

Embeddedness for Control, for Compatibility, or by Constraint?  
Within-Network Exchange in the Selection of Home Remodelers<sup>1</sup>

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Comments Welcome

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**Abstract**

This paper advances our understanding of why some transactions are “embedded” in preexisting social relations and some are not. While prior research tends to interpret such relations as instruments that transaction parties use to control one another in situations of vulnerability, this interpretation has difficulty accounting for high rates of embeddedness among the many consumer transactions where there are alternative safeguards (e.g., reputational penalties) against such exploitation. Apparent empirical support for this “embeddedness-as-control” thesis from the 1996 General Social Survey (DiMaggio and Louch 1998) is limited by mixed findings, by recourse to indirect measures of the mechanisms involved, and by an inability to compare the selected seller with those who were rejected. The present study analyzes data from a 2004 national survey of American homeowners concerning recent home remodeling projects, which helps address each of the weaknesses of the 1996 GSS. Results are largely inconsistent with the embeddedness-as-control thesis. Instead, two mechanisms that have not received sufficient attention in past research seem important in leading homeowners to select remodelers from among members of their social networks: (a) consumers often seek sellers who are particularly *compatible* with their needs and desires and regard strangers as less likely to be compatible; and (b) that buyers often feel *constrained* or obligated to keep their business “within the family,” and do not even consider alternatives.

## Introduction

Research in economic sociology has helped to reshape our image of market exchange. It is now widely recognized that much trade does not occur at arm's length but is in some sense "embedded" in prior social relations, either due to a past history of exchange or common ties to third-parties or membership in social categories (Granovetter 1985). This shift in imagery from anonymity to familiarity has been particularly dramatic in the case of consumer markets, which even sociologists had tended to see "as restrict(ing) or enervate(ing) social relations (DiMaggio and Louch 1998: 620)." In fact, DiMaggio and Louch's (1998) pioneering analysis demonstrates a strikingly high level of embeddedness in consumer transactions. Using data from the 1996 General Social Survey (GSS) on five types of consumer transactions, DiMaggio and Louch (henceforth, DL) examine the extent to which American consumers buy from sellers who can be classified as "within network" (WN)-- i.e., having a prior relationship or a strong indirect relationship. DL find that 38.4% of respondents bought their most recent car from a WN seller (44% if the car was used and 52% if the seller was not a dealer); 40.4% of the most recent home purchases were conducted with either a WN broker or seller; 38.8% had such a prior relationship with the most recent seller of legal services; and 39.1% had purchased their most recent "home maintenance services" from a WN seller. It would seem then that a substantial proportion of consumer purchases are embedded, much as has been found to be the case for business-to-business transactions. At the same time, many if not most transactions are in fact conducted at arm's length. What accounts for such variation? That is, what explains when transactions are embedded in prior relations and when they are not?

DL address this question by adapting the logic of transaction costs economics (Williamson 1975, 1985, 1996) to argue that

... consumers use social networks in much the same way that firms use hierarchy: as alternative governance structures for transactions for which impersonal market relations provide inadequate protection against opportunistic behavior...  
Transacting with social contacts is effective because it embeds commercial exchanges in multiplex relations that extend over space and time, in effect holding the seller's network hostage to appropriate role performance in the economic exchange (DiMaggio and Louch 1998: 634).

DL's approach might seem surprising given the anti-economics tone in much economic sociology and the specific skepticism expressed towards transaction cost economics (Freeland 2001; Granovetter 1985). Yet insofar as sociologists have ventured answers to our question, DL's interpretation of embeddedness as an instrument for checking opportunism is broadly representative of such answers. For instance, in his classic analysis of an options exchange, Baker (1984: 778) cites transaction costs economics generally and the desire to control opportunism in particular, to explain why trade is concentrated in cliques. And Kollock (1994) argues and shows experimentally that where incentives for exploitation (i.e., by delivering goods that are lower quality-- and hence cheaper to produce-- than promised) are strong, but information channels are weak (every transaction is private and there is no way to tell others about one's experience), buyers are reluctant to purchase from a seller unless that seller first demonstrates trustworthiness. Two related mechanisms interact in such conditions (see Cook, Levi, and Hardin 2005: 2)-- an *incentives*-based mechanism ("shadow of the future"; Axelrod 1984), whereby the long-term payoffs from repeated cooperation outweigh the short-term payoffs from defection; and a *learning*-based mechanism ("shadow of the past"; Buskens and Weesie 2000), whereby a seller cultivates a reputation for trustworthiness by repeatedly showing that she can be relied upon not to exploit the buyer's vulnerability. But neither mechanism is salient in cases where the buyers are not vulnerable to exploitation. Accordingly, Kollock shows that, compared to such low-vulnerability markets, markets where buyers are more vulnerable are marked by much higher rates of repeated exchange as well as attributions of trustworthiness by buyers to (embedded) sellers.

Thus, DL's "embeddedness-as-control" approach represents a consistent and compelling theme in recent economic sociology. In particular, DL (implicitly) posit a multistep causal chain, which is depicted in figure 1. First, they argue that transactions may vary on three key dimensions that increase a consumer's feelings of vulnerability to opportunism: (a) "performance uncertainty," which is typical of service transactions (due to the typical requirement of an advance deposit; the considerable discretion involved; and high switching costs; see DL, p. 626); (b) the infrequency with which the consumer purchases the good in question (thus dimming the shadows of both the past and future);

and (c) the cost of the transaction (thus increasing the penalty from exploitation). And having raised the consumer's sense of vulnerability, the next steps in the causal chain are consistent with Kollock's (1994) analysis. In particular, a sense of vulnerability should increase the consumer's preference for a seller she can trust not to exploit such vulnerability. And insofar as the consumer has sellers in her network already and insofar as the consumer believes that WN sellers are more trustworthy (due to some combination of the shadows of the future and the past), we can expect her to favor WN sellers.

#### FIGURE 1 ABOUT HERE

Yet while this account seems compelling, there are both empirical and theoretical reasons to doubt its utility as an explanation for consumer embeddedness. Empirically, a key weakness of the 1996 GSS is that it includes information on the seller who was ultimately selected but not on the broader set of sellers the respondent might have considered. As a result, it is difficult to infer that a buyer who transacted with a WN seller actually *selected* WN seller over a non-WN seller. In some cases, such buyers *might have rejected other WN sellers*-- in which case, a preference for WN sellers certainly cannot be inferred. In other cases, buyers who selected a WN seller *might have considered no one else*. While perhaps not directly contradicting the "embeddedness-as-control" thesis, the elimination of outside options by curtailing search would be awkward for this thesis because the shadow of the future can keep the parties honest only if each party understands that malfeasance will bring about defection to alternatives. That is, for trust to be produced in this fashion, each side must have some degree of power over the other, creating mutual interdependence (Cook et al., 2005: 55).

Moreover, even if we assume that the selection of a WN seller does reflect a preference for a WN seller, this preference might derive from factors that are quite different from that suggested in figure 1—i.e., a sense of vulnerability coupled with the belief that WN sellers are more trustworthy. But since the 1996 GSS contains *no direct measures of these or any of the variables in this causal chain*, there is no way to know what drives such preferences. Without such direct measures, DL focus on explaining variation in WNE across transactions, which they posit as varying along the first and second of the two dimensions thought to heighten vulnerability-- performance uncertainty and infrequency (they acknowledge that they cannot test for the effect of cost; see DL,

p.626; FN.3)-- and they are forced to assume that the intermediate steps in the causal chain operate as in figure 1. But even if we adopt such assumptions, results from the 1996 GSS lend ambiguous support to the hypotheses that performance uncertainty and infrequency increase WNE. In particular, while respondents seem to prefer WNE for service transactions (which DL assume have higher performance uncertainty), their reported behavior does not reflect such preferences. And while respondents report engaging in WNE at higher rates for transactions DL assume are more infrequent,<sup>2</sup> respondents do not express a corresponding preference for conducting such transactions with WN sellers.

In sum, since the 1996 GSS: (a) only includes information on the seller that was ultimately selected, but neither how many were alternatives were considered nor how they compared with the selected seller; (b) includes no direct measures of any of the variables in the causal chain; and (c) provides mixed evidence even with the assumptions adopted by DL, it is hard to view these data as supporting the embeddedness-as-control thesis.

In addition to such empirical gaps, there is also a key theoretical reason to doubt the embeddedness-as-control thesis, at least as applied to consumer transactions in the US economy. In particular, while consumers should favor WN sellers when (as in Kollock's [1994] high-vulnerability market), bad behavior by sellers is not communicated to others,<sup>3</sup> it is unclear why consumers should favor WN sellers when sellers do expect that such behavior will become known to others. Accordingly, Kuwabara (2007) shows that the introduction of a reputation system (in a high-vulnerability online market) reduces rates of repeat exchange because "insofar as sellers refrain from opportunism in order to avoid bad reputations, buyers no longer need to form commitment relationships (p.2)." Caves (2000: 96) appeals to a similar logic when he predicts that there should be little

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<sup>2</sup> For instance, used cars and homes from private owners are assumed to be purchased less frequently, and therefore predicted to involve more WNE, than are home maintenance services and legal services

<sup>3</sup> However, note Granovetter's skepticism: "...social relations ... are not sufficient to guarantee [trustworthy behavior] and may even provide occasion for malfeasance and conflict on a scale larger than in their absence (Granovetter 1985: 491)." Thus, the effectiveness of WNE as a mechanism for enforcing social control is not clear. Others have also challenged the Williamsonian view that incorporating a transaction within a firm's "hierarchy" substantially mitigates the likelihood that a vulnerable party will be held up or that any such mitigation will not be offset by incentive problems faced by the firm (see Eccles and White 1988; Freeland 1996, 2001; Baker, Gibbons, and Murphy 2002).

repeat exchange in the film industry because “the role of reputation,” which spreads rapidly through an industry agglomeration like Hollywood (cf., Saxenian 1994), “induces each participant to give each project its best efforts.” Thus, insofar as a market provides channels through which a seller’s malfeasance can be communicated and thereby threaten her reputation, it is not clear why WN sellers should appeal to buyers as a means for controlling sellers (see Cook et al., 2005: 85). Note in this regard that DL distinguish WNE from “search embeddedness,” which they define (p.620) as cases in which “actors ... use social relationships to identify the reliability of potential transaction partners to whom they have no direct or close indirect ties” and they acknowledge that “much theory predicts high levels” of such search embeddedness. But if search embeddedness is rampant and is an effective means for controlling opportunism, why is WNE necessary?<sup>4</sup> That many consumers do *not* engage in WNE even for highly uncertain, infrequent, and costly transactions (e.g., the classic case of a used car; cf., Akerlof 1970) suggests that other mechanisms are available to curb opportunism.

