SOCIALLY EMBEDDED CONSUMER TRANSACTIONS
For What Kinds of Purchases do People Use Networks Most?*

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Abstract

To what extent, and why, do people make significant purchases from people with whom they have prior noncommercial relationships? Using data from the 1996 GSS economic sociology module we document high levels of within-network transacting. We argue that transacting with social contacts is effective because it embeds commercial exchanges in a web of relations that extend over space and time, making the seller's network hostage to appropriate role performance in the economic exchange. It follows that within-network transactions will be more common in transactions that are unlikely to be repeated and in which uncertainty is high. The GSS data support this view. Self-reports about purchases of homes, automobiles, legal services, and home-maintenance services are consistent with the expectation that frequency influences the extent of within-network exchange. Responses to questions about preferences for in-group exchange provide comprehensive support for the argument that product and, especially, performance uncertainty lead people to prefer sellers to whom they have noncommercial ties. These central results are fortified by much sustaining evidence: people believe that their friends give them better deals than strangers, are more likely to say they would withhold information about a used car when told they are selling to a stranger than to a family member, and prefer to avoid *selling* to social contacts under the same conditions that lead buyers to seek such transactions. Moreover people who purchase goods and services from friends and relatives report greater satisfaction and less dissatisfaction with the results than people who engage in commercial transactions with strangers, especially for the riskiest transactions.

SOCIALLY EMBEDDED CONSUMER TRANSACTIONS: FOR WHAT KINDS OF PURCHASES DO PEOPLE USE NETWORKS MOST?

Sociologists and most economists agree that people use personal networks as sources of *ex ante* information when they contemplate purchasing non-commodity goods and services. Yet many assume -- economists on principle, sociologists by default -- that market exchange itself comprises impersonal transactions among strangers. Cases in which consumers buy from or sell to friends or kin have received little attention. Neglect of the social organization of consumer markets is especially surprising given growing attention to the role of networks and "relational contracting" in business-to-business relations (Powell and Smith-Doerr 1994; Uzzi 1997).

This paper redresses the imbalance. We demonstrate that participants in several kinds of consumer transactions often have prior social ties; develop hypotheses to explain variation across types of transaction in the degree to which people purchase goods or services from persons to whom they are connected by nonmarket social relations; and test predictions derived from that theory with data from a national survey.

Introduction: Forms of Embeddedness

The conventional neoclassical view of economic action as intensely individualistic has been much pilloried by sociologists and indeed rejected as simplistic by many economists (Etzioni 1988). Granovetter (1985) argued persuasively that economic transactions are *embedded* in social structure: That is, the structure of our social relationships, and not simply a transaction-specific maximization rule, determines our choices of econom-

ic transaction partners and the ways in which we interact with them. As Portes and Sensenbrenner (1993) noted, sociologists who study economic action have embraced the "embeddedness" concept, but use it to refer to several distinguishable phenomena.

In this paper, we delimit "embeddedness" in several ways (see Figure 1). First, we distinguish between "global" and "specific" embeddedness, and emphasize the latter. *Global embeddedness* is a *constant*: every transaction occurs in some relational context, which may influence how much potential transaction partners know about each other, assessments of their likely trustworthiness, and social constraints upon terms of trade. *Specific embeddedness*, by contrast, is a *variable* that refers to the extent to which economic actors use (or are constrained by) their social relations in conducting particular economic transactions. In this paper we treat embeddedness as a variable: The unit of analysis is the economic transaction and our goal is to understand the conditions under which actors engage in exchange with persons to whom they are linked by nonmarket relations.

Second, we focus upon social embeddedness in *consumer markets* rather than in labor or business-to-business markets. Although Katz and Lazarsfeld (1955) undertook pioneering work on the role of networks in consumer decision-making decades ago, since then economists, sociologists, and even marketing scholars have neglected the empirical study of the influence of social relations on consumption (but see Frenzen, Hirsch and Zerrillo 1994; Frenzen and Davis 1990). This paper returns to that theme.

Third, we distinguish between two ways in which social relations may enter into consumer transactions. Actors may use social relationships to identify and assess the reliability of potential transaction partners to whom they have no direct or close indirect social ties. We call this *search embeddedness.* Or actors may choose persons with whom they have pre-existing noncommercial ties as transaction partners. We call this *within-network exchange.*

This distinction is important because, whereas much theory would predict high levels of search embeddedness, there is less basis for expecting consumers to transact directly with personal contacts. Strategic actors are expected to use networks to search for the highest quality goods and services at the lowest price, especially when they are uncertain about product quality or provider performance (Geertz 1978; Granovetter 1985; Brown and Reingen 1987; Powell 1990:303).[1] Even when uncertainty is moderate, a rational consumer may use networks to identify potential sellers or to assess the performance of warrantied brandname goods (e.g. deciding to buy an IBM or a Dell).

Within-network exchange should be less common than search embeddedness for two reasons. First, using networks for search is a more available strategy: Most of us know many more people who have purchased a good or service than we know people who sell it. Second, within-network exchange is constraining. Consumers who prefer to do business with personal contacts narrow the field of potential sellers, and may trade off price or quality against reliability. Moreover, transactions with friends (or

even with one's friends' friends) impose reciprocal obligations that are absent when buyers use networks solely for search.

Why then do people engage in economic exchanges with people they know? We believe that within-network exchange has two analytically separable origins.

1. Persons may choose to transact with fellow members of an in-group concomitant to their participation in systems of generalized reciprocity characterized by a preference for in-group exchange (Bearman 1997). Such a system may have positive functional consequences, but the choice of transaction partners in specific instances is influenced by general dispositions that follow from a history of such participation and by normative expectations that group members share. Many ethnic enclave economies appear to be systems of this kind (Portes and Stepick 1993).

2. Individuals may choose to transact with individuals with whom they are acquainted as a result of explicit calculation or tacit strategic understandings even absent of normative pressures or general dispositions. This is most likely to occur in transactions that are perceived to entail high risk of exploitation. Trading with friends or kin (or compound ties consisting of either) reduces risk by embedding transactions in sets of continuous, multipurpose relations. From the buyer's perspective, the seller's willingness to transact with a friend, relative, or compound tie represents a "credible commitment" in which the seller's reputation and relations to other network members become hostages to the transaction (Yamagishi and Yamagishi 1994; Williamson 1996).

To be sure, these two mechanisms are related: Systems of generalized reciprocity are particularly likely to emerge in circumstances high in risk (Greif 1994). But it is useful to distinguish them analytically because different empirical expectations are associated with each. Because systems of generalized reciprocity inculcate persistent and transposable dispositions reinforced by collective norms, empirical hypotheses that address this first mechanism posit relatively stable *variation among persons across transactions*. By contrast, because calculative rationality is triggered by transaction-specific risk perception, hypotheses that address the second mechanism posit relatively stable *variation among types of transaction across persons.*

Figure 1 about here

We focus in this paper on variations between different kinds of transactions in the prevalence of and attitudes towards within-network exchange. We anticipate that:

1. The embeddedness of transactions varies with the type of good or service exchanged, as a function of the degree and type of uncertainty in the transaction[2];

2. Preferences with regard to within-network exchange vary by the actor's role in the transaction (as buyer or seller).

Explaining Variation in Embeddedness between Transaction Types

During the past twenty years, many economists have rejected stylized views of econ-

omic action in favor of more realistic assumptions (Beckert 1997). In particular, Oliver Williamson has interpreted firms' choice of governance structure (contract, hierarchy, or hybrid forms) as responses to the frequency, uncertainty and asset specificity of transactions under conditions of bounded rationality and opportunism (1981, 1985, 1991). Similarly, we view within-network exchange as a governance structure for consumer transactions, and ask under what conditions consumers are likely to prefer it.

