consider a *tax scheme* that restores first-best efficiency. This is considered by de MEZA and WEBB (1987), who show that, in the case of credit rationing, a *subsidy* on interest rates may restore the first-best outcome under full information. However, they also show that this result is extremely sensitive to the distributional assumptions of the model. Given only relatively minor changes in assumptions, rationing may disappear, the result of *underinvestment* is turned into one of *overinvestment* compared to the first-best level, so that a *tax* on interest rates would be needed to restore efficiency. In subsequent work it has been shown that another slight modification of the model may result into the coexistence of credit rationing and overinvestment (DE MEZA and WEBB, 2000). It is intuitively clear that, under these circumstances, government intervention aimed at encouraging lending to credit-rationed borrowers makes little sense if efficiency shall be restored.

It can thus be concluded that welfare economic concepts such as ‘market failure’ or ‘constrained efficiency’ are of little value for policy formation unless the need for *institutional policy* is explicitly recognised. However, abstract first-best conditions give little guidance how this institutional policy should look like. From our

point of view, *it is here where appropriate heuristics and theoretical categories are missing.*

The alternative approach advocated in this chapter is to reconstruct the credit rationing problem not as an *allocation* but an *interaction* problem. In this respect, a helpful classification of the problems of asymmetric information is according to the sequence of actions of *principal* and *agent*: the lender as the principal must (a) ascertain what kind of a risk the potential borrower is (the problem of *adverse selection*), (b) make sure he will utilise the loan properly, once made, so that he will be able and willing to repay it (*moral hazard*), (c) learn how his project really did in case he declares his inability to repay (*costly state verification*), and (d) find methods to force the borrower to repay the loan if he is reluctant to do so (*enforcement*) (GHATAK and GUINNANE, 1999, p. 197). All cases subject the lender to the danger of being exploited by the borrower, unless institutional arrangements are in place that counteract this danger. In a general view, the problem can be stated as a *one-sided prisoners' dilemma* (RASMUSEN, 2001, pp. 117-119). Under the assumption that the borrower behaves opportunistically and defaults after he got the loan, the lender will not be willing to extend a loan, so that the strategy combination (default, refuse) is the Nash equilibrium. The productive transaction simply does not take place (Figure 3-3).<sup>44</sup>

**Figure 3-3: Interaction on credit markets as a one-sided prisoners' dilemma**

		Lender	
		<i>refuse</i>	<i>grant</i>
Borrower	<i>repay</i>	0 , 0	1 , 1
	<i>default</i>	<b>0 , 0</b>	2 , -2

Source: Author's figure.

As in the two-sided prisoners' dilemma, actors fail to acquire gains from cooperation and remain in a Pareto-inferior equilibrium. The institutional design is therefore unsatisfactory for *both* of the affected parties, and the central question emerges whether there are institutional alternatives that, compared with the status-quo, allow an improvement for both players.

<sup>44</sup> The game is one-sided or asymmetric because the lender really does prefer the strategy combination (non-refuse, non-default) to the other outcomes. He refuses defensively, because he expects that his cooperative behaviour will be exploited, but not offensively, because he can win nothing from refusing the loan.

To overcome the dilemma, the new rules must lead to a reduction of the borrower's pay-off for default below the level of the non-default pay-off. An alternative contracting scheme to the one illustrated in Figure 3-3, quite common in the developed world, involves the pledge of *collateral* on the side of the borrower, which can be interpreted as a form of self-bonding of the borrower. Collateral provides an incentive for the borrower to repay the loan and signals his credit-worthiness to the lender. If collateral is used in order to eliminate the default of borrowers, credit rationing will disappear (see the theory review in COCO, 2000). Compared to the alternative to get no credit at all, borrowers will agree to this arrangement. However, this element *discriminates against* those who are unable to provide sufficient suitable assets.<sup>45</sup>

The interaction approach also allows a differentiated normative assessment of existing *informal* arrangements, and it is precisely here where alternatives to traditional types of collateral can be found. This is not the place to develop detailed policy recommendations on rural credit, which surely have to be based on a careful study of local circumstances. We rather wish to stress possible options which a normative approach based on dilemma structures can accommodate. One example is the formation of *groups of borrowers* who are jointly liable and thus have an incentive to monitor each other (GHATAK and GUINNANE, 1999). The default option for the borrower is punished by peer pressure, which is particularly effective due to the social proximity of the group. A second example is where credit exchange is *tied to other types of transactions*, the above-mentioned interlinkage. The most well-known is trade credit. Giving credit to trade partners makes private information about business activities available to the lender at little cost. Screening and monitoring of potential borrowers may thus be greatly facilitated. Furthermore, enforcement of loan repayment may be easy by simply deducting it from the goods sold to or through the lender (BELL, 1988). These insights have induced a revision of thinking about rural credit markets. It is increasingly acknowledged that *institutional reforms* do matter for financial development, in contrast to additional funds or preferential interest rates (KRAHNEN and SCHMIDT, 1994; BUCHENRIEDER, 2002). Formal banks and informal credit arrangements are no longer seen as stereotype antagonisms. The current trend is rather to learn from informal arrangements how mutually beneficial exchange can be achieved, and that linkages between both should be established rather than destroyed. Microfinance institutions such as the Grameen Bank in Bangladesh but also more recent experience in countries like Albania or Bosnia-Herzegovina (such as the Albanian Development Fund or ProCredit Bank in Bosnia) demonstrate that innovative lending technologies can reach poor customers. The much-maligned moneylender is reconstructed as an important emergency source of funds, because his unique knowledge of the

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<sup>45</sup> Note that in rural Europe this may not only apply to low-income households, but be a particular problem for highly leveraged, large agricultural borrowers (ODENING, 2003).

borrower prevents default and thus allows mutually beneficial exchange that no other institution could possibly accomplish (ADAMS, 1992).