### *Agenda of the Study*

*1. Testing Embeddedness-as-Control.* The foregoing empirical and theoretical difficulties with the control-based explanation for consumer embeddedness provide the main motivation for the present study, which reports on results from a 2004 survey of U.S. homeowners sponsored by the National Association of the Remodeling Industry (NARI). The NARI survey shares an important weakness with the GSS: a reliance on retrospective accounts. And the NARI survey is more limited than the GSS in that it focuses on a single transaction-- the purchase of remodeling services. However, this transaction is one that carries at least a moderate degree of vulnerability in that it is an infrequent purchase and is subject to notoriously high levels of performance uncertainty. In addition, what the NARI survey lacks in breadth it makes up for in the much greater depth of detail it provides on this transaction, thereby allowing for a more direct test of the causal chain

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<sup>4</sup> Lazzarini, Miller, and Zenger (2008) note two other, common factors can substitute for trust and therefore lower levels of repeat exchange: (a) formal contracts (cf., Robinson and Stuart 2007; Zucker 1986; which depends on a legal system to uphold them [see e.g., Cook et al., 2006: 58]; and (b) general trust, a disposition that Yamagishi and Yamagishi (1994) define as “belief in the benevolence of human nature in general” (p. 139), posit as “help(ing) people move out of committed relations” (ibid., 160), and have shown to characterize American culture (in contrast to Japanese). Insofar as these factors are salient, it reinforces the puzzle as to why WNE would have appeal as a control device.

pictured in figure 1. In particular, survey items allow for more direct tests of two of the hypothesized relationships depicted in figure 1:

*H<sub>control1</sub>: Consumers choose WN sellers because consumers perceived them as more trustworthy than non-WN sellers.*

*H<sub>control2</sub>: The greater the expected cost of a purchase, the greater the consumer's concern with the trustworthiness of the seller (leading to greater WNE).*

In addition, rather than having to infer the nature of the selection process from consummated transactions, the NARI survey provides a richer picture of the context for the selection because it includes information on: (a) the number of remodelers seriously considered; and (b) the relationship between the consumer and the remodeler that was considered most seriously but rejected. This allows us to examine whether the selection of a WN seller reflects situations where the consumer has cultivated outside options who are not WN sellers. Insofar as WNE is associated with not considering alternative sellers, it would be awkward to depict the consumer's preference for WNE as driven by her belief that she will be better able to control such a seller by punishing malfeasance.

2. *Embeddedness-as-Constraint.* In addition to testing the embeddedness-as-control thesis, the NARI data allow us to explore two possible bases for embeddedness that have some precedent, but have not been well developed, in past research. The first such factor is that consumers who have strong ties to a seller that sells a product or service may often feel that they *have no choice* but to buy from the WN seller. One precedent for this idea lies in research on “direct selling” or “network marketing” organizations such as Amway, Mary Kay, or Primerica ( see Biggart 1990; Gabbay 1997), which encourage agents to exploit their social networks, essentially taking advantage of the fact that close friends and relatives will often feel obliged to purchase from them. This same mechanism seems to operate beyond the specific case of network marketing. Insofar as a consumer has a strong tie with someone who sells a product or service that he seeks, giving his business to someone else can be expected to lead to a rupture in the

relationship, often incurring sanctions from third-parties as well. This threat may be experienced unconsciously or emotionally, but it can be framed rationally as well. In particular, insofar as the consumer values the relationship (and the larger set of third-parties who uphold it) more than the expected value of buying from a competitor, it will make sense for her to keep her business “within the family.”

The NARI survey data do not afford a direct test of this “embeddedness-as-constraint” thesis. However, an implication of this thesis is testable with the NARI data. In particular, when perceived social costs to choosing a non-WN seller are very high, it may not seem worthwhile or possible for the consumer to *even consider* going with a non-WN seller. That is, the mere act of consulting with competitors can be discovered by the WN seller and be construed as an affront. This leads to the following hypothesis, which we will test below. In particular, if consumers feel obligated to select a close relation who sells a product that they seek, it follows that:

*H<sub>constraint</sub>*: *Consumers who transact with a close relation will tend not to have considered alternative sellers.*

*3. Testing Embeddedness-as-Compatibility.* Clearly, this sense of obligation cannot explain all WNE, especially when it involves relations who are not close relatives or friends. Why then might consumers *prefer* a WN seller if not to control opportunism? A promising answer can be gleaned from the second reason Caves (2000: 96) gives for why he expects little repeat exchange in the film industry-- i.e., the fungibility of the human inputs involved. He argues that “film production entails no apparent transaction-specific assets” (e.g., “compatible physical facilities, knowledge of the particulars of each others’ needs”) that would make particular agents “work (more) harmoniously with each other” than with alternative agents. Zuckerman (2008) shows that in fact, there is a high degree of repeated exchange in contemporary Hollywood (even higher than in the internal labor markets of the studio system) and argues that the reason is that Caves overstates the extent to which actors are, or at least *see themselves*, as fungible. Rather, no two matches between say, a director and a producer, are experienced as exactly the same, and since the level of compatibility is difficult to assess *ex ante*, collaborators are

reluctant to try alternatives once they find a partner with whom they *think* they work well (even if they perhaps would do better with alternatives; see Sorenson and Waguespack 2006).

This last point can be put in more general terms and extended to any transaction that requires some degree of “reciprocal interdependence” (Thompson 1967) or “joint problem solving” (Uzzi 1997)-- in particular, to the purchase of services such as home remodeling rather than products such as toaster ovens. In particular, an implicit premise underlying the embeddedness-as-control thesis is that all sellers and their products are fungible *ex ante*, and so the key question is which seller can be relied upon not to exploit the buyer.<sup>5</sup> But insofar as sellers are, or at least perceived as being, very different from one another, with only some being compatible with the buyer (e.g., as collaborators in solving problems that that arise along the way); and insofar as consumers regard members of their network as more compatible with them than others, we may hypothesize that:

*H<sub>compatibility</sub>*: *Consumers prefer WN sellers because they are perceived as more compatible with them as collaborators.*

*Overview.* The foregoing three hypotheses thus complete the agenda for the empirical analyses I present below. The main objective of the analyses is to exploit the unique features of the NARI data to test the embeddedness-as-control thesis. The second objective is to use these features to test the salience of the two mechanisms posited above—i.e., that consumers feel obliged to buy from close relations; and that their preference for WN sellers is due to a perception that they are more compatible with them. Note that each of the three processes could be responsible for some portion of the WNE we observe. As a result, my objective is merely to shift the balance of attention from the almost exclusive focus in past research on embeddedness-as-control, to one that recognizes additional mechanisms, which are likely to be especially salient in the many real-world settings that depart from the conditions in Kollock’s high-vulnerability

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<sup>5</sup> By contrast, an important theme in this literature concerns the vulnerability that is created due to investments that are specific to a particular exchange partner, thereby creating *ex post* nonfungibility, which can potentially be exploited insofar as the market for the specific asset is limited.

condition—i.e., where the temptation to exploit remains, but: (a) reports of malfeasance circulate within the population of buyers, thereby disciplining sellers via expected reputation costs; (b) buyers do not regard sellers as fungible with one another, but are looking for distinctively compatible matches; and (c) where social commitments from outside the transaction in question obligate buyers to choose certain sellers and avoid considering alternatives who might have better met their needs.

In the next section, I describe the NARI survey and compare it with the GSS so as to clarify the population to which the results may be taken to represent. I then describe results, and discuss implications for the issues at hand, from two stages in the selection of a remodeling contractor: (a) the size and nature of the consideration set from which the professional remodeler is chosen; and (b) the factors that distinguish the remodeler that is in fact chosen.<sup>6</sup> Analysis of the first stage sheds light on the extent to which selection of a WN remodeler in fact involves consideration and rejection of non-WN remodelers and also allows us to test  $H_{constraint}$ . Analysis of the second stage will allow us to test the two hypothesis associated with the embeddedness-as-control thesis, as well as  $H_{constraint}$ . In the penultimate section, I present results from an analysis of the factors that explain satisfaction with the remodeling project, which shed additional light on the issues at hand. I conclude by noting limitations of the study and by suggesting directions for future research.

### NARI Homeowner Survey

#### *Survey Methodology*

The data for the present study are derived from a survey that was commissioned by the National Association of the Remodeling Industry (NARI) and administered in January and February of 2004. The survey was intended to draw a portrait of the process by which remodeling contractors (“remodelers”) are selected by homeowners; the factors responsible for the selection of a remodeler; and the factors that lead to a more or less satisfying transaction. The survey instrument was designed by the survey firm Northwest Survey and Data Services (NSDS) in consultation with the author and with the lay

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<sup>6</sup> In the Appendix, I discuss the prior stage, which involves the choice by the homeowner to hire a professional rather than to do the work himself.

leadership of NARI, which consists of seasoned remodelers with extensive experience in all aspects of the relationship between contractor and homeowner. The text of the survey questions is provided in Appendix B. The study was part of a larger research project on remodeling general contractors (see Sgourev and Zuckerman 2008; Zuckerman and Sgourev 2006), which included two prior surveys of such contractors (Zuckerman and Sgourev 2002, 2003).