The Specificity of Consumer Behavior. Consumer markets differ from producer markets in three relevant respects, which together render unavailable or unsatisfactory the leading solutions (contract and hierarchy) to businesses' transactional dilemmas:

1. The most expensive consumer purchases are infrequent and therefore do not entail ongoing relationships. Consequently, asset specificity (the accumulation of costly relation-specific investments) is rarely a serious problem in product markets, rendering hierarchy unnecessary.

2. Although human asset specificity *is* a potential problem in consumer service markets, few consumers have the wealth to purchase problematic contractors or interest in doing so. Thus hierarchy is not a viable solution to service-market dilemmas either.

3. Spot markets are effective in so far as contracts are not needed or one can write contracts that take into account the full range of likely contingencies (Macauley 1963; Williamson 1985). In producer markets explicit contracts solve two distinct problems: ambiguity (clarifying points that might otherwise cause misunderstandings)

and bad faith (providing legal remedies). For most consumers, litigation is so costly and inconvenient that contract solves problems of ambiguity, but not of bad faith. Consequently, reliance on contract is a poor solution for a consumer who does not believe that a seller or service provider is committed to fulfilling the contract's term.

Embeddedness as a response to risk. If consumer market imperfections are not addressed adequately by hierarchy or contract, what mechanisms can consumers employ to control the risk of exploitation? Our answer can be expressed as a simple proposition: *The more risk a transaction poses to consumers, the more likely they are to transact with someone to whom they have a preexisting social tie.*

By *risk* we refer to the probability that a transaction's outcome will be substantially inferior to that on which a reasonable consumer has bargained. Specifically, we view risk as an interactive function of 1) information asymmetry between buyer and seller and 2) the probability that a seller will opportunistically exploit such asymmetry. *Search embeddedness* may be viewed as an *ex ante* strategy to address the first problem (information asymmetry) by increasing the buyer's information about the product or service, the identity of potential transaction partners, and the prior performance of each. *Within-network exchange* may be seen as an *ex post* strategy to address the second problem (opportunism) as well, reducing the risk that the seller will behave opportunistically by introducing obligations and sanctions external to the transaction.

To understand this argument, consider the canonical example of a consumer

purchasing a used car. According to Akerlof (1970), the risk inherent in this exchange -- the fact that the seller can conceal problems with the vehicle and that some sellers choose to do so -- creates an incentive structure that presses all used car dealers to behave opportunistically. The reason for this is that rational consumers, unable to discriminate between honest and dishonest sellers, will assume that all are dishonest and discount the value of the vehicle to take account of potential unobservable flaws. The global consequences of this dilemma (a tendency for dishonest dealers to outcompete honest ones in the long run and pressures for legislative remedies through lemon laws and other forms of regulation) are well known. Here we are more interested in how a consumer will approach a market of this kind.

We suggest that consumers will rely on their social relations to reduce risk in two ways. First, they will ask friends and acquaintances about their experiences, in order to locate the most dependable dealers with the best reputations. Second, if possible, they may purchase a car from a dealer with whom they have an ongoing personal relationship that the dealer may be loathe to jeopardize. This relationship may be direct (the dealer may be a drinking buddy who values the friendship for its own sake) or indirect (the dealer may be a spouse's cousin, for whom shady practice could incur family-wide retaliation). In either case, the mechanism is the same: Within-network transactions reduce buyer risk by imposing costs on sellers who take advantage of opportunities to exploit advantages internal to the exchange. They do this by embedding

the commercial transaction in a multiplex network of ongoing interactions, so that the actor's behavior in the commercial exchange (e.g., selling a used car) influences the way in which he or she is treated by many different actors across a range of interactions (including noncommercial ones) extending well into the future.

Within-network exchange is a more effective deterrent to opportunistic misbehavior than search embeddedness, but also a more expensive one, because it entails higher opportunity costs and reciprocal obligations. Therefore, we would expect people to prefer search embeddedness when risk is moderate and to use within-network exchange only when perceived risk is especially high.

What attributes of consumer transactions render risk particularly great?

1. First, risk is a function of *transaction frequency* (Williamson 1981). It is substantial for one-time transactions, when the seller has no economic interest in a future relationship with the buyer. This is the case to some extent when the buyer is unlikely to make a repeat purchase from the seller, and it is the case *a fortiori* in what Smith (1990: 52-57) refers to as "private-treaty transactions" (e.g., the sale of a personal automobile or home), where the seller has no enduring interest in establishing or maintaining a specifically commercial reputation.

2. The degree of risk is related, as well, to uncertainty about the quality of the product or service purchased (Kollock 1994). Two types of *uncertainty* are relevant: uncertainty about the quality of a good (*product uncertainty*); and uncertainty about

the quality of a seller's future performance (*performance uncertainty*). Of these two, risk related to the latter, especially when it stems from relational asset specificity, is the more substantial (Coleman 1990: 90-95; Shelanski and Klein 1995).

In most consumer transactions, the primary problem is uncertainty about the product quality, with performance uncertainty limited to cases in which the seller retains possession of a good after the purchase agreement and can therefore alter its character before delivery (e.g., removing fixtures from a home or replacing a costly car radio with a cheaper unit). Even in these situations, performance uncertainty can often be moderated by the use of detailed contracts, as is customary in home purchases.

Performance uncertainty is a more serious problem in service transactions for three reasons. First, service providers often receive deposits in advance of providing services. Therefore they cannot lightly be dismissed, and efforts to resolve disputes may entail lengthy delays, during which consumers are without vital services or, in the case of repair or construction, without the use of their property. Second, adequate performance in many service transactions rests on the expertise of the provider, entails substantial discretion, and thus cannot be specified in contract. Third, many service relationships involve significant human-asset specificity, such that in replacing one provider with another (changing attorneys in the middle of a case or contractors in the middle of a home-remodelling job), the purchaser risks significant start-up costs and/or retribution through withholding of information or damage to property.[3]

Hypotheses

We develop four hypotheses that flow from these arguments. The first addresses the relationship between transaction frequency and within-network exchange. The second concerns the relationship of within-network exchange to product and performance. The third hypothesis pertains to the extent to which buyers and sellers, respectively, prefer within-network transactions. The fourth involves the relationship between within-network exchange and purchaser satisfaction. Each hypothesis yields several specific predictions, which are described in the next section.

1. Frequency. Consumers may believe that businesses are constrained from exploiting information asymmetries by their desire for repeat trade and need to maintain positive reputations, whereas individuals selling personal possessions are not so constrained. Consumers may also expect the degree of seller self-restraint to be greater for companies that rely on repeat business than for those with which subsequent transactions are unlikely or temporally distant. Therefore we expect consumers to rely more on social relations when they buy things that they purchase very rarely than when they make more frequent purchases. And, especially, we expect them to rely more on social relations in buying from individual sellers than when purchasing through intermediaries (e.g., real-estate agents) or from businesses.

