

MAKING AND ACTING UPON
TRUSTWORTHINESS ASSESSMENTS
IN BUYER-SUPPLIER RELATIONS

by
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in buyer - supplier relations**

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Working Paper
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assessments in buyer - supplier relations**

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Abstract:

This paper seeks to answer the call for more empirical research into the effects of trust in buyer-supplier relations. Using qualitative, survey and accounting data collected during a 2 year research project with a medium-sized German electrical component manufacturing firm, I explore what drives positive trust assessments on both sides of the firm's customer and supplier relations, as well as how the firm's sales team members and their customers define trust and understand its formation and impact. In this paper I also directly examine how the sales team members' positive assessments of customer trustworthiness independently acts to reduce the prices charged to those customers.

"It is too easy to call one form of exchange economic, and another social.

In real life, all types are both economic and social."

(Braudel 1985:227)

Introduction

The last decade has witnessed an explosion in research and literature on the importance of trust in economic exchange relations. Growing literatures on interfirm alliances, joint ventures and industrial districts all spotlight trust as playing a central role in the forming and maintaining of close trading relations (Gambetta 1988; Gerlach 1992; Kramer and Tyler 1996; Sabel 1993). These close relations facilitated by trust between economic actors are argued to reduce transaction costs (Sako 1992; Barney and Hansen 1994), facilitate mutually beneficial investments (Asanuma 1989; Dyer 1996), and improve coordination between firms (Fruin 1992; Nishiguchi 1994). Strategy researchers have gone perhaps farthest by suggesting that trust can be an important source of competitive advantage (Dyer and Ouchi 1993; Barney and Hansen 1994; Dyer 1996). Indeed, it has even been suggested that international differences in productivity and efficiency are related to differences in institutional trust between specific national cultures (Fukuyama 1995; Hill 1995; North 1990). These studies as well as a vast number of articles in the popular business press have called upon firms to learn from these examples and work to build closer, more trusting relations with their customers and suppliers. To assist firms in the formation of trusting relations as well as to help them understand why they should be extending themselves in the effort, these researchers have sent out the call for more research into the causes and effects of trust in interfirm relations.

However, as Oliver Williamson (1993) has noted, trust is a word with many meanings and uses in current research on organizations. As a new institutional economist who is critical of, but works within, the dominant economic model, Williamson maintains that trust is best understood as the result of contractual and legal safeguards, as well as credible threats such as the withdrawal of future business, which hem in opportunistic behavior. The resulting trust one has of one's trading partners is a calculative or contractual trust; actor A trusts that actor B will act in actor B's best interests, and due to the existence of counter-

balancing negative sanctions, not attempt to take advantage of actor A's vulnerability (Hill 1990; Williamson 1983, 1993).

In contrast to Williamson's "calculative trust," Charles Sabel argues that trust is the "mutual confidence," held by actors that especially in the absence of rational self-interested grounds, "no party to an exchange will exploit the other's vulnerability..." (1993, p. 1133) This definition has been called "goodwill" or "relational trust," to distinguish it from process-based trust (Zucker 1986; Zaheer and Venkatraman 1995), competence trust (Sako 1992), institutional trust (Arrow 1974), and of course, calculative trust (Williamson 1993). Sabel is concerned with understanding trust as a symmetric aspect of relations and in exploring how this mutual trust affects the economic activity the exchange partners conduct, by for example enabling transactions which would be prohibited in the absence of mutual trust.

Contrary to what Sabel suggests, I see no reason why trust has to be mutual. What is interesting to me is how social ties help trust to form and how this trust in turn affects and thus predicts the behavior of actors in the market. Thus what is important for my research is the subjectively held belief that actors have about the trustworthiness of others. In this I hold Sabel's general definition with a small refinement; I define trust as the degree of confidence which actor A has of actor B, that actor B will not exploit the vulnerabilities of actor A. And I argue that this confidence on the part of actor A has concrete benefits for actor B in the form of preferential treatment. If people trust you, it positively affects the way they treat you (Frank 1988). This is the power of trust. To quote the cartoon character Dogbert, "Trust is an excellent quality for other people to have."¹

Among scholars of organizations there are substantial differences of opinion as to the impact of trust on economic exchange. For researchers working in the rational choice framework, the problem with trust as a basis for action is that the trustworthiness of a trading partner is difficult to establish with any meaningful degree of accuracy. Likewise they argue, trust is a very difficult variable to operationalize. In the absence of reliable measures of trust, contractual and legal safeguards (governance structures) have been suggested as the rational response to the predictable self-seeking and deceptive behavior of trading partners (Arrow 1974, Williamson 1985). Researchers utilizing a sociological or a

¹ Dogbert is a character in Scott Adams' comic strip, Dilbert © 1996 United Features Syndicate, Inc. (NYC). This quote comes from a strip dated 9-9-96.

psychological approach have directly attacked this model of economic man, the rational self-seeking and inherently untrustworthy individual. These researchers have argued that this overly calculative, rationally self-interested model of human behavior leads to over-investment in governance structures and even that it is morally suspect (Granovetter 1985, 1992; Etzioni, 1988; Donaldson, 1990; Donaldson and Davis, 1991; Mahoney, Huff and Huff, 1993). Granovetter argues simply that people exhibit non-self-interested behavior in their exchange relations much more frequently than would be suggested by a purely rational model, and what we should be turning our attention to is *how* economic actors are affected by the structures of social relations in which they are embedded.

As I see it, one way to study the effects of structural embeddedness and the effects of trust in the marketplace is to look first at the formation of trust between trading partners, and follow that by modeling trust as a source of competitive advantage. If it can be shown that the trust buyers and suppliers develop for each other reduces their use of costly governance structures, (rather than requiring such structures,) and that these relations have a measurable impact on supplier selection and price formation, this would be a significant step forward. In this effort it is essential that the actors themselves are interviewed, to explore how they understand trust, and what if any role they see trust playing in their relations.