The sampling frame for the survey was a list of all known telephone numbers of U.S. homeowners obtained from a market research firm, from which a simple random sample was drawn by NSDS with a target sample size of 600. Any adult homeowner was eligible to respond to the survey. After an initial screening question that confirmed homeownership, each respondent was asked whether he or she had “done any major home remodeling work, not including repairs, in the last 5 years.” Approximately one-fourth of the homeowners answered in the negative to this question and was thus rendered ineligible. The final sample size was 604 and the response rate was 25%, with an estimated sampling error of 4.0% (5.3% for the homeowners who hired remodelers).<sup>7</sup>

This response rate is low, especially when compared with the GSS, which typically has response rates that are triple this level (Smith, Davis, and Marsden 2007). Yet note that the refusal rate (16%) was quite low for a phone survey for which no incentives were given for participation.<sup>8</sup> Indeed, it is remarkable that so many homeowners were willing to respond to a survey about which they were told only that it “takes about ten minutes and is for the National Association for the Remodeling Industry.” The main reason that the response rate was not higher was that the budget and timeframe allocated to the survey entailed that NSDS could not persist in trying to locate homeowners who were difficult to contact or schedule for interviews. Rather, as is the norm in phone-based household surveys, additional samples were drawn and more available homeowners were obtained. Still, the question arises as to whether eligible

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<sup>7</sup> This response rate was calculated by NSDS using CASRO (Council of American Survey Research Organizations) method no. 3. This is a conservative estimator, which includes an estimate of the number of eligible respondents among those not interviewed (see American Association for Public Opinion Research 2004: 28-29).

<sup>8</sup> CASRO refusal rate no.2, which includes estimates of refusal from those who were not interviewed, was used (see American Association For Public Opinion Research 2004:31).

homeowners who were either less available for the survey or negatively disposed towards it would have answered differently than did survey respondents.

Some confidence on this question and, more importantly, a better sense of the population to which the NARI data should be regarded as representative, may be gained by comparing estimates from NARI data with corresponding estimates from samples that are known to represent the U.S. population with a high degree of reliability. Thus in the following, I conduct three such comparative analyses. First, I compare the NARI sample with the 2004 GSS in terms of its demographic composition. I then present the NARI estimate for engagement in a professional remodeling project, and compare that with the estimate from the 1996 GSS concerning “home maintenance services.” Finally, I compare the distribution of WNE for these two transactions in the two surveys.

### *Demographic Comparisons*

Comparisons of the demographic variables collected both in the NARI survey and in the GSS-- gender, age, household size, population density of residence, household income, and education-- are presented in tables 1 through 5.<sup>9</sup> We see from table 2 that NARI respondents tend to reside in households with considerably higher incomes than are GSS respondents. There are likely two reasons for this difference. The first, which is likely also responsible for the fact that the NARI sample is older (table 4) than the GSS sample, is that the NARI survey screened respondents on whether they had done major remodeling work in the prior five years. Wealthier and older homeowners seem more likely to survive this screen. Note, however, that the level of education in the NARI sample differs both in having a smaller proportion of the most, as well as the least, educated.

TABLE 1 ABOUT HERE

TABLE 2 ABOUT HERE

TABLE 3 ABOUT HERE

TABLE 4 ABOUT HERE

A second reason for the disparity in household income reflects the tendency for the survey methodology of the NARI survey to oversample households with multiple

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<sup>9</sup> Note that information on race and marital status was not collected.

adults, who tend to have higher household incomes (median of \$50,000-\$59,999 among 2004 GSS respondents) than single-adult households (median of \$25,000-\$29,999). From table 1, we see that whereas almost 55.2% (31.2%) of GSS homeowners lived in two-adult (one-adult) households, this was true of 77.3% (3.6%) of NARI respondents. This difference in the composition of the samples appears to reflect the fact that NSDS survey-takers were more likely to find an adult who could speak for the household in multi-adult households.<sup>10</sup> Evidence for the importance of this factor may be seen in that, once we restrict attention to two-adult homeowners (right columns in table 2), the disparity in household income between the NARI and the GSS samples is considerably attenuated. A restriction to two-adult households does not attenuate the differences in age (right columns of table 4).

A final feature of the NARI sample that may be distinctive when compared to the GSS (and the U.S. population it represents) is that NARI respondents seem disproportionately drawn from rural areas rather than urban or suburban districts. This difference seems partly due to the fact that single-adult families are more common in urban districts. It might also reflect rural residents' having a greater tendency to perform remodeling projects. But the main reason is probably that, while the GSS variable (XNORCSIZ) is based on objective population density, the NARI question is based on respondents' self-reports and Americans may have a tendency to regard their place of residence as suburban rather than urban, and as rural rather than suburban.

#### TABLE 5 ABOUT HERE

##### *“Home Maintenance Services” and Remodeling*

In addition to such demographic comparisons, it is instructive to compare the estimate from the 1996 GSS for the proportion of the population that had “purchased home maintenance services (painting, roofing, plumbing, or something similar) in the past 10 years” with the estimate from the NARI survey of those who had purchased remodeling services in the prior five years. Once we restrict the 1996 GSS sample to homeowners, the proportion of respondents who had purchased home maintenance services was 54.5%. There are two reasons to expect this number to be somewhat higher than the

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<sup>10</sup> The survey methodology may also have slightly increased representation by women, who constitute 57% of the NARI sample but only 54% of 2004 GSS homeowners (and 54.5% of 2004 GSS respondents).

corresponding estimate from the NARI survey. The first is that the GSS question covered ten years while the NARI question covered five. The second is that the GSS category of “home maintenance services” is a more general category than home remodeling in that the latter explicitly excluded repair work. And in fact, our estimate for the proportion of NARI respondents who had hired a remodeler in the prior five years is about ten percentage points lower than the 1996 GSS estimate for engagement in home maintenance services.<sup>11</sup> In particular, since approximately 25% of homeowners contacted by NSDS were ineligible because they answered in the negative to the screening question, and 62% hired a professional in their most recent project or in at least one project in the past five years (for an effective sample size of 377 for subsequent analyses), we may derive an estimate of 46.5% who had purchased home remodeling services over the past five years.

The fact that homeowners often do the remodeling work themselves (DIY) distinguishes the purchase of remodeling services from many other transactions. In addition, the question of why homeowners engage in DIY is particularly important because they cannot find remodelers that they trust (de Ruijter, van der Lippe, and Raub 2003). In Appendix A, I analyze the attitudinal, demographic, and project-based characteristics that lead some homeowners to engage in DIY rather than hire a professional. I find that the key factors are the cost of the project and the extent to which the respondent enjoys DIY, but that the difficulty of finding a trustworthy remodeler is a relatively unimportant factor. In addition, respondents who hired professionals were disproportionately wealthy, female, and older. Thus, while I now proceed with analyzing the distribution and factors associated with WNE among those who hired professionals, it bears stressing that the results should be regarded as most representative of older and wealthier American home-owning households, and particularly those comprising two-adult families. And given the overrepresentation by women, the results may tell a story that is somewhat more in keeping with a female perspective on the matter at hand.

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<sup>11</sup> One might expect the difference to be even greater since home repair work is more frequently done than home remodeling. Indeed, at least two factors may have closed the gap somewhat: the affluence of the NARI sample and the fact that the five-year period leading up to 2004 was one of unusually high demand for home remodeling services (Bendimerad 2007).

### *Distribution of WNE*

A final point of comparison between the NARI survey and the GSS concerns the question that animates this paper: the extent to which respondents in the two surveys tended to conduct their purchases through within-network exchange (WNE). Again, “home maintenance services” is a more general category than is home remodeling, but it seems reasonable to expect similar rates of WNE for the two services, particularly in two samples that purport to be representative of the contemporary U.S. population.

Accordingly, we see from the comparison of the rate of WNE in the GSS (row 2 of table 6 for the homeowner subsample) with the rate of WNE in the NARI (row 3 in table 6, which represents the estimate for the selected remodeler), both surveys indicate that about 40% of such transactions can be regarded as WNE. The distribution across types of WNE is somewhat different, as transactions with friends and relatives were more common among NARI respondents while repeat transactions with the same seller were more common among GSS homeowners who purchased home maintenance services. The latter difference could simply reflect the relative frequency with which home maintenance services are purchased, which thereby increases the opportunities for repeat business. This difference could also reflect the slight difference in question wording, whereby the GSS asked about the respondent’s “relationship with the person who did the work” whereas the NARI survey asked about the relationship with “any of the people in the company.” Finally, another possible reason for the difference is that rural Americans may be more likely to use WNE and the NARI sample may be more rural than is the GSS sample. Reanalysis of the 1996 GSS indicates that the use of WNE in the purchase of home maintenance services is more common among homeowners in rural areas (57.7%) than in suburban areas (48.1%;  $t=2.35$ ) or urban areas (42%;  $t=3.14$ ).<sup>12</sup>

#### TABLE 6 ABOUT HERE

It is worth noting that the other dimensions along which the NARI sample differs from the GSS (and the U.S. population it represents) do not appear to be associated with

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<sup>12</sup> It is unclear whether the association between ruralness and WNE extends beyond the purchase of home maintenance services such that we may speak of a general tendency for greater embeddedness in rural areas (cf., Fischer 1982). While two of the six consumer transactions (purchase of a car from a dealer, and of a home from the owner) reviewed in the 1996 GSS display a significant tendency for ruralness to be associated with greater WNE, the effects are considerably weaker than for the purchase of home maintenance services. Note as well that ruralness is associated with an insignificant, *negative* association with stated preference for WNE across the five transactions about which 1996 GSS respondents were asked.

greater engagement of WNE. In particular, reanalysis of the 1996 GSS reveals little difference in the extent to which two-adult households engage in WNE for home maintenance services (49%) when compared with single-adult households (46%,  $t=1.04$ ). Nor is WNE for other transactions higher for two-adult households. Such analyses also indicate that wealth, education, and age are also not related to engagement in WNE. This gives us confidence that, while results from the NARI survey should be taken as particularly representative of higher income and somewhat older two-adult households, engagement in WNE by this subpopulation seems similar to that of the U.S. population at large. More generally, it appears that, as was found concerning the more general category “home maintenance services” as well as several other transactions in the 1996 GSS, engagement in WNE in the purchase of home remodeling services is common among a substantial proportion, though not a majority, of the population represented by the NARI sample. We thus return to our main question: what accounts for variation in such WNE?