Hyp. 1a (behavioral version): *The greater the seller's reliance on commercial reputation and repeat business, the less prevalent is within-network exchange.*

Hyp. 1b (preference version): *The more sellers rely on commercial reputation and repeat business, the less purchasers prefer to deal with network members.*

2. Uncertainty. Uncertainty stems from information asymmetry between seller and buyer, when the former has information about quality that may be withheld from potential purchasers. Uncertainty is gravest under conditions of asset specificity, when performance quality is unobservable and purchasers depend over time on providers' candor and good will. Because these conditions characterize service transactions, we expect within-network exchange to be most common in service markets, next highest in sales of physical assets of uncertain quality, and least for standardized commodities.

Hyp. 2-a (behavioral version): *The greater the uncertainty as to the quality of a good or service (assuming significant cost), the greater the likelihood of within-network exchange.*

Hyp. 2-b (preference version): *The greater the uncertainty as to product or service quality, the greater the consumer's preference for transacting with a partner to whom he or she is socially connected.*

3. Buyer vs. seller preferences. We have emphasized the value of transacting with known exchange partners *from the perspective of purchasers*, given the expectation that networks of shared ties reduce risk from opportunism by imposing external costs on sellers who exploit their advantage. From the *seller's* standpoint, such entanglements may make trading with known partners *less* attractive. This is particularly true

of sellers who are inclined to behave opportunistically. Ethical vendors may be torn between wanting to avoid situations in which honest misunderstandings may ramify widely, on one hand, and hoping to use social relationships to enlarge their client base, a common strategy in some direct-sales organizations (Biggart 1989), on the other. Private individuals selling a personal home or car have no such incentive. Thus:

> **Hypothesis 3:** *Sellers are less likely than buyers to prefer to transact with people to whom they are socially linked, and more likely to prefer to transact with strangers; and the strength of this tendency is a function of the transaction's frequency (negative) and uncertainty (positive).*

4. Within-network exchange and satisfaction. If people purchase products and services from businesses and private persons to whom they have social ties in order to reduce the risk of exploitation, then we would expect such people to be more satisfied than those who transact with strangers with the results of those transactions. In particular, the former should be more successful in avoiding negative outcomes.

Hypothesis 4: *People who transact with members of their social networks are more likely to report high levels of satisfaction and less likely to report low satisfaction with the product or service they receive.*

Data and Analytic Strategy

Data come from one of two administrations of the General Social Survey (GSS) undertaken in 1996. The GSS is a full-probability, personal interview survey designed to

monitor changes in social characteristics and attitudes, conducted almost annually by the National Opinion Research Center since 1973. (As a cost-saving measure, the GSS shifted from annual surveys to biennial administration of two surveys in 1996.) Since the mid-1980s, the GSS has included special topical modules investigating specific areas in greater depth than the ongoing core survey permits (Davis and Smith 1992).

We use a special topical module on economic sociology administered to all 1444 respondents to one of two 1996 General Social Surveys. That module asked respondents to report on several specific economic transactions, and contained several relevant attitude questions as well.

Split samples of respondents who had purchased automobiles (in the past five years) or homes (ever), respectively, were asked about their use of social ties to locate exchange partners or brokers, and about any previous relationships to the sellers (previous owners for automobile transactions between individuals; and previous owners and where applicable realtors, in home purchases). Purchasers of automobiles from individuals were asked "which of the following best describes your relationship to the person who sold you the vehicle at the time of the purchase?" Persons who had purchased automobiles from used-car or new-car dealerships were asked a similar question about "your relationship to the salesperson from whom you purchased your car or to the owner of the auto dealership" and were instructed to answer on the basis of "your closest relationship." Home buyers were asked to describe their "relationship to the

previous owner of the home you purchased." Those who used realtors were asked to describe their relationship "to the real estate agent with whom you worked in your purchase of the home or to the owner of the real estate agency," again with instructions to answer with reference to the closer relationship of the two. For each of these questions, respondents were asked to choose among the following responses: "A relative (including in-laws)"; "A friend or acquaintance"; "A friend of a friend or relative, or a relative of a friend"; "Not a friend, but someone with whom I had previous business dealings"; or "No prior relationship." Respondents were also asked if they were "not too satisfied," "pretty satisfied" or "extremely satisfied" with their purchase.

All respondents were asked if they had purchased legal or home-repair services in the previous ten years. Those responding affirmatively were asked questions, worded similarly to those asked of automobile and home buyers about how they located service providers, any previous relationship to them, and satisfaction with services received.

Attitude questions probed the relationship between exchange role and preference for within-network exchange. Half the sample were asked whether they would prefer to *sell* bedroom furniture, an automobile or a home to "someone with whom you have had some family or social relationship, or to a buyer with which you had no prior personal contact." Respondents were asked to choose a position on a five-point scale, with "1" representing "strong preference for no contact," "3" indicating "don't care,"

and "5" indicating "strong preference for contact." The other half sample were asked to "imagine that you want to buy each of the following items or services. Would you rather buy them from a business or service provider with whom you had some family or social relationship, or from a seller or provider with whom you had no prior contact?" The set of items for buyers included legal and home-repair services as well as automobiles, homes, and furniture.

Respondents were asked if they would reveal that a car they were selling, although currently sound, had "a history of transmission problems," with half of the sample told that they were selling to a relative and half that they were selling to a stranger. All respondents were asked to indicate agreement or disagreement (on a five-point scale) with two assertions: "people usually get a better price for goods or services when they get them from friends than when they deal with strangers;" and "when friends buy or sell something to friends, discussing price is usually awkward or puts somebody on the spot."

Specific predictions derived from hypotheses. Each hypothesis generated several empirical predictions. With respect to *frequency* (hypothesis 1) we expect to observe within-network exchange most frequently in automobile and home purchases from individuals, who have no interest in commercial reputation. Because most people buy homes rarely, especially if they are not geographically mobile, we expect within-network exchange to be more common in selection of realtors than in purchases of

legal or home-repair services or of automobiles from dealers. Considering attitudes rather than behavior, we expect buyers' preferences for within-network transactions to be most pronounced for home purchases, next for automobiles or legal or home-repair services, and least for purchases of furniture, which are likely to be relatively routine.

In developing predictions about *uncertainty* (hypothesis 2), we sought to avoid confounding the effects of uncertainty with those of frequency by eliminating transactions between individuals, thus restricting comparisons to individual purchases from commercial enterprises. We predicted that people would be most likely to deal with social contacts in service transactions involving substantial performance uncertainty, followed, respectively, by purchases characterized by substantial product uncertainty (any home or a used automobile), and by purchases of warrantied quasi-commodities (new automobiles). In analyzing the attitude data, we expect people to express a stronger preference for buying from personal contacts when they purchase legal or home-repair services than when they buy automobiles, homes, or, especially, furniture, which is a relatively standardized commodity.

We expect buyers to prefer within-network exchange more than sellers (*hypothesis 3)* for all transactions (home, automobiles, and bedroom furniture) about which both halfs of the split sample were asked. And we expect *differences* between buyers' and sellers' preferences to be greatest for home sales, which are less frequent and at least as uncertain as automobile purchases, and least for furniture sales, which are

more frequent and entail less uncertainty than either home or automobile transactions.

