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The impact of trust on the mode of transaction governance between manufacturer and distributor

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The goal of the project is to explore main determinants of the mode of transaction governance between manufacturers and distributors. We examine a number of types of transaction governance, viz., markets, relational transacting, and hierarchies. The model proposed in the paper integrates the concept of trust with key dimensions of transaction cost economics, being estimated with data from a sample of Georgian manufacturing industries. The main finding of the study is that trust along with traditional dimensions of transaction cost economics has a significant impact on the choice of exchange governance mode.

Keywords. Georgia, trust, transaction costs, vertical integration, transactional relationships.

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CONTENTS

NON-TECHNICAL SUMMARY

This study explores the forces that have impact on manufacturers' choice of types of transactions with distributors. Our objective was to show that some other factors in addition to TCE variables can affect transaction costs and influence a company's choice of whether or not to integrate. More specifically, we tried to examine the role that trust plays in the contexts of manufacturers' choice of transaction governance mode and manufacturer-distributor relationships.

The results of empirical study suggest that manufacturers' choice of engaging distributors was determined by the following set of factors: *asset specificity* (the degree to which an asset is customized to the user's needs or the degree to which it can be redeployed to alternative uses), *uncertainty* (the level availability of information necessary for making key decisions and predicting consequences thereof) and *trust*. Trust in this study was treated as a product of certain informal and formal institutions, *e.g*. kinship norms and legal environment. We distinguished between *network trust* (trust arising from friendship or family relations, recommendation and information received from former or current colleagues, business associations and government agencies) and *extended trust* (a product of sound functioning of formal institutions that establish business environment subject to the rule of law). During the study we found that the network trust, in turn, could be subdivided into *inner networks* (networks comprised of only friends and relatives) and *outer networks* (networks, which incorporate independent distributors recommended by business associations and government agencies).

We found that the rise in the levels of asset specificity and uncertainty increase the probability of in-house performance of distribution function by manufacturer. Both network trust variables increase producer firms' willingness to employ external distributors. These findings extend TCE theoretical paradigm by demonstrating that network trust along with TCE variables influences manufacturers' choice of transaction governance mode. Not only does network trust help to explain a manufacturer's vertical integration choice, but also explains variation in intensity of relationships between manufacturers and distributors. Higher level of trust existing between partners leads to less complete contracts and lower prepayment requirements, reducing thus transaction cost and facilitating economic exchange.

However, we failed to find any significant effect of such policy relevant factor as extended trust (of which main determinant is the reliability of legal institutions). None of the variables used in this study as proxies for extended trust had any significant effect on manufacturers' choice of governance mode or on the intensity of relationship between partners. We presume that this is mainly due to the fact that our study was limited to one country. Objectively, degree of rule of law and quality of legal institutions that are determinants of extended trust could barely vary within the same country.

The importance of the study findings could be better seen in the context of economic advantages of trust-based governance modes. Higher levels of in-house performance of distribution function by

manufacturers means fewer opportunities to gain benefits from specialization and cooperation. Furthermore, increase in the complexity of contract arrangements between manufacturers and distributors in the form of required amount of prepayments and degree of completeness increases the costs of making transactions and lowers economic efficiency. All these factors could impede possibilities for a country's economic growth. A proper understanding of the role of trust could be important, especially to creating the adequate institutional environment in Georgia. Among the reasons that hampered the achievement of economic prosperity in Georgia, lack of formal as well as informal market institutions, which could lower transaction costs and promote specialization and cooperation between economic agents, does stand out. Even in developed countries saturated with reliable enforcement institutions, trust-based norms are often cheap and effective substitute for law and other formal arrangements. In the poor institutional environment of transition economies, where nonpayment and deterioration of property rights become widespread, developing of trust-based norms can give rise to efficient property rights favorable for specialization and collective actions thereby facilitating economic growth in the country.

Thus the major policy recommendation of the study is the encouragement of trust between manufacturers and distributors through promotion of networks. However, one should realize that inner networks could potentially limit business relations between producers and distributors only to networks comprised of friends and relatives, while outer networks broaden such opportunities to a wider number of independent distributors recommended by business associations and government agencies. We found that outer networks substantially lower the probability of vertical integration as well as the amount of required prepayment and level of contract completeness, thus reducing transaction costs and enhancing efficiency of market mechanisms. Therefore, the government policy must be focused on the outer networks through promotion of business associations and widening of government agencies' involvement in supporting establishment of relations between producers and distributors. This can reduce transaction cost, facilitate economic exchange and in the long run help economic growth.

We presume that further research must employ cross-national study and should be focused on the understanding of mechanisms that generate extended trust and on the study of its contribution to lowering transaction costs and facilitating economic exchange between companies. This problem is very important, particularly in the context of development of transition economies.

1. INTRODUCTION

A growing body of recent research in the area of industrial organization was devoted to the study of different types of coordination of economic activity. The theoretical framework that underlies this stream of research offered by Coase (Coase, 1937) and further elaborated on by Williamson (Williamson, 1975; 1981; 1985; 1996) is known as transaction cost economics (TCE). According to this paradigm market transaction will be governed by the most efficient governance arrangement that minimizes transaction costs of coordinating economic activity. The transaction cost approach emphasizes two major types of transaction governance — markets and hierarchies — and identifies three dimensions of transactions — asset specificity, uncertainty, and frequency — that determine which type of coordination is most efficient.

The present research seeks to extend existing TCE theoretical paradigm by introducing a new variable — trust — in studying a firm's choice of appropriate transaction governance mode. In particular we explore the effects of trust and TCE variables — asset specificity, uncertainty — on the patterns of organizing of distribution function by manufacturers. The question is how producer deals with this issue: by integrating sales force, by forming cooperative arrangements with independent distributors, or by using market governance mode. Our focus on this topic is stipulated by the fact that coordinating of the vertical relationships represents one of the main motivations for cooperative agreements between manufacturers and distributors (Mariti, 1985) and thereby it could facilitate understanding of the role of trust in inter-firm relations.

The study is confined to the realities of transition economies where these problems are of very importance, taking into account unreliable functioning of contract enforcement institutions (Kornai, 2003). Recent studies of trust as a product of informal and formal institution revealed its main determinants (Johnson, 1997; McMillan, 1999; Raiser, 2004) and its importance in explaining variation of economic performance and business formation (Johnson, 1999) in transition economies. However, the effect of trust on the firm's choice of transaction governance mode up to the moment received very sparse attention from researchers. A survey of a sample of Georgian manufacturing firms was conducted to fill the gap in empirical study of this problem.

The rest of the paper is organized as follows. Section 2 examines the existing literature in two fields of interest: *transaction cost economics research* and *trust-related research*. Based on the literature review, the research hypotheses are formulated in section 3. In section 4 we turn to a discussion of the research methodology, including description of sample, variable and estimation techniques. The fifth section provides analysis into the study results. The final remarks are presented in section 6.

2. LITERATURE REVIEW

2.1. Transaction Cost Economics Research

A number of empirical studies have witnessed the validity of the key hypothesis of the transaction cost approach proposed by Coase and Williamson: markets fail and firms tend to integrate vertically when transaction is characterized by high levels of uncertainty, asset specificity, and frequency of re-contracting (Anderson, 1984; Crocker, 1993; Joscow, 1987; Monteverde, 1982; Shepard, 1993). A review of the literature reveals a special empirical interest in the effect of the main TCE dimensions on vertical integration, length and completeness of contracts and etc.

Crocker and Reynolds (Crocker, 1993) using panel data on the pricing procedures used in US Air Force engine procurement contracts found that the degree of contractual incompleteness reflects the economic costs of drafting a more complete document and the losses associated with incomplete agreements. The empirical findings of the study suggest that past opportunistic behavior and potential for hold-up in sole-source environment results in the use of more complete contracts, while higher level of environmental complexity and remote dates for contract performance lead to the adoption of less exhaustive arrangements.

Joscow (Joscow, 1987) examined the importance of relationship-specific investments in determining the contract duration. On the basis of analysis of contracts between coal suppliers and electric utilities Joscow argues that as relationship-specific investments become more important, the partners rely more on longer-term contracts and rely less on repeated bargaining.

Monteverde and Teece (Monteverde, 1982) tested TCE propositions on vertical integration with data from the US automobile industry. Their findings in accordance with TCE paradigm reveal that industrial know-how and the cost of transferring such know-how have a significant effect on vertical integration.

Anderson and Schmittlein drawing on TCE paradigm formulated a logistic response function to predict firms' decision to use sales representatives vs. a direct sales force (Anderson, 1984). The model, which was estimated with data from the US electronic component industry, suggests in support of TCE paradigm that vertical integration was associated with higher levels of asset specificity and uncertainty. Nevertheless, contrary to the TCE approach, neither frequency of transactions nor interaction of asset specificity and uncertainty had any significant impact on vertical integration.

An empirical test of transaction cost theory of vertical integration was also performed under transition economy. Lazareva (Lazareva, 2004) in her study of the patterns of boundary change in Russian industrial sector found that the factors put forward by transaction cost theory effect the vertical integration in the way proposed by the theory.

Summarizing, empirical research grounded on TCE theoretical framework focuses on market and hierarchies as mutually exclusive forms of coordination of economic activity. However, TCE's dichotomous view on types of transaction governance is rather limited because it leaves out a huge number of cooperative organizational agreements that reside between markets and hierarchies.

Richardson (Richardson, 1972), for instance, broadens this perspective and distinguishes three types of coordination of economic activity: direction; market transactions and cooperation. Cooperative agreements such as — repeated transactions, long-term relationships, buyer-seller partnerships, strategic alliances, joint ventures, network organizations — represent alternative to market and hierarchy type of transaction governance (Webster, 1992). The benefits of such cooperative agreements include a reduction in search costs, better working relationships, and a better understanding of the needs of customer.

The failure of TCE to explain adequately these forms of coordination of economic transactions stems from its main behavioral assumption: "bounded rationality" and "opportunism". These assumptions according to TCE affect the way in which economic exchange is governed through influence on transaction costs of writing, executing, and enforcing contracts and creating pressure toward vertical integration when the level of uncertainty, asset specificity, and frequency of recontracting is very high.

Bradach and Eccles (Bradach, 1989), however, put forward another mechanism for coordination of economic activity — the trust. They state that economic transactions between actors are governed by three control mechanisms: price, authority and trust which map roughly onto market, hierarchy and relational contracting. The concept of trust that underlies relational contractual arrangements is itself based on social norms and personal relations (Lewis, 1985). Mitigating possibility for opportunistic behavior and reducing uncertainty, trust reduces pressure toward vertical integration (Granovetter, 1985). Though TCE recognizes the trust as a relevant concept (Axelrod, 1984; Chiles, 1996; Furubotn, 2003), the influence of trust on the industry structure and its role in governing transactions between economic actors remained relatively unstudied within this theoretical framework. To shed light on this issue, main TCE dimensions must be viewed within sociological context of inter-firm relations.

2.2. Trust-related research

The identification of trust and evaluation of its role in the context of interorganizational relations has received increasing attention in the sociology, business studies, management and economics literature in recent years. However, due to multi-disciplinary nature of the trust-related research, there is not a common agreement about the meaning of trust. TCE researchers, for instance, identify calculations of costs and benefits of certain behavior of economic agents as a basis for trust (Axelrod, 1984; Chiles, 1996; Furubotn, 2003), while sociologists emphasize moral aspects of trust and view it as a result of shared norms and values (Parsons, 1951; Luhmann, 1979; Zucker, 1986; Bradach, 1989; Granovetter, 1985). Yet another approach treats cognitions and expectations as a relevant ground for trust (Barber, 1983; Blau, 1967; Giddens, 1984; Giddens, 1990; Sedaitis, 1997; Simmel, 1950).

Despite these differences most concepts of trust, according to Lane share the following common elements:

- trust assumes a degree of interdependence between trustor and trustee;
- trust provides a way to cope with risk or uncertainty in exchange relationships;

- trust avoids vulnerability resulting from the acceptance of risk (Lane, 2002).