In my research I am exploring the links between social structure and economic behavior in buyer-supplier relations. In my research design, social structure is evidenced through the personal relations maintained between employees in customer (buyer) firms and employees in selling (supplier) firms. I theorize that these ties are actively constituted by people embedded in social relations which shape their roles and behavior, and I hypothesize that these ties have an independent effect on economic activity. Specifically, I argue that these personal relations which constitute the organizational ties between buyer and supplier firms are the basis of trust between those actors and between their firms. Furthermore, independent of other economic effects, I argue that this trust affects supplier selection and "make or buy" decisions on the buyer's side of the relation, and price formation on the supplier's side of the relation. By showing that trust can have the ability to reduce the need for costly governance structures, and have an independent effect on price formation, I aim to show that trust can be a source of competitive advantage.

In sum, my research goals with this line of inquiry are to explore: 1.) how the type and nature of ties between firms affects the formation of trust between those firms; 2.) how trust affects a range of firm behaviors, specifically trust's impact on price formation; 3.) the extent to which trusting relations are purposively created and manipulated by firm managers; and 4.) how trust and its impact on economic behavior are understood by firm managers. In this way I hope to add to our understanding of the causes and effects of trust in buyer-supplier relations. This is the agenda to which my research is dedicated. In this paper I focus specifically on point number (2) above, and explore the impact a salesman's assessment of the trustworthiness of his/her customers has on the prices charged to those customers.

Sociology of organizations

For sociologists, economic transactions, whether between individuals or firms, are human interactions involving people located in structures of social relations. However, in neoclassical economic literature these relations are most often theorized as market transactions, governed by rules of rationality and maximization. In terms of influence, networks of economic actors engaged in repetitive economic transactions are seen as disconnected groups of atomistic actors. However, in terms of information flows, these same actors are seen as a complete network of fully connected actors with no variation in connectivity with equal access to untainted and complete information. This continues in spite of the fact that network ties and information asymmetries have been shown to affect a wide range of individual behaviors.²

In recent years, new institutional economics has emerged as one attempt by economists to place the interpersonal human relations squarely into the rather lifeless economic model. By considering that actors engaged in economic transactions often come into repeated personal contact, theorists such as Oliver Williamson have inserted a feedback loop into the neoclassical model in which producers and consumers begin to tailor their behavior, products, and needs to fit their relations. This feedback loop has serious implications for the market as theorized in neoclassical economic theory. For how can we assume perfect competition, even as a theory, if we have customers and suppliers making investments in

² See Mizruchi 1994 for a review of literature on network affects.

specific trading relations, in effect erecting trade barriers which gum up the market mechanism? However, one problem that the new institutional economics shares with neoclassical theory is that both approaches, when they talk about social structure at all, conceptualize it as an *effect* of economic transactions.³ In contrast, organizational research in resource dependence, institutional theory, and network analysis has argued the reverse, that the social structure of relations between actors has an active role in the shaping of economic activity. This difference is due in part to the assumption that sociologists make that the preference curves of actors are not fixed and exogenous, and economic behavior is guided by more than a individual level drive for profit maximization. Economic actors are driven by desires more complex than short term maximization, among the most prominent of which are self-respect, power and prestige. And, as Granovetter (1985) has argued, economic actors are not immune to the immediate influences of the social interactions they are involved in. Actors do not engage in economic exchange merely to satisfy existent desires, their economic transactions are occurring in the context of ongoing social relations which directly influence their preference curves, give meaning to what being "economical" means, and frame both success and failure. As the interactions themselves come to have meaning for the actors involved, prior interactions and transactions with the other actors affect their future choices.

In the last two decades the resource dependence model has been one of the dominant models guiding sociological research on organizations. This model has roots in earlier work, but is most closely associated with the 1978 work of Pfeffer and Salancik. The model as outlined by Pfeffer and Salancik holds that firms operate in perilous and ever-changing contexts which are governed largely by factors beyond the direct control of the firm's managers. Because firms are dependent on access to resources that they can not themselves provide, the firm is thus dependent upon its environment. Consequently, a firm's effectiveness in staying in successful operation is dependent upon its managers' ability to consistently extract the needed resources from its environment.

Following the logic of the resource dependence perspective, many researchers have argued that firms seek to establish corporate board interlocks to co-opt other firms in an effort to establish and influence over firms which control needed resources, in order to facilitate access to those resources (Pennings 1980; Burt 1983; Mizruchi 1982, 1987; Mizruchi and

³ However, the work of new institutional economist Douglass North is one notable exception.

Stearns 1988). However as Mizruchi and others have pointed out, "it is often unclear whether an interlock involves the co-optation of firm A by firm B or the infiltration of firm B by firm A" (Mizruchi, 1992 p. 65). In spite of this difficulty, the list of persuasive research conducted in this vein is impressive.

Granovetter and Embeddedness:

For years the sociologist's critique of economics rested on the complaint that economics ignored the internalized norms which sociologists held central to addressing the problem of social order, and the need for social approval through adhering to the norms of membership in a social group. Classical economists explained social order as the outgrowth of the invisible hand, while many sociologists came to explain order as framed by internalized norms of social life, learned during childhood and supported throughout life. This came to be what Wrong (1961) identified as the problem in sociology of the "over-socialized" conception of human behavior.

The irony in this debate between the over-socialized and the under-socialized views of human behavior is, as Granovetter has indicated, that these two perspectives agree on the insulation of actors and their preference structures from the influences of the immediate social context (Granovetter 1985, p.485). The specific content or history of the relations which actors are party to do not matter, because there are over-arching considerations of either self-interest or adherence to socially prescribed role relations to guide behavior. While these perspectives may have made abstracting from a small sample theoretically tenable, they downplayed the degree to which actors' "attempts at purposive action are... embedded in concrete, ongoing systems of social relations" (ibid., p. 487). Uzzi (1992) and Nishigushi (1994) have shown how actors in turn shape these relations strategically.

Granovetter's solution suggests that we don't need recourse to internalized norms or enlightened self-interest to explain social order. The human relations which frame economic behavior are constantly (re)creating the order which facilitates the transactions. These human relations are not mere leftovers of some more primitive state, they are the

mechanism through which order is possible.⁴ They may impede "perfect" competition, as Adam Smith laments in his famous passage, "people of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices" (Smith [1776] 1979 pp. 232-3). But they facilitate competition and cooperation in markets fraught with incomplete information and unclear risks such as the risk faced in expenditures on research and development (Powell 1990). The embeddedness perspective calls upon us to study the actual relations, the concrete patterns of those relations, if we wish to understand human economic behavior in a given context. The fundamental insight of the embeddedness concept is that no economic transaction occurs in a social vacuum. The challenge lies in capturing the social structure involved in economic transactions in order to subject it to systematic study.