We anticipate that consumers who report on within-network transactions will express greater satisfaction and, especially, less dissatisfaction with the results of their purchases than people who reported on transactions with strangers (*hypothesis 4*). We expect this tendency to be greatest for purchases of services (due to performance uncertainty) and least for purchases of new cars, the most standardized item about which the satisfaction question was asked.

Analytic approach. We test each hypothesis by examining pairs of transactions to see if differences in outcomes or preferences are consistent with predictions that the hypotheses yield. Whenever data permit, we employ paired t-tests to test the significance of mean differences between responses of the same individuals to different questions, a procedure that in effect controls for the direct impact of individual-level differences. When the study design does not permit internal comparisons of this kind (in comparisons between automobile and home-purchase reports asked of split samples and in subgroup analyses where cell sizes are too small to sustain paired tests), conventional difference-of-group-mean tests are employed.

Although the 1996 GSS data are the best available and the first permitting an inquiry of this kind, they have several limitations. First, in order to test the relative impact of the transaction-type dimensions to which our theory calls attention, we would need information on a set of transaction types that varied systematically on cost,

frequency, and uncertainty. The transactions about which GSS asked hardly exhaust the range of these factors (although the preference questions expand it meaningfully) and lack direct measures of cost, transaction frequency, and perceived risk.

A second complication comes from the fact that our predictions do not account for constraints on the availability of known exchange partners or for effects of sellers' preferences for transactions with strangers. Market behavior reflects not only buyers' preferences for using personal networks, but also the size and composition of the networks that they have available to them. Some buyers who would prefer to transact with a friend or relative will not do so because no suitable transaction partner is available. And networks are more likely to facilitate some transaction types than others. (For example, at any given time it will probably be easier for most people to identify a relative willing to sell them an automobile than to find one from whom they can buy a home.) We address this problem by analyzing preference data (which are not availability-constrained) and by using proxies for relevant network size (long-term residence in a community for home buyers and college degrees for legal-service purchasers).

Variation in Embeddedness by Transaction Type and Role: Results

Because the 1996 GSS is the first publicly available national survey to ask respondents about their relationships to persons from whom they have purchased goods or services, the raw frequencies are of considerable intrinsic interest. Given limits on network size, opportunity costs of avoiding vendors to whom one is not socially tied, and the

problem of reciprocal obligation, we would expect within-network exchange to be relatively uncommon. Yet substantial proportions of major transactions take place between friends, relatives, or two-step ties in social and/or kinship networks (see Table 1). Almost half of all automobile transactions between individuals (46 percent) and direct person-to-person home sales (47 percent) are between relatives, friends, or acquaintances.[4] Customers are socially linked to service providers in approximately one in four purchases of legal services (25 percent) and home-maintenance services (27 percent). Even when home buyers use a realtor, 28 percent report a social or kinship tie to their agent or the owner of the agency. And 17 percent of people who purchase new cars cite similar ties to an owner or employee of the dealership.

If anything, these figures understate embeddedness because they exclude transactions with prior business contacts (including repeat purchases). When such business ties are included, the proportion of embedded transactions rises to almost 27 percent for automobile dealers, more than one in three for realtors, and just under two in five for legal and home-maintenance service transactions.

Table 1 about here

A surprisingly high proportion of such relations are direct to kin, friends, or acquaintances, rather than two-step compounds. Fewer than one in five partner-em-

bedded automobile and home-purchase transactions between individuals are based on compound (two-step) ties, as opposed to direct relations. For other transaction types, the figures are between 25 and 29 percent. Kinship ties are most common between participants in person-to-person automobile and home sales, least common in the purchase of legal services.

On the basis of these frequencies, we conclude that interpersonal relations play a crucial role in many consumption decisions -- not simply, as received wisdom suggests, in the search process, but also in choice of transaction partner. Although we know of no baseline against which to compare the results of the General Social Survey, the percentage of purchases of homes, automobiles, legal services and home-maintenance services in which people deal directly with kin, friends, acquaintances or, less frequently, two-step compounds of these relations, strikes us as remarkably high. We believe that these levels indicate that sociological intuitions about the embeddedness of economic relations may be helpful in understanding consumer markets.

As Granovetter (1985) has argued, economic relations that are socially embedded can be strategic as well. Although we doubt that models based on neoclassical approaches to rationality would predict the extent of within-network exchange that exists, we do expect that rational-choice insights, embodied in the hypotheses developed above, can help us explain relative levels of within-network exchange in different types of transaction. We now test those hypotheses.

Tests of Hypotheses 1 and 2: Behavioral Data. Results of tests of hypotheses 1 and 2 with behavioral reports on specific transactions are represented in Figure 2. (For numerical results see Appendix Table 1.) Hypotheses are qualitative, predicting that the incidence of within-network exchange will be significantly greater for spatially superordinate than for subordinate transaction types. A directed line connecting a superordinate to a subordinate box indicates that the hypothesis predicting a significantly greater incidence of embeddedness in the former has been confirmed. The absence of a line indicates that the difference between the two was nonsignificant.

Figure 2 about here

The behavioral-report data demonstrate substantial support for the expectation that people are more likely to transact within networks for purchases that are unlikely to be repeated and, especially, when the seller is a private individual with no interest in a specific commercial reputation. Seven of eleven pairwise predictions are supported by data from the full sample. As predicted, automobile transactions between individuals entail more within-network exchange than home purchases through realtors, purchases of automobiles from dealers, or purchases of home-maintenance or legal services. Home-purchase transactions between individuals without a realtor's intercession exhibit greater embeddedness than transactions with realtors or purchases of automob-

iles from dealers. And home purchases through realtors (for most people, infrequent transactions) are significantly more embedded than automobile purchases from dealers.

The four disconfirmed predictions all posited higher within-network exchange for home sales (individual-to-individual and mediated by realtors) than for service-market transactions (legal and home-maintenance). How can we explain this anomaly?

First, recall that our predictions assume that patterns of embeddedness are driven by consumers' strategies, and not by variation in the size of consumers' networks. Home purchases differ from the other transactions about which the GSS asked in a way that makes the limits of this premise especially salient: The same circumstances that cause people to purchase new homes often attenuate their relevant personal networks. Unlike an automobile, which can be purchased anywhere, one buys a house where one intends to live. People who move to a new community often purchase houses before developing personal ties to people in that community. It is likely that such movers engage in home-purchase transactions with social contacts far less than long-term residents because they have fewer contacts with whom to transact.

The GSS has no direct measure of recent mobility, nor were respondents asked why they purchased a home when they did. But the GSS does identify respondents who reside in the same community that they lived in when they were sixteen years old. This is an imperfect proxy for the strength of local networks for obvious reasons: Some respondents identified as "movers" by this criterion no doubt resided in their

community for years before purchasing the home to which their responses referred, and some "stayers" may in fact have returned to their native community only after an extended absence. But a poor proxy is better than none.