#### Who and How Many Are Considered?

As discussed earlier, a strength of the NARI survey is the insight that it provides into the process of selection-- in particular, the number of sellers who are considered and whether the selected sellers differ from rejected sellers in their relationship to the homeowner. To recall, these questions bear upon our analytic objectives in two ways. First, the embeddedness-as-constraint thesis entails that WNE will be associated with the curtailment of search, especially when the buyer has a close relation in their network. Second, while the embeddedness-as-control thesis does not make an explicit prediction about how many sellers are considered, the models underlying this thesis presume a set of actors who are acutely aware of alternative exchange parties (as in Baker’s [1984] option market or Kollock’s [1994] experiments) but choose to stay with their prior counterparty due to some combination of the shadow of the past and future. By not even considering alternatives, the consumer seemingly acts to dim that shadow of the future by suggesting that she has no alternatives even if the seller acts badly in the short-term. It would be awkward for this thesis, at best, were WNE to be associated with consideration of few

alternatives. And it would also be problematic if selection of a WN seller involved rejection of another WN seller.

But we see from the results in tables 6, 7, and 8 that: (a) relatively few remodelers are considered, especially when the consumer chooses a WN seller; (b) rejection of a non-WN seller in favor of a WN seller is a rare event that occurs as often as does selection from one of two WN sellers; and (c) consistent with  $H_{constraint}$ , consumers show particular disinclination to consider alternatives when their chosen remodeler is a relative. I now discuss these results in turn.

*a. Limited Search, especially in cases of WNE.* As shown in table 7, respondents tend to “seriously consider” relatively few remodelers, with a mean of 2.3 and a mode of 40%, who said that they seriously considered no remodeler in addition to the one they ultimately selected.<sup>13</sup> In general, American homeowners seem to engage in relatively limited consideration of alternative remodelers. And this tendency is significantly stronger among those respondents who selected a WN seller. A majority (58%) of the respondents who hired a WN remodeler did not seriously consider any other remodelers; by contrast, only a quarter (25.7%) of those who had no prior relationship with the remodeler they chose ( $t=6.63$ ). To be sure, this result does not directly contradict the embeddedness-as-control thesis, which does not make explicit predictions about the size of consideration sets (cf. figure 1). Moreover, we see from the last two rows of table 6 that respondents who considered at least two remodelers were significantly more likely to select a WN seller than they were to consider and then reject a WN remodeler (30.1% vs. 21.9%;  $t=2.75$ ,  $p<.01$ , one-tailed). And we see from column (3) of table 8 that more than two-thirds of the 49 respondents who compared a WN remodeler and a non-WN remodeler rejected the latter in favor of the former ( $t=2.91$ ;  $p<.01$ , one-tailed).

#### TABLE 7 AND 8 ABOUT HERE

*b. Rarity of rejection of non-WN for WN Seller.* At the same time, it is crucial to see how rare is the rejection of a non-WN remodeler for a WN remodeler. Observe from table 8 that these 34 cases, in which a non-WN remodeler was rejected in favor of a WN

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<sup>13</sup> Another finding worth noting is that there is a second mode, at three alternatives. This may reflect popular advice given to homeowners that they should solicit at least three bids (see e.g., <http://www.contractorslicense.com/0-53owner.htm>; <http://www.pbs.org/hometime/house/contract.htm>; <http://www.contractorbase.com/tips/choosingacontractor.html>). Thanks to Kathleen McGinn for this observation.

remodeler, represent just 21% of all cases of WNE, and are matched by an equal number of cases in which a WN remodeler was rejected in favor of another WN remodeler. Moreover, as we have seen, the majority (58%) of respondents who engage in WNE reject no one because they consider no one other than the remodeler they selected. Thus, while it is true that homeowners who face the choice of a WN remodeler and a non-WN remodeler will tend to choose the former, such choices seem to be very rare.

*c. Limited Search when Selecting a Relative.* Note finally how these results dovetail with the embeddedness-as-constraint thesis. In particular, NARI respondents were particularly unlikely to consider alternatives when the chosen remodeler was a relative. We see in table 6 that while only 5.4% of NARI respondents selected a relative, this was true for just 1.4% of those who considered alternatives but 11.2% of those who did not consider alternatives ( $t=4.15$ ;  $p<.001$ , one-tailed). Put differently, and as shown in table 7, 84% of those who selected a relative considered no alternatives to that relative. By contrast, homeowners who had only a two-step tie with the selected remodeler were as likely to consider alternatives as they were to restrict search to one alternative. And the other cases of a direct tie between homeowner and remodeler-- friend/acquaintance and prior exchange partner—also exhibit a significant association with limited consideration of alternatives ( $t=3.90$ ,  $p<.001$ , one-tailed for the former;  $t=3.17$ ,  $p<.001$ , one-tailed, for the latter).

*Multivariate models.* The relationship between consideration-set size and WNE, and particularly the selection of a relative, remains highly significant in multivariate models that include other variables that are significantly associated with consideration-set size. In particular, analyses (not shown) of the association between consideration-size and all demographic variables and project characteristics included in the NARI survey (see Appendices A and B) shows that two such variables have significant, independent, associations. The first such factor is the size of the job. Inasmuch as more extensive search activities are expected by the homeowner to produce bids that are superior on cost and quality, and inasmuch as the perceived opportunity cost of search likely does not increase as sharply, it seems reasonable to expect “actors to use any means... to search more intensely for information when the cost of a product or good is high (DL 1998: 626).” Thus, the mean number of contractors seriously considered rises steadily from

2.09 to 3.19 as the budget increases from under \$5,000 to \$20,000-- the range that accounts for 83% of all projects described by homeowners-- and it then appears to taper off (2.82 among the largest 17% of budgets). The second factor that has a significant effect on consideration-set size is household income. While the mean number of remodelers seriously considered is 1.94 for the households that reported earnings of under \$30,000, it climbs monotonically to a peak of 2.52 for households earning more than \$100,000. Of course, project cost and income are also significantly associated with one another. On average, each \$1 of income was associated with an increase of \$.27 in project budget. Yet a loglinear analysis (not shown) shows significant interactions not only between these two variables but also between each and the size of the respondent's consideration set. In particular, the best fitting model was one in which these three associations were each characterized as having a uniform association across the three-way contingency table.

In addition, the association between consideration-set size and WNE is highly significant when it is included in loglinear analyses of four-way contingency tables including household income and budget.<sup>14</sup> The inclusion of a uniform-association parameter between an indicator for WNE and consideration-set size reduces the Likelihood-Ratio  $X^2$  by 22.08 (df=1) from the model that includes uniform-association parameters among the other three variables.<sup>15</sup> I also estimated a series of loglinear and log-multiplicative association models in which WNE was classified into its constituent types. The best fitting model was an association model that generated the following scaling of the types of WNE in terms of the strength of their (negative) association with considering more than one remodeler: -0.667 (Relative); -0.213 (Someone You've Done Business With); -0.086 (Friend of Acquaintance); 0.351 (Strong Indirect Tie); and 0.616 (No Prior Relationship). This scaling reinforces the test of  $H_{constraint}$ , which holds that the sense of obligation associated with having a close relation in a line of business constrains makes it difficult for the consumer to even consider alternatives.

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<sup>14</sup> Due to sparse cell counts that hindered estimation, the top categories of the number considered was collapsed at four or more, the top budget categories were collapsed at \$20,000 or more, and the top income categories were collapsed at \$100,00 or more.

<sup>15</sup> Note that the association between WNE and both budget and income are insignificant. I return to these results below.

*Why Only One?* Perhaps the most intriguing finding from the foregoing analysis is that homeowners seem to engage in little search even when the selected seller is someone who is not a close relation but just someone with whom they have done business in the past. This pattern could reflect the fact that such relationships also impose some sense of obligation, at least in some cases. Consider the discomfort often experienced by consumers when they feel they must explain to their longstanding service-provider that they experimented with a competitor. Perhaps the classic example of such cases is the problem of experimenting with a new barber (for a humorous take on this, see Robin 1993). Whereas it is often possible to hide one's experimentation with alternative service-providers, this is very difficult in the case of a barber. Even if one returns to one's old barber after one's hair has grown back, the old barber will know that more time has elapsed than is usual, and will typically be able to discern the work of others. And it is also hard to hide the work of another remodeler from one's regular remodeler. Of course, if classical market norms govern the relationship, there should be no reason for homeowner to be sheepish about having considered or even worked with others. But insofar as the value of embedded relationships derive from appropriating the norms that govern friendship and applying them to economic exchange (Uzzi 1999), some sense of social obligation may follow.

Yet our obligation-based interpretation of the curtailment of search in the case of repeat exchange must remain quite tentative without direct measures of such social obligations. Indeed, a straightforward alternative interpretation is that, insofar as it is very difficult to find remodelers with the desired characteristics, homeowners may be "satisfice" (March and Simon 1958) by simply returning to a remodeler who has served them well in the past. The results presented in table 9 cast some doubt on this alternative. These results derive from a set of survey items that asked respondents who seriously considered only one remodeler about their rationale for not having larger consideration sets. The value of these items is limited by the fact that comparable questions were not asked of respondents who considered multiple remodelers. Yet several interesting patterns emerge. The first is that the difficulties of finding "good" (or "available") remodelers do not appear to be an important factor explaining why homeowners only considered one option. Moreover, and as seen in the distribution of respondents who said that finding

“good” remodelers was “not at all important,” homeowners who selected a WN remodeler were significantly *less* likely to cite the difficulty of finding a good remodeler as an important reason why they did not consider alternatives.