### **3.4 Conclusions**

Based on considerations of the constitutional economics literature, we have proposed to regard normative economics as the study of human *interaction*. Central to this approach is the search for (changes in) rules that allow the interacting individuals to secure gains from cooperation. The assent of the affected actors is required to legitimise and successfully implement reform. We use the notion of a social dilemma as a basic tool for the analysis of economic interaction because it captures the tension between common and conflicting interests in institutions in a straightforward way. Building on normative individualism, it conforms with freedom from value and is compatible with democracy. Furthermore, it serves the awareness of the common interest, helps to detect the scope for improvement of all involved parties, and suggests institutional reforms which possibly accomplish mutual gains. We have shown how it provides a relatively simple but flexible heuristic for the analysis and evaluation of institutional arrangements and the derivation of orthogonal positions in value-loaded policy debates. In this way it has the potential to make insights of the established positive institutional economics literature amenable to public policy making.

## 4 Quantitative analysis:

### A hedonic pricing approach to contractual relations in agricultural credit markets

Effective policy support to farmers' credit access requires a thorough understanding of the factors that influence credit terms for agricultural borrowers in their specific environment. Whereas recent theory developments have identified many of the principle problems that influence credit market outcomes (Section 3.3 of this monograph), quantitative applications have generally been scarce. This is partly due to the methodological challenges of such an analysis, and partly due to the specific data requirements (PETRICK, 2005). MATTHEWS (1986, p. 917) notes:

“Because economic institutions are complex, they do not lend themselves easily to quantitative measurement. Even in the respects in which they do, the data very often are not routinely collected by national statistical offices. As a result, the statistical approach which has become the bread and butter of applied economics is not straightforwardly applicable.”

In this chapter, we present a micro-econometric analysis of agricultural credit market outcomes in Poland that attempts to shed new light on the relationship between contractual arrangements and borrowing costs for farmers.<sup>46</sup> In particular, we try to identify and evaluate the factors that influence the cost of agricultural bank loans in Poland, including current government measures. We consider both nominal interest rates and additional transaction costs in the form of bank fees. The empirical results are taken as a basis for discussing alternative policy options aimed at an improvement of farmers' borrowing terms. The previously outlined challenges of such a quantitative analysis are tackled in two ways. First, we develop an innovative theoretical framework based on a hedonic market model, common in consumer research and environmental valuation, from which we derive a reduced-form hedonic equation. We interpret the factors that influence borrowing costs as 'quality' components of the credit contract, whose implicit prices are determined by market equilibrium and are not under the control of the individual market participants. Second, we make use of a unique data set that includes detailed information about credit contracts concluded by a sample of Polish farmers in 1999

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<sup>46</sup> The chapter is based on PETRICK and LATRUFFE (2006).

and 2000. This data set allows us to identify the effect of specific contract and farm characteristics on interest rates.

The plan of the chapter is as follows. In Section 4.1, we present the theoretical framework of the analysis. In Section 4.2, some background information on agricultural finance in Poland is given. In Section 4.3, the database is presented. Sections 4.4 and 4.5 comprise the estimation approach and its results. In Section 4.6, we use the estimated parameters to simulate a policy reform that replaces factor-related subsidies by direct income payments, and Section 4.7 concludes.

#### 4.1 Loan contracts in a hedonic pricing framework

Hedonic prices were initially developed in the empirical literature on quality measurement; recent applications include the analysis of environmental quality and farmland values (PALMQUIST, 1991). According to ROSEN (1974), observed prices of differentiated products are explained by a vector of specific amounts of quality characteristics associated with each good. BALTENSBERGER (1976) transferred this concept to loan markets with a two-characteristic (interest) price function, including size and risk of loans. However, risk is still a rather general indicator, and loans differ in more than two dimensions. In the following, we analyse how a specified set of loan attributes affects the equilibrium price of credit in the framework of a hedonic credit market model. This model depicts how interaction between banks and farmers leads to a price equilibrium for credit contracts as a differentiated good. Banks are assumed to control the following components of a credit contract they offer, in response to market information: the credit volume,  $L$ , the repayment period,  $T$ , and a vector of components,  $C$ , that measures the likelihood of default of the specific loan. These are conveniently captured by the ‘five Cs of credit’ (GREENBAUM and THAKOR, 1995, pp. 214-239): collateral ( $C1$ ), equity capital ( $C2$ ), character of the borrower ( $C3$ ), economic conditions of the borrower ( $C4$ ), and future debt servicing capacity ( $C5$ ). There are two further loan contract characteristics that assumedly cannot be changed by the bank. First, it is the efficiency of bank management,  $B$ . Second, it is the level of government support,  $G$ , which is assumed to be a part of the loan contract once the farm complies with official eligibility criteria, such as carrying out certain governmentally sponsored investment projects or starting up a new farm. Eligibility for government support is assumed to be an exogenously given attribute of the farm. The farms also have available a given technology that can process loans of size  $L$  and repayment period  $T$ , and possess an individually given vector of characteristics  $C$ . For the moment, it is assumed that all of the mentioned variables are expressed in positive, real terms. Together they constitute the vector of loan contract characteristics, which determines the price of credit  $r$  by a hedonic equation,

$$r = r(L, T, C, B, G). \quad (4-1)$$

On theoretical grounds, nothing can be said about the functional form of (4-1), which may be non-linear (PALMQUIST, 1991). However, it is clear that it should be monotonically increasing in  $L$  and  $T$ , as far as they make the loan riskier, and decreasing in  $C$ ,  $B$  and  $G$ .