We ran comparisons between home sales (with and without realtors) and auto sales from dealers, legal-service transactions, and home-maintenance-service purchases for respondents who still resided in the town they lived in when they were sixteen (see Appendix Table 1). For this ostensibly network-rich subsample, hypothesis 1 (frequency) was supported on all counts: within-network exchange remained significantly more common in direct purchases from individuals than in those mediated by agents. But home purchases of both kinds were more likely to exhibit within-network exchange than were legal-service, home-maintenance, or automobile-dealer transactions.[5]

By contrast, the behavioral data provided meager support for hypothesis 2 (uncertainty). As predicted, people are more likely to transact with social ties when they buy homes than in new automobile purchases, and the difference between legal-service and new-automobile transactions is marginally significant ($p<.10$). The other six predicted relationships were insignificant, however. The fact that the uncertainty hypothesis yields a prediction opposite that derived from the frequency hypothesis explains the absence of a significant difference between service transactions and home purchases. The failure of home-maintenance and legal-service transactions to exhibit more within-network exchange than purchases of used cars is more surprising.

If ties to attorneys, who are prestigious and highly educated professionals, are more available to well educated than to less educated persons (a reasonable assumption given that social networks are homophilous with respect to education [Marsden 1988]), then supply factors may distort our results for legal-service purchases. To explore this possibility, we ran separate comparisons between legal-service purchases and used-automobile, home, and new-automobile transactions for respondents with college degrees. College graduates were indeed significantly more likely to report transacting with kin, friends, acquaintances, or compound ties when they purchased legal services than when they bought new automobiles or used automobiles from dealers, but evidence on the former was somewhat equivocal.[6]

To summarize, analyses of behavioral reports lend strong support to the frequency hypothesis and very weak support to the uncertainty hypothesis. All eleven predictions of the frequency hypothesis are supported once a crude proxy for the availability of ties to homeowners and realtors is introduced into the analyses. Only three of eight predictions of the uncertainty hypothesis were sustained, two only after introducing a tie-availability proxy. Taken together, the results suggest that we are on the right track in viewing purchases of goods and services from persons with whom one shares social ties as a means of reducing risk by making the seller's relations with mutual associates a hostage to his or her performance in the transaction.

Tests of hypotheses 1 and 2: Preference data. The preference data provide a

valuable supplement to the behavioral indicators in four ways. First, they permit us to abstract away from the peculiarities of particular transactions and to tap people's preferences based on their schematic expectations -- the images they carry in their heads -- for different types of transaction. Second, unlike behavioral reports, preferences should not be directly influenced by variation in network size and composition. Third, in addition to automobiles, legal services, home maintenance services, and homes, respondents were also asked about bedroom furniture, expanding the range of variation on both uncertainty and frequency. Fourth, because all questions were asked to half of the sample (the other half being asked to imagine themselves in the "seller" role), all hypotheses can be evaluated with mean difference tests, in effect permitting us to control for the effects of individual attributes that shape general preferences for in-group as opposed to impersonal exchange.

Figure 3 about here

In contrast to the behavioral data, mean-difference tests using the preference data provide only modest support for predictions of the frequency hypothesis (see Figure 3 and, for numerical results, Appendix Table 2). Four of seven predictions are sustained, but these are all comparisons between furniture purchases and other transactions. In every case, as predicted, respondents report a less strong preference for

transacting with kin or friends in purchasing furniture than in buying automobiles, homes, or services. The other predictions -- that respondents' preference for in-network transaction partners would be stronger for home purchases than for automobile, legal-service, or home-maintenance transactions -- received no support.

Also in striking contrast to the behavioral evidence, the preference data provide the strongest possible support for the uncertainty hypothesis, with all eight predicted differences reaching statistical significance. Comparisons of home purchases to legal- and home-maintenance-service transactions are of special interest because the frequency and uncertainty hypotheses lead to contradictory expectations. Whereas the behavioral data supported the expectations of the frequency model, the preference data confirm those of the uncertainty hypothesis. Across the board, then, the more uncertain the transaction, and especially the greater the degree of performance uncertainty, the more people prefer transaction partners to whom they have a social tie.

Tests of Hypothesis 3: Buyer vs. Seller Role. Recall that split samples were asked to assume the roles, respectively, of buyers or sellers of bedroom furniture, an automobile, or a home. Hypothesis 3 was tested by comparing the percentage of buyers and sellers, respectively, expressing a preference for transacting with social ties or strangers. The prediction that buyers are more likely than sellers to prefer dealing with friends or kin was supported for all three transaction types (see Table 2). The prediction that sellers prefer to transact with strangers was supported for the two trans-

action types (automobiles and homes) that entail substantial uncertainty but not for the sale of furniture, a result consistent with our theoretical framework.

Table 2 about here

Is it realistic to expect friends and relatives to behave less opportunistically than strangers? Respondents were presented with a scenario in which they were selling a car that was in good repair but had had recurrent transmission problems, and asked whether they would disclose that history to a potential purchaser. Half of a split sample were told that the purchaser was a stranger, the other that the buyer was a relative. Twenty-seven percent in the stranger condition reported that they would probably or definitely not mention the transmission problems, compared to 14 percent in the relative condition. Although the difference is statistically significant, it is not large, and most respondents in both conditions said that they would probably or definitely disclose the problem. But the difference *is* nontrivial from the standpoint of the buyer, who can reduce the risk of this rather mild type of opportunistic behavior by nearly 50 percent if he or she keeps the transaction within the family.

These patterns reflect a widespread perception that persons in one's social network are constrained to treat one more generously and honorably than are strangers. Of GSS respondents, 56 percent agreed and only 27 percent disagreed that people "us-

ually get a better price" from friends than from strangers. Similarly, a survey of Seattle residents revealed high levels of agreement with statements that people one knows well are more trustworthy than strangers and more likely to provide help in time of need. Moreover, most of the Seattlites agreed that "I would feel more comfortable buying [a used car] from a salesperson whom a friend has introduced me to" rather than from a stranger (Yamagishi and Yamagishi 1994: 154-55).

Tests of Hypothesis 4: Satisfaction. We have demonstrated that people believe that friends or relatives will give them better terms in an economic exchange than will strangers, that people act as if they believe that they will do better as consumers in risky exchanges if buyer-seller roles are embedded in noncommercial social relations, and that their preferences for exchange are likewise consistent with this view. Moreover, evidence from the GSS's quasi-experimental split-sample treatments converge with these other results.

Table 3 about here

In light of these findings, we would expect that embedding transactions in social relationships would indeed lead to more positive outcomes, as reflected in respondent reports of satisfaction with goods and services. Indeed, this expectation receives strong support (see Table 3). Home purchasers with ties to home sellers or realtors are

significantly more likely to report that they are "extremely satisfied" with their purchases than are those who transacted with strangers. (They are also less likely to say that they are "not so satisfied," but so few respondents in either group confess dissatisfaction that the difference is not significant.) Purchasers of home maintenance services are significantly more likely to express great satisfaction and significantly less likely (5 percent compared to 14 percent) to express dissatisfaction if their service provider was a network member. The same is true for purchasers of legal services: 55 percent of within-network transactors but just 36 percent of others were "extremely satisfied" with the services they received; and people who had social ties to their lawyers were significantly less likely than people who did not to say they were "not so satisfied" with the results. The hypothesis was confirmed as well in the "market for lemons" (Akerlof 1970): Of people who bought used cars from dealers, 15 percent without ties but only 5 percent with no ties described themselves as "not so satisfied."