Buyer-Supplier Trust and the Japanese:

Probably no other application of the argument for the significance of trust has garnered more attention than the differences between the US and Japanese auto industry. In the past two decades there has been a wave of articles and books in the business press espousing the virtues of what has come to be called the Japanese model of supplier relations. Limiting its focus nearly always to the differences between Japanese and American buyer-supplier relations in the automotive industry, this literature argues that the management of interfirm business relations between suppliers and customers is the key to future international competitiveness (Womack et. al. 1992; Hirst and Zeitlin 1989; Dertouzos et. al. 1989). In this literature the West is described as losing out to the Japanese because Japan has closer, less competitive, and more trusting relations between buyers and suppliers. The "Toyota model," as this mode of industrial organization has been called, stresses deeply embedded, long standing relationships between customer and supplier firms. These ties mean that many supplier firms have fewer than five customers, and often only one. There are divisions, however, among those authors who utilize this general approach. Some stress the economic efficiency of the Toyota model, while others stress the unfair trade practices resulting from closed markets.

⁴ For example, Polanyi (1944) argued for a high degree of embeddedness (evidenced as kinship obligations) in primitive societies giving way to more pure market logic with economic development.

The economic efficiency argument holds that the Toyota model of deeply embedded relations is more flexible and thus more effective at responding to today's market pressures. In the modern volatile market, the speed by which a new car or computer can go from conception to customer is seen as the keystone of competitiveness. Studies have shown that the Toyota model of close relations reduces haggling between buyer firms and their component suppliers and assembly sub-contractors, and thus decreases the response time of the entire sector. This stands in contrast to the prevailing model of Western manufacturing in which sub-contractors and component suppliers are contacted on a bidding basis by customers who have blueprints in hand. The resulting contracting and competitive pressures, which are believed by the central firms to be guaranteeing them the lowest prices, are in fact slowing down their production and breeding a culture of distrust and malfeasance.

This literature was not without weaknesses. Quite problematic is that component manufacture is very often not properly distinguished from sub-contracting work. Sub-contractors are typically assembly houses or "job shops" which carry out flexible Cut-Make-Trim (CMT) contracting such as printed circuit board (PCB) assembly in the electronics industry, engine block casting in the automobile industry, or pattern cutting and sewing in the garment industry. In these cases, the supplier maintains little of the expertise associated with design or production, and is more or less a flexible labor force for the central firm which both designs and assembles the final product. In addition, because wages in the supplier firms have been characteristically significantly lower than the core firms internationally, has led some researchers to suggest that these smaller subcontractors *are* better seen as a flexible labor pool rather than independent companies.

In contrast, some components must be designed-in to the final product, and the component supplier in this case has expertise which the buyer lacks. Other components have standard forms, and can be ordered from suppliers "off-the-shelf." The third possibility is that components are designed by the buyer, who approaches suppliers with blueprints in hand, seeking bids. In the auto industry, most of the technology and design is held by the central assembler firms. The relationship of most component suppliers is thus sub-contracting. This does not characterize the electrical appliance industry nor many other industries in Japan (Asanuma 1989). Finally, the Japanese are moving away from the real paternalism that worked during unbridled growth period of the post war period (Sako 1992, p. 55). In

these times of economic downturn, the parent-child language of buyer-supplier relations in Japan is giving way to a language of equal partners due to a lack of desire among the central buyer firms to shoulder the responsibility for their suppliers and sub-contractors (Keller 1994).

The most obvious weakness of this literature, however, stems from the fact that it focuses nearly exclusively on the auto industry. This is not surprising, as the strongest differences between Japan and the West are to be found in the organization of automobile production. But studies have shown that other Japanese firms do not follow the example of the auto industry. Asanuma (1989) has shown that in the electrical appliance industry relationships are quite heterogeneous, relations between firms are more equal, and pure sub-contracting is much rarer. But the weaknesses of this literature aside, the point at hand is that trust is conceived of by many researchers as a source of competitive advantage due to trust's ability to reduce the need for costly governance structures. The result is that trust is economically more efficient for those actors who have it in their buyer-supplier relations.

In addition to reducing the need for costly governance structures, trust has also been argued to increase the palette of possible exchange opportunities available to individuals and firms (Zajac and Olsen 1993; Ring and Van de Ven 1994). It has been noted, for example, that some transactions involve such high degrees of exchange vulnerabilities that no governance structure could create the necessary trust (Grossman and Hart 1986). In these cases, exchange partners who have high levels of trust for each other are in a position to take advantage of opportunities in the market that are off limits to partners who do not have trust between them.

At this juncture it is important to take a moment to talk about Williamson's understanding of trust. Trust, Williamson argues, is the belief that your trading partner will not exploit your vulnerabilities, and is created by the governance structures you set up to prevent it. Thus for example, if sufficient costs to breach of contract have been erected through contracting, laws or ownership structures, the calculating actor feels confident that his/her vulnerabilities will not be exploited by rational trading partners, and can be said to "trust" them (Williamson, 1993).

That personally internalized values against self-interested behavior and extra-monetary benefits often inhibit the extraction of relational rents is admitted by Williamson (1993). He argues however, that the likelihood a person will act opportunistically in a specific transaction is an aspect of the corporate, network, professional and the wider societal, culture that person and firm are a part of. Culture, as Williamson explains, "applies to large groups, sometimes an entire society, and involves very low levels of intentionality... The main import of culture, for purposes of economic organization, is that it serves as a check on opportunism" (1993 p. 476) Knowable, these cultural effects are aspects of the environment the boundedly rational actor takes into account, to the degree circumscribed by the limits of their rational abilities, when costing out the contractual hazards involved in a transaction.

Summary of my position

While much research has shown that networks of interfirm relations affect firm behavior, what remains largely unspecified in organizational research, as Nohria and Eccles have pointed out, is *how* the content and nature of these relations affect the meaning of the tie for the firms involved (1992, p. 12-14). Coming from a network-embeddedness approach that does not discount entirely the insights from the new institutional economics school, I am interested in exploring how, concretely, social relations between firms affect firm behavior. More specifically, my research is aimed at understanding how trust is formed between the individuals who make up the interfirm relations between buyer and supplier firms, how this trust is understood by those actors, and what effect this trust has on firm behavior, specifically how it affects supplier selection on the part of the buyer, and price formation on the part of the supplier.