These shared attributes of trust allow to consider it as an alternative governance mechanism, which reduces uncertainty, risk and transaction costs in interorganizational relations. Arrow emphasizing the role of trust as a control mechanism defines it as "…an important lubricant of a social system" (Arrow, 1974; p. 23). He states that "…In the absence of trust, it would become very costly to arrange for alternative sanctions and guarantees, and many opportunities deriving from mutually beneficial cooperation would have to be forgone." (Arrow, 1969; p. 62). According to Lewis and Weigert trust is the mutual "faithfulness" on which all social relations ultimately depend and represents functional alternative to rational prediction for the reduction of complexity: "… trust reduces complexity far more quickly, economically, and thoroughly than does prediction" (Lewis, 1985; p. 969). Macaulay (Macaulay, 1963) in his preliminary study of non-contractual relations in business found that the norms of keeping commitments impose obligations on parties to transactions at the cost of damaging personal relationships. He concludes that "…while detailed planning and legal sanctions play a significant role in some exchanges between businesses, in many business exchanges their role is small" (Macaulay, 1963; p. 62). Similarly, Hendley, Murrell, and Ryterman (Hendley, 1998) in their study of transactional strategies of Russian enterprises found that during transition, strategies that use trust have a critical importance as well as personal relationships. Sako (Sako, 2002) not only considers trust as an alternative governance mechanism but also views it as a precondition for superior business performance.

To gain a better understanding of the role of trust as a transaction governance mechanism one must identify the sources trust is produced from. The trust-related literature distinguishes between different ways of trust generation. A considerable number of authors (Bradach, 1989; Granovetter, 1985; Lewis, 1985) view personal relations as a main source of trust. They emphasize the role of embeddedness of economic behavior in the social context and consider the latter as a necessary basis for trust to emerge between parties. For instance, Bradach and Eccles (Bradach, 1989) argue that when economic transactions is embedded in personal relationships based on trust, the danger of opportunism is lower and the pressure toward vertical integration or elaborate formal governance structures is diminished. Though personal relations and familiarity are considered in the literature as important sources of trust the latter can also have impersonal nature. The concept of impersonal (institutional-based or system-based) trust was introduced by Simmel (Simmel, 1950) and further developed by Luhmann (Luhmann, 1979), Zucker (Zucker, 1986), Shapiro (Shapiro, 1987) and Giddens (Giddens, 1984; 1990). Trust according to this concept is generated by reliable functioning of certain systems (Luhmann, 1979; Giddens, 1990) or institutions (Zucker, 1986). Fukuyama defined impersonal trust (or rather societal trust, one of its forms) as "…the expectation that arises within a community of regular honest, and co-operative behaviour, based on commonly shared norms, on the part of other members of the community" (Fukuyama, 1995; p. 26). Impersonal trust is no more grounded on personal acquaintance and does not require economic transaction to be embedded in social relations.

On the basis of distinguishing the sources of trust a number of its typologies have been developed in the literature to date. Studying the evolution of trust Zucker (Zucker, 1986) defined its three main types as follows: *process-based trust*, resulting from recurrent transactions and the experience

gained in socio-economic exchange; *characteristic-based trust*, grounded on social similarity between partners and not dependent on transaction experience; *institutional-based trust*, which goes beyond socio-economic exchange experience and personal relations and is generated by sound functioning of formal institutions in the society. A similar typology of trust is provided by Raiser, who considered the following three types of trust: *ascribed trust*, trust between members of a kinship group, which arise due to friendship or family relations; *process-based trust* resulting from repeated transactions; and *generalized or* "*extended*" *trust* which can take place only in business environment characterized by the rule of law (Raiser, 1999). According to these typologies, ascribed or characteristic-based and process-based forms of trust are produced only from personal relations, interactions and experiences, while institutional-based trust or extended trust stems from institutional or system sources inherent in a particular society. To quickly summarize, in both typologies the first two types refer to interpersonal trust while the latter reflects the impersonal one.

Both these authors emphasize the importance and relevance of impersonal trust for economic development. Raiser concludes that economic transactions based on impersonal trust is an important determinant of the efficiency of economy functioning and is "…a key element of a modern economic system" (Raiser, 1999; p. 4). McMillan and Woodruff (McMillan, 1999) examining trade credit issues in Vietnam found that in a weak contract enforcement institutional environment business network formed by relatives or friends serves as important source of information generating trust and promoting exchange. However, this as well as other studies (Sedaitis, 1997; Stark, 1997) emphasize the fact that the ascribed and process-based trust along with facilitation of economic exchange within the business network restricts opportunities for economic cooperation outside of the created network. On the contrary, extended or generalized trust, determined by the quality of formal institutions in a particular society, is usually considered to be a factor that promotes cooperation beyond the scope of business networks (Raiser, 1999; Zak, 1998). According to Fukuyama "… a nation's ability to compete is conditioned by single, pervasive cultural characteristic: the level of trust inherent in a society" (Fukuyama, 1995; p. 7). In this sense, for economies in transition enhancing quality of formal institutions represents a key challenge in the process of economic development.

The foregoing prompts us to the understanding that trust, depending on its source, could have different effects on the degree and scope of cooperation between economic agents. However, no matter what form trust takes, it plays an important role in understanding of interorganizational transaction relations. This, in turn, substantiates the need for integrating trust and TCE dimensions in studying alternative structures of transaction governance.

3. FACTORS OF TRANSACTION GOVERNANCE STRUCTURE: RESEARCH HYPOTHESES

The main objective of the present project is to study governance structures used by manufacturers and distributors to manage exchange relations and identify salient variables that determine firms' choice of the appropriate transaction governance modes.

The review of the existing literature presented in the previous section reveals the necessity for two important modifications to traditional TCE approach in studying transaction governance structures. First, instead of viewing transaction modes as dichotomous, three different types of governance forms will be examined: market governance, relational transacting, and hierarchical governance. Second, a new dimension — trust — must be added to the main TCE dimensions to understand firms' choice of an alternative governance structure.

However, methodological difficulties in distinguishing between arms-length relations and relational contracting compel us to divide the study in two consecutive phases. During the first phase, variables that influence manufacturer's choice from two alternatives will be studied, viz., in-house performance of distribution vs. contracting distribution out. The next phase will be devoted to the exploration of relational transactions between manufacturers and distributors.

3.1. Vertical integration vs. contracting out

The first stage of the study draws mainly on the sales force integration model elaborated by Anderson and Schmittlein (Anderson, 1984) with some modifications. At this phase of the study two discrete forms of transaction governance are distinguished:

Markets — involves the use of independent distributors by manufacturer for performing of sales function. In the context of present research this type of governance includes both arms-length relations and relational governance.

Hierarchies — implies vertical integration of distribution function by manufacturers. Instead of employing independent distributors, manufacturer distributes produced goods using direct selling personnel.

The insights from empirical literature review permit us to study the following variables as determinants of alternative governance modes: asset specificity, uncertainty, and firm's size. In line with the objectives of the study, we added trust as a possible determinant of a firm's choice to traditional TCE dimensions.

Asset specificity — reflects the degree to which an asset is customized to the user's need or the degree to which it can be redeployed to alternative uses. Williamson (Williamson, 1996) distinguishes the following six types of asset specificity: site specificity, physical asset specificity, human asset specificity, dedicated assets, brand name capital, and temporal specificity. To define this variable in our analysis, following Anderson and Schmittlein (Anderson, 1984), we apply specialized human assets, which reflect knowledge, capabilities, relationships idiosyncratically related to manufacturer or its customer. TCE theoretical framework and empirical examination suggest that high level of asset specificity creates pressure toward vertical integration (Anderson, 1984; Crocker, 1993; Joscow, 1987; Monteverde, 1982; Shepard, 1993; Williamson, 1996).

Uncertainty — refers to the level availability of information necessary for making key decisions and predicting consequences of these decisions. One of the key uncertainties pertaining to buyer-seller relationship refers to difficulties of performance evaluation or metering (Alchian, 1972; Wil-

liamson, 1981). Anderson and Schmittlein (Anderson, 1984) found a positive relationship between difficulty of monitoring performance and the likelihood of vertical integration.

Size of the firm- another factor which impacts vertical integration has been found to be significant in empirical studies (Anderson, 1984; Williamson, 1985). The inclusion of *size* in studying transaction governance modes is based on the consideration of scale and scope of economy.

Trust. On the basis of the literature review (Arrow, 1969; Raiser, 1999; Joscow, 1987; Anderson, 1990; Bradach, 1989) and for the sake of current research *trust* is defined here *as informal mechanism for coordination of economic activity, alternative and supplementary to price and authority, based on the belief of one party in honest and predictable behavior of the other party, and which allows for more effective and flexible mode of transaction governance.* We assume that such a belief can be formed by mechanisms of personal relations on the one hand and confidence in legal and collective institutions on the other. However, in this paper we distinguish between two types of trust not on the basis of its sources but rather on its effect on the degree and scope of cooperation between economic agents. In particular, we consider the following two types of trust in this study: *network trust* and *extended trust*.

Network trust — arises from personal acquaintance, friendship or family relations, recommendation and information received from the former or current employees, business associations and government agencies. This type of trust could be personal and is similar to the ascribed (Raiser, 1999) or characteristic-based trust (Zucker, 1986) if the network is comprised of friends and relatives. It could also have impersonal nature and contain some features of the institutional-based trust (Zucker, 1986) if the partner is chosen on the basis of recommendations by business associations or governmental agencies. In this case the basis for trust is the confidence in local institutions (like business associations). However, whether the trust is personal or impersonal, it does not extend the boundaries of the existing networks. This is a distinctive feature of the network trust.

Extended trust — is a product of sound functioning of formal institutions that establish business environment characterized by the rule of law and is no more restricted to a certain network. On the contrary extended trust derives from confidence in collective and system institutions and is available to all economic agents. It is similar to extended or generalized trust defined by Raiser (Raiser, 1999) and contains the major features of institutional-based trust (Zucker, 1986), system trust (Simmel, 1950; Giddens, 1990) and societal trust (Fukuyama, 1995).

In both the cases, trust represents a mechanism that facilitates relationships between organizations through alleviating the fear that one's exchange partner will act opportunistically. The ability to trust is related to the amount of uncertainty and the presence of risk for opportunism (Bradach, 1989). Diminishing opportunism trust reduces the pressure toward vertical integration caused by high asset specificity and uncertainty. Based upon theoretical and empirical findings we hypothesize:

H1: The greater the degree of specificity of knowledge and capabilities related to performing of selling function by a particular manufacturer company, the higher the probability that the manufacturer will choose hierarchical governance mode.

H2: The greater the difficulty of measuring individual salesperson performance, the higher the probability that the manufacturer will choose hierarchical governance mode.

H3: The greater the size of manufacturer company, the higher the probability that the manufacturer will choose hierarchical governance mode.

H4: The greater the level of network trust, the lower the probability that the manufacturer will choose hierarchical governance mode.

H5: The greater the level of extended trust, the lower the probability that the manufacturer will choose hierarchical governance mode.

3.2. The determinants of relational transacting

At this stage of the research, we will examine the factors that force business partners to move from arms-length transactions to relational transactions.

Relational transacting — refers to intermediate trust-based form of cooperative arrangement. This form is governed by implicit social norms of inter-organizational behavior and involves relatively less complex and less formal contractual arrangements between business parties (Webster, 1992). In this study two dimensions of *relational transacting* are identified: percentage of manufacturer's sales that are prepaid; and the level of completeness of the contract (in number of pages). Higher level of *relational transacting* is associated with lower levels of percentage of sales prepayment, and less contract completeness. For the sake of current research the following variables are considered as main determinants of *relational transacting*: asset specificity, uncertainty, network and extended trust.