A bank seeks to maximise profits from a single loan by altering the loan characteristics under its control,

$$\max_{L,T,C} \pi^s = r(L,T,C,G,B) - K(L,T,C,G,B,\rho) \text{ subject to } \pi^s \geq 0, \quad (4-2)$$

where  $\pi^s$  is bank profit on a single loan,  $r(\cdot)$  is the loan price schedule from equation (4-1),  $K(\cdot)$  is a joint cost function,  $\rho$  is a vector of bank-relevant input prices, such as deposit rates and wages of bank officers.<sup>47</sup>  $K(\cdot)$  provides the vehicle to make of elements of contract theory tractable for econometric analysis, because it formalises the relevance of the properties of contractual arrangements for economic outcomes. Equation (4-2) yields first-order conditions requiring that the marginal cost of the loan characteristics under the control of the bank be equal to the marginal characteristic prices in the market.

The equilibrium loan price schedule results from credit offers of banks and credit bids of farmers. The bank's offer function  $\phi$ , representing the prices at which the bank would make loan contracts available to farmers, will depend on the characteristics of the loan, the desired profit level  $\pi^s$ , and the bank-relevant prices,

$$\phi(L,T,C,G,B,\pi^s,\rho) = \pi^s + K(L,T,C,G,B,\rho). \quad (4-3)$$

The partial derivative of the offer function with respect to an endogenous characteristic represents the marginal cost of that characteristic and is assumed to be non-negative for  $L$  and  $T$  and non-positive for  $C$ , because increasing levels in  $C$  decrease the default risk for the bank. The bank maximises profits by equating the marginal offer prices for the loan characteristics under its control to the marginal prices for these characteristics in the market. The offer price for the exogenous characteristics is equal to the market price, because at a lower offer price, the bank would forego profits, and at a higher offer price, the offer would not be accepted by farmers (see PALMQUIST, 1989, p. 25).

On the demand side, we make the simplifying assumption that there are profit maximising farmers who have available a technology  $g$  that transforms an amount of credit  $L$ , after a given gestation period  $T$  and together with other inputs, into outputs. The amount of credit that can be productively used as well as the

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<sup>47</sup> The model is inspired by a hedonic land market model due to PALMQUIST (1989), where additional formal details are discussed. The standard model of a competitive banking sector that 'produces' loan services is described in FREIXAS and ROCHET (1997, p. 51-57). Due to the widespread use of standardised debt contracts in Poland, there is little scope for bargaining, which supports the assumption of a competitive market.

gestation period are assumed to be exogenous to the farmer, who can only decide about the level of other inputs:

$$g(x, L, T, \alpha) = 0, \quad (4-4)$$

where  $x$  represents the vector of net outputs (if positive,  $x_i$  is an output, if negative, it is an input) exclusive of credit, and  $\alpha$  denotes a vector of farmer characteristics that influence the production process, such as specific skills.

We first consider the profit the farmer makes on a given loan, which we call his/her variable profit  $\pi^{DV}$  (analogous to PALMQUIST, 1989, p. 24). Variable profit is the difference between the value of output and the value of non-credit inputs. Maximising these profits on a given loan contract yields

$$\max_x \pi^{DV} = \sum_i p_i x_i \quad \text{subject to } g(x, L, T, \alpha) = 0 \quad \text{and} \quad \pi^{DV} \geq 0. \quad (4-5)$$

This optimisation problem can be solved for output supply and non-credit input demand functions. These depend on the net output price vector and the technology, but also on the price of credit and therefore on all elements that determine this price according to equation (4-1), hence  $x = x(p, \alpha, L, T, C, G, B)$ . Substitution of these functions into equation (4-5) yields the variable profit function,

$$\pi^{*DV} = \pi^{*DV}(p, \alpha, L, T, C, G, B) = \sum_i p_i x_i(p, \alpha, L, T, C, G, B). \quad (4-6)$$

By subtracting the farmer's credit costs from these variable profits, the actual profit,  $\pi^{*D}$ , is obtained. A farmer's bid for a particular credit contract will depend on the characteristics of the contract, the prices of outputs and other inputs, the desired or reservation profit level,  $\pi^D$ , and the farmer's skills. The bid function can thus be written as

$$\theta(L, T, C, G, B, p, \alpha, \pi^D) = \pi^{*DV}(p, \alpha, L, T, C, G, B) - \pi^D. \quad (4-7)$$

The loan characteristics enter the bid function in the same manner as fixed factors. The partial derivative of the bid function with respect to the characteristics is hence non-negative for  $L$  and  $T$  and non-positive for  $C$ ,  $G$  and  $B$ .

The bid function denotes the willingness to pay of the farmer for a credit with specific contractual arrangements. In equilibrium, the increase in a farmer's bid due to a marginal increase in one of the contract characteristics must equal the increase in the market price for credit contracts as a result of an increase in this particular characteristic. Both banks and farmers take the market price schedule as parametric, but the schedule is determined by the interactions of the two groups. In equilibrium, supplier and demander are perfectly matched when their respective offer and bid functions touch each other, with the common gradient at that point equal to the gradient of the market clearing implicit price function, as given by the hedonic equation (4-1) (ROSEN, 1974, p. 44). Observations on the hedonic function represent a joint envelope of a family of offer functions and

another family of bid functions. This reduced-form hedonic equation relates credit contract characteristics to credit prices. First derivatives of the equation can be interpreted as implicit prices of loan attributes. The subsequent econometric analysis attempts to quantify the importance of the contract characteristics by estimating this equation.

## 4.2 Agricultural finance in Poland

In Poland there are two types of lending organisations which specialise in agriculture, namely the Bank for Food Economy (Bank Gospodarki Żywnościowej, BGŻ), and the system of cooperative banks (for an overview see DANIŁOWSKA, 2004). The BGŻ was the primary channel for financing state-managed agriculture during the socialist period. There were several attempts to comprehensively restructure or liquidate the BGŻ during the 1990s. However, this was successfully blocked, *inter alia* by agricultural lobby groups. Local cooperative banks had often been founded prior to World War II, and existed under the umbrella of the BGŻ during socialism. In 1990, most of them left the BGŻ to form regionally-oriented cooperative banking structures. Even so, their reconsolidation remained incomplete. Saturation of urban financial markets and the increasing demand for banking services in rural areas, for example due to the inflow of direct payments under the EU's CAP, has induced several commercial banks in Poland to compete with the traditional lenders for rural clients.