The Research Study

To study these issues, I contracted with German Components (GC),⁵ an electrical components manufacturing firm headquartered in Germany, to study the effects various types of customer and supplier relations have on trust, customer satisfaction, and their bottom line. I selected this company because it has extensive sales operations in Germany,

⁵ I refer to the company by this pseudonym to maintain the firm's anonymity.

the US, and Japan, facilitating a future cross-national comparison, and it is a good example of Germany's powerful *Mittelstand*, the strata of middle-sized firms which are the backbone of Germany's economic power. For a *Mittelstand* firm, GC is nearly the definition. GC exports about 50% of its product, is the world leader in its field of specialty, employs approximately 2500 people, and has sales of about \$250 million per year.⁶ GC manufactures electrical and electronic components for the automotive, aircraft, consumer electronics, medical and process control equipment industries, and its customers include most of the world leaders in these fields. Although the firm was selected due in part to the possibility of a cross-national comparison of the effects under study, the data analyzed for this paper deal exclusively with the firm's relations with its German customers.

This research required eighteen months to complete and included both face-to-face interviews and a mail survey. The interviews were conducted during April and May of 1995, and the survey was mailed out in September of 1995. The sales transactions under study are those made during the calendar year 1995. The interview portion of my research involved conducting open-ended interviews with both sides of a stratified sample of 30 of the firm's customer firms, and 20 of its supplier firms. For the customer firms this meant interviewing both the purchasing manager at the customer firm responsible for the relation with GC and the sales engineer at GC responsible for the relation with the customer firm. In all cases these people were personally acquainted with one another. All interviews were conducted at the subject's office, in German. I followed this up with a survey sent to all of the firm's remaining German corporate customers (n=489). For each customer relationship I typically interviewed (or later surveyed) the purchasing manager in charge of the relationship with GC, and followed this up with an interview (or survey) with the lead sales engineer(s) responsible for the firm's relationship with the customer. In addition, I obtained from GC's accounting department a list of product sold, price obtained, and variable production costs. From the Development department I obtained a measurement of sunk costs, represented by a 7-point Likert scale measure of the degree of customer specific applications engineering effort included in each product sold. In total I obtained complete (survey and accounting) data on 227 of GC's 519 German corporate customer relations, including complete price and variable cost data on all 2588 sales transactions these customers made with GC during 1995.

⁶ The definition of a *Mittelstand* firm comes from Hermann Simon, the man who literally wrote the book on the *Mittelstand* firm, *Die heimlichen Gewinner* (The Hidden Champions).

Some particulars of the case:

Founded in 1947, GC manufactures electrical components for industrial clients. None of the firm's sales are retail. The company currently has 30,000 active part numbers, and more than 2,500 customers world-wide, the largest of which represents 3.4% of total sales. The firm is involved in strategic partnerships for product development with some of its larger customers, but these relations constitute only about 5% of the company's sales. The entire sales staff of the company numbers only 100 people, with an average of 25 customers to a sales agent. The company produces most of its products in Germany, but has additional plants in Malta and Malaysia, and conducts some final assembly at the point of sale at its American, British, and Japanese profit centers. The company has well-established wholly owned profit centers in the USA, England and Japan, which have been operating for more than 25 years. In addition, the company has small and much more recently established profit centers in Belgium, Italy, and France. Sales outside of Germany total half of the firm's production.

Firm managers are adamant that GC is not a sub-contractor, it is a design house. While fully designed-in custom products constitute only 20% of the firm's sales, fully 45% of sales involve a non-trivial amount of customer application engineering effort. The remaining 55% are made to order from standard catalog specifications. About half of the firm's sales are inspected upon delivery, and half are ship-to-stock (JIT). Firm managers attribute this low degree of inspection as much to the firm's reputation as its participation in Europe's new ISO 9000 quality control program. On-site visits from customers, which are common in Japanese component supply firms, are rare for GC. The few that do occur are usually from larger clients who want to inspect the quality control measures used on the shop floor.

Results

How is trust formed?

Immediately at the outset of the interview portion of my research I found tremendous interest for my topic on the part of the purchasing managers and sales engineers I sought to

interview. Expecting a low favorable response rate to my request for a one-hour interview, I initially contacted a random sample of 100 of GC's customer firms. My acceptance rate with only a contact letter and some follow-up phone calls was over 60% and I had to turn down many interviews for lack of time and travel money. It is clear to me that to the people who constitute the ties we refer to in our research as interfirm relations, trust is a variable they are very interested in discussing.

The interviews I conducted with the buyers and sales team members for this research project were a rich source of data on the nature, formation and importance of trust, as well as German business practices and cultural norms in general. For the present purposes however, I will focus on the subjects' responses to my inquiries regarding the formation and purposes of trust. After the first few open-ended interviews I settled on a definition of trust I wanted to talk about and in the subsequent interviews this definition was not a discussion item. This was because I wanted to deflect the discussion away from rather time-consuming discussions of "what is trust?" to the more interesting, "how is trust formed?" To this end I defined trust for my respondents as *the degree of certainty an actor has that a trading partner will not exploit his/her firm's vulnerabilities*. In general I found my subjects very supportive of this working definition.

Inquiring into how the trustworthiness of trading partners is ascertained was by far the most challenging and interesting part of the interview. More often than not my subjects had to think long before answering. My research assistants and I had to work hard to resist the urge to say something during what were often embarrassing protracted silences, but the effort paid off. In addition I probed the subjects to tell stories, to give substance to their impressions as to the bases of trust. In this way I was able to gain what I think is a fairly nuanced understanding of how my subjects understand the creation of trustworthiness.

In coding the data I have identified three basic understandings of the bases of trust. This is to say that the responses from my subjects on the subject of how trustworthiness is determined, although coming from purchasing and sales staff members disparate in their age, educational background, sex and years of job experience, can be categorized into three basic groups which I call 1.) trust at first sight, 2.) trust as an unbroken chain of promises, and 3.) trust as revealed only in crisis.