According to empirical findings in TCE literature, *asset specificity* and *uncertainty* create pressure toward adopting of more specified and lengthy contracts (Crocker, 1993; Joscow, 1987). A number of trust-based studies revealed a significant positive effect of trust on stability of cooperative relationship (Moorman, 1993; Morgan, 1994), effectiveness of distributor and manufacturer firms working partnerships (Anderson, 1990), effectiveness of selling partner relationships (Smith, 1997). In these and other studies trust has been identified as a condition for cooperation and prerequisite for successful relational contracting, which, in turn, requires lower levels of contract formalization and completeness, and thereby reduces transaction costs (Johnson, 1997; McMillan, 1999; Raiser, 2004). Hence:

H6a: The greater the degree of specificity of knowledge and capabilities related to performing of selling function by a particular manufacturer company, the higher the percentage of manufacturer's sales that is prepaid.

H6b: The greater the degree of specificity of knowledge and capabilities related to performing of selling function by a particular manufacturer company, the higher the level of contract completeness.

H7a: The greater the difficulty of measuring individual salesperson performance, the higher the percentage of manufacturer's sales that is prepaid.

H7b: The greater the difficulty of measuring individual salesperson performance, the higher the level of contract completeness.

H8a: The greater the level of network trust, the lower the percentage of manufacturer's sales that is prepaid.

H8b: The greater the level of network trust, the lower the level of contract completeness.

H9a: The greater the level of extended trust, the lower the percentage of manufacturer's sales that is prepaid.

H9b: The greater the level of extended trust, the lower the levels of contract completeness.

4. RESEARCH METHODOLOGY

This section describes data collection and sample description, description of measures, and model specification.

4.1. Data and Sample Description

The hypotheses formulated in the previous part of the study were tested on survey data from a sample of Georgian manufacturing firms. The level of analysis in the study was a manufacturer-distributor relationship. According to the research objectives the *key informant* method was used for obtaining data from manufacturer's side of dyadic relationship (Campbell, 1955). This method allowed us to obtain all the information necessary from a single respondent, who, being an expert provided generalizable judgments. To guarantee the competence of key informants we contacted heads of marketing/sales departments or heads of firms (when the firm was too small to have any departments). We asked respondents to answer the questions regarding their companies' typical product they were familiar with, which was marketed through their major distributor.

Data collection has been conducted through a personal interview survey. We had attempted a preliminary pilot study (15 informants), aiming to refine the wording of the scale items in the questionnaire before the main survey. The sample, comprised of 301 enterprises, was selected from 2920 manufactures listed in the database of the Georgian Department for Statistics. The sampling procedure was as follows: first, to decrease the cost of survey we selected four main industrial centers in Georgia: Tbilisi, Rustavi, Kutaisi, and Gori. For the same reason we selected 2/3 of the sample in Tbilisi and the rest of the sample outside the capital. In each of the industrial centers a random sample has been drawn (on *n*-th name basis, which actually was different for each of the industrial centers), with every company having an equal and pre-determined chance of being selected within each region.

The figures of *regional distribution* of the sample presented in Table 1 (see Appendix A1) shows that the sample is dominated by firms located in Tbilisi, the capital (2/3 of the sample), followed by Kutaisi (16.6%), Rustavi (10%) and Gori (6.7%). According to Fig. 1 (see Appendix A2), which

compares sample's regional distribution of companies with that of population, companies located in the capital are overrepresented by almost 100%, while representation of companies outside the capital is more or less even (*Statistical Yearbook of Georgia*, 2004). The overrepresentation of Tbilisi based firms is basically due to regions not included in the sample. Allowing for peculiarities of the tested hypotheses, we have assumed that this distortion in firms' regional distribution will not have a significant impact on generalizability of the research findings.

Distribution by Industry. To guarantee generalizability of the findings across industries the database covered different industry groups. Table 2 shows that the sample is dominated by producers of foodstuffs and beverages (55.8%). This figure, however, is only 2.2% less than that for the population. In general, the comparison of the sample and population, presented in Fig. 2, reveals virtually no significant divergence from industry structures, with the exception of manufacturers of timber/timber products (*Statistical Yearbook of Georgia*, 2004). It is important that almost all the industries are well-represented in the sample.

Distribution by Size. The same is true of companies' distribution by size, measured by the number of staff (without sales department staff). Sample statistics shown in table 3 reflects great domination of small firms. However, representation of each category of enterprises in the sample is practically identical to that of the population, as shown in the Fig. 3 (*Industry in Georgia*, 2005). Sample statistics for small and large firms are respectively overrepresented or underrepresented only by 1.1%, while the share of medium enterprises is proportionate with the population.

Ownership Structure. The ownership structure of sampled companies is shown in Fig. 4. The overwhelming majority of the sample is represented by newly established private enterprises (80.1%) while state enterprises constitute only 1.3% of the sample. Almost 31% (93) of the enterprises were established within the last three years.

4.2. Measures

Questionnaire protocol served as the primary means for the data collection. Most of the scales employed in the study are adapted from existing scales to suit the context of the present research. A complete listing of the scales used in the study is provided in Appendix A3.

4.2.1. Dependent variable. The analysis involves two consecutive stages (Vertical integration vs. outsource distribution; and relational transacting estimation). Each stage differs mainly by dependent variables involved in the study.

At the initial stage of the study the decision of the firm to use a certain transaction governance mode is measured by a discrete dependent variable. In the theoretical part of the paper two different types of transaction governance are distinguished: markets and hierarchy.

Market governance here refers to outside contracting of distribution function and includes both arms-length transactions and relational governance.

Hierarchical governance assumes using direct sales force of a manufacturer firm.

In this study we asked manufacturers to choose one type of distribution form (more than 75% of total distribution) out of five alternatives: their own sales department, their own sales company, franchise, exclusive dealers, and independent distributors. In the context of this study, the first two types are referred to as in-house performance of distribution function, and the last three as external ones. These categories of transaction governance choice were coded 1, 0 respectively.

At the second stage of the study continuous dependent variable reflects the degree of intensity of relationship between a manufacturer and its distributor. Two dimensions were used in this study to capture this construct:

Prepayment (*PP*) — percentage of firm's sales that is prepaid.

Contract completeness (*COMPL*) — measured in numbers of pages of the written contract.

4.2.2. Independent variables. The following variables are hypothesized to influence a manufacturer firm's choice of transaction governance mode: asset specificity; uncertainty, size of the firm; and trust.

Asset Specificity. We measured *asset specificity* (*AS*) using four questions, each employing 7-point scale adapted from Anderson and Schmittlein (Anderson, 1984). We asked respondents about the degree to which they agreed with four statements representing their perception of nature of the company, confidentiality of information, nature of the customer and customer loyalty. The only exception was made for the fourth item, which was measured on a reversed scale. The *asset specificity* (*AS*) variable was constructed from responses to the questions listed above using factor analysis (principal components method). Tables 4, 5, 6 and 7 summarize the factor analysis results for these asset specificity measures. The appropriateness of factor analysis was verified by sufficient level of Kaiser-Meyer-Olkin Measure of Sampling Adequacy (0.787) and the significance of Bartlett's Test of Sphericity ($p < 0.001$) (Table 4). Evaluation of communalities (Table 5) suggests that the proportion of the variance in the original variables that is accounted for by the factor solution is more than 0.50 for each of the variables. Thus no variable has been excluded, which completes factor analysis. As a result of this analysis we arrived at one component solution, which explained 63.068% of the total variance in the variables included in the component (Table 6). All the variables have high loadings (more than 0.7) on the component confirming goodness of the factor solution (Table 7). Further, we validated these results by conducting analysis into each half of the sample. The results of these two split sample analyses were compared with the analysis of the full data set (Tables 8, 9). All of the communalities in both validation samples met the criteria. The pattern of loadings for both validation samples is the same, and the same as the pattern for the analysis using the full sample. This validation analysis supports a finding that the results of this principal component factor analysis are generalizable to the population represented by this data set. Next internal consistency of the new construct was tested using reliability analysis (the fourth item of the scale has been reversed in advance). Results of reliability analysis (Table 10) shows that the internal consistency of the construct cannot be improved further by removal of one of the variables. Chronbach's alpha of 0.80 suggests that the construct has a high internal consistency. Examination of factor scores revealed no outliers. These factor scores will be used further in regression analysis for testing of the hypothesis.

Uncertainty (*U*). This variable is also adapted from Anderson and Schmittlein (Anderson, 1984) and measures the difficulty to evaluate salesperson's performance, as perceived by manufacturer, using one-item scale. Respondents were questioned about the degree to which they agreed with the statement, which reflected their perception of uncertainty in measuring distributors' performance on a 7-point scale, ranging from "strongly agree" to "strongly disagree".

Firm size (*S*). We estimate this variable by the number of staff at a manufacturer firm (excluding the size of sales department) in 2005.[1] Later, however, we use the natural logarithm of this variable is used in regression equations.

Trust. In the theoretical part of this study two trust dimensions were distinguished: network and extended trust. The following proxies were used to measure these concepts[2].

Extended Trust — is measured using the following two proxies that reflect the level of development of formal institutions as perceived by managers:

General trust (*GT*) — trust is not specific to this relationship;

Confidence in courts (*CC*) — indicates manufacturer's current perception of the reliability of legal enforcement institutions.

Each of these *extended trust* variables are measured with one-item scale. The key informants were asked to express the degree of their agreement with the corresponding statement in the questionnaire on a 7-point scale ranging from "strongly disagree" to "strongly disagree".

Network trust — trust existing due to common family ties, origin from the same municipality and etc., was measured using 6-point scale. On a 5-point scale ranging from extremely important =1 to not important =5 respondents rated the importance of the following sources of information on new distributors: family, friends, former colleagues of potential distributors, current distributors, government agencies, and business associations. The analysis into a correlation matrix (Table 11) for these variables substantiates the necessity for factor analysis.

The results of principal components factor analysis shown in Table 12 verifies the appropriateness of factor analysis (Kaiser–Meyer–Olkin Measure of Sampling Adequacy — 0.610 and Bartlett's Test of Sphericity is significant at $p < 0.001$). On iteration 1, the communality for the variable "former colleagues" was 0.481 (Table 13). Since this is less than 0.50, we removed the variable from the next iteration and carried out the principal component analysis again.

Evaluation of communalities at second iteration (Table 14) suggests that the proportion of the variance in the original variables that is accounted for by the factor solution is more than 0.50 for each of the variables. As a result of this analysis we got two component solution that explained 80.107%

[1] We used this measure instead of company assets proposed by Anderson and Schmittlein (1984), because the true value of this variable may as well not be seen.

[2] These scales are adapted from *Business Environment and Enterprise Performance Survey Questionnaire* http://info.worldbank.org/governance/beeps2002/

of the total variance in the variables included in the components (Table 15). Analysis of rotated component matrix (Varimax rotation) shows that on iteration 2, none of the variables demonstrated complex structure (Table 16) and the two components in the analysis had more than one variable loading on each of them. Component 1 includes variables of *current distributors, business associations,* and *government agencies.* Component 2 includes variables of *family* and *friends*. No variables need to be removed at this stage because of complex structure.

The results of split sample validation are presented in Tables 17, 18. The review of communalities and loading patterns indicates that all criteria are met in both validation samples supporting generalizability of factor analysis results. Also reliability analysis of the constructs (Table 19) shows that internal consistency of both components are sufficient (Chronbach's alpha = 0.8120 and 0.8597 correspondingly for the first and 2 components). Though reliability of the first component could be improved by removal of the *current distributors* variable (Chronbach's alpha = 0.8974), we decided to retain it for the purpose of our study.

Clear structure of loadings allows for straightforward interpretation of factor analysis results. Because government agencies, business associations, and current distributors, which represent outside sources of information, load highly on the first component, and family and friends, which represent inside sources of information, load highly on the second component, we define these components correspondingly as "*Outer network*" (*ON*) and "*Inner network*" (*IN*).

Inner network (*IN*) — personal trust within partnership derives from relatives and friends.

Outer network (*ON*) — impersonal trust derives from recommendations of business associations and governmental agencies.

4.2.3. Control variables. These variables are included in the empirical model in order to prevent detection of false significant correlation between dependent and independent variables, which is due to their correlation with omitted variable.

Market power (*MP*) — availability of alternative sources for the distributor. The distributor can be more trusted if he is dependent on the manufacturer.

Origin of the firm (*OR*) — indicates whether the firm existed in the Soviet period or had a predecessor then.