#### TABLE 9 ABOUT HERE

We also see in table 9 our first evidence of the importance in trust in the selection of a remodeler. In particular, having a reference from a trusted reference was the most important reason for why the homeowner did not consider alternatives. This suggests that homeowners may in fact be satisficing in the face of search costs, but the relevant costs pertain not to the difficulty of finding a “good” or “available” remodeler, but rather the difficulty of finding a trustworthy remodeler. And note that curtailment of search due to having a trusted reference is greater for those who selected a WN remodeler. Insofar as these results suggest that consumers place more trust in WN sellers, this result seems consistent with the embeddedness-as-control thesis.

Yet there are two important reasons not to regard this as strong support for this thesis. First, it is striking that such a high proportion (74%) of respondents who did *not* engage in WNE also cited “trustworthy reference” as a very important reason why they curtailed their search. This suggests that, as argued above, consumers have alternative means of controlling opportunism to WNE, with referrals playing a primary role. Even homeowners who may not have a WN seller in their network (or who have a relationship with such a seller but do not select it) tend to have access to references from parties they trust, and often stop searching once they obtain such a reference.

Second, these results pertain only to the respondents who considered only one remodeler. But as argued above, the deliberate curtailment of search would seem to limit the consumer’s ability to control the seller. Thus, while it may be the case that a greater willingness to trust WN remodelers leads homeowners to curtail search when they have such a remodeler in their network, the source of this trust does not seem to stem from a sense of greater control over the seller. Note in this regard that the term “trust” collapses two distinct reasons why —what might be called “functional trust,” or the extent to which *i* relies on *j* because *i* knows *j* will be punished for malfeasance, and “faithful trust,” or the extent to which *i*’s belief in *j*’s unwillingness to harm *i* is so strong (perhaps because *i* believes that *j* “encapsulates” *i*’s “interests” [see Cook et al., 2005]) that *i* does not

concern herself with such discipline (see Granovetter 1985: 489; Granovetter 1999: 160). Thus, while results from table 9 suggest that consumers may sometimes prefer WN sellers because they perceive them to be more trustworthy, the fact that such preference is associated with a curtailment of search makes it difficult to regard these results as consistent with the embeddedness-as-control thesis. Rather, such results remind us that trust is sometimes founded, not on control of the other to counteract vulnerability, but on a willingness to increase one's vulnerability because of one's faith that the other would never dream of harming us.

*A Note on WNE2.* The results in table 9 also include the surprising finding that among the respondents who both seriously considered only one remodeler and reported having no prior relationship with this remodeler on the WNE question, one-quarter indicated that they “personally [knew] someone who worked with the company” and 53% of these respondents indicated that they had “good experiences in the past” with the remodeler. Overall, 57% of these 54 respondents said that at least one of these factors was important. This is odd inasmuch as these respondents should presumably have indicated that they had a prior relationship with the remodeler in their answer to the WNE question (especially since the WNE question was asked later in the survey [see Appendix B] and thus respondents should have been primed to recall such relationships). This implies that for some reason, the NARI item on WNE, which was adapted from the 1996 GSS and arguably has a more inclusive definition of WNE because it includes relationships with “any of the people in the company,” systematically *underestimates* the extent of WNE in the sample. Accordingly, I created a second indicator of within-network exchange, which adds to our estimate of WNE all those with personal knowledge of the remodeler and those who had good past experiences with the remodeler, even if they answered in the negative to the explicit question on WNE. Using this variable-- termed WNE2, the proportion selecting a WN seller among those who seriously considered one remodeler rises from 64% to 85%. This reassignment also increases the proportion of respondents who can be identified as selecting a WN seller from 44% to just one respondent shy of 50%. And since it is likely that at least several respondents who considered more than one remodeler also failed to indicate that they had engaged in WNE, it appears that a majority of the sample did so. Finally, given this

pattern, we below will report any results that are different when within-network exchange is measured as WNE2.

### Who Is Chosen?

Results from the foregoing analysis of the consideration stage have proven awkward for the embeddedness-as-control thesis while providing support for the embeddedness-as-constraint thesis. I now turn to the selection stage, which afford more direct tests of the embeddedness-as-control thesis. In particular, I examine whether the NARI data lend support to  $H_{constraint1}$ , which entails that preferences for trustworthiness explain WNE; and  $H_{constraint2}$ , which entails that costlier projects lead homeowners to emphasize trustworthiness, and thus to engage in WNE. In addition, I test  $H_{compatibility}$ , which entails that homeowners prefer a WN seller because they find it easier to collaborate with such a seller in meeting their particular needs or preferences.

*Importance but Widespread Availability of Trustworthy Sellers.* Results bearing on these hypotheses are presented in figure 2 and in tables 10-12. In figure 2, I present the respondents' level of agreement (in a four-point Likert scale) with thirteen possible reasons for why they chose their remodeler.<sup>16</sup> These survey items, which are listed in Appendix B and across the horizontal axis, were selected largely based on the professional judgment of the lay leaders of NARI regarding the factors that drive the choice of remodeler. The item that bears on  $H_{constraint1}$  and  $H_{constraint2}$  is the respondent's level of agreement that the selected remodeler was "most trustworthy." We see that trustworthiness is the most important factor cited by respondents in explaining the selection of their remodeler.<sup>17</sup> All but ten of the 365 respondents who answered the question overwhelmingly agreed (299 or 82% strongly so) that the remodeler they chose was the "most trustworthy." These results suggest that being perceived as trustworthy is

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<sup>16</sup> The bars in figure 2 display the percentage of respondents who strongly agreed with each of the thirteen descriptions of the remodelers that they chose. Since the majority of respondents indicate at least modest agreement with every one of the thirteen items, the most salient variation lies in the extent to which the respondent strongly agreed with the item. In addition, since respondents vary in the extent to which they tend to express agreement with any of the reasons, the line chart gives the mean tendency for respondents to deviate from the grand mean response, taken over all thirteen items. Such means are calculated by coding strong agreement as 4, and strong disagreement as 1.

<sup>17</sup> Respondents' relative price-insensitivity may seem surprising, but this pattern is in fact consistent with remodelers' tendency to report that they avoid selling on the basis of price (Zuckerman and Sgourev 2002, 2003).

a necessary if insufficient condition for being selected. Yet since the majority of respondents did not engage in WNE and the vast majority of respondents strongly agreed that the remodeler they selected was the most trustworthy, *it follows that variation in perceived trustworthiness is not a good candidate for explaining WNE*. That is, since so few respondents encounter difficulty finding remodelers that they deem trustworthy, it makes it less likely that we will find strong evidence in favor of the two embeddedness-as-control hypotheses.<sup>18</sup>

#### FIGURE 2 ABOUT HERE

*Testing  $H_{control2}$ .* Accordingly, the results in table 10 provide no support for  $H_{control2}$ . These results show that variation in the homeowner's expected budget of the project, measured in absolute terms (panel A) and as a proportion of the respondent's household income (panel B) is not significantly associated, either with the homeowner's tendency to select a WN remodeler or the homeowner's tendency to emphasize trustworthiness as the reason for selecting the remodeler. Insofar as a buyer feels more vulnerable when she is purchasing an item that is more expensive (especially, as in the current situation, there is significant performance uncertainty and the purchase is infrequent), the embeddedness-as-control thesis would expect that she would be emphasize the trustworthiness of the seller as a factor in her decision-making process and that this in turn, will lead her to select a WN seller. But there is no evidence for either of these effects.

#### TABLE 10 ABOUT HERE

One might challenge the proposed interpretation for the absence of an effect of expected budget on WNE conclusion by positing that the causal pathway from cost to vulnerability, and hence WNE, does in fact operate as in figure 1, but that there are additional causal pathways that dampen the observed association of expected budget and WNE. In particular, one might suppose that: (a) since large, costly projects are more complex, there is a smaller pool of prior sellers from which to select, thus lowering the likelihood of WNE; or (b) since larger projects require more specialized skills, this creates a smaller pool of workers from which to choose, thus making it less likely that the

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<sup>18</sup> The finding presented in the Appendix, that a failure to find trustworthy remodelers is not an important factor behind DIY, seems consistent with this interpretation.

consumer has anyone within her network who has the requisite skills.<sup>19</sup> While these dampening causal pathways may indeed operate, there are two reasons to be skeptical that they are responsible for the apparent disconfirmation of  $H_{constraint2}$ . First, these alternative pathways both involve consumers failing to find satisfactory sellers within their networks and therefore being compelled to search outside their network. But (in analyses not shown), I restrict analysis to those respondents who *did* have a WN seller in their consideration sets, and I find no association between the expected budget and the tendency to reject a WN remodeler for a non-WN remodeler. Second, if such alternative causal pathways dampen the association between project cost and WNE, it should still be the case (if the causal pathways in figure 1 are salient) that respondents feel more vulnerable when they have more money at risk. But as we can see, there is no association between project size and the tendency to cite trust as a factor in the ultimate selection of the remodeler.

*Testing  $H_{control2}$  and  $H_{compatibility}$ .* The results in table 11 and table 12 speak directly to the relationship between WNE and the trustworthiness of the remodeler, as well as the embeddedness-as-compatibility thesis. I operationalize the latter using the level of agreement that the chosen remodeler had the “best personality.” This wording was suggested by the leadership of NARI as capturing what happens when a remodeler and client feel they are compatible with one another. One respondent, who responded to the open-ended question that followed the thirteen items, expressed similar sentiment when he said that he chose his remodeler because they “clicked.” We see from table 10 that the remodeler’s personality was only of moderate significance overall, and considerably lower in importance than the remodeler’s trustworthiness. However, we see in table 11, which shows the eight items with the strongest association with WNE, that both variables are significantly associated with the tendency to select a WN remodeler, and that “offered the best advice” also has comparably significant effects. This suggests that both the control and the compatibility-based mechanisms explain WNE.