Category 1: Trust at First Sight:

A significant portion of the respondents claim that they can tell the trustworthiness of trading partners at first sight (7 out of 30 of the customer representatives and 5 out of 20 of the supplier representatives interviewed). Said one customer, the CEO of a small manufacturing firm located in south Germany, “You sit across the table from them, you *feel* it. I look them in the eye too, that helps. You can just see it in the way they treat you, how much they pay attention to your ideas, your thoughts, you see right away where you are in their agenda and how you fit in.”⁷ Several respondents echoed the words of the purchasing manager at a large auto manufacturer who explained, “It’s like immediate chemistry, either it’s there or it’s not.” Another man, a purchasing manager with a large multi-national photographic chemicals firm explained it this way, “I have simply never been wrong. I have the intuition. This is one reason I am better at this job than a lot of other people. I can just tell if a supplier is going to one of those who will just lead you around by the nose (*an der Nase herumführen*). It’s an art you simply *have* to learn to be good at this job.” At a loss for another way to explain it, one woman, a purchasing manager at a middle-sized consumer appliance firm just said, “It’s *Sympathie*, when you feel it, you just know it.”

Category 2: Trust as an Unbroken Chain of Performance:

The largest group of respondents explain the formation of trust as the cumulative effect of a long period of doing business without any problems (13 out of 30 of the customer representatives and 7 out of 20 of the supplier representatives interviewed). To these respondents the only way to ascertain trust with any meaningful degree of accuracy is to infer it from the unbroken series of deals. History is the teacher in this conception of trust formation. As one respondent, a purchasing manager at a truck and bus manufacturing subsidiary of a large auto company, explained, “When it’s been a few years, then we can talk about trust. When I have seen the track record, the list of deliveries there on time, then we can talk about trust.” Another respondent, a salesman at a fine metals supply firm had a different way of explaining this, “The best customers, they are the one’s I’ve been dealing with for years, lots of product sold and whose names I don’t even know. When they have been getting their [product], and not bothering me with ridiculous demands to reduce prices, or threatening me with competition, that’s what I call a trustworthy customer.” One respondent, a purchasing manager at a large photo chemical firm said it this way, “I start

⁷ Abbreviated Interview Transcription (AIT) 23, line 327.

out with high hopes for each supplier. You could say I trust them all, but not a lot, I'm a little guarded. Then over time we see how things go, we watch the supplier, and we keep records. When several years have gone by, say 7 or 8 and there have been no significant problems, then we discuss moving them into our preferred supplier pool. But if they mess things up, by for example making promises they can't or don't want to fulfill, then we take them out of that pool and send them right back to the bottom again."

Category 3: Trust as Revealed Only in Crisis:

The third category of explanation of trust formation described by my informants involves trust assessments as the result of crises (8 out of 30 of the customer representatives and 6 out of 20 of the supplier representatives interviewed). These informants explain that, "you can't tell what a man's made of until the problem's start." One subject, a purchasing manager at a large plastics injection molding firm used the following rather colorful imagery, "In this business I may *think* I can tell the rats from the mice, but you know its not until the cheese spills out that we actually know which one's which... Sometimes I think what makes it so hard is that the sales reps don't know themselves if they are rats or mice. Then something goes wrong, and we both find out." To informants like this man, what is key to coming to a positive trust assessment is the experience of working through a problem with a customer or a supplier. As one older salesman from a circuit breaker manufacturer explained, "Maybe my customer will get a low-ball bid, maybe the competitor has gotten my spec sheet from somebody inside of his [the customer's] firm, and then I know what kind of relationship we have. If it's a few pennies and the guy throws me out or worse, brings me under heavy pressure to let him have the difference, then I know, he just can't be trusted." A purchasing manager from a weapons system manufacturing firm explained it this way, "Some of the people we deal with, they are just fine until a problem occurs. Then they just can't deal with it. Something comes up, the product isn't on my loading dock, or it won't do what they said it would do, whatever, and instead of dealing with it, they don't want to accept responsibility for the problem. And I just can't bear that."

Who Holds Which Views of Trust?

In exploring who holds which view of trust, I have so far uncovered two interesting relationships in the data. The first of these relationships is that respondents in the last category described above, trust revealed in crisis, have a higher number of years on the job in comparison to the other two groups (see table 1a, below.) This suggests that experience

plays a role in encouraging the subjects in my study to believe that trust is revealed only in crisis. In addition, the subjects in category (2) above, trust revealed over time, were more likely than subjects in the other two groups to have a business rather than a technical degree (see table 1b, below.) This suggests that German business schools could be teaching their students either a.) that trust derives from performance, or b.) a general rational calculus that supports this perspective. As a final note, no relationship was found between these perspectives on trust formation and either industry or firm size.

Table 1a: Educational Background and View of Trust

Trust Category	Education		Totals
	Business School	Other	
First Sight	5 (20%)	15 (30%)	20 (27%)
Performance	15 (60%)	17 (34%)	32 (43%)
Crisis	5 (20%)	18 (36%)	52 (69%)
Totals	25 (100%)	50 (100%)	75 (100%)
$X^2 = 19.68$	Df=2	$p < .0001$	

Table 1b: Years of Job Experience and View of Trust

Trust Category	Years Experience		Totals
	0 - 15	> 15	
First Sight	15 (33%)	4 (14%)	19 (25%)
Performance	20 (43%)	13 (45%)	33 (44%)
Crisis	11 (24%)	12 (41%)	23 (31%)
Totals	46 (100%)	29 (100%)	75 (100%)
$X^2 = 4.25$	Df=2	$p = .1192$	

But what does Trust do for you?

Hypotheses

Transaction cost economics contends that long-term relations involving significant amounts of supplier-provided technology facilitate the exacting of economic rents by the supplier from the buyer. In other words, the asset specificity the supplier has on the buyer allows the supplier to charge the buyer prices which are a distortion from a competitive market price (Aoki 1988; Walker and Poppo 1991). Aoki (1988) called these, "relational quasi-rents" and predicts them to be associated with close relations between buyer and seller. One could argue that there is a possibility for the buyer to counter this by threatening to exit

the trading relation if favorable prices are not extended. In the presence of supplier-provided technology however, most often in the form of customer-specific applications engineering and product design, this threat is not credible since the buyer has limited access to other sources. Following this logic, Asanuma (1989) has suggested that asset specificity, measured by the amount of customer specific applications engineering effort, contributes to the extraction of economic rents. In this way Asanuma is following the logic of both Williamson and Aoki, both of whom argue that firms that contribute to the design of a component will gain a higher profit margins than if they are merely sub-contractors (Aoki 1988; Williamson, 1975, 1985).