History of business relationship (*HBR*) — can influence the level of trust through confidence in business partner built up from repeated transactions and cooperation in the past.

Industry type (*Ind*) — is measured by dummy variables and is included to capture the industry effect on the transaction governance mode. Initially, we had fourteen different industries in our data sample (Table 2). Because number of cases for some industries was too small we combined some of them (manufacture of food and beverages with tobacco products; manufacture of textiles with manufacture of wearing apparel; manufacture of fabricated metals with manufacture of machinery and equipment) receiving finally 11 industries.

Auxiliary function (*AUX*) — reflects whether external distribution is the main or auxiliary form of governance. This variable is coded as dummy variable.

4.2.4. Instrumental variables. These variables are included into the study to tackle the problem of possible endogeneity of *trust* variables.

Confidence in courts at an earlier point in time (*CCE*) — indicates manufacturer's perception of the reliability of the legal enforcement institutions at an earlier point in time. This instrument is measured by 1-item scale. The key informants were asked to express the degree of their agreement with the corresponding statement in the questionnaire on a 7-point scale.

Possibility for manufacturer to create an inner network (*PCIN*) — indicates whether manufacturer had possibility to create network with friends, family members by the moment the governance structure was being developed[3].

Possibility for manufacturer to create an outer network (*PCON*) — indicates whether manufacturer had possibility to create network with distributors recommended by business associations and government agencies by the moment the governance structure was being developed.

The key informants were asked to express the degree of their agreement with the corresponding statement in the questionnaire on a 7-point scale ranging from "strongly disagree" to "strongly disagree".

4.3. Model Specification

For the purposes of the present research two different approaches were explored in this paper. The first one is focused on the study of the impact of TCE variables, firm size and trust variables on the firm's choice of transaction governance forms (markets vs. hierarchies), while the other is concerned with the analysis into the effect of TCE variables and trust variables on the degree of relational transacting.

4.3.1. Vertical integration vs. contracting out. Two models are employed to study the effect of trust and TCE variables on manufacturers' choice of governance mode in the paper. These are: Logit model and Two-stage Conditional Maximum Likelihood Probit analysis.

Logit Model. Logit model was applied as the estimation techniques (Green, 1993; McFadden, 1984) at the first stage of this study. Let's denote the vector of explanatory variables for subject *i* as x_i, then the probability that subject *i* will choose *hierarchical transaction governance* mode can be determined as

$$P(y_i = 1 \mid x_i) = \frac{e^{\beta' x_i}}{1 + e^{\beta' x_i}}. \quad (1)$$

Linear transformation of this equation leads to the following logit function:

$$\log(\frac{p_1}{p_0}) = \beta_0 + \beta_1 AS + \beta_2 U + \beta_3 S + \beta_4 ON + \beta_5 IN + \beta_6 GT + \beta_7 \mathrm{CC} + \gamma' Z, \quad (2)$$

[3]Subsidiary survey on the same sample has been conducted to work out these variables.

where *AS*, *U*, *S*, *ON*, *IN*, *GT*, and *CC* are independent variables discussed earlier, *Z* is a vector of control variables, β and γ are parameters to be estimated. The coefficients of the model were estimated through maximizing the log likelihood function:

$$L(y_i \mid x_i;\beta;\gamma) = \prod_{i=1}^{N} P[y_i = 1 \mid x_i]^{y_i} (1 - P[y_i = 1 \mid x_i])^{1-y_i}, \quad (3)$$

where *N* is the number of subjects on which data have been collected (Green, 1993). This function was maximized through the Newton-Raphson algorithm used by the SPSS program.

Two-Stage Conditional Maximum Likelihood Probit Analysis. There are, however, potential problems with measuring of the effect of trust which could arise from the endogeneity of this variable related to possible reciprocal causation between trust variables and dependent variables. In dealing with this problem we cannot apply the conventional two-stage least square estimation models (Green, 1993) as the dependent variable in our study is discrete. One of the alternative ways that can be employed in this situation is the Two-stage Conditional Maximum Likelihood Probit (2SCML) developed by Rivers and Vuong (Rivers, 1988). This approach allows to control for endogeneity arising from possible reciprocal causation between choice of governance mode and continuous variables of interest: extended trust and network trust. The 2SCML procedure applied to probit analysis can be described as follows. First, consider the following probit model

$$y_1^* = \alpha_1 X_1 + \beta_1 Y_2 + \varepsilon_1, \quad (4)$$

$$\begin{cases} y_1 = 1 & [y_1^* > 0], \\ y_1 = 0 & [y_1^* < 0], \end{cases} \quad (5)$$

where y_1^* is an unobserved latent variable (manufacturers' choice of governance mode), X_1 is a set of exogenous variables (TCE variables general, general trust (*GT*) and control variables), Y_2 is a set of continuous endogenous variables (confidence in courts (*CC*), inner networks (*IN*), and outer networks (*ON*)). Each of the continuous endogenous variables in the Y_2 set is modeled as

$$CC = \alpha_{21} X_1 + \alpha_{22} X_2 + \varepsilon_2, \quad (6)$$

$$IN = \alpha_{31} X_1 + \alpha_{32} X_2 + \varepsilon_3, \quad (7)$$

$$ON = \alpha_{41} X_1 + \alpha_{42} X_2 + \varepsilon_4, \quad (8)$$

where X_1 is a set of exogenous variables (TCE variables and control variables), X_2 is a set of exogenous variables not included in the equation (4), which serve as instruments for the endogenous variables (confidence in courts at earlier point in time (*CCE*), possibility to create inner network (*PCIN*), and possibility to create outer network (*PCON*). The endogeneity in the model arises from the correlation of variables in the Y_2 with ε_1. Following Rivers and Vuong (Rivers and Vuong, 1988) procedure and assuming that ($\varepsilon_1, \varepsilon_2, \varepsilon_3, \varepsilon_4$) the errors in the equation (4) and (6)–(8) have a zero mean as well as bivariate normal distribution, are independent of *X*, and Var(ε_1) equals 1, we

can demonstrate that

$$\varepsilon_1 = \theta_1\varepsilon_2 + \theta_2\varepsilon_3 + \theta_3\varepsilon_4 + e_1 \tag{9}$$

or

$$y_1^* = \alpha_1 X_1 + \beta_1 Y_2 + \theta_1\varepsilon_2 + \theta_2\varepsilon_3 + \theta_3\varepsilon_4 + e_1 . \tag{10}$$

Equation (10) can be estimated using two-stage approach (Rivers, 1988). At the first stage, we get residuals ($\hat{e}_2, \hat{e}_3, \hat{e}_4$) estimating equation (6)–(8) through OLS regressions of the endogenous variables Y_2, on the full set of exogenous variables X_1 and X_2. At the next stage, we get consistent estimators of the probit equation running the probit y_1 on X_1, Y_2 and saved residuals ($\hat{e}_2, \hat{e}_3, \hat{e}_4$). An advantage of this two-stage approach is that probit *t* statistics on ($\hat{e}_2, \hat{e}_3, \hat{e}_4$) are valid tests of the null hypothesis that Y_2 is exogenous, *i.e.*,

$$H_0: \theta_1 = \theta_2 = \theta_3 = 0.$$

If this condition does not hold, Y_2 is endogenous and the usual probit standard errors are not valid.

4.3.2 Relational Transacting. Two alternative models will be employed to study the effects of TCE and trust variables on the relational governance. These models are: system of seemingly unrelated regressions and Tobit regression.

System of Seemingly Unrelated Regressions. As the theoretical part of the study identifies two dimensions of the dependent variable, we developed the following two regression equations:

$$PP = \alpha_{10} + \alpha_{11}AS + \alpha_{12}U + \alpha_{13}ON + \alpha_{14}IN + \alpha_{15}GT + \alpha_{16}\mathrm{CC} + \eta_1' Z , \tag{11}$$

$$COMPL = \alpha_{20} + \alpha_{21}AS + \alpha_{22}U + \alpha_{23}ON + \alpha_{24}IN + \alpha_{25}GT + \alpha_{26}\mathrm{CC} + \eta , \tag{12}$$

where *PP*, and *COMPL* are dependent variables; *AS*, *U*, *ON*, *IN*, *GT*, and *CC* are independent variables discussed earlier; *Z* is a vector of control variables, α and η are parameters to be estimated. These regressions were estimated as a system using seemingly unrelated regressions (SUR) procedure of STATA software. The seemingly unrelated regression represents a special case of the generalized regression model (Zellner, 1962). The basic SUR model assumes that, for each individual observation *i*, there are M dependent variables (*j* = 1, ..., *M*) and *M* linear regression equations:

$$y_{ij} = x'_{ij}\,\beta_j + \varepsilon_{ij} . \tag{13}$$

Though the standard conditions for the classical regression model are assumed to hold for each *j*, the SUR model permits nonzero covariance between the error terms for a given individual across different equations, while assuming zero covariance between different individuals. Taking into account potential covariance across equations allows for asymptotically more efficient estimates than ordinal least-squares estimates.

Tobit Model. Main justification for conducting Tobit regressions is that both dependent variables in this study are left-censored and have many zeros. The general formulation of Tobit function is as

follows (Green, 1993):

$$y_i^* = \beta' x_i + \varepsilon_i, \tag{14}$$

$$\begin{cases} y_i = 0 & \text{if} \quad y_i^* \le 0, \\ y_i = y_i^* & \text{if} \quad y_i^* > 0, \end{cases} \tag{15}$$

where x_i is a vector of regressors for subject i, and the error term ε_i is $N(0, \sigma^2)$ distributed, conditionally on x_i. This model is estimated through maximizing the log likelihood function:

$$\text{Ln}L = \sum_{y_i>0} -\frac{1}{2}\left[\ln(2\pi) + \ln\sigma^2 + \frac{(y_i - \beta' x_i)^2}{\sigma^2} \right] + \sum_{y_i=0} \ln\left[1 - \Phi(\frac{\beta' x_i}{\sigma}) \right]. \tag{16}$$

Maximization of this function was accomplished through the Newton algorithm.

5. STUDY RESULTS

5.1. Vertical integration vs. contracting out

In this study we revealed the following four types of organizing distribution function that were used by Georgian manufacturers: their own sales department; their own sales company, exclusive dealers; and independent distributors. In the context of this study, the first two types are referred to as in-house performance of distribution function, and the last two as external ones. According to the results of the survey over 75% of manufacturer firms (228 enterprises) prefer to organize distribution function *in-house*, and 13% of them (30 enterprises) use independent distributors as an auxiliary form of distribution. Fig. 5 shows that during the last three years' period there has been no significant change in the relative shares of various forms of distribution function organization. The share of in-house distribution form increased only slightly (1.2%) during the period. According to Fig. 6 about 5% of those firms that used in-house distribution three years ago switched currently to external form of distribution, and 11% of those that outsourced distribution have integrated this function into their companies by now.

Logit model. Table 20 reports the parameter estimates and goodness-of-fit indicators for three logit models. The first model includes aggregated factor — outer network (*ON*), while in the second and third models this factor is replaced by its composite variables. These variables are correspondingly trust in government agencies (*GA*) and trust in business associations (*BA*)[4]. All three models reflect a good fit with the data (Model Chi-square significant at $p < 0.01$; Cox and Snell's R-Square more than 0.420; and Nagelkerke's R-Square more than = 0.630; almost 91% of the Overall Percentage of Correct Predictions). In conformity with TCE theoretical paradigm asset specificity (*AS*) and uncer-

[4] Due to the high policy relevance of these variables separate regressions were run for each of them.

tainty (*U*) were found to have positive significant effect on vertical integration (H1 and H2 supported at the significance level $p < 0.01$ in all three models). Size (*S*) has negative effect (at the significance level $p < 0.01$ in the first two models and at $p < 0.05$ in the third model) on the choice of hierarchical distribution mode thus rejecting H3 hypothesis. Outer networks (*ON*) and inner networks (*IN*) variables as well as trust in government agencies (*GA*) and trust in business associations (*BA*) were found to be significant predictors of manufacturers' choice, thus supporting H4 hypothesis at the significance level: $p < 0.01$. However, none of the two extended trust variables (general trust (*GT*); confidence in courts (*CC*)) was significantly related to the dependent variable and as a consequence H5 has been rejected.