#### TABLE 11 ABOUT HERE

Yet there are three reasons to be skeptical that these results support  $H_{control1}$ . First, we see in table 11 that the association between trustworthiness and WNE is quite modest

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<sup>19</sup> Thanks to Jesper Sørensen for these suggestions.

(and insignificant) for respondents who seriously considered more than one remodeler. By contrast, the quality of advice and the remodeler's personality remain quite significant. Thus, if respondents place more trust in WN remodelers, it does not seem to be based on a consideration of alternative remodelers followed by a selection of the remodeler that can be disciplined most readily. Rather, any such extra trustworthiness is confined to the case in which only one remodeler is seriously considered. As discussed earlier, insofar as consumers who do not consider alternatives place more trust in WN sellers, this belief seems driven more by faith that the seller takes their interests to heart than by the buyer's control of the seller. In addition, while this difference is nearly significant at conventional levels, it is completely eliminated if within-network exchange is measured as WNE2.

Third, when we move from these bivariate analyses to the multivariate logit models presented in table 13, we see that trustworthiness is not the factor that is most associated with WNE. Rather, WNE is slightly more associated with offering good advice and significantly more associated with having a good personality. We see from the first three models that neither trustworthiness nor the quality of advice has a significant association with WNE once the remodeler's personality. Thus, the significant bivariate association between trustworthiness and WNE seems largely a spurious reflection of the association between WNE and the remodeler's personality.<sup>20</sup> Note that these models also include the respondent's education since, in analyses not shown, this was the only demographic or project-related variable that had a significant association with WNE. Since this effect is particularly strong for the tendency to select a relative or friend/acquaintance, his association seems largely due to education-based homophily in the U.S. population such that better-educated Americans do not have contractors in their social networks.<sup>21</sup>

#### TABLE 13 ABOUT HERE

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<sup>20</sup> The correlation among all three items was moderate: (r ["personality" -"trustworthy"]=.30; r["personality" -"advice"]=.34; r["advice" -"trustworthy"]=.43.

<sup>21</sup> Note that while college graduates are generally less likely to engage in WNE, respondents who have a professional or academic degree beyond the master's seem more likely to do so (54.6% vs. 34.5% among other college graduates and 42.8% among all others). Since there were only eleven such respondents among the 377 with professional remodeling projects in the past five years, these differences are not statistically significant. However, *none* of the respondents who had received a degree beyond college reported hiring a relative (vs. 5.4% overall).

Results from models 4-6 in table 13 help shed light on the effect of personality on WNE. First, we see from model 4 that while respondents who seriously considered multiple remodelers were more likely to focus on the remodeler's personality (see figure 2), and wider consideration sets are negatively associated with WNE (see table 7), the tendency for respondents to cite the remodeler's personality when they select a WN remodeler remains significant even when the consideration-set size is included. Indeed, we see in model 5 that the issue of personality is *especially* salient among those respondents who compared among multiple remodelers. In particular, this model indicates that, for respondents who considered at least two remodelers seriously, the estimated probability of having a prior relationship with the chosen remodeler increases from 6.88% for those who disagree strongly that the chosen remodeler had the "best personality" to 39.63% for those who strongly agreed. Thus, while WN remodelers do not appear to be distinguished by their apparent trustworthiness, they are sharply distinguished among those respondents who seriously considered more than one remodeler as having particularly attractive personalities. Finally, we see in the final model that the effect of personality does not diminish when we control for whether the rejected remodeler was WN. In sum, we have seen that while (a) a concern with finding a remodeler with an attractive personality is not as widespread as the concern with finding a trustworthy remodeler; (b) homeowners seem able to find remodelers they can trust outside their immediate network, while those who place a premium on personality show a strong predilection for WNE. These results are difficult to square with the embeddedness-as-control thesis, but seem in line with the embeddedness-as-compatibility thesis.

#### WNE and Satisfaction

The last set of survey items that are relevant to the questions at hand involve the homeowner's level of satisfaction with the remodeling project and whether this is affected by WNE. In their analysis of consumer embeddedness, DL (1998: 633) show that consumers who engage in WNE are more satisfied (DL 1998: 633), a result that they attribute to the effectiveness of WNE in mitigating malfeasance. And analysis of the NARI data also reveals a positive association between WNE and satisfaction. Almost all

(96.5%) of NARI respondents reported they were satisfied or very satisfied with the project, and respondents who engaged in WNE were indeed more likely to be in the latter category (91.3%) than were those who did not engage in WNE (83.2%;  $t=2.29$ ,  $p<.01$ , one-tailed). In addition, WN projects were significantly less likely to exceed their budgets, as measured by the respondent's reporting a cost for the project that exceeded the budgeted amount. While 9% of WNE projects went over budget, this was true of 17.8% of non-WNE projects ( $t=2.21$ ;  $p<.02$ , one-tailed). These results would seem to suggest that, while WN remodelers may not be particularly distinct in their trustworthiness during the selection process, that they reveal themselves to be more trustworthy during the remodeling project, perhaps because homeowners are able to use their common networks to discipline the remodelers' behavior.

As before though, such an interpretation does not sit easily with several other patterns in the data. Consider the set of logit models presented in table 14, which estimate the impact of a series of covariates on the log-odds of a respondent reporting that she was "very satisfied" with the remodeling project. While the first model indicates that respondents are significantly more likely to be very satisfied with WN projects, the second and third models indicate that this association is at least partly a spurious reflection of the *negative association between the number of remodelers considered and the likelihood of being very satisfied*. This association is itself a noteworthy finding that dovetails with recent work by Iyengar and colleagues (Iyengar and Lepper 2000; Iyengar, Well, and Schwartz 2006) that shows that, contrary to normative models of choice, people often make poorer decisions when they entertain more options.

#### TABLE 14 ABOUT HERE

Another basis for doubting the interpretation is provided in model 4. Here, we see that if indeed WN remodelers are less likely to exceed the project's budget, this association is not responsible for the positive association between WNE and the likelihood of being very satisfied. In particular, we see little attenuation in the effect of WNE from model 1 to model 4 despite the introduction of an indicator for whether the project went over its budget. Note as well from the final model in this table that going over budget appears to be a poorer predictor of dissatisfaction than is going over the forecasted time. But while WN projects are significantly less likely to go over budget,

they are in fact more likely to go over time: 38.24% vs. 31.15% ( $t=1.32$ ;  $p=.19$ , two-tailed;  $p=.09$ , one-tailed).

Note also that, just as respondents who seriously considered only one remodeler were more likely to say that the remodeler chosen was the most trustworthy when the respondent had a prior relationship with the remodeler, these respondents were also more likely to say that the remodeler “acted in good faith or in a trustworthy manner” during the course of the project (90% strong agreement vs. 90% for those with no prior relationship;  $t=1.61$ ,  $p=.06$ , one-tailed). Yet as before, this difference disappears when within-network exchange is measured as WNE2 (87% vs. 81%;  $t=0.75$ ;  $p=.23$ , one-tailed). Thus, while there is some empirical support for asserting that WN remodelers acted in a more trustworthy fashion, as perceived by respondents who seriously considered only one remodeler, this evidence is rather thin.

A final outcome that merits attention is whether the respondent reported that the project faced “barriers or problems in completing the job.” Such problems were reported on 14.3% of projects, with only a slight difference between WN projects (13%) and non-WN projects (14.8%;  $t=0.51$ ). Yet when respondents were asked “how well the remodeler communicate[d] these problems” to the respondent, those who engaged in WNE were more likely to say that the remodeler communicated the problem “very well” (45.5% vs. 18.2%;  $t=2.24$ ;  $p<.02$ ). Thus, it appears that WNE is associated with more effective communication (regarding problems) between buyer and seller, a result that is consistent with the notion that WNE is associated with greater compatibility between buyer and seller and particularly, that embedded relationships facilitate “joint problem-solving” (Uzzi 1997).

### Discussion

Before discussing the principal lessons of the foregoing analysis, it is worth highlighting the strengths and the limitations of the survey data upon which it was based. Perhaps the main strength of the NARI survey is that it has helped to shed new light on the broader context that frames the consumer’s selection of a seller, from the decision of whether to hire any service-provider to the consideration set from which the service-provider is selected. As discussed in the introduction, it is problematic to interpret data, such the

1996 GSS, that includes information on the seller that was selected but does not include information on those not selected. In particular, the selection of a WN seller does not necessarily mean that a non-WN seller was rejected because: (a) one or more WN sellers may have been rejected; and (b) there may have been no other options considered. The latter possibility is particularly important because it reflects a very different understanding of WNE, whereby consumers do not choose a WN seller so much as feel constrained to hire one.

The foregoing analysis clearly testifies to the salience of these issues. We have seen that consideration sets appear to be quite small and this particularly is particularly the case when the homeowner has a relationship with the (chosen) remodeler. More generally, engagement in within-network exchange tends not to involve an explicit choice but reflects an opting-out of the normative model of choice by not seriously entertaining an alternative to the preferred choice. And note that, due to the negative association between consideration-set size and WNE, and since consumers who have a tie to a seller in a particular industry are more likely to have multiple such ties, we have found that *it is very rare for to face a choice between a WN seller and a non-WN seller*; and because not all consumers (only 69% in the present case) opt for the WN seller, *it is still rarer for the choice of the seller to have resulted from the choice of a WN seller over a non-WN seller* (only 9.1% in the present study).

Yet while the results have provided greater insight into the context for seller selection, there is a great deal more that one would wish to know about the manner by which consumers search for and consider sellers. For instance, while the focus here has been on the number of remodelers “seriously considered,” it would be useful to know more about the full search process, including those sellers considered more cursorily. And while the NARI survey affords a first look at the relationship that consumers had with their second choice, our understanding of the selection process remains woefully incomplete without comparable information on the other remodelers (seriously) considered, and well as the larger social network that surrounds the individual (which might include direct or indirect ties to sellers who are not considered at all).