The logic of transaction cost theory in this regard is compelling. For example, firms who have "captured" a customer with asset specific investments in applications engineering would have little incentive to reduce prices as production costs drop over time due to learning curve effects. A network embeddedness approach, however, suggests that this needn't be the case. As Granovetter and others have argued, firms in long-term, deeply embedded relations, may well be less inclined to take advantage of those relations.

As one attempt to resolve this debate, Okun (1981) argues that prices are set by a combination of social and supply-demand concerns and introduces the idea of "auction market" prices and "customer market prices." He argues that customer market prices are prices that are influenced by the social relationship between the buyer and the seller, and that these are the most common. Okun sees these social effects in terms of transaction cost minimization. He explains, "customers avoid shopping costs by sticking with their supplier much as workers avoid search costs by sticking with their employer." (Okun, 1981. p 142) But for Granovetter (1990, 1993) and others working in an embeddedness framework, it is not just that the social relations can facilitate a transaction cost reducing calculus. The point is that these relations may well reduce actors' inclination to take advantage of the opportunities for profit maximizing that the economic relation create. Although I would agree that asset specificity, as evidenced by high levels of applications technology, will put upward pressure on prices, I would also argue that the presence of high levels of trust on the part of the sales engineers in charge of those relations, will predict a reduction in price.⁸ I therefore reasoned that,

⁸ It could be argued that high trust assessments of the customer for the sales engineer would put upward pressure on prices, and I have not addressed this issue directly in the current research. This would involve

Hypothesis One:

The supplier's positive trustworthiness assessment of the customer will have a significant and independent downward influence upon the prices charged to that customer.

Similarly, I expect that trust will mitigate other self-interested behavior, namely the use of ever more detailed contracts in the presence of asset specificity. About 20% of the GC's sales involve the use of detailed contracts, which my interview data suggests is comparable with general trends in the industry. Important in this regard however, is that the use of contracts is significantly more common in relations with aircraft manufactures due to legal considerations involving product liability. However, considering the extent of GC's customer specific investments the firm doesn't use detailed contracting very often at all. GC's export sales manager echoed the findings of Stewart Macaulay (1963) when he said, only half in jest, "Contracts? We don't need contracts; our policy is to deliver on what we say we will do, period."

Williamson (1991) however, argues that contracts are essential in governing relations, and that they facilitate the formation of trust. While Dore (1983) has supported Macaulay's findings in suggesting that contracts are relatively uncommon and unimportant for business, Sako (1992, p. 97) has gone further and suggested that the mere presence of a contract may in fact provoke conflict between trading partners because it assumes distrust.⁹ Although I agree with Williamson that as asset specificity rises we can expect the use of contracts to increase, I expect that,

Hypothesis Two:

turning our attention to the effect on an actor's behavior of their perception of trustworthiness assessments others have made of them. I aim to begin to address this issue in my further research.

⁹ Macaulay alludes to this relationship possible between contracts and trust as well.

There will be an inverse relationship between trading partners' trustworthiness assessments of each other and the use of contracts.

The formation of trust:

What contributes to the formations of trust between economic actors? Under what conditions does an actor increase his/her assessment of the trustworthiness of trading partners? There are no doubt several components of this dynamic, some of which are more challenging to measure than others, but two components I argue contribute significantly to the creation of trust are, 1.) how long the two companies have been doing business together or the *length of the interfirm relation*, and 2.) how long the two main contact people whose personal relation constitutes the interfirm relation have known each other, or the *length of the personal relation*. However, I believe that the length of the relation and the length of the personal relation should themselves predict lower prices. Thus I expect that,

Hypothesis Three:

3a.) The length of the interfirm relation and the length of the personal relation will predict high trustworthiness assessments on both sides of the relation,

3b.) The length of the interfirm relation and the length of the personal relation will predict lower prices.

Indicators

Cost/Price Ratio (main dependent variable): This variable was calculated by summing the total of all the prices charged to each customer during the 1995 calendar year, and dividing this total by the total variable costs of production of those products purchased as calculated by the firm's cost accounting department. In this way I created a measure of the markup over the variable costs of production GC is charging its customers, which I use as a proxy for the rate of profit. This cost data used to develop this variable is the same as that used by firm managers in calculating prices.

Type of contract used (dependent variable): GC uses three basic different contracts, coded as follows: 1.) simple sales contracts similar to purchase orders, 2.) framing contracts re-negotiated on a yearly basis, and 3.) large, comprehensive multi-page documents that are often haggled over for months or even years. The presence and type of contract data were collected from GC's inland sales division.

Degree of trust (key independent variable): In my interviews I asked questions designed to measure the degree of trust between the actors comprising the interfirm relation between GC and its customer firms companies, as well as the direction of that trust. After first defining what I mean by trust to the subject,¹⁰ I asked, "Does this trust play a role in your business work?" Another question asked to what degree in general the respondent trusts the other actors they do business with. And finally I referred to their main contact person on the other side of the relation by name and asked, "to what degree do you trust this person?" For the quantitative analysis presented below, the trust variables were collected from a survey instrument what followed the same basic line of questioning. The respondents were given on a 5 point Likert scale with 5 representing the highest trust rating, and 1 being the lowest.

Length of the interfirm relation (LOFR) and Length of the personal relation (LOPR) (independent variables): These variables are recorded in days, with the interfirm variable taken from GC's record of each customer's first purchase, and the personal relation information taken from the surveys of the customers and the sales engineers. Where the two actors involved disagreed on the length of this relation, the mean of the two reported answers has been used. To control for skewness in these data, the natural log of these two variables are used in the analysis below.