2SCML Probit Analysis.[5] We start by briefly discussing the first stage of this procedure. This stage consists of three OLS regressions of trust variables (confidence in courts (*CC*), inner networks (*IN*), and outer networks (*ON*)) on all the exogenous variables. Three variables, excluded from the structural models but added to the reduced model to predict the endogenous variables, are confidence in courts at earlier point in time (*CCE*), possibility for manufacturer to create an inner network (*PCIN*), and possibility for a manufacturer to create an outer network (*PCON*). Table 21 shows the results for the reduced form estimates. All the three equations have R-square higher than 0.5 and F-statistic significant at $p < 0.01$ level. The F statistic for excluded variables is also significant at $p < 0.01$ level. As expected confidence in courts at earlier point in time (*CCE*), possibility for manufacturer to create an inner network (*PCIN*), and possibility for manufacturer to create an outer network (*PCON*) have positive influence on confidence in courts (*CC*), inner networks (*IN*), and outer networks (*ON*) respectively, and are significant at $p < 0.01$ level. PC*IN* has also significant negative impact on the confidence in courts (*CC*). TCE variables, viz., asset specificity (*AS*) and uncertainty (*U*) are significantly and negatively related to outer networks (*ON*). There is some evidence that state-owned enterprises have higher confidence in courts than those of other forms of ownership.

The results for the second stage of the 2SCML estimation are presented in Table 22. Model 1 is the structural model that is used to test for the existence of endogeneity. The endogeneity controls for confidence in courts (*CC*), inner networks (*IN*), and outer networks (*ON*) are insignificant in the structural model, as coefficients (θ) of the residuals from the first stage regressions are insignificant. This allows us to accept the null hypotheses of no endogeneity. Further, we exclude these controls in the final probit model (Model 2) and treat confidence in courts (*CC*), inner networks (*IN*), and outer networks (*ON*) as ordinary exogenous variables. As is seen from the last column of Table 22 the significance of the impact of network trust variables on the choice of governance mode has not changed substantially as compared to Model 1. On the whole the results of the probit model are similar to those of the logit model examined earlier, thus supporting research hypotheses as in Logit model.

[5] Data on instrumental variables *PCIN* and *PCON* was collected only after 6 months after the main survey. The response rate was 194 out of 301 firms.

5.2. Relational Transacting between Manufacturers and Distributors

For the study of relational transacting from the total sample we selected only the companies that use outsource distribution organization mode. Among 103 companies selected for the study 73 (70.9%) use outsource organization as a main form of distribution, and the others use it as auxiliary to in-house distribution. The study revealed that manufacturers in their relations with distributors mainly use the following control mechanisms: prepayments and formal contracts. Descriptive statistics for amount of prepayments, term of contracts in months (contract duration), and length of contracts in numbers of pages (contract completeness) are presented in tables 23, 24, 25 respectively. Prepayments are used by 38 out of 100 manufacturers (3 cases are system missing), and among them 13 manufacturers demand less than 50% of prepayment, 12 of them demand more than 50% but less than 100%, while 11 manufacturers demand full prepayment. Formal contracts are used by 83 (82.2%) out of 101 manufacturers (2 cases are system missing). Most frequent occurrence in the sample is one year contract — 69 cases (68.3%). Manufacturers also prefer to sign one-page (25.7%), two-page (31.7%), or three-page (11.8%) contracts with distributors. According to Fig. 7, 12% of manufacturers use no control mechanisms, 50% rely only on formal contract, 6% demand only prepayment, while 32% use both prepayment and formal contracts as mechanisms of control in their relations with distributors.

System of seemingly unrelated regressions (SUR) and Tobit regressions were used to test hypotheses on the association between trust, TCE factors and the intensity of relationship between manufacturers and distributors. Table 26 shows results of SUR and Tobit analysis. The main drawback of this study is a small sample size: only 103 companies use outsource distribution form either as a major or auxiliary means of distribution. This problem is further aggravated by missing values for some variables (mainly extended trust variables).

For all regressions Model 1 includes aggregated factor — outer network (*ON*), Model 2 and Model 3 incorporate trust in government agencies (*GA*) and trust in business associations (*BA*) variables respectively. For prepayment SUR regressions chi-square is significant at $p < 0.01$ in all models, and for contract completeness it is significant at $p < 0.01$ in the first model and at $p < 0.05$ in the rest of models. Similarly, for all prepayment Tobit regressions LR chi-square is significant at $p < 0.01$, for contract completeness it is significant at $p < 0.05$ in the first two models and at $p < 0.1$ in the third one.

SUR models do not support H6 and H9 hypotheses absolutely. Neither asset specificity, nor extended trust variables have any significant effect on amount of prepayment or contract completeness. Uncertainty has influence only on amount of prepayment at 5% significance level in all models (supporting H7a at $p < 0.05$ level), while this factor is insignificant in completeness equations (H7b is rejected). Generally SUR and Tobit regressions show similar results. H8 holds out in almost all models. Outer network as well as trust in government agencies and trust in business associations variables are significant at $p < 0.01$ level for all equations in all the models. Inner networks variable is significant at $p < 0.01$ for prepayment regression in all the models, thus supporting H8a. For contract completeness equation this variable is significant only in the first two models of SUR and Tobit regressions at $p < 0.1$ level.

6. DISCUSSION

This study explores the forces that have impact on manufacturers' choice of types of transactions with distributors. Our objective was to show that some other factors in addition to TCE variables can affect transaction costs and influence a company's choice of whether or not to integrate. More specifically, we tried to examine the role that trust plays in the contexts of manufacturers' choice of transaction governance mode and manufacturer-distributor relationships.

The results of empirical study suggest that manufacturers' choice of engaging distributors was determined by the following set of factors: *asset specificity* (the degree to which an asset is customized to the user's needs or the degree to which it can be redeployed to alternative uses), *uncertainty* (the level availability of information necessary for making key decisions and predicting consequences thereof) and *trust*. Trust in this study was treated as a product of certain informal and formal institutions, *e.g*. kinship norms and legal environment. We distinguished between *network trust* (trust arising from friendship or family relations, recommendation and information received from former or current colleagues, business associations and government agencies) and *extended trust* (a product of sound functioning of formal institutions that establish business environment subject to the rule of law). During the study we found that the network trust, in turn, could be subdivided into *inner networks* (networks comprised of only friends and relatives) and *outer networks* (networks, which incorporate independent distributors recommended by business associations and government agencies).

We found that the rise in the levels of asset specificity and uncertainty increase the probability of in-house performance of distribution function by manufacturer. Both network trust variables increase producer firms' willingness to employ external distributors. These findings extend TCE theoretical paradigm by demonstrating that network trust along with TCE variables influences manufacturers' choice of transaction governance mode. These findings are theoretically consistent with Bradach and Eccels' (Bradach, 1989) understanding of trust as a third mechanism of social control in addition to market and hierarchy. Not only does network trust help to explain a manufacturer's vertical integration choice, but also explains variation in intensity of relationships between manufacturers and distributors. Higher level of trust existing between partners leads to less complete contracts and lower prepayment requirements, reducing thus transaction cost and facilitating economic exchange. This finding parallels in part with results reported in Raiser (Raiser, 2004), who suggests that network variables have a negative impact on the amount of prepayment.

However, we failed to find any significant effect of such policy relevant factor as extended trust (of which main determinant is the reliability of legal institutions). None of the variables used in this study as proxies for extended trust had any significant effect on manufacturers' choice of governance mode or on the intensity of relationship between partners. We presume that this is mainly due to the fact that our study was limited to one country. Objectively, degree of rule of law and quality of legal institutions that are determinants of extended trust could barely vary within the same country. Variation in these variables can be explained by factors other than the legal environment or those irrelevant to study of transaction governance choice. Support for this assertion comes from

Raiser's empirical findings regarding trust in transition, contending that a legal system's influence on the amount of prepayment is significant in a cross-country study, while being insignificant in a within-country study (Raiser, 2004).

The importance of the study findings could be better seen in the context of economic advantages of trust-based governance modes. Higher levels of in-house performance of distribution function by manufacturers means fewer opportunities to gain benefits from specialization and cooperation. Furthermore, increase in the complexity of contract arrangements between manufacturers and distributors in the form of required amount of prepayments and degree of completeness increases the costs of making transactions and lowers economic efficiency. All these factors could impede possibilities for a country's economic growth. A proper understanding of the role of trust could be important, especially to creating the adequate institutional environment in Georgia. For instance, amongst the countries in transition, Georgia experienced the highest percentage of cumulative output decline (78%) and had the lowest level of real GDP in 2000 as compared to 1990 (29%) (World Bank, 2002). Among the reasons that hampered the achievement of economic prosperity in Georgia, lack of formal as well as informal market institutions, which could lower transaction costs and promote specialization and cooperation between economic agents, does stand out. Even in developed countries saturated with reliable enforcement institutions, trust-based norms are often cheap and effective substitute for law and other formal arrangements. In the poor institutional environment of transition economies, where non-payment and deterioration of property rights become widespread, developing of trust-based norms can give rise to efficient property rights favorable for specialization and collective actions thereby facilitating economic growth in the country.

Thus the major policy recommendation of the study is the encouragement of trust between manufacturers and distributors through promotion of networks. However, one should realize that inner networks could potentially limit business relations between producers and distributors only to networks comprised of friends and relatives, while outer networks broaden such opportunities to a wider number of independent distributors recommended by business associations and government agencies. We found that outer networks substantially lower the probability of vertical integration as well as the amount of required prepayment and level of contract completeness, thus reducing transaction costs and enhancing efficiency of market mechanisms. Therefore, the government policy must be focused on the outer networks through promotion of business associations and widening of government agencies' involvement in supporting establishment of relations between producers and distributors. This can reduce transaction cost, facilitate economic exchange and in the long run help economic growth.

We presume that further research must employ cross-national study and should be focused on the understanding of mechanisms that generate extended trust and on the study of its contribution to lowering transaction costs and facilitating economic exchange between companies. This problem is very important, particularly in the context of development of transition economies.

APPENDICES

A1. Tables

Table 1. Regional Distribution of Sampled Enterprises

City	Frequency	Percentage
Tbilisi	201	66.7
Rustavi	30	10.0
Kutaisi	50	16.6
Gori	20	6.7
Total	301	100

Table 2. Distribution of Sampled Enterprises by Industry

	Kind of Economic Activity	Frequency	Percentage
1	Manufacture of food products and beverages, and tobacco products	168	55.8
2	Manufacture of tobacco	1	0.3
3	Manufacture of textiles	2	0.7
4	Manufacture of wearing apparel and dyeing of fur	11	3.7
5	Manufacture of leather products and footwear	10	3.3
6	Manufacture of wood and products of wood, except furniture	6	2.0
7	Manufacture of furniture	19	6.3
8	Manufacture of pulp, paper and paper products	5	1.7
9	Manufacture of machinery and equipment	10	3.3
10	Manufacture of rubber and plastic products	7	2.3
11	Publishing and printing	23	7.6
12	Manufacture of fabricated metals, excluding machinery and equipment	3	1.0
13	Manufacture of chemicals and chemical products	8	2.7
14	Other manufacturing	28	9.3
	Total	301	100.0

Table 3. Distribution of Sampled Enterprises by size (number of personnel, except sales staff)

	Type of enterprise	Frequency	Percentage
1	Small enterprises (under 50 employees)	248	83.5
2	Medium enterprises (51–200 employees)	38	12.8
3	Large enterprises (over 200 employees)	11	3.7
	Total (four cases are system missing)	297	100

Table 4. KMO and Bartlett's Test (Asset specificity)

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		0.787
Bartlett's Test of Sphericity	Approx. Chi-Square	371.864
	Degrees of freedom	6
	Significance	0.001

Table 5. Communalities (Asset specificity)

	Initial	Extraction
Nature of the company	1.000	0.653
Confidentiality of information	1.000	0.622
Nature of the customer	1.000	0.708
Customer loyalty	1.000	0.540