The pattern of results is also consistent with our theoretical framework in that the hypothesis was rejected only for new-automobile purchases, the transaction with the lowest risk in terms of the frequency and uncertainty criteria. And it was most strongly supported for service transactions, which are characterized by risk-bearing performance uncertainty.[7] Moreover, as the argument suggests it should, embedding relationships in social ties appears particularly useful for reducing downside risk, lessening dissatisfaction by approximately one third in legal-service transactions, by two

thirds in used-car sales, and by almost three quarters for home-maintenance services.

Why would anyone not *prefer to buy from a friend?* Some insight into this paradox is provided by responses to two other GSS items. Although 56 percent of respondents agreed that "people usually get a better price for goods or services when they get them from friends than when they deal with strangers," 23 percent disagreed and another 21 percent were uncertain. And fully 73 percent agreed that when friends buy or sell something to friends, "discussing price is usually awkward or puts somebody on the spot." Both social discomfort and uncertainty as to outcome may lead some people to avoid transactions with friends even when they stand to benefit.

Discussion

This paper makes several contributions. Most broadly, it demonstrates that economic sociology's view of markets as "socially embedded" (Granovetter 1985) is as applicable to consumer markets as to any other. The extent to which actors have pre-existing social relationships with the people who sell them cars or homes, staff the real estate agencies or automobile dealerships that they patronize, provide them with legal services and repair their homes provides striking confirmation to sociology's expectation that consumer markets are intensely social and that the social organization of consumer markets deserves more scholarly attention than it has received.

More specifically, we demonstrate that insights from the economics of organization (Williamson 1985) are of substantial value in explaining the extent to which dif-

ferent kinds of ties are embedded in social relations. The data provide strong support for the view that individual consumers use their social networks in much the same way as firms use hierarchy: as alternative governance structures for transactions for which impersonal market relations provide inadequate protection against opportunistic exploitation. In this view, the greater the risk in a transaction -- the greater the advantages that information asymmetry and asset specificity bestow upon sellers and the greater the seller's inclination to exploit those advantages -- the greater the likelihood that buyers will prefer dealing with people to whom they have social ties outside the transaction itself. Transacting with social contacts is effective because it embeds commercial exchanges in a web of multiplex relations that extend over space and time, in effect making the seller's network hostage to appropriate role performance in the economic exchange. Product and performance uncertainty refer to the seller's advantage in the exchange; frequency refers to the extent to which incentive structures provided by the market itself can curb opportunism. Where frequency is low and uncertainty high, within-network transactions are most common.

Evidence from the General Social Survey supports this view. Respondents' reports about their own purchases of homes, automobiles, legal services, and home-maintenance services are highly consistent with the view that frequency influences the extent of within-network exchange. Responses to questions about preferences for in-group exchange provide comprehensive support for the argument that product and,

especially, performance uncertainty lead people to prefer to buy products and services from providers to whom they are socially tied. These central results are fortified by a wide range of sustaining evidence. People believe that their friends give them better terms of trade than strangers, and responses to the split-sample vignette about a used-car sale suggests that sellers withhold more information from strangers than from family members. The split-sample preference questions support the theory's prediction that sellers prefer to avoid selling to social contacts under the same conditions that lead buyers to seek such transactions. And people who have purchased goods and services from friends and relatives report greater satisfaction and less dissatisfaction with the results than people who engaged in commercial transactions with strangers; moreover, the differences were greatest for the transactions with the greatest uncertainty. In sum, then, we believe that we have succeeded in answering the question that the title of this paper poses with a theoretical framework of considerable general applicability.

At the same time, this paper raises some questions that it cannot resolve. One such question concerns the contrast between the behavioral data's support for the frequency hypothesis and the preference data's support for the uncertainty hypothesis. To be sure, this is less anomalous than it appears, as the two views index complementary processes within one theoretical framework, not alternative explanatory models. Moreover, the behavioral results were strongest for private treaty sales, which the preference questions to sellers did not address. Presumably, if the preference questions had asked

respondents about purchases from individuals rather than businesses, the behavioral and preference results would have been more similar.

Even so, the particularly strong tendency of respondents taking the purchaser role to prefer to work with attorneys and home-maintenance contractors to whom they have noneconomic ties is striking, and inconsistent with the behavioral reports. This inconsistency between preference and behavior probably reflects two factors. The first has to do with the temporal dimensions of consumer choice. Many people who need lawyers or home repair services have little discretion as to the timing of their purchase. By contrast, we suspect that in many sales of cars or homes between friends or relatives, the buyer's demand for the good is stimulated by his or her knowledge of its availability. Even in sales of used cars through dealers or homes through realtors, personal contacts may provide inside information about a particularly attractive deal to a buyer who is not actively "in the market." Purchasers of services rarely have the luxury of waiting for a known provider to come to them.

A second factor concerns the structure of the questions themselves: A respondent asked to imagine purchasing a home or car is likely to visualize an attractive good, and the process of exchange may remain in the background By contrast, a question evoking a legal-service or home-maintenance transaction necessarily entails a representation of the service providers themselves, and in so doing may prime the respondent's perception of risk in a more realistic manner.

A more important limitation of the theoretical framework proposed here is that it is far better at explaining variation across transactions than across persons. The fact remains that many people continue to buy homes and used cars from strangers, or hire attorneys or electricians who come unrecommended by their kin, friends or acquaintances. Moreover, such deviations from apparent rationality are not simply second-best solutions adopted by people with impoverished social networks: Roughly 15 to 20 percent of each of the split samples consistently express a positive preference, respectively, for buying from strangers and selling to friends -- preferences that are plainly irrational in terms of the theoretical framework set out above. To explore such individual differences we need a theoretical framework that focusses less on how individuals apply standardized principles of rational action and more on variation among persons in their understandings of incentives and risks (Dobbin 1994). As we noted in the introduction, the strategic factors to which this paper calls attention constitute only one of two mechanisms that influence the extent of within-network exchange. The other -- variation in the extent to which people participate in systems of generalized reciprocity -- is not germane to differences among transaction types but is highly pertinent to explaining variation among persons. We shall explore these issues in subsequent work.

The GSS module is a uniquely valuable but imperfect resource for scholars interested in these questions. An ideal data set would include direct measures of key variables --- price, exchange frequency, perceived risk, and network size and composit-

ion --- that the GSS omits. Data on sets of transaction types that vary more in uncertainty, asset specificity, and cost would be valuable, as would designs (perhaps using vignette methods) that systematically manipulate transaction attributes.

Further research on the relationship between exchange and other formal institutions would also be desirable (Zucker 1986). In the GSS data, realtors appear to be a functional alternative to within-network exchange. How might behavior also be affected by such institutional factors as variation in state "lemon laws" or real-estate market regulations.

Finally, interpreting the GSS data at times required heroic assumptions about the way in which respondents perceived the world. Given how little research has been undertaken on consumer markets, systematic interviewing and ethnographic research would provide valuable input into theory development and research design.

This is a long agenda. We hope and believe that the results of this paper provide a useful beginning and, at the very least, will convince readers that within-network exchange is a substantively important and theoretically engaging topic that deserves a larger share of economic sociologists' attention than it has received.

NOTES

[1]. Williamson (1991) describes the network "as a nonhierarchical contracting relation in which reputation effects are quickly and accurately communicated."