Customer Weighted Applications Technology (WAT) (proxy for Asset Specificity, key control variable): Using automobile design engineers Monteverde and Teece (1982) classified automobile components according to the degree of applications engineering effort, to create an index of asset specificity. The authors hypothesized that the more important

¹⁰ Trust as the degree of certainty an actor has that his trading partner would not exploit his firm's vulnerabilities.

the applications engineering, the more likely the component's manufacturing was to be vertically integrated. Likewise, they used a dummy variable for "specific" to one car company, and "generic" if it was able to be sold to more than one firm, reasoning that the specific components were more likely to be integrated into the company. Asanuma (1989) likewise suggested that the degree to which the supplier is contributing to the design of the component can be reasonably argued to be a proxy for asset specificity. Similarly, I have created an index of asset specificity, developed using Asanuma's seven-stage scale, in which GC's technical staff in production and product development rated each product's degree of customer specific applications engineering effort on a seven point scale. The more customer-specific design a product contained, the higher the rating. In the analysis presented below, the purchase price was used to weight the applications engineering effort in order to create a customer total weighted applications technology (WAT) variable.

Total Customer Sales 1995 (control variable): Total sales is measured as the dollar amount of the all transactions with each customer in the 1995 calendar year. Due to the large variation found in this variable, the natural log of this variable is used in the analysis below.

Table 2: Statistics and Correlation Matrix

VARIABLE	MEAN	S.D.	MIN	MAX	1	2	3	4	5	6	7
1.) P/C Ratio	1.71	0.45	0.78	2.837							
2.) WAT	2.62	1.07	1	5.1	0.4935**						
3.) Sales (LN)	11.01	1.48	7.9	15.05	-0.4604**	-0.2109**					
4.) Size (LN)	5.52	2.33	1.6	11.51	-0.1902*	-0.0569	0.4989**				
5.) Trust-S	3.82	1.12	1	5	-0.3916**	-0.1224	0.1476*	-0.0101			
6.) Trust-C	3.9	1.06	1	5	-0.1031	-0.0455	0.0612	0.0539	0.3206**		
7.) LOPR (LN)	7.25	0.68	5.9	8.61	-0.0542	0.1525*	-0.0118	-0.0132	0.049	0.1017	
8.) LOFR (LN)	8.13	0.91	5.9	9.73	-0.1503*	0.0481	0.1602*	0.1693*	0.0681	0.0247	0.2778**

Two-tailed tests * $p < .05$ ** $p < .01$

The Effects of Trust, Some Preliminary Results

Trust and Sales Price:

Table 2 above presents the means, standard deviations and correlations among the variables. The trust assessments made by the sales engineers of their customers (Trust-S) and the trust assessments made by the customers of the sales engineers at GC (Trust-C) are Likert scaled

1-5 with 5 being the highest, and 1 being the lowest. The applications technology data that the transaction level is Likert scaled from 1-7 with 7 being the highest degree of applications technology, the customer's weighted applications technology (WAT) is a continuous variable with a range of 1 to 5.1. The price/cost ratio data is likewise continuous, with a minimum value of .785 and a maximum value of 2.837. Total sales, (Sales) is reported in dollars, and this variable has a minimum value of \$2,652.30 and a maximum value of \$3,448,135.70. This variable is highly skewed and a natural log transformation was used in the regression analysis below. The length of interfirm relation (LOFR) and length of personal relation (LOPR) are shown here in days. These variables are likewise sufficiently skewed to warrant the use of a natural log transformation in the regressions reported below.

Table 3: Linear Regression Models, Dependent Variable = Price/Cost Ratio

VARIABLE	Equation 1	Equation 2	Equation 3	Equation 4	Equation 5	Equation 6	Equation 7	Equation 8
WAT	.1749** (7.686)	.1877** (-7.193)	.1630** (7.653)	.1630** (7.645)	.1790** (7.902)	.1668** (7.850)	.1832** (8.035)	.1703** (7.955)
Sales (LN)	-.1137** (-6.908)	-.1169** (-6.908)	-.1023** (-6.612)	-.1024** (-6.612)	-.1075** (-6.482)	-.0971** (-6.231)	-.1129** (-6.927)	-.1018** (-6.638)
Firm Size (LN)		.0056 (.4300)						
Trust-S			-.1189** (-5.903)	-.1231** (-5.796)		-.1167** (-5.826)		-.1160** (-5.794)
Trust-C				-.0140 (0.635)				
LOPR (LN)							-.0827* (-2.361)	-.0700* (-2.134)
LOFR (LN)					-.0565* (-2.148)	-.0488* (-1.983)		
Constant	2.505** (12.283)	2.461** (10.658)	2.863** (14.351)	2.826** (13.567)	2.885** (10.729)	3.186** (12.432)	3.074** (9.772)	3.337** (11.223)
Model R ²	.3764	0.4126	.4607	.4616	.3890	.4701	.3916	.4715
n=	227	174	227	227	227	227	227	227

Two-tailed tests * p < .05 ** p < .01

Table 3 presents the results of several multiple regression equations testing the hypotheses that trust has an independent effect on price formation. In the table, the raw regression coefficients are presented with the t-statistics in parenthesis. In **equation one**, as expected, weighted applications technology (WAT) is positive on the dependent variable p/c ratio while a customer's total purchases (total sales) is negative. This is expected because the weighted applications technology, whether seen in terms of sunk costs or in terms of asset specificity, should put upward pressure on prices. As sunk costs, they need to be

recovered, and as asset specific investments they facilitate the extraction of economic rents in the form of higher prices. Also, greater sales volume (total sales) puts the expected downward pressure on prices due to volume discounts.

In **equation two** I test the theory that the size of the customer firm would put downward pressure on the price/cost ratio and come up empty-handed. I find no evidence here in the data that asymmetry of firm size in the dyadic relations between buyer and supplier has an effect on firm size. But it is in **equation three** that we get to the main effects under study. Here we see that as predicted, the findings support the hypothesis that favorable trust assessments by sales engineers for their customers puts downward pressure on the prices they charge those customers, even controlling for WAT and total sales effects.

Some might argue that because the trust the sales team member has for the customer puts downward pressure on prices, the trust the customer has for the sales team member should put upward pressure on the prices charged. **Equation 4** shows that the trust the customer has for the sales team member does not have this effect. To discuss why I believe this is the case requires me to explore in more detail possible reasons why lower prices might be extended when sales team members trust the customer representatives. First of all I argue that the economic benefits of closer relations accrue disproportionately to the supplier side of the relation, and extension of lower prices to the buyer by the supplier is the primary way the supplier reallocates a proportion of those benefits to the buyer. However, it is not just a irrational reward for good behavior, it is part of the implicit contract between the buyer and the supplier. Each has his side of the bargain to fulfill. For example, the buyer reduces the risk profile of the supplier through his assurances that his firm will stick with the supplier through the life of the model and that they will not put the supplier's proprietary design out for competitive bid. If the supplier feels that the customer is trustworthy he responds with lower prices.