Table 6. Total Variance Explained (Asset specificity)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percentage of Variance	Cumulative Percentage	Total	Percentage of Variance	Cumulative Percentage
1	2.523	63.068	63.068	2.523	63.068	63.068
2	0.586	14.646	77.714			
3	0.513	12.825	90.539			
4	0.378	9.461	100.000			

Table 7. Component Matrix (Asset specificity)

	Component 1
Nature of the company	0.808
Confidentiality of information	0.789
Nature of the customer	0.841
Customer loyalty	–0.735

Table 8. Communalities for Validation Analysis (Asset specificity)

	Sample 1		Sample 2	
	Initial	Extraction	Initial	Extraction
Nature of the company	1.000	0.626	1.000	0.678
Confidentiality of information	1.000	0.572	1.000	0.667
Nature of the customer	1.000	0.710	1.000	0.710
Customer loyalty	1.000	0.505	1.000	0.568

Table 9. Component Matrix for Validation Analysis (Asset specificity)

	Sample 1	Sample 2
	Component 1	Component 1
Nature of the company	0.792	0.823
Confidentiality of information	0.756	0.817
Nature of the customer	0.843	0.843
Customer loyalty	–0.711	–0.754

Table 10. Reliability Analysis (Asset specificity)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item – Total Correlation	Alpha if Item Deleted
Nature of the company	13.8837	24.8964	0.6351	0.7465
Confidentiality of information	13.4120	25.4897	0.6105	0.7586
Nature of the customer	14.2259	24.9488	0.6844	0.7225
Customer loyalty (reversed)	12.9568	27.8348	0.5471	0.7873
Chronbach's Alpha				0.8040

Table 11. Correlation matrix for network trust variables

		Family	Friends	Former colleagues	Current distributors	Government agencies	Business associations
Family	Pearson Correlation	**1.000**	0.755**	0.288**	0.153**	0.009	0.045
	Sig. (2-tailed)		0.000	0.000	0.008	0.874	0.436
	N	301	300	300	300	301	300
Friends	Pearson Correlation	0.755**	**1.000**	0.449**	0.166**	0.087	0.053
	Sig. (2-tailed)	0.000		0.000	0.004	0.132	0.357
	N	300	300	299	299	300	299
Former colleagues	Pearson Correlation	0.288**	0.449**	**1.000**	0.369**	0.232**	0.198**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.001
	N	300	299	300	300	300	299
Current distributors	Pearson Correlation	0.153**	0.166**	0.369**	**1.000**	0.453**	0.464**
	Sig. (2-tailed)	0.008	0.004	0.000		0.000	0.000
	N	300	299	300	300	300	299

		Family	Friends	Former colleagues	Current distributors	Government agencies	Business associations
Government agencies	Pearson Correlation	0.009	0.087	0.232**	0.453**	**1.000**	0.816**
	Sig. (2-tailed)	0.874	0.132	0.000	0.000		0.000
	N	301	300	300	300	301	300
Business associations	Pearson Correlation	0.045	0.053	0.198**	0.464**	0.816**	**1.000**
	Sig. (2-tailed)	0.436	0.357	0.001	0.000	0.000	
	N	300	299	299	299	300	300

** — Correlation is significant at the 0.01 level (2-tailed).

Table 12. KMO and Bartlett's Test (Network trust 1-st Iteration)

Kaiser–Meyer–Olkin Measure of Sampling Adequacy		0.610
Bartlett's Test of Sphericity	Approx. Chi-Square	783.401
	Degrees of freedom	15
	Significance	0.000

Table 13. Communalities (Network trust first Iteration)

	Initial	Extraction
Family	1.000	0.786
Friends	1.000	0.854
Former colleagues	1.000	0.481
Current distributors	1.000	0.547
Government agencies	1.000	0.819
Business associations	1.000	0.827

Table 14. Communalities (Network trust second Iteration)

	Initial	Extraction
Family	1.000	0.885
Friends	1.000	0.879
Current distributors	1.000	0.833
Government agencies	1.000	0.840
Business associations	1.000	0.840

Table 15. Total Variance Explained (Network trust second Iteration)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	Percentage of Variance	Cumulative Percentage	Total	Percentage of Variance	Cumulative Percentage
1	2.291	45.810	45.810	2.291	45.810	45.810
2	1.715	34.296	80.107	1.715	34.296	80.107
3	0.584	11.672	91.779			
4	0.233	4.655	96.434			
5	0.178	3.566	100.000			

Table 16. Rotated Component Matrix (Network trust second Iteration)

	Component 1	Component 2
Family	4.676×10^{-2}	0.940
Friends	5.985×10^{-2}	0.936
Current distributors	0.725	0.188
Government agencies	0.916	-2.073×10^{-2}
Business associations	0.916	-1.997×10^{-2}

Table 17. Communalities for Validation Analysis (Network trust second Iteration)

	Sample 1		Sample 2	
	Initial	Extraction	Initial	Extraction
Family	1.000	0.878	1.000	0.893
Friends	1.000	0.865	1.000	0.892
Current distributors	1.000	0.537	1.000	0.583
Government agencies	1.000	0.853	1.000	0.832
Business associations	1.000	0.818	1.000	0.865

Table 18. Component Matrix for Validation Analysis (Network trust second Iteration)

	Sample 1		Sample 2	
	Component 1	Component 2	Component 1	Component 2
Family	5.101×10^{-2}	0.935	4.020×10^{-2}	0.944
Friends	0.107	0.924	2.193×10^{-2}	0.944
Current distributors	0.700	0.217	0.745	0.166
Government agencies	0.923	3.863×10^{-2}	0.909	-7.327×10^{-2}
Business associations	0.904	-2.778×10^{-2}	0.930	-1.388×10^{-2}

Table 19. Reliability Analysis (Network trust second Iteration)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item – Total Correlation	Alpha if Item Deleted
First component				
Current distributors	7.7759	4.0872	0.5068	0.8974
Government agencies	7.3244	3.5219	0.7507	0.6513
Business associations	7.3278	3.4157	0.7483	0.6502
Chronbach's Alpha				0.8120
Second component				
Family	2.9733	1.2568	0.7553	.
Friends	2.9633	1.4201	0.7553	.
Chronbach's Alpha				0.8597

Table 20. Logit Model Results. Dependent variable: Choice of Governance Mode

		Model 1	Model 2	Model 3
Parameter Estimates				
Intercept		7.662	9.264	8.008
TCE variables				
AS	Asset Specificity	1.1785***	1.2089***	1.1315***
U	Uncertainty	0.5664***	0. 6243***	0.6065***
S	Size	–0.5039***	–0.4962***	–0.4070**
Trust Variables				
G_T	General Trust	0.0348	0.0046	0.0144
CC	Confidence in courts	0.0492	0.0852	0.0372
IN	Inner Networks	–1.4129***	–1.3625***	–1. 2405***
ON	Outer Networks	–1.2842***	–	–
GA	Government agencies	–	–0.9755***	–
BA	Business associations	–	–	–0.6611***
Control Variables				
*Ind*1	Manufacture of food products, beverages and tobacco products	1.8966**	1.7267**	1.7054**
*Ind*2	Manufacture of textiles and wearing apparel	10.1624	10.0078	8.5486
*Ind*3	Manufacture of leather products and footwear	0.1281	0.2382	0.2452
*Ind*4	Manufacture of wood products	9.2827	8.9317	7.8954
*Ind*5	Manufacture of furniture	1.8892	1.8708	1.3086
*Ind*6	Manufacture of pulp, paper and paper products	9.4702	10.1168	8.7722

		Model 1	Model 2	Model 3
*Ind*7	Manufacture of machinery, equipment and fabricated metals	–1.8711	–1.7043	–1.5078
*Ind*8	Manufacture of rubber and plastic products	–1.2470	–1.3949	–1.5548
*Ind*9	Publishing and printing	–0.8726	–1.0923	–1.2314
*Ind*10	Manufacture of chemicals	1.9465	1.6255	1.5535
O_R (1)	Originally private firm	–8.0155	–7.8182	–7.3699
O_R (2)	Privatized state-owned enterprises	–7.1521	–7.1007	–6.7557
O_R (3)	State-owned enterprise	–7.3327	–7.4172	–6.4784
Goodness-of-Fit				
–2 Log Likelihood		117.354	124.768	134.492
Goodness-of-Fit		444.429	371.151	533.951
Cox & Snell — R^2		0.458	0.442	0.420
Nagelkerke — R^2		0.695	0.671	0.638
		Chi-square; df; (sign)		
Model		155.56; 20 (0.000)	148.18; 20 (0.000)	138.44; 20 0(.000)
Block		155.56; 20 (0.000)	148.18; 20 (0.000)	138.44; 20 (0.000)
Step		155.56; 20 (0.000)	148.18; 20 (0.000)	138.44; 20 (0.000)
Overall Percentage of Correct Predictions		90.16%	90.55%	90.16%
Sample Size				
Total number of cases		301	301	301
Number of cases included in the analysis		254	254	254

*** — significant at $p < 0.01$ level; ** — significant at $p < 0.05$ level; * — significant at $p < 0.1$ level.

Table 21. Results of the first stage of estimation for 2SCML Probit model (OLS Reduced form coefficients for endogenous variables). Dependent variables

		Confidence in courts (*CC*)	Inner Networks (*IN*)	Outer Networks (*ON*)
Intercept		1.398	–2.192***	0.158
Independent variables				
AS	Asset Specificity	–0.029	0.386	–0.147**
U	Uncertainty	–0.065	0.016	–0.102***
S	Size	0.066	–0.061	–0.001
G_T	General Trust	–0.053	0.012	–0.064

		Confidence in courts (*CC*)	Inner Networks (*IN*)	Outer Networks (*ON*)
Control Variables				
*Ind*1	Manufacture of food products, beverages and tobacco products	–0.468	0.091	0.431**
*Ind*2	Manufacture of textiles and wearing apparel	–0.090	0.305	0.694**
*Ind*3	Manufacture of leather products and footwear	–0.817	–0.639	–0.015
*Ind*4	Manufacture of wood products	0.876	0.624	1.372***
*Ind*5	Manufacture of furniture	–0.355	0.123	0.027
*Ind*6	Manufacture of pulp, paper and paper products	–2.335**	–0.442	–1.044*
*Ind*7	Manufacture of machinery, equipment and fabricated metals	–0.842	0.327	0.253
*Ind*8	Manufacture of rubber and plastic products	–1.284	–0.009	0.385
*Ind*9	Publishing and printing	–0.468	0.217	0.486*
*Ind*10	Manufacture of chemicals	–0.256	0.183	–0.011
*O_R_*1	New private firms	0.979	0.401	–0.879
*O_R_*2	Privatized firms	0.575	0.529	–0.761
*O_R_*3	State-owned enterprises	6.376***	0.133	0.052
Instrument variables (Excluded from structural equations)				
CCE	Confidence in courts at earlier point in time	0.868***	0.020	0.024
PCIN	Possibility for manufacturer to create an inner network	–0.196***	0.435***	–0.001
PCON	Possibility for manufacturer to create an outer network	0.068	–0.043	–0.329***
R^2		0.613	0.620	0.519
Adjusted R^2		0.559	0.569	0.452
F-statistic (*p*-values in the brackets)		11.25 (0.000)	11.71 (0.000)	7.72 (0.000)
F-statistic for excluded variables (*p*-values in the brackets)		62.99 (0.000)	67.97 (0.000)	28.84 (0.000)
Number of observations		163	164	164

*** — significant at $p < 0.01$ level; ** — significant at $p < 0.05$ level; * — significant at $p < 0.1$ level.

Table 22. Results of the second stage of estimation for 2SCML Probit model (Probit analysis)