[2] Note that it follows from our discussion of generalized reciprocity that tendencies towards transacting within social and kinship networks vary across individuals as well as across transactions. We bracket individual variation in this paper in order to address the influence of transaction type and transaction role. In a subsequent paper, we shall focus upon variation among persons within transaction type.

[3] The degree of risk is also a function of cost, of course. Where uncertainty is high but cost is low (e.g., buying a second-hand waffle iron for a couple of dollars), people may prefer to accept risk rather than invest in search. Where more money is at stake, search costs are more acceptable. We would expect actors to use any means, including networks, to *search* for information more intensely when the cost of a product or good is higher. But we expect cost to be related to *within-network exchange* only for transactions characterized by nonrepeatability or uncertainty. We shall speculate about the influence of cost on transaction embeddedness in passing, but because the GSS collected no data on purchase prices, we cannot test formal hypotheses about cost below.

[4] Our enumeration of purchases from home owners home owners is complicated by the fact that the question about "relationship to the previous owner" preceded, rather than followed, the screening question that might have prevented it from being asked respondents who did not purchase homes (with or without the intercession of realtors) from persons who owned them at the time of the sale. Consequently, 19 of 72 respondents who described their purchase as "other" (i.e., indicating that they did not use a realtor, nor did they purchase the house directly from its previous owner or its builder) gave substantive responses to the "relationships to the previous owner" question, as did 4 of 61 respondents who reported purchasing a home directly from its builder. In calculating the proportion of embedded purchases for sales by owners and by realtors, we eliminated such respondents (i.e., those who reported direct purchase from builder or "other") from samples used to calculate rates of within-network exchange.

[5]Paired tests fell short of significance for the comparisons between individual home transactions (N=22) and between home sales through realtors and legal-service purchases(N=35), but mean differences were comparable to between-group differences in means, suggesting that failure to reach significance reflected the very small cell sizes.

[6]Paired t-tests for the difference between legal-service transactions and new automobile purchases were not significant and, equally important given the small N (32) the differences themselves were no greater than for the full sample.

[7] GSS did not ask purchasers of automobiles from individuals about their satisfaction with the trade, so all data on automobile-purchase satisfaction pertains to purchases from dealers..

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Table 1: Within-Network Exchange by Type of Transaction

Transaction and N	Relative	Friend/ Acquaintance	Two-step Compound	Not friend/ Prior Dealings	No Re-lationship
All cars (646)	7.5	15.9	6.2	8.8	61.6
Any used car (439)	9.8	18.2	7.3	8.7	56.0
Used car from indiv-idual (250)	15.6	23.2	7.2	6.4	47.6
Used car from dealer (189)	2.1	11.6	7.4	11.6	67.2
Any new car (207)	2.4	11.1	3.9	9.2	73.4
All homes: Clos-est tie to owner or realtor (312)	7.7	19.2	7.4	6.1	59.6
Homes: Tie to owner (318)	6.9	9.7	3.8	2.8	76.7
Home: Tie to owner when agent used (218)	0.5	3.7	0.5	3.2	92.1
Home: Tie to owner when no agent used (94)	14.9	23.4	8.5	2.1	51.1
Home: Tie to realtor (218)	4.6	16.1	6.9	6.4	66.1
Legal services (645)	1.4	17.2	6.7	13.5	61.2
Home main-tenance (547)	3.3	16.8	7.1	11.9	60.9

Cell entries are percentages. Ns are less than 1444 because automobile and home questions were asked to split samples, and because not every respondent had engaged in a relevant transaction.

Table 2: Preference for Within-Network Exchange by Transaction Type and Role

Transaction and N	Prefers no Relation			Prefers Relation		
	As Buyer	As Seller	Difference	As Buyer	As Seller	Difference
Bedroom furniture	19.2 (694)	20.2 (718)	1.0	27.5 (694)	17.0 (718)	10.5*
Automobile	20.6 (694)	31.0 (720)	10.4*	49.7 (694)	18.5 (720)	31.2*
Home	17.2 (697)	25.7 (717)	8.5*	45.5 (697)	19.2 (717)	26.3*
Legal services	16.2 (693)	NA		60.9 (693)	NA	
Home maintenance	12.0 (700)	NA		62.6 (700)	NA	

Cell entries are percentages (top) and item Ns (bottom). *=p<.05 (difference between percentages of buyers and sellers). Ns are less than 1444 because buyer and seller roles were addressed in split samples. Respondents were given a hand card and asked to place themselves on a continuum from 1 ("strong preference no contact") to 5 ("strong preference contact"), with the mid-point (3) labelled "don't care." Those choosing 1 or 2 are included under "prefers no relation" above, those choosing 4 or 5 are included under "prefers relation." (The percentage choosing "3' is the complement to the percentages reported above for each transaction type/role combination.)

Table 3: Buyer Satisfaction with Transaction by Presence/Absence of Tie to Seller

Transaction and df	Percentage "Not So Satisfied"			Percentage "Extremely Satisfied"		
	No Tie	Tie	Difference	No Tie	Tie	Difference
Used Cars (182)	15.3*	5.0*	10.3*	43.1	55.0	11.9
New Cars (203)	4.7	8.3	3.6	59.2	50.0	9.2
Home (317)	4.7	1.6	3.1	43.5	61.0	17.5*
Legal services (641)	17.3	11.8	5.5*	36.2	55.3	19.1*
Home maintenance (527)	13.3	4.7	8.6*	27.6	36.9	9.3*

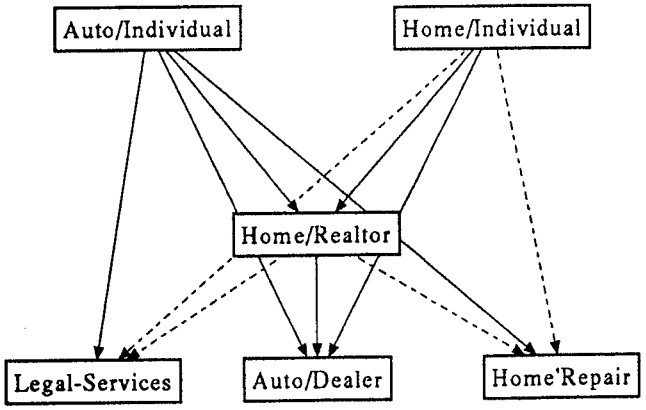
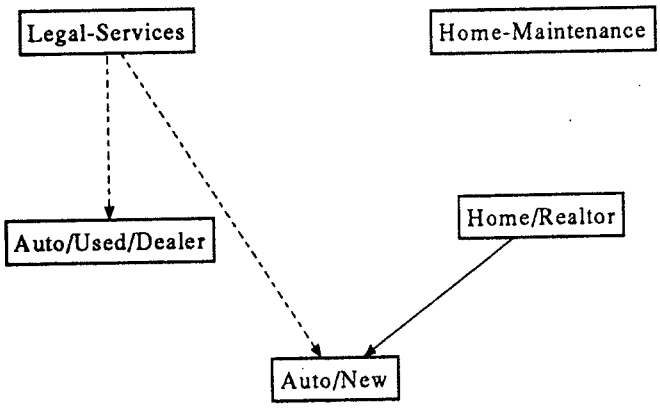
*=$p<.05$ (difference between buyers with and without ties to sellers). Automobile transactions include only purchases from dealers.