Similarly, while a second strength of the NARI survey lies in the items that shed shed light on why consumers did or did not select a WN seller, these items suffer from at

least two problems. First, a difficulty that is shared by the NARI survey and the 1996 GSS is that the questions are asked retrospectively about a project that has already been completed. While there is some indication that respondents distinguish between their thinking during the selection stage and their post-project evaluation,<sup>22</sup> it seems highly unlikely that the project experience does not color the respondent's recollection of his behavior during the selection phase, at least to a certain extent. For instance, it is possible that respondents describe the remodeler they chose as "most trustworthy" in relation to other remodelers they were considering because the remodeler in fact acted in a trustworthy fashion during the project. At the same time, it is not clear why such a retrospective bias would cause the issue of trustworthiness to become less salient in distinguishing WN from non-WN remodelers than is the remodeler's personality.<sup>23</sup>

In addition to the issue of biased recall, future work would do well to consider variations on the measures used to test the mechanisms underlying WNE (see below) as well as the measures of WNE. We have seen that the 1996 GSS question produced a very similar pattern of estimates concerning engagement in WNE for home remodeling. This increases confidence in the reliability of the measure. Yet based on the responses to the questions concerning the rationale for considering only one remodeler, we have seen strong indications that the measure understates the degree of WNE.

Finally, it merits highlighting the limitations of the NARI survey, particularly insofar as one should wish to use it to make inferences about U.S. consumers in general. We have seen that the NARI sample is *not* representative of all U.S. consumers, and not even of all U.S. homeowners. In particular, while the similarity in the distribution of

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<sup>22</sup> Just over one in every five respondents (21%) changed their level of agreement to the question of whether they chose their remodeler because he was "most trustworthy" and whether the remodeler "acted in good faith or in a trustworthy manner."

<sup>23</sup> We investigated this possibility by subtracting the mean level of agreement with the 13 items displayed in figure 5 from each of the "agreement" variables used in table 13 (cf., the line charts in figure 2) and then re-estimating the models. The rationale for this normalization is that any retrospective bias should increase the respondent's tendency to claim that their remodeler was better than others across all dimensions. And indeed, this average level of agreement has a strong association with the respondent's degree of satisfaction with the project (while there was a mean of 1.49 agreement [where 1= 'Strongly Agree' and 4= 'Strongly Disagree'] for those who reported being very satisfied with the project, the mean was 2.05 for those who reported lower levels of satisfaction;  $t=9.62$ ). Using these normalized variables, neither agreement that the remodeler was the "most trustworthy" no longer has even a significant bivariate effect on the log-odds of WNE. And the effect for agreement that the remodeler had the "best personality" changed relatively little. For instance, the log-likelihood for the equivalent of model 4 with the normalized variable increased only slightly, from 427.11 to 431.24.

WNE in the NARI data and in the 1996 GSS provides considerable confidence that the results have potentially wide applicability, they should be regarded as representative of a slice of American homeowners who are wealthier, older, and perhaps more rural than is typical. Moreover, the results pertain only to a single type of transaction. And while again the similarity with results for other transactions in the 1996 GSS suggests broader applicability, it is unknown how generalizable are the findings reported here.

### Conclusions

Given the limitations of the present study and the state of research into consumer embeddedness generally, conclusions must necessarily remain preliminary. Yet one conclusion seems straightforward—i.e., the foregoing analysis lends significant support to the paper’s objective of shifting the balance of attention in research on the social embeddedness of economic exchange, from an emphasis on the use of relationships as instruments to control opportunism, to a wider set of mechanisms that explain variation in such embeddedness. To recall, I do not argue that the embeddedness-as-control thesis is incorrect; I argue merely that the scope of this argument, as exemplified by the high-vulnerability condition in Kollock’s (1994) experiments, does not seem to apply to exchange in many contemporary markets, since reputational penalties are sufficient to discipline sellers. The NARI survey data certainly confirm a key premise of this thesis—i.e., that in conditions of significant vulnerability, consumers are particularly keen that their seller be trustworthy. Indeed, given the near-universality at which homeowners agree that their chosen remodeler was trustworthy, it is tempting to include that trustworthiness is a necessary, if insufficient, condition for selection. However, we have also seen that homeowners *do not need to rely on WNE to find trustworthy remodelers*. About half of respondents did not select a WN sellers and these respondents were no less likely than other respondents to agree that they chose their remodeler because he or she was believed to be trustworthy. That is, while the embeddedness-as-control thesis may be correct that WNE *can* produce trust, it is also the case that trust can also be produced by other mechanisms. In particular, it seems likely that many homeowners believe that sellers are disciplined by the reputational penalties they would face from any malfeasance on their parts. And insofar as this is the case in other market contexts, the embeddedness-

as-control argument is not a good candidate for explaining the embeddedness of exchange.

In addition to the theoretical and empirical doubt cast on the application of the embeddedness-as-control thesis to addressing our question, the foregoing analysis also provides three promising leads for future research. The first concerns the reason why consumers who is seeking a trustworthy seller may indeed opt for a WN seller. The embeddedness-as-control thesis suggests that the basis for this preference lies in the buyer's belief that he will have greater control over such sellers, and thereby control their predilection for exploiting the buyer. But insofar as the NARI survey supports an association between trustworthiness and WNE, it pertains to contexts whereby buyers have acted to *increase* their vulnerability by forgoing the development of alternatives to the selected seller. While hardly dispositive evidence, this pattern suggests that future research would gain from trying to tease apart "functional" or control-based trust and "faithful" trust.

Our final notes concern the alternative bases for embeddedness proposed above—i.e., a preference for compatible sellers, and a sense of constraint or obligation to work with close relations, to the point that no alternatives are considered. The evidence provided by the NARI data are quite strong in the former case. WN sellers are quite distinct from non-WN sellers in the tendency for respondents to ascribe the former with a "better personality." Moreover, we have seen suggestive evidence that WN sellers are more effective at communicating problems, thereby suggesting that embedded exchange partners are more effective at "joint problem solving" (Uzzi 1997). At the same time, any such conclusion must remain tentative as long as we are relying so heavily on a highly subjective term ("personality"). A deeper understanding awaits richer data.

Such doubts pertain to our evidence for the embeddedness-as-constraint thesis as well. Insofar as our test of this thesis relied on an indirect test of a corollary, whereby the selection of close relations will be associated with the curtailment of search, more direct evidence should be sought.<sup>24</sup> At the same time, it is worth noting the qualitative

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<sup>24</sup> It could be argued that, particularly in the case of friends, social constraint actually operates *directly on consideration* rather than on selection. For instance, consumers can sometimes justify not giving business to a friend by claiming that they do not want economic and social roles to come into conflict. But once

comment of one respondent, when asked if there were other reasons that he considered only one remodeler: “He's my son in law. If he wasn't my son in law, I probably wouldn't recommend him.”

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having considered a friend, this justification rings hollow. This will reinforce the tendency for homeowners to choose a WN seller once he has considered her.

### Appendix A: Do it Yourself or Hire a Professional?

As discussed in the main text, the question of why homeowners hire a professional remodeler rather than engage in DIY gains importance for the agenda of this paper because homeowners might resort to DIY because they find remodelers that they trust (de Ruijter, van der Lippe, and Raub 2003). I discuss two main sets of results that bear on this issue: (a) self-reported reasons given by respondents for their decision to engage in DIY rather than hire a professional; (b) a set of multivariate analyses exploring the demographic attributes and project characteristics that predict the decision to engage in DIY.

The first set of results, which are presented in table A1, suggests that the issue of trust is not particularly important in explaining why homeowners do the work themselves (DIY), and more generally, that homeowners tend not to stress difficulties they encountered finding appropriate remodelers on other dimensions such as quality, reliability, and budget. Of much greater importance for DIY is the intrinsic satisfaction that many derive from such work. Another key reason is the “expense” of the remodeling project, which suggests that the scale and complexity of costly projects is too daunting for most homeowners and that professionals are more efficient. Many homeowners also do not have the free time for such large projects.

#### TABLE A1 ABOUT HERE

The data presented in table A2 provide further evidence of the importance of expense in the decision to hire a professional. Respondents’ report of the total cost of DIY projects (mean=\$20,065, median category= under \$5,000) was considerably greater than that for projects involving a professional (mean=\$20,065 [ $t=3.23$ ]; median category: \$5,000-\$10,000 [*Mann-Whitney Z*=5.178]).<sup>25</sup> Note that it is unlikely that these subjective estimates of total cost include the opportunity costs associated with DIY or the opportunity and transaction costs associated with searching and transacting with a professional remodeler.

#### TABLE A2 ABOUT HERE

In addition to the cost of a project, the tendency to engage in DIY or hire a professional may vary according to the type of project. In table A3, I display the

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<sup>25</sup> The mean values are computed using the coding in the second column of table 8.

distribution of the primary project type across the sample, subdivided between DIY and professional projects. As we can see, projects that were described as involving the remodeling of individual rooms within a house or even the entire house were somewhat more likely to be described as DIY projects, though were typically of considerably smaller value on average.<sup>26</sup> Projects involving work on the exterior of the house such as a new roof or siding, as well as new windows, were considerably more likely to be conducted by a professional.