Previous studies have shown that Polish rural banks generally tend to be quite risk-averse, and thereby maintain a low default rate of loans. As reported in PETRICK (2004b), banks closely screen farmers and refuse those whose collateral availability, lending history or personal characteristics suggest less than satisfactory loan repayment. It seems useful, therefore, to investigate the extent to which these factors also influence credit costs for farmers who obtain (some) credit.

To foster modernisation and structural change in agriculture, the Polish government launched a voluminous farm credit programme in 1994, which mainly encompasses interest subsidies granted on operational and investment loans (PETRICK, 2004b). Such 'preferential' loans are extended through the existing network of banks. In 1999, the year under investigation in this study, subsidies on loans amounted to 1.194 billion złoty (zł) (approximately 288 million USD; OECD, 2000). After accession to the EU, national credit policy has been continued, but is being harmonised with the rural development measures of the CAP.

## 4.3 Database

The data source for the analysis in this chapter is the 'IAMO Poland farm survey 2000', which is a cross-sectional farm survey conducted in three Polish regions. The survey was carried out in 2000 and contains data related to the economic

outcomes of the years 1997-2000. It is based on a random sample of farms in the database of the official extension service ODR. Further details on sampling issues, organisation of data collection and a reprint of the questionnaire can be found in PETRICK (2001).

The specific strength of this database is that it contains detailed information about loans acquired by farmers. In the following econometric analysis we use the information available for the years 1999/2000. This includes relevant data on interest rates, repayment period, lending source, collateral arrangements, etc., and also on bank fees. Fees or provisions are used as instruments in price competition between banks, reflect risk adjustments made by the bank, or are simply the result of an unbundling of financial services with separate pricing, such as account management, advisory services or insurance. Bank fees are sometimes charged on a percentage base related to the loan volume (1 per cent p.a. in about 20 per cent of loans taken in 1999/2000, 2 per cent p.a. in about 10 per cent of cases), but fixed amounts not related to the specific loan size are the rule. The particular level of the fee does not depend on the volume or the repayment period of the loan. To obtain a meaningful measure of the price of credit, bank fees have to be combined with nominal interest rates. The problem here is that interest payments are due on a periodical basis (for example annually), whereas fees accrue only once (usually when the loan contract is negotiated). It was however desirable to have a single variable representing the total credit rate in a plausible way. We therefore chose an internal rate of return (IRR) method for computing this variable, following the suggestion in ROJAS and ROJAS (1997). The idea is to compare the periodical payments of the borrower (consisting of repayment of the principal plus interest) based on the nominal interest rate  $r^n$  as given in the loan contract, with the initial amount borrowed,  $L$ , minus fees,  $\varphi$ . This yields an annual percentage rate denoted  $r$  that encompasses both the nominal interest rates and fees. For our calculations, we first express all fees in Polish zloty.<sup>48</sup> We then compute  $r$  as the rate at which the discounted value of all periodical payments  $A_t$  (based on the nominal interest rate) equals the initial loan volume in zloty minus fixed fees,

$$\sum_{t=1}^T A_t (1+r)^{-t} = L - \varphi. \quad (4-8)$$

In this equation,  $t$  denotes the current period and  $T$  is the total repayment period of the loan. The relation between the calculated annual percentage rate  $r$  and the nominal interest rate  $r^n$  as negotiated in the loan contract is  $r \geq r^n$ . Equality is given for  $\varphi = 0$ . It is hence possible to compare the effective interest rates of loans with different repayment periods based on this variable. One important effect of the outlined procedure is that two loans with the same nominal interest

<sup>48</sup> The monetary equivalence is 3.97 zł = 1 USD (in 1999).

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rates and the same fixed fee but different repayment periods also differ in their effective interest rate. The loan with the longer repayment period will display a lower effective interest rate – which is a consequence of the fixed cost character of the fee.

For reasons of simplicity, we assume that interest and principal repayment are made in the form of constant annuity payments throughout the sample.<sup>49</sup> Although some of the recorded loan contracts divert from this rule (for example because interest payments were made in separation from principal repayment), we regard the possible inexactness in the calculation of the effective interest rate as negligible.

Table 4-1 displays descriptive statistics of the annual loan rate calculated as explained above, as well as the nominal rate. The average annual loan rate of the sample is 9.8 per cent, which is 1.2 points higher than the average nominal rate, suggesting non-negligible bank fees for some farmers.

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<sup>49</sup> Note that the number of instalments in a given period does not affect the effective interest rate as long as there are always constant annuity payments.