Why does the supplier respond in this way? In my interviews, those subjects who argued that trust puts downward pressure on prices offered explanations that were both more and less rational. One common and more rational argument was that when suppliers believe that they are in a business relation for the long run and when they trust their customer, they respond by amortizing their fixed costs over a longer time horizon, which results in lower prices for the buyer in the short run. Another more rational argument offered was that

suppliers simply want to hold onto those customer they trust, and lower prices are a rational way to hold customers. Less rational explanations argue either that suppliers reduce prices to reward the virtuous and punish the more cutthroat, or that lower prices are simply a way to reward your friends. Implied in all of these explanations is the idea that the supplier is the actor acting to reduce prices, and thus we do not expect to see higher prices when the customers trust the suppliers.

In **equations 5 through 8**, we see what could be the most important finding. These equations show that contrary to hypothesis 3b, when controlling for trust, length of firm relation (LOFR) and length of personal relation, (LOPR) do not significantly effect the impact of the trust variable on the dependent variable. This suggests that the effect of trust can not be explained as an effect of time, as Williamson suggests. The formation of trust assessments thus appears to be independent from the length of time economic actors have been doing business together.

Final comments:

These findings are all the more interesting when we consider that the sales engineers at GC do not themselves set prices. As with most companies, GC has a "firewall" in place to prevent the sales agents from simply giving their friends deals. Prices are set by the product division managers, acting under the supervision of the director of GC's German sales division. However, these managers rely on the reports of their sales engineers, both written and verbal, in developing their understanding of the customers and setting prices. It is the sales engineers who constitute the actual human connection between GC and its customers. The sales engineers make the visits to the customer firms, and know the customers' and their needs personally. As Granovetter and others have suggested, these sales engineers are embedded in ongoing personal relations which directly impact the economic action of their firms. The sales engineers' relations with their contact persons at GC's customer firms drive their assessments of the trustworthiness of their trading partners, and these assessments in turn have an independent impact on price formation. For regardless of which equations I tested or how I set them up, the trust-S variable alone added eight to nine percent to the explained variance when it was included.

Trust and Contracting:

As tables 4a and 4b illustrate, my hypothesis that trust on both sides of the relation affects the type of contract used, is supported by the survey data. It is interesting to note that the trust the sales engineer has for the customer has a stronger effect on the type of contract used than the customer's trust assessment of the sales engineer. This is consistent with the interview data which suggests that the contracting decision is largely the supplier's decision. As informant, a purchasing manager at a middle-sized manufacturer of high pressure cleaning equipment, explained "Sometimes we might want a more detailed contract, with delivery dates and maybe price discounts for errors and late deliveries if we can get it, but most of the time its the supplier who wants a contract, to hold us to the quantity we said we'd take."

Table 4a: Level of Trust Supplier has for the Customer and Contract Usage

Type of Contract	Level of Trust		Totals
	High Trust Trust-S = 5	Other Trust Trust-S = 1-4	
Spot Trading	43 (55%)	32 (21%)	75 (33%)
Framing Contract	30 (38%)	76 (51%)	106 (47%)
Extensive Contract	5 (7%)	41 (21%)	46 (20%)
Totals	78 (100%)	149 (100%)	227 (100%)
$X^2 = 30.529$	Df=2	$p < .0001$	n=227

Table 4b: Level of Trust Customer has for the Supplier and Contract Usage

Type of Contract	Level of Trust		Totals
	High Trust Trust-S = 5	Other Trust Trust-S = 1-4	
Spot Trading	34 (42%)	41 (28%)	75 (33%)
Framing Contract	32 (40%)	74 (51%)	106 (47%)
Extensive Contract	15 (19%)	31 (21%)	46 (20%)
Totals	81 (100%)	146 (100%)	227 (100%)
$X^2 = 4.627$	Df = 2	$p = .0992$	n=227

This finding supports the hypotheses and findings of Stewart Macaulay and others who have found that firms engaged in business relations do not use contracts to govern their relations nearly as often as would be predicted by a neoclassical economic approach. Likewise, contrary to what Williamson suggests, trust does not appear to require contracts to form nor are contracts even associated with higher degrees of trust, in fact the reverse is true, contracts are associated with a *lack* of trust.

Discussion

My research has explored the links between social structure and economic behavior. In my research design, social structure has been evidenced through ties firms maintain with other economic actors in their environment. I theorized that these ties are constituted by people embedded in social relations which shape their roles and behavior, and I hypothesize that these ties have an independent effect on economic activity. In the preliminary analysis offered in this paper these effects have been clearly demonstrated. While the sunk costs associated with customer specific investments and the sales volume both have strong effects on price formation, it is clear that the assessments of the trustworthiness of the customers made by GC's sales engineers are clearly related to the prices they charge their customers. And perhaps most striking and counter to what Williamson and others have suggested, when controlling for these trust assessments, the length of relation and length of personal relation have little or no relation to the prices charged. In addition, the use of contracts has been found to be related to these trust assessments. This is not to suggest that there are not additional questions and unaddressed lines of inquiry suggested by this work.

Probably the most glaring of these unanswered questions the reader would like to see answered concerns causal direction. Some readers might suggest that a cognitive dissonance effect may be involved whereby sales engineers come to believe that they trust those people they have given the best deals to, precisely in order to make sense of why these customers have been receiving such deals. However, while input from the sales engineers is crucial to the area sales managers in their setting of prices, the sales engineers most often don't know the overall price/cost ratio being offered to their customers, as they do not have access to the full cost calculations. Longitudinal data is required in order to rule out such effects. The collection of such time series data in which individual relations can be followed and changes in trust assessments monitored over time, is planned as a critical portion of my continuing research study with this firm.

However, the above problem notwithstanding, I believe that the qualitative data, backed up by the survey data, have illustrated that personal relations are the basis of trust, and that trust between economic actors does affect contracting decisions on both sides of the relation, decisions of which supplier to source from on the customer side, and most significant of all, what price to charge customers.

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