Figure 1: Varieties of Embeddedness

This paper does not focus on:	*This paper focusses on:*
Distinction 1 (between types of embeddedness):	
Global Embeddedness (Embeddedness as Constant)	**Specific Embeddedness** (Embeddedness as Variable)
Distinction 2 (between types of markets):	
Labor Markets/ Business-to-Business Markets	**Consumer Markets**
Distinction 3 (between types of specific embeddedness):	
Search Embeddedness (Economic and Sociological theories both predict high levels)	**Within-Network Exchange** (Sociological approaches more likely to emphasize)
Distinction 4 (between mechanisms generating within-network exchange)	
Mechanism 1: Generalized Reciprocity Expectation: Variation among persons across transaction types	**Mechanism 2: Calculation** Expectation: Variation among transaction types across persons

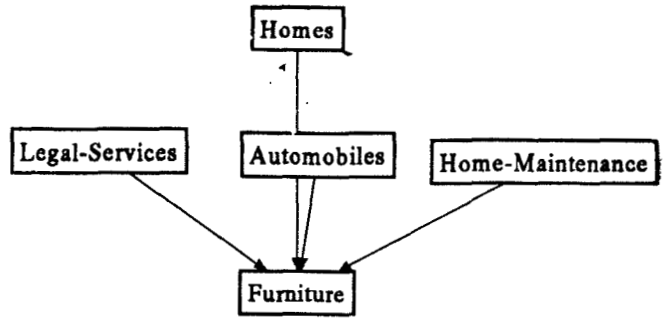
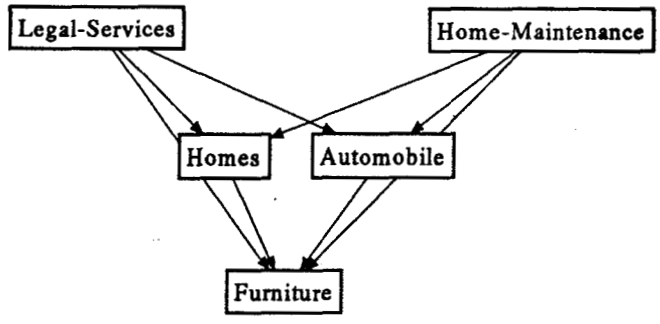
This paper develops and tests propositions about variations in the degree of within-network exchange among transaction types driven largely by strategic calculation.

Figure 2: Tests for Behavioral Hypotheses

Hypothesis	Hierarchical Diagram*
A. Frequency	
B. Uncertainty	

* Within each panel, hierarchically superior transaction types are hypothesized to exhibit more embeddedness than hierarchically inferior transaction types. Where lines connect variables at different hierarchical levels, the hypothesis is supported ($p \leq .05$). Dotted lines indicate hypotheses supported only on subsample restricted to respondents with high network availability (for frequency, those who live in place they resided in at age 16; for uncertainty, college graduates). For full sample, tests between legal service or home-repair service and all others are paired (mean individual differences) but, due to survey design, tests for difference in group means were used for comparisons between types of automobile or home purchases. Due to small cell sizes, difference-in-mean tests were used to test hypotheses on subsamples. (Results for paired and unpaired tests are reported in text and appendix table 1).

Figure 3: Tests for Preference Hypotheses

Hypothesis	Hierarchical Diagram*
A. Frequency	
B. Uncertainty	

* Within each panel, hierarchically superior transaction types are hypothesized to exhibit more embeddedness than hierarchically inferior transaction types. Where lines connect variables at different hierarchical levels, the hypothesis is supported at $p \leq .05$. All significance tests are paired (mean individual differences).

Appendix Table 1: Difference-Test Results for Behavioral Data

Behavioral Hypothesis 1: Mean differences (df below). Column 1: full sample; Column 2: stable residents only (paired t-test), Column 3: stable residents (unpaired test)

Prediction	Mean Difference			Prediction	Mean Difference		
	1	2	3		1	2	3
$A_i > A_d$	.268*†			$A_i > H_a$	.171*†		
	644				466		
$A_i > L$	.208*			$A_i > M$	.273*		
	124				65		
$H_i > A_d$	.276*†		.347*†	$H_i > H_a$	.179*†		
	488		173		310		
$H_i > L$	.106	.174	.181*	$H_i > M$	.065	.238*	.266*
	46	22	316		45	20	224
$H_a > A_d$	.097*†		.181*†	$H_a > L$	.009	.111	.138*
	612		201		115	35	290
$H_a > M$	.052	.171+	.101+				
	133	40	252				

Behavioral Hypothesis 2: Mean differences (df below). Column 1: full sample; Column 2: college graduates only (paired t-test); Column 3: college graduates (unpaired test).

Prediction	Mean Difference			Prediction	Mean Difference		
	1	2	3		1	2	3
$L > A_u$	.034	.263*	.160*	$L > A_n$	.065+	.061	.133*
	86	18	205		107	32	240
$L > H_a$	-.009	.000	-.150	$M > A_u$	.081		
	115	47	248		73		
$M > A_n$	.061			$M > H_a$	-.052		
	97				133		
$A_u > A_n$	.038†			$H_a > A_n$	.115*†		
	394				423		

In each of the following, the hypothesis refers to the percentage of transactions of a given type in which the buyer and seller are tied by kindship, friendship, acquaintanceship, or a compound (two-step) tie.

A_i=Automobile purchase direct from individual seller; A_d=Automobile purchase from a dealer

A_u=Used automobile purchase from a dealer; A_n=New automobile purchase

H_i=Home purchase direct from individual seller; H_a=Home purchase through real estate agent (closest tie to seller or realtor); L=Legal-service purchase; M=Home-maintenance-service purchase.

Ns for paired tests on subsamples are so small (with sample attrition due largely to presence of split samples) that unpaired (difference-of-mean) tests are also reported. In certain cases (designated by †), the split-sample design makes it impossible to carry out paired tests, so that difference-of-mean tests are employed for the full sample.

* $p<.05$ + $p<.10$

Appendix Table 2: Difference-Test Results for Preference Data

Preference Hypothesis 1: Mean differences (with degrees of freedom in parentheses)

Prediction	Mean Difference (df)	Prediction	Mean Difference (df)
$H_p > A_p$	-.044 (685)	$H_p > L_p$	-.153 (684)
$H_p > M_p$	-.170 (692)	$H_p > F_p$	.178* (684)
$A_p > F_p$	.226* (682)	$L_p > F_p$	.339* (680)
$M_p > F_p$	.350* (687)		

Preference Hypothesis 2: Mean differences (with degrees of freedom in parentheses)

Prediction	Mean Difference (df)	Prediction	Mean Difference (df)
$L_p > A_p$	.107* (683)	$L_p > H_p$	.153* (684)
$L_p > F_p$	.339* (680)	$M_p > A_p$	.131* (688)
$M_p > H_p$	.170* (692)	$M_p > F_p$	.350* (687)
$H_p > F_p$	.178* (684)	$A_p > F_p$	.226* (682)

For each, the percentage of respondents expressing a preference for trading with a personal tie:
A_p=Automobile: Preference
H_p=Home: Preference
L_p=Legal Services: Preference
M_p=Home Maintenance Services: Preference
F_p=Furniture: Preference

* $p<.05$