**Table 4-1: Description of variables**

<i>Variable</i>	<i>Mean</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Annual loan rate incl. fees (per cent) $r$	9.80	5.05	3.9	32.9
Nominal interest rate (per cent) $r''$	8.58	4.49	3.9	32.0
Loan volume (thousand zł) $L$	29.61	97.60	0.6	800.0
Repayment period (months) $T$	25.28	26.80	12.0	120.0
Total land owned (ha) $C11$	19.62	34.61	0.4	365.0
Land as collateral (dummy) $C12$	0.14	0.35	0.0	1.0
Machinery as collateral (dummy) $C13$	0.17	0.38	0.0	1.0
Crops as collateral (dummy) $C14$	0.01	0.12	0.0	1.0
Regular income as collateral (dummy) $C15$	0.14	0.35	0.0	1.0
Compensating balance (dummy) $C16$	0.05	0.23	0.0	1.0
No collateral (dummy) $C17$	0.04	0.20	0.0	1.0
Current interest expenses from previous loans (thousand zł) $C2$	1.26	4.53	0.0	52.0
Farm ownership (years) $C31$	15.07	8.06	0.1	45.0
Previous client of the bank (dummy) $C32$	0.89	0.32	0.0	1.0
Household members work off-farm (dummy) $C4$	0.40	0.49	0.0	1.0
Loan purpose: input purchase (dummy) $C51$	0.77	0.43	0.0	1.0
Loan purpose: land purchase (dummy) $C52$	0.05	0.23	0.0	1.0
Loan purpose: machinery purchase (dummy) $C53$	0.09	0.28	0.0	1.0

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Loan purpose: renovation or extension of buildings (dummy) <i>C54</i>	0.11	0.32	0.0	1.0
Loan from cooperative bank (dummy) <i>B1</i>	0.79	0.41	0.0	1.0
Loan from agricultural sector bank (dummy) <i>B2</i>	0.11	0.31	0.0	1.0
Loan from savings bank (dummy) <i>B3</i>	0.06	0.24	0.0	1.0
Loan under the government programme (dummy) <i>G</i>	0.57	0.50	0.0	1.0

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Note: 149 observations.

#### 4.4 Estimating the hedonic equation

The empirical analysis consists of an econometric estimation of equation (4-1) based on the previously described data. The variable on the left-hand side of (4-1), the annual loan rate including bank fees, is calculated as described in Section 4.3 and enters the regression in per cent. Among the right-hand side variables of (4-1), the five *C*s of credit are partly measured by several variables, which were then numbered consecutively by a second digit. Collateral is included as total land owned by the borrower (*C11*) plus a set of dummy variables indicating whether a certain type of collateral was specified in the loan contract or not (*C12-C17*): land, machinery, crops, regular income, compensating balance (i.e., a mandatory deposit) or no collateral required. The effect of these dummies is measured against a residual group of other types of collateral, which were used only sparsely, for example jewellery or household assets. Equity capital, or leverage, is measured by the volume of interest payments due to loans taken in earlier periods (*C2*). The farmer's characteristics are captured by the years of farm ownership (*C31*) and a dummy indicating whether the farmer had been a client of the same bank prior to the current loan application (*C32*). The economic conditions of the farm are measured by a dummy indicating whether some members of the household had off-farm income (*C4*).<sup>50</sup> The borrower's future debt servicing capacity is included by a set of dummies indicating the purpose of the loan (*C51-C54*), namely input, land or machinery purchase, or renovation/extension of buildings. The residual purposes consist mainly of purchase of household assets. Since we had no detailed data on banks' efficiency, we introduced dummy variables for the most common lending institutions: (a) the cooperative banks, (b) the governmentally-owned agricultural sector bank BGŻ, (c) the savings bank PKO and (d) all other banks (which consisted mainly of other commercial banks). We included separate dummies for the first three types of banks (*B1-B3*), thus measuring the effect of borrowing from one of these sources vis-à-vis the fourth type. The overall effect of government intervention *G* is captured by a dummy indicating whether the loan was taken under the government subsidy program.

All variables *L*, *T*, *C*, *B*, *G* are listed in Table 4-1, together with descriptive statistics. Loans taken by the sample's farmers in 1999/2000 are relatively small on average, less than 30 thousand złoty, and are repaid over two years on average. Such characteristics suggest that loans were mainly for working capital rather than for investment. This is confirmed by the dummies indicating the purpose of the loan: 77 percent of the loans were for input purchase. The most frequently required collaterals were land and machinery, as well as regular income. Most of the applicants borrowed from a cooperative bank, where they had already been

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<sup>50</sup> 'Economic conditions' should also include (expectations of) farm-individual price levels. However, the price data available showed no significant variation across observations, which precluded an estimation of its effect.

client, and benefited from a preferential loan. They were strongly established farmers as they had on average owned their farm prior to the start of the transition period in Poland. The average land area owned by the borrowers was approximately 20 hectares, which suggests larger farms in comparison to the Polish population where the average farm size is 7 hectares.

As noted earlier, there are no theoretical restrictions on the functional form of the hedonic equation. We therefore tested the functional form by using a general Box-Cox formulation with a constant transformation parameter for all left- and right-hand side variables as a benchmark (GREENE, 2000, pp. 444-453). This is a non-linear model that, for certain values of the transformation parameter, encompasses linear and log-linear models as special cases. A maximum likelihood estimation with algorithmic search for the transformation parameter showed that this parameter was not significantly different from zero, implying a log-linear functional form. The regression of the log-linear model was then carried out by ordinary least squares.<sup>51</sup> *t*-values were calculated using a heteroscedasticity-robust covariance matrix.

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<sup>51</sup> The initial proposal of ROSEN (1974) was to estimate the hedonic equation as well as the bid and offer functions in a two-step approach. However, this procedure raises a number of estimation problems related to identification and endogeneity (see PALMQUIST, 1991, for an overview). If only the hedonic equation itself is being estimated, these problems can be ignored, so that the usual practice in this case has been to use OLS or some non-linear variants of it.