		Model 1	Model 2
Intercept		4.730***	5.629***
Independent variables			
AS	Asset Specificity	0.784***	0.606***
U	Uncertainty	0.391***	0.285***
S	Size	–0.386***	–0.281***
ON	Outer Networks	–1.010***	–0.706***
IN	Inner Networks	–0.930***	–0.720***
CC	Confidence in courts	–0.071	0.019
G_T	General Trust	0.105	0.012
Control Variables			
*Ind*1	Manufacture of food products, beverages and tobacco products	0.583	0.834**
*Ind*2	Manufacture of textiles and wearing apparel	7.089	7.515
*Ind*3	Manufacture of leather products and footwear	3.983	–0.079
*Ind*4	Manufacture of wood products	4.939	6.037
*Ind*5	Manufacture of furniture	–0.577	0.889
*Ind*6	Manufacture of pulp, paper and paper products	5.796	6.107
*Ind*7	Manufacture of machinery, equipment and fabricated metals	–1.576	–1.066
*Ind*8	Manufacture of rubber and plastic products	–1.396	–0.802
*Ind*9	Publishing and printing	–1.662**	–0.611
*Ind*10	Manufacture of chemicals	–0.546	0.890
*O_R*_1	New private firms	–4.551***	–5.523***
*O_R*_2	Privatized firms	–4.342	–5.016
*O_R*_3	State-owned enterprises	1.063	–5.127
Endogeneity control			
RES_*CC*	Confidence in courts residual	0.115	–
RES_IN	Inner network residual	0.545	–
RES_ON	Outer network residual	0.433	–
Pseudo R^2		0.608	0.561
LR Chi-Sq. (degrees of freedom)		108.79 (23)	153.19 (20)
p-value		0.000	0.000
Input records		194	301
Records kept for analysis		162	254
Cases excluded due to missing data		32	47

*** — significant at $p < 0.01$ level; ** — significant at $p < 0.05$ level; * — significant at $p < 0.1$ level.

Table 23. Descriptive statistics for amount of prepayment

Amount of prepayment	Frequency	Percentage	Cumulative percentage
0	62	62	62
4	1	1	63
5	1	1	64
10	2	2	66
15	1	1	67
20	3	3	70
30	2	2	72
40	3	3	75
50	10	10	85
60	1	1	86
70	1	1	87
75	1	1	88
80	1	1	89
100	11	11	100
Total	100	100	–

Table 24. Descriptive statistics for the term of contract in months

Term of contract in months	Frequency	Percentage	Cumulative percentage
No Contract	18	17.8	17.8
6	3	3	20.8
11	1	1	21.8
12	69	68.3	90.1
24	5	4.9	95
36	1	1	96
48	2	2	98
60	1	1	99
Term less	1	1	100
Total	101	100	-

Table 25. Descriptive statistics for length of contract in numbers of pages

Length of contract in numbers of pages	Frequency	Percentage	Cumulative percentage
No Contract	18	17.8	17.8
1	26	25.7	43.5
2	32	31.7	75.2
3	12	11.8	87
4	3	3	90
5	5	5	95
7	2	2	97
8	1	1	98
10	1	1	99
12	1	1	100
Total	101	100	-

Table 26. SUR and Tobit Results

		SUR 1	SUR 2	SUR 3	Tobit 1	Tobit 2	Tobit 3
Dependent variable: Prepayment (*PP*)							
AS	Asset Specificity	4.203	4.354	3.336	10.279	10.741	7.718
U	Uncertainty	4.517**	4.461**	4.873**	10.101**	10.032**	10.377**
G_T	General Trust	–0.216	–0.205	–0.590	1.206	1.322	0.448
CC	Confidence in courts	–1.982	–2.064	–1.633	–5.116	–5.412	–4.282
IN	Inner Networks	–9.830***	–10.596***	–9.482***	–18.039***	–20.419***	–17.330***
ON	Outer Networks	–12.025***	–	–	–19.632***	–	–
GA	Government agencies	–	–11.158***	–	–	–20.239***	–
BA	Business associations	–	–	–12.729***	–	–	–21.976***
HBR	History of business relation	1.192	1.130	0.852	3.583	3.729	3.219
MP	Market Power	11.451	10.958	13.642*	24.082	24.101	27.490*
Aux	Auxiliary function	–14.431*	–12.993	–10.756	–30.359*	–29.385*	–23.281
	Intercept	17.312	40.374**	38.918**	–33.805	7.925	4.558
	RMSE	29.243	29.2416	28.4577	–	–	–
	R^2	0.3456	0.3457	0.3803	–	–	–
	Pseudo R^2	–	–	–	0.069	0.072	0.076
	Chi-sq. (*p*-value)	42.7845 (0.0000)	42. 7986 (0.0000)	49.7124 (0.0000)	–	–	–
	LR Chi-sq. (*p*-value)	–	–	–	32.66 (0.0002)	34.34 (0.0001)	36.25 (0.0000)
	Observations	81	81	81	81	81	81

		SUR 1	SUR 2	SUR 3	Tobit 1	Tobit 2	Tobit 3
Dependent variable: Completeness (*COMPL*)							
AS	Asset Specificity	–0.142	–0.121	–0.126	–0.118	–0.097	–0.100
U	Uncertainty	0.136	0.134	0.169	0.203	0.198	0.237
G_T	General Trust	–0.110	–0.109	–0.132	–0.156	–0.154	–0.178
CC	Confidence in courts	0.058	0.051	0.067	0.122	0.112	0.123
IN	Inner Networks	–0.377*	–0.426**	–0.321	–0.425*	–0.497*	–0.368
ON	Outer Networks	–0.901***	–	–	–1.052***	–	–
GA	Government agencies	–	0.804 ***	–	–	–0.944***	–
BA	Business associations	–	–	–0.699***	–	–	–0.826***
HBR	History of business relation	–0.030	–0.035	–0.051	0.018	0.011	–0.007
MP	Market Power	–0.707	–0.739	–0.563	–0.653	–0.657	–0.489
Aux	Auxiliary function	–0.894*	–0.785	–0.653	–1.172*	–1.072	–0.862
	Intercept	3.823***	5.459***	4.834***	3.238**	5.137***	4.487***
	RMSE	1.9125	1.9260	1.9591	–	–	–
	R^2	0.2179	0.2068	0.1793	–	–	–
	Pseudo R^2	–	–	–	0.057	0.054	0.048
	Chi-sq. (*p*-value)	22.5682 (0.0072)	21.221 (0.0121)	17.6982 (0.0388)	–	–	–
	LR Chi-sq. (*p*-value)	–	–	–	19.96 (0.0182)	18.95 (0.0256)	16.77 (0.0524)
	Observations	81	81	81	83	83	83