#### TABLE A3 ABOUT HERE

In table A4, I present the results of a series of logit models that analyze whether the respondent hired a professional remodeler rather than engaging in DIY. The first two models include the demographic variables that have significant effects. In particular, we see that homeowners who hire professional remodelers are considerably older (mean [median] age of 57 [56] vs. [mean and median of ] 50 for DIY), are wealthier; reside in less rural areas; and to are more likely to be female. The female effect remains significant (62% reported hiring a professional vs. 48% for men;  $t=3.39$ ) even when we restrict attention to multi-adult households (respondents were not asked for their marital status, but such households are presumably dominated by married couples and other male-female partnerships). This seems surprising since either member of the household should presumably give the same account of household transactions. The (amusing) implication is that when a man is asked to consider the most recent “major remodeling work” that the household has performed, he is more likely to include a DIY project but his wife or partner is more likely to disregard it and to regard as “major” only those projects for which a professional was hired. This result might be regarded as consistent with the well-known tendency for husbands to inflate their contribution to the work of the household, though a different spin on the household battle-of-the-sexes would likely be given by the husbands involved.<sup>27</sup> Another possibility is that the men who are most

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<sup>26</sup> Note that window installation is the only project type for which the mean project cost was greater when it was DIY. This result is driven by an outlier project that was estimated by the respondent to have cost between \$30,000 and \$50,000; no other window installation project cost over \$20,000.

<sup>27</sup> There is also a nearly significant tendency for male respondents (both in single and multi-adult households) to say that they did the work themselves because they “enjoy doing the work” (*Mann Whitney Z*=1.44), though this was still by far the most common reason given by female respondents (74.4% cited it as “very important” and 7.0% as “not at all important” vs. 81.3% and 2.2% for men). There were no differences by gender for the other reasons.

likely to be found by survey-takers were those who are present in the home and who are more apt to do DIY projects.<sup>28</sup>

TABLE A4 ABOUT HERE

Appendix B: Text of Questions from 2004 NARI Survey

INTRO Hello, may I speak to \_\_\_? My name is \_\_\_ and I am doing a short survey of homeowners. I am not selling a thing (the survey is completely voluntary and anonymous).

Do you own your home?

SCREEN2 Have you done any major home remodeling work, not including repairs, in the last 5 years?

WORKTYPE Was this an addition, a kitchen, bath, or basement remodel, an exterior remodeling project such as decking, roofing, or siding or something else?

PROBES: If more than one, the largest or most expensive.

UNDRTK1 How important were the following reasons in your decision to undertake this project? So that the house better suits the needs of your family?

UNDRTK2 So that the house better suits the needs of your business?

UNDRTK3 So that the house increases in market value?

UNDRTK4 So that the house is updated according to your taste?

UNDRTK5 Was there any other reason you chose to do this project?

HIRED For this project, did you hire a professional remodeler or did you do it yourself?

NOHIRE1 How important are the following reasons in your decision to do the work yourself? Expense of hiring someone?

NOHIRE2 Difficult to find a remodeler who does high quality work?

NOHIRE3 Difficult to find a remodeler within my budget?

NOHIRE4 Difficult to find a remodeler who is reliable?

NOHIRE5 Difficult to find a remodeler who is trustworthy?

NOHIRE6 Enjoy doing the work yourself?

NOHIRE7 Have you ever hired a professional remodeler?

NOHIRE8 In what year did the most recent remodeling project take place?

NONHIRE9 Was the total cost of that remodeling project (under/between)...?

MOPLAN For how many months did you plan this project before you signed a contract to have the work done?

CONSID How many different professional remodelers did you seriously consider before deciding on the company you ultimately hired?

CONSID1a How important were the following reasons for considering only one remodeler? You found it difficult to find good remodelers.

CONSID1b You found it difficult to find available remodelers.

CONSID1c You personally know someone who works within the company.

CONSID1d You have had good experiences in the past (with this remodeler).

CONSID1e Someone you trust gave a good reference (for this remodeler).

CONSID1f Any other reason?

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<sup>28</sup> Thanks to Ravi Singh for this observation.

CONSID2 (If 2 or more) In the company of your second choice, was anyone...?

PROBES: Including in-laws, friends of relatives, or relatives of friends.

Were any of the people in the company you did not hire...?

PROBE FROM LIST

- 1 A RELATIVE
- 2 A FRIEND OR ACQUAINTANCE
- 3 A FRIEND OF A FRIEND
- 4 SOMEONE YOU'VE DONE PREVIOUS BUSINESS WITH
- 5 (or was there) NO RELATIONSHIP

CHOSE1a Now I would like to ask you some questions about how you chose the remodeler for your project. For each one, please tell me if you strongly agree, somewhat agree, somewhat disagree, or strongly disagree with each reason. The remodeler you chose... Had the lowest price.

CHOSE1b The remodeler you chose... Appeared to have the best quality.

CHOSE1c The remodeler you chose... Seemed able to provide the highest level of service and dependability.

CHOSE1d The remodeler you chose... Seemed to have the best design skills.

CHOSE1e The remodeler you chose... Had the best reputation and referrals.

CHOSE1f (The remodeler you chose...) Accommodated my schedule the best.

CHOSE1g (The remodeler you chose...) Seemed the most trustworthy.

CHOSE1h (The remodeler you chose...) Had the best personality.

CHOSE1i (The remodeler you chose...) Offered the best advice.

CHOSE1j (The remodeler you chose...) Had the best professional certifications.

CHOSE1k (The remodeler you chose...) Was affiliated with industry associations.

CHOSE1l (The remodeler you chose...) Has been in business the longest.

CHOSE1m (The remodeler you chose...) Seemed best for the size of the job.

CHOSE1n (The remodeler you chose...) Seemed most capable for the type of job.

CHOSE1o Is there anything else that is important to you when choosing a remodeler?

CHOSE2 Were any of the people in the company you hired...?

PROBE: Including in-laws, friends of relatives, or relatives of friends.

PROBE FROM LIST

- 1 A RELATIVE
- 2 A FRIEND OR ACQUAINTANCE
- 3 A FRIEND OF A FRIEND
- 4 SOMEONE YOU'VE DONE PREVIOUS BUSINESS WITH
- 5 (or was there) NO RELATIONSHIP

CHOSE3 What is the most common way you found companies to bid on your project? Was it...?

- 1 REFERRAL OR WORD OF MOUTH
- 2 YELLOW PAGES
- 3 A BUSINESS ASSOCIATION
- 4 PRINT ADVERTISEMENTS
- 5 TV OR RADIO ADS
- 6 A WEBSITE
- 7 SIGNS ON TRUCKS OR JOBSITES
- 8 SOMETHING ELSE (SPECIFY)

COMM1 Was the amount of communication about the job's progress better than you expected, about right, or did it need improvement?

COMM1a How could it have been improved?

COMM2 Were there any barriers or problems in completing the job or did it run smoothly?

COMM2a Were there problems with budget, supplies, job scheduling, work performance or something else?

COMM2b How well did the remodeler communicate (this/these) problems to you?

COMM2c How well did the remodeler solve these problems?

COMM3 Does the remodeler you hired belong to an industry association (or do you not know)?

COMM3a Is the remodeler a member of the National Association of the Remodeling

DESIGN1 Did a design professional (architect or interior designer) help to plan this project?

DESIGN2 Was the design professional an employee or owner of the company?

DESIGN3 In your opinion, did the remodeler know the design professional very well, somewhat well, were they vaguely familiar, or unknown to each other before the beginning of the project?

PRODUCT1 (Everyone) Were any of the following new products purchased for your remodeling job?

PRODUCT2 In general, who selected the brand of fixtures or appliances? Was it...?

PRODUCT3 Did you get information or guidance from the remodeler on selecting the fixtures or appliances?

PRODUCT4 (When you purchased these fixtures or appliances)

Were you most influenced by price, name brand, or recommendation?

PRODUCT5 Did you purchase (this/these) products at a department store, hardware store, home improvement center, or a specialty shop such as lighting or plumbing?

BUDGET1 Before talking to a remodeler, did you have a set budget for the project?

BUDGET2 How important a role did the remodeler play in helping you to formulate a budget for the project? Were they ...?

BUDGET3 When the remodeler first began the project, how much did you think it would cost? (You can stop me at any point. Was it...?)

BGNWORK After selecting a remodeler, how many days was it before work began?

ENTER EXACT NUMBER OF DAYS

TRUST1 Overall, do you strongly agree, somewhat agree, somewhat disagree or strongly disagree that your remodeler acted in good faith or in a trustworthy manner?

TRUST1a What was the most important thing the remodeler did to earn your trust?

OPEN-ENDED, TYPE EXACT RESPONSE BELOW

TRUST1b What was the most important thing the remodeler did to lose your trust?

OPEN-ENDED, TYPE EXACT RESPONSE BELOW

PLNWORK When work on the project first began, how many days did you think it would take?

ACTLWORK Approximately how many days did the job actually take from start to finish?

TLCOST Was the total cost of the project...? (You can stop me at any point.)

ENDPRIC Was the final price of your remodeling job higher, about right, or lower than what you expected?

QUALWORK Overall, was the quality of the work better than you expected, about right, or did it need improvement?

PRICE1 (Now thinking about the last remodeling project you did)

How important is the price of the project? Is it...?

QUAL1 How important is the quality of the work performed? Is it...?

PRICQUAL Thinking about price versus quality of work, would you say you place more importance on price over quality, quality over price, or is it about equal?

SACMAT1 Would you be willing to sacrifice the quality of materials used to keep within your project budget?

SACMAT2 What if it went 10% over your budget?

SACMAT3 What if it went 20% over?

SACWORK1 Would you be willing to sacrifice the quality of workmanship to keep within your project budget?

SACWORK2 What if it went 10% over your budget?

SACWORK3 What if it went 20% over?

SATWORK1 Overall, how satisfied were you with the project? (If Unsatisfied:)

SATWORK2 Would you have rather hired someone else?

OWNYRS I just have a few more questions before we are done.

How many years have you owned your house (primary residence)?

YRBUILT Approximately what year was your house built?

PURCH Was the purchase price of your house under \$100,000; between \$100-200,000; \$200-500,000, \$500-1M, \$1-2M, or over \$2M?

RURAL (In your opinion,) Do you live in an urban, suburban or rural neighborhood?

RENTAL Do you own rental properties?

SOLD Have you bought or sold any properties in the last 5 years?

REFIN Have you refinanced any properties in the last 2 years?

SEX (I'm sorry I have to ask) are you male or