**Table 4-2: Results of the hedonic regressions**

Variable	Annual loan rate incl. fees $r$			Nominal interest rate $r^n$		
	Coeff.	t-value	Implicit price	Coeff.	t-value	Implicit price
Constant	2.465 **	9.028	–	2.178 **	7.559	–
Loan volume (thousand zł) <sup>a</sup> $L$	0.045 *	1.733	<0.1	0.037	1.544	<0.1
Repayment period (months) <sup>a</sup> $T$	-0.205 **	-3.075	-0.1	-0.145 **	-2.246	>-0.1
Total land owned (ha) <sup>a</sup> $C11$	-0.024	-0.696	>-0.1	-0.010	-0.298	>-0.1
Land as collateral (dummy) $C12$	-0.007	-0.081	-0.1	-0.048	-0.529	-0.4
Machinery as collateral (dummy) $C13$	0.237 **	2.680	2.3	0.172 **	2.222	1.5
Crops as collateral (dummy) $C14$	0.413 **	3.439	4.0	0.444 **	3.461	3.8
Regular income as collateral (dummy) $C15$	0.138	1.302	1.4	0.159	1.457	1.4
Compensating balance (dummy) $C16$	-0.408 **	-3.550	-4.0	-0.398 **	-3.530	-3.4
No collateral (dummy) $C17$	-0.149	-1.442	-1.5	-0.154	-1.395	-1.3
Current interest expenses from previous loans (thousand zł) <sup>a</sup> $C2$	-0.009	-1.012	-0.1	-0.016 **	-2.055	-0.1
Farm ownership (years) <sup>a</sup> $C31$	0.080 **	2.620	0.1	0.069 **	2.321	<0.1
Previous client of the bank (dummy) $C32$	0.353 **	3.058	3.5	0.343 **	2.706	2.9
Household members work off-farm (dummy) $C4$	0.117 *	1.870	1.1	0.127 **	2.128	1.1
Loan purpose: input purchase (dummy) $C51$	-0.132	-1.138	-1.3	-0.143	-1.157	-1.2
Loan purpose: land purchase (dummy) $C52$	-0.123	-0.615	-1.2	-0.144	-0.729	-1.2
Loan purpose: machinery purchase (dummy) $C53$	-0.038	-0.266	-0.4	-0.024	-0.174	-0.2
Loan purpose: renovation or extension of buildings (dummy) $C54$	0.085	0.610	0.8	0.089	0.618	0.8

Loan from cooperative bank (dummy) <i>B1</i>	-0.136	-1.391	-1.3	-0.130	-1.347	-1.1
Loan from agricultural sector bank (dummy) <i>B2</i>	-0.180	-1.381	-1.8	-0.133	-0.989	-1.1
Loan from savings bank (dummy) <i>B3</i>	0.197	1.472	1.9	0.107	1.062	0.9
Loan under the government programme (dummy) <i>G</i>	-0.222 **	-4.137	-2.2	-0.224 **	-4.314	-1.9
<i>F</i> -value (P-value)	4.59 (<0.001)			4.49 (<0.001)		
Adjusted R <sup>2</sup>	0.337			0.331		
Observations	149			149		

Note: Dependent variables are in logs. Implicit prices in percentage points, calculated at sample means. *t*-values calculated from robust covariance matrix. <sup>a</sup> Variable enters the regression in log form. \*\* Significant at the 0.05 level. \* Significant at the 0.10 level.

#### 4.5 Empirical findings on hedonic pricing of loans in rural Poland

The results of the econometric analysis are given in Table 4-2, the left columns reporting results using the annual loan rate including fees, as explained above. As a comparison, the right columns display results of a similar econometric estimation, but using as dependent variable the (logarithm of the) nominal interest rate, that is to say the rate charged to borrowers without accounting for additional bank fees.

While the loan volume ( $L$ ) has no impact on the nominal interest rate, it increases the total annual rate that includes bank fees. This can be explained by the fixed character of the fees. Regarding the repayment period ( $T$ ), again the fixed cost character of fees leads to a lower annual loan rate for long-term loans, as explained in Section 4.3. The fact that this effect is also present when the nominal interest rate is used is counter-intuitive. It can be rationalised by the fact that long-term loans were more heavily subsidised than short-term loans (POGANIETZ and WILDERMUTH, 1999, p. 537).

The collateral variables' parameters reveal that the most favoured collateral by banks is a compensating balance ( $C16$ ), as it strongly reduces the total and nominal loan rates. Machinery ( $C13$ ) and crops ( $C14$ ) are the least preferred collateral, as using them, all other things equal, increases the loan rates by 2.3 and 4.0 percentage point, respectively. Machinery on Polish farms is often obsolete (LATRUFFE et al., 2005) and has a low resale value whereas the enforcement of crops as collateral involves high costs for the bank, which explains this result. When land ( $C11$  and  $C12$ ) and regular income ( $C15$ ) are used as collateral the rate charged is not affected, suggesting that banks treat these as 'average' types of collateral. It also implies that there is no systematic interest rate discrimination against small farms. The finding that land is not a particularly high-valued type of collateral in Poland is recurrent in the literature (LATRUFFE, 2005; PETRICK, 2004b) and was confirmed in interviews with bank managers. It can be explained by low land prices due to lacking demand and banks' reluctance to enforce claims on land because it is regarded as an 'essential' asset, in particular for the poorer segments of the rural population. The rare case of offering no collateral ( $C17$ ) has no significant effect on interest rates of either type. That the absence of collateral does not generally drive up the interest rate is surprising. A closer examination of the survey data showed that the share of non-traditional commercial banks in collateral-free lending was particularly high and that these loans were primarily extended during the end of the surveyed period. Most of these were working capital loans with 12 months repayment period. We interpret this as an attempt to acquire new customers by an attractive loan offer that does not involve pledging collateral, which was pursued particularly by commercial banks newly entering the agricultural credit market.

The parameter of the indebtedness variable (*C2*) is not significantly different from zero in the annual loan rate regression. At first sight, this finding seems counter-intuitive because highly indebted farmers are assumed to have a lower repayment capacity and are thus usually considered as risky borrowers. However, debt levels of Polish farmers have in general been low. Together with the surprising fact that being a new client of the bank *decreases* the interest rate by 3.5 percentage point (*C32*), we interpret this finding as a sign that rural banks have attempted to become attractive for new customers from the agricultural sector. Indeed, Polish banks started to regard farmers as an increasingly relevant market segment at the time when accession to the EU and payments under the CAP promised additional liquidity for farmers (DANILOWSKA, 2004).

The borrowers' character and economic situation have a strong influence on the price of credit. The number of years of owning the farm (*C31*) has a positive influence on the total and nominal rates, indicating that young farmers seem to be preferred clients by banks. Off-farm work by some of the household members (*C4*) raises the price of loans by 1.1 percentage point on average. This suggests that banks prefer households with a major attention on farming activities, whereas part-time farmers pay more. This supports the above view that banks display a strong sectoral focus on agriculture.

All loan purpose dummies (*C5*) are non-significant in both regressions, indicating that the loan type does not influence the price of credit. This interesting finding implies that, overall, farmers' likelihood of default is not considered by banks to be dependent on how they intend to use the loan. Whereas many Polish farmers eventually use part or all of their production loans for consumption purposes (see the evidence provided by PETRICK, 2004b), there is no sign that this results in increasing default rates.

All bank dummies (*B1-3*) are not significantly different from zero, which shows that the classic rural banking sector (BGZ and cooperative banks) does not systematically demand higher prices than the other banks, despite the absence of restructuring in this sector. The finding is supported by case study results which demonstrate that traditional agricultural banks usually do not charge additional fees for appraising agricultural collateral, and that they regard farmers as particularly reliable customers (LATRUFFE, 2005).

Borrowing under the public loan programme reduced the annual loan rate. Switching from a non-programme to a programme loan was worth 1.9 percentage points in nominal interest rates, and 2.2 percentage points if fees are included. In general, the reduction was quite small in light of the difference between subsidised and non-subsidised loans that emerges when advertised preferential rates are subtracted from advertised commercial rates. This difference ranged between 17 and 25 percentage points (PETRICK, 2004b). It is assumed that the programme drew

into the credit market borrowers who induced higher risk premia and more costly screening procedures, so that the subsidy effect was severely diluted.<sup>52</sup>

A comparison of the nominal rate model with the annual loan rate model including fees shows the following. In the case that loan components induce higher nominal rates, this effect is reinforced when fees are taken into account. If they induce lower nominal rates, this is also strengthened. This is evidence against the view that fees are used systematically as instruments of active price policy to lower the nominal interest rate visible for the customer. They may be simply regarded as an additional price component that is subject to the same determinants as the nominal interest rate, and hence as a price of supplementary services related to loan delivery.

#### 4.6 Simulated effects of policy changes

Given the estimated hedonic equation, we simulated the effects of a policy change on loan rates that replaces factor-related subsidies by a general income support. On the one hand, this reflects the advice given by many economists who regard direct transfer payments as less economically distorting. In Poland, it has gained momentum in recent years because budget restrictions led the government to cut interest subsidies (PETRICK, 2004b), whereas EU accession increased the relative importance of direct payments in agricultural policy spending. We simulated this policy change by increasing the number of farmers who use a compensating balance as collateral, while reducing the number of farmers who take a loan under the government subsidy programme. EU direct payments might indeed increase farmers' liquidity so that more borrowers can afford to deposit cash at the bank, whereas a reduced government budget for credit subsidies might allow fewer borrowers to participate.

We simulated how the mean predicted annual loan rate (i.e. including fees) changed if the number of contracts in which a compensating balance was deposited doubled or tripled. Given the small number of contracts in the sample in which this form of collateral was used (5 per cent of observations), it is still only a moderate change. Furthermore, we assumed that the same number of contracts dropped out of the preferential credit programme, which implied a decrease in participating

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<sup>52</sup> This interpretation would imply that the regression model does not capture all factors that are relevant for the determination of the interest rate. Indeed, the  $R^2$  of the model is not so high that this can be ruled out. The spread between nominal subsidies and actual effect of programme participation as revealed by the regression can then be explained by unobserved factors that lead to higher risk premia for borrowers under the program. If *all* relevant borrower characteristics were really included in the hedonic equation, there is no reason why the reduction due to programme participation should be smaller than the nominally applied subsidy.

loans by 10 and 20 per cent, respectively.<sup>53</sup> Table 4-3 shows the effects of both of these changes in a (3, 3) matrix. Starting from the status quo in the top left cell (no change), moving right shows the effect of increasing the number of contracts with a compensating balance, and moving down shows the effect of a drop in programme participation.

**Table 4-3: Simulated changes in mean predicted annual loan rates (in percentage points)**

<i>No. of contracts participating in credit subsidy programme</i>	<i>No. of contracts including a compensating balance</i>		
	Status quo	Double status quo	Triple status quo
Status quo	0	-0.17	-0.34
Status quo - 10%	+0.10	-0.07	-0.25
Status quo - 20%	+0.20	+0.03	-0.15

Note: 149 observations. Simulations based on estimated parameters of annual loan rate model. For explanations see main text.

As can be expected from the estimated parameters of the hedonic equation, an isolated increase in the use of compensating balances lowers loan rates (-0.34), whereas everything else being equal fewer programme participants increase the average rate (+0.20). More interestingly, the overall effect of a policy reform that allows borrowers to deposit cash at the cost of dropping out of interest subsidies is beneficial for borrowers. This can be seen in Table 4-3 by moving on the diagonal from top left to bottom right, i.e. replacing programme participants by cash depositors. On average this slightly reduces the annual loan rates for borrowers (-0.15). This simulation suggests that the availability of EU direct payments might be adequate to offset the negative impact of a cutback of the interest subsidisation programme.

## 4.7 Conclusions

This chapter demonstrates that the hedonic price approach is a useful framework for investigating the relationship between lenders and borrowers, and for measuring the importance of specific institutional arrangements in a credit market. Collateral, lending history, age and farming attitude are borrowers' characteristics which

<sup>53</sup> The simulation was done by changing the values of the dummy for compensating balance from 0 to 1 for a random draw of observations, and from 1 to 0 for a random draw of contracts previously under the government programme. Given these modified variable values, the annual rates for the entire sample were then predicted by using the estimated parameters for the annual loan rate model as reported in Table 2. The random procedure can be justified by assuming that there are no restrictions on receiving direct payments except from being a farmer, and that subsidies are cut without significant changes in eligibility criteria.

were found to influence the cost of credit. However, there is no evidence that small farmers pay higher interest rates than large farmers. The analysis also reveals that rural banks dislike certain common forms of collateral, such as land, machinery or crops, because they are of little value or difficult to enforce in the Polish context.

The results support the view that banks are quite risk-averse, strongly oriented towards agricultural producers, and prefer what VON PISCHKE (1991) calls 'asset based' as opposed to 'cash-flow based' lending: the most liquid and secure forms of collateral (bank deposits) are preferred most, and it hardly matters for what purpose loans are actually used. Screening procedures are based on traditional methods and the entrepreneurial opportunities of a particular farmer appear to play a very small role. This may be due to continued or inherited banking practices stemming from socialism, where an assessment of credited firms did not take place, and which was characterised by a structural absence of decision-making capacities within bank branches (FEAKINS, 2004).

Only a few signs indicate that increasing competition and the additional liquidity expected to become available in rural areas due to payments under the EU's CAP force banks to increase their competitiveness and customer orientation. Newly entering commercial banks have started to offer inexpensive collateral-free loans. However, commercial banks have not been able to secure a price advantage over the traditional sector banks, which implies that the latter have been able to adjust to increasing competitive pressure. On this account, the privatisation of banks may not offer much advantage.

Our analysis confirms that credit subsidies are effective in decreasing the total interest rate. However, the impact on interest rates was not found to be large, for example in comparison to the effects of the variables related to the form of collateral. On the other hand, there is no empirical support for the view that the interest-reducing effect of the subsidies is compensated by higher bank fees, because in the case where additional fees are taken into account the effect of programme participation is also higher. Nominal loan support was not completely eaten up or even turned negative by additional bureaucracy. However, a simulation exercise showed that allowing borrowers to utilise more liquid forms of collateral, for example as a result of direct transfer payments, may result in lower rates than those obtained when participating in the subsidy programme.

Due to the diversity of institutional settings and varying financial needs in different countries, the empirical findings here cannot be directly extrapolated to other regions. However, our approach to a formal econometric analysis informed by the theory of economic institutions is of general value. Under the potentially restrictive requirement that appropriate data is available, similar studies of markets involving complex contractual arrangements in other countries could be easily conceived.

## 5 Concluding observations

Instead of a comprehensive synthesis of the monograph, we conclude with some observations that emerge from a view across the previous chapters. To what extent are the presented attempts to tackle the issues raised in Section 1.3 compatible with each other? What can be learnt from a comparative perspective?

First, giving up the assumption of exogenous preferences as in Chapter 2 will severely shake the foundations of quantitative and even more explicitly normative evaluation based on the rational choice model. That individuals are the best judges of their own welfare is indeed an assumption in the ‘hard core’ of mainstream economics. The entire concept of Pareto superiority endorsed in Chapter 3 vanishes once the agents’ subjective assessments become ambiguous. Similarly, implicit prices as used by the hedonic model in Chapter 4 lose much of their informative content if preferences are malleable in the short run or even manipulated.

Similar problems arise if power or bargaining asymmetries are considered. For example, the conventional Pareto criterion does not take into account the distribution of a net benefit from rule changes among the agents. As argued in Section 3.2.2, interaction partners may reject a Pareto improvement because the sharing rule is regarded as unfair. Although there are ways to model these social preferences, the space of Pareto superior rule changes clearly shrinks under such additional constraints. Note also that power asymmetries among agents in the hedonic market model of Section 4.1 are assumed to be absent by invoking the concept of a competitive equilibrium on the loan market.

Most (agricultural) economists would accept the view that the task of the policy researcher is to generate arguments for a discourse with private or public decision makers or the broader citizenry. However, the analytical tool of rational choice modelling is not consistent with such deliberation processes, at least not as long as it is still regarded as a ‘realistic model’ of man. In other words, “homo oeconomicus does not argue” (VAN AAKEN, 2002). Although several authors have suggested affinities between institutional economics and discourse theory (Section 1.1), it is still hard to conceive how the strong behavioural assumptions of most economic models could be made compatible with, for example, the communicative rationality of a Habermasian tradition. One possible solution would be to bring up a meta-theory of public discourse, in which arguments based on rational choice reasoning are embedded. This is a field for future research on the policy process.

As we attempted to demonstrate in Chapter 4, the insights of institutional economics can play an important role in informing empirical analysis of agricultural policy issues in general, and econometric analysis in particular. Although representatives of different schools in institutional economics have claimed at various times that their approach is more corroborated by empirical evidence than others,<sup>54</sup> we are sceptical that a decisive test or even ‘falsification’ of single strands of thought is possible (PETRICK, 2004a). After all, the role of econometric analysis is to support or cast doubt upon arguments, too, and to serve as a means to stimulate probing and criticism in a scientific community. However, in our opinion, there is no ‘objective’ method to separate true from false theories.

We are convinced that institutional economics has much to offer for a theoretically informed analysis of agricultural policy problems in Europe. Even so, it will be hard to address all weak areas at once and in a consistent fashion. This is not a disadvantage. Unresolved issues, as outlined in the previous paragraphs, will ensure that a lively scientific debate extends into the future.

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<sup>54</sup> For example, see STIGLITZ (1986, pp. 261-263) in favour of formal contract theory and WILLIAMSON (2000, pp. 604-607) in favour of transaction cost economics.

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