*** — significant at $p < 0.01$ level; ** — significant at $p < 0.05$ level; * — significant at $p < 0.1$ level.

A2. Figures

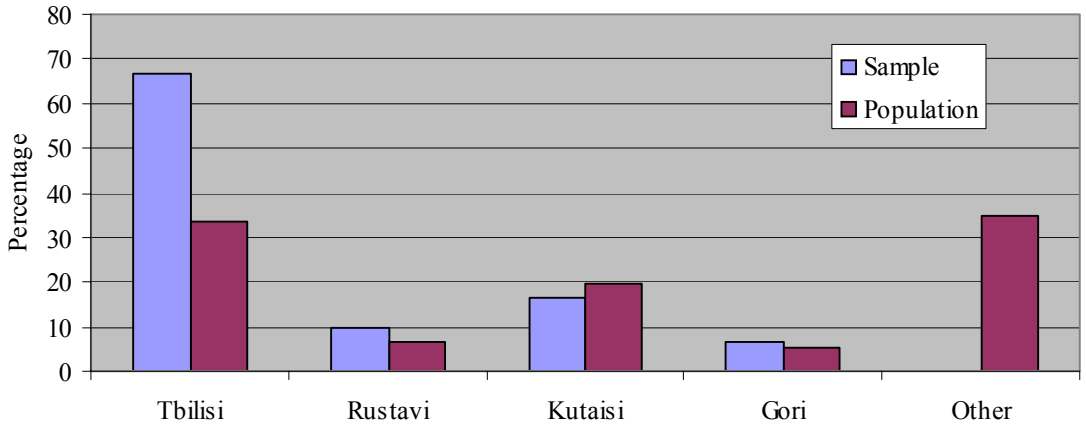

Fig. 1. Regional Distribution of Firms

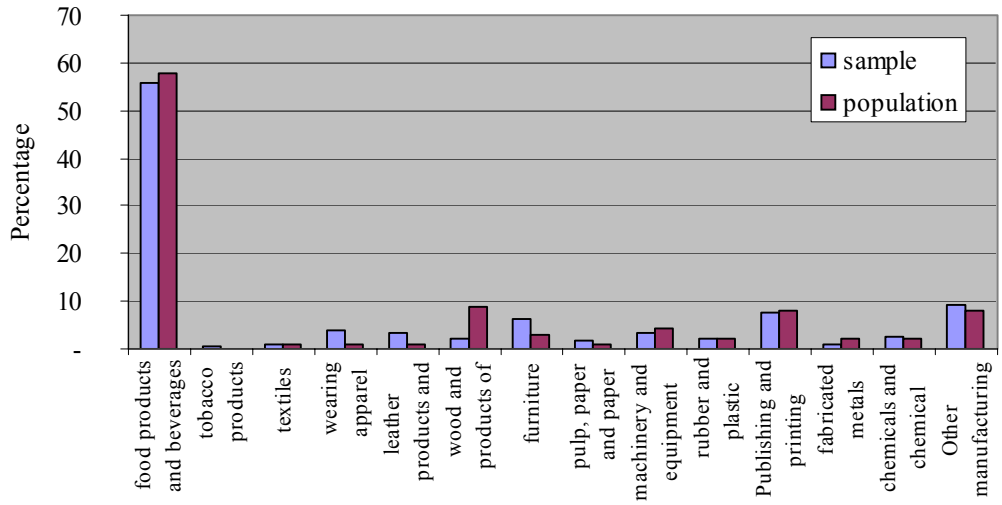

Fig. 2. Distribution of Firms by Industry

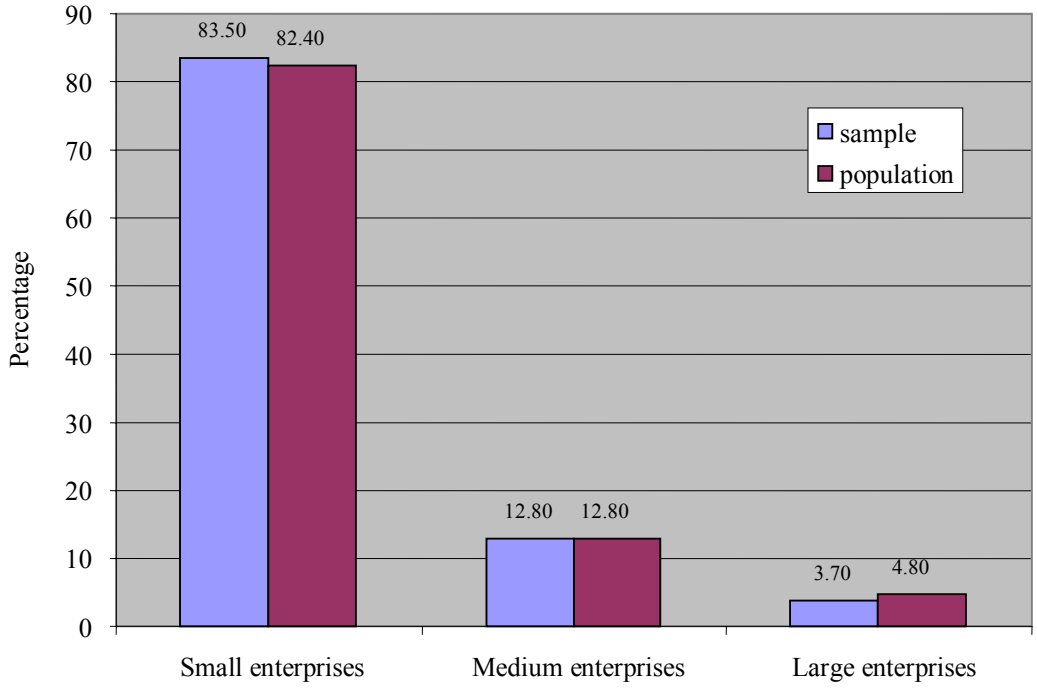

Fig. 3. Distribution of Firms by Size

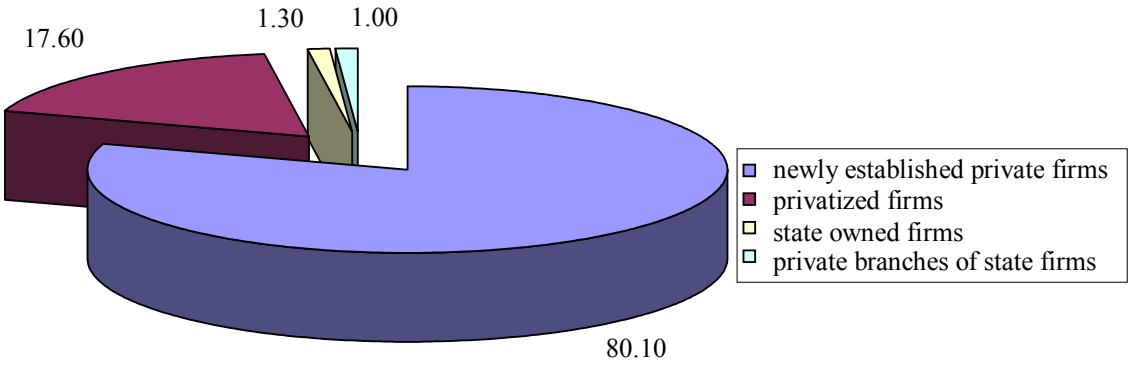

Fig. 4. Distribution of Firms by Ownership Type

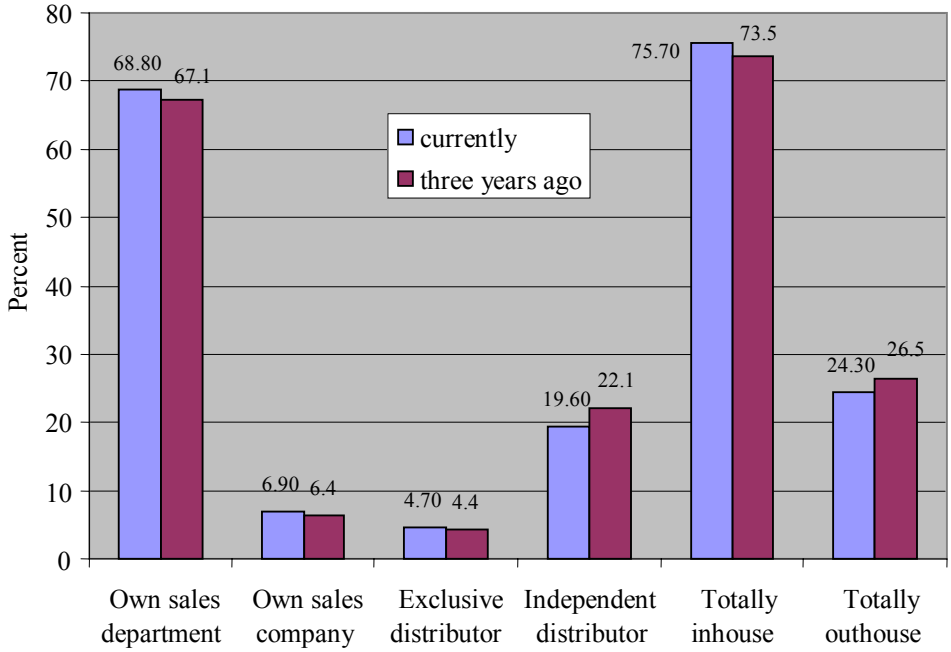

Fig. 5. Forms of Distribution Organization

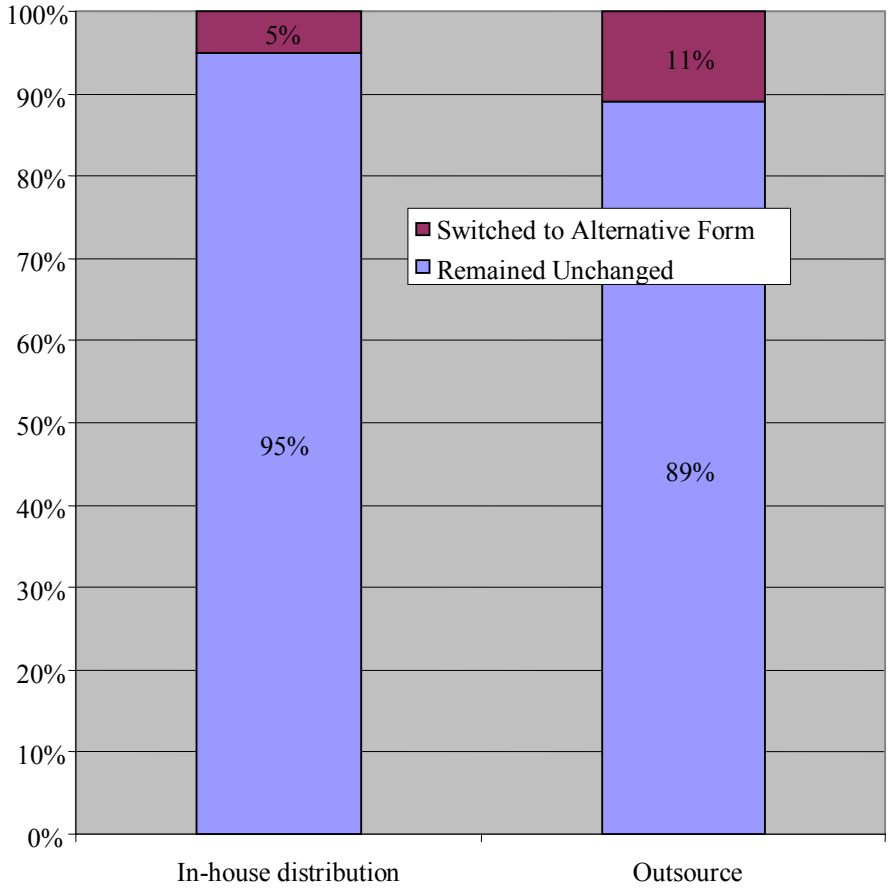

Figure 6. Switching Patterns of Distribution Organization Form (Situation 3 years ago)

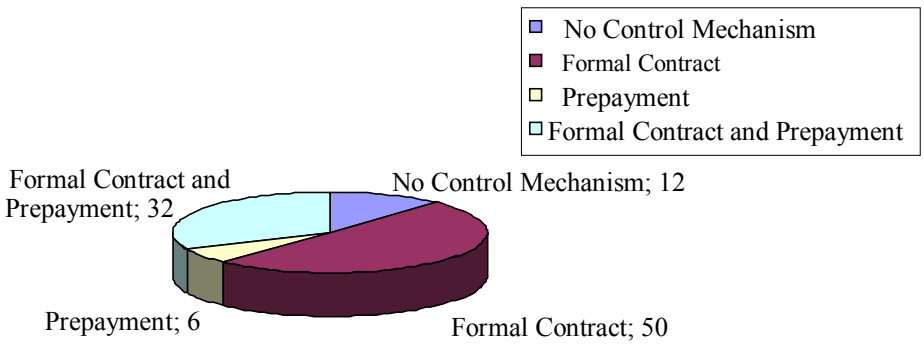

Fig. 7. Types of Control Mechanisms Used by Manufacturers

A3. Questionnaire

(Please answer the following questions as to your firm's largest distributor in terms of sales in 2005)

1. Dependent variables

1.1. Please indicate how your company arranges its distribution function (check one of the alternatives)[6]:

- □ Through its own sales personnel
- □ Through Its own sales company
- □ Through exclusive dealers
- □ Through franchise
- □ Through independent distributors

1.2. If your company arranges distribution through independent distributors, please answer the following questions:

1.2.1. Please indicate the amount of prepayment (in percentage terms) that your company requires from its distributors.

1.2.2. How many pages does a formal contract that governs your firm's relationships with your customers have?

2. Independent variables

2.1. Asset Specificity Measures (*AS*)

The statements below describe the asset specificity of transaction. Please indicate the extent to which the following statement describes your perception:

[6] Only the first two options refer to a hierarchical governance mode.

2.1.1. It is difficult to learn all the ins and outs of our company that a salesperson needs to know to be effective.

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.1.2. An experienced salesperson's inside information could do us a lot of damage if it got out.

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.1.3. To be effective, a salesperson has to take a lot of time to get to know our accounts.

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.1.4. Personal relationships between our salespeople and accounts have little influence on sales of our product line[7].

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.2. Uncertainty Measure (*U*)

The statement below describes uncertainty caused by the difficulty of measuring the results of individual salesperson equitably.

"It is very difficult to measure equitably the results of individual salesperson".

Please indicate the extent to which the statement describes your perception:

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.3. Company Size (*S*)

Please indicate your company's staff size in 2005 (Excluding sales department staff).

[7] Greater loyalty is measured as disagreement with the statement

2.4. Network trust (*NT*)[8]

How important are the following as potential sources of information about new distributors of your firm:

Sources of information	Extremely important	Very important	Fairly important	Not very important	Not important	Do not know
2.5.1. Family	1	2	3	4	5	6
2.5.2. Friends	1	2	3	4	5	6
2.5.3. Prior employment of potential distributor	1	2	3	4	5	6
2.5.4. Existing distributors	1	2	3	4	5	6
2.5.5. Government agencies	1	2	3	4	5	6
2.5.6. Business associations	1	2	3	4	5	6

2.5. General Trust (*GT*)

Please indicate the extent to which the following statement describes your perception: "Most of the people can be trusted"[9].

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

2.6. Confidence in court (*CC*)

Please indicate the extent to which the following statement describes your perception: "I am confident that the legal system will uphold my contract and property rights in business disputes."

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

3. Instrumental variables

3.1. Confidence in courts at earlier point in time (*CCE*)

To what degree would you have agreed with the previous statement 3 years ago?

[8] *Don't know items* in this and all other questions are treated as missing values in further analysis.

[9] Adapted from World Values Survey (www.worldvaluessurvey.org)

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

3.2. Possibility for manufacturer to create an inner network (*PCIN*)[10]

By the moment of making decision on the organization of distribution function at our company, we had a possibility to organize this function through companies owned by our relatives or friends.

Please indicate the extent to which the above statement describes your perception:

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

3.3. Possibility for manufacturer to create an outer network (*PCON*)

By the moment of making decision on the organization of distribution function at our company, we had a possibility to organize this function through companies recommended by business associations and governmental agencies.

Please indicate your extent of agreement about how well the statement describes your perception:

Strongly Disagree						**Strongly Agree**
1	**2**	**3**	**4**	**5**	**6**	**7**

4. Control variables

4.1. Auxiliary function (*Aux*)

Is outsource form of distribution used by your company the main form of distribution?

Yes No

4.2. Market power (*MP*).

How many alternative sources of supplying are available to your distributor?

4.3. Origin of the firm (*OR*).

How was your firm established[11]?

[10] Questions 3.2 and 3.3 were asked in about six months after the main survey had been conducted.

[11] This as well as the following two questions are adapted from World Business Environment Survey (www.worldbank.org)

Originally private, from the start up (no state-owned predecessor in the Soviet period)

Yes No

Privatization of state-owned firm

Yes No

State-owned enterprise

Yes No

Private subsidiary of state-owned enterprise

Yes No

4.4. History of business relationship (*HBR*)

How long has your company sold products in this product line to this distributor?

1 year 2 years 3 years 4 years 5–10 years 11–20 years over 20 years

4.5. Industry type (*In*)

How would you best describe your company's industry type?

Manufacture of food products and beverages	1
Manufacture of tobacco products	2
Manufacture of textiles	3
Manufacture of wearing apparel	4
Manufacture of leather products and footwear	5
Manufacture of wood and wood products	6
Manufacture of furniture	7
Manufacture of paper products	8
Manufacture of machinery and equipment	9
Other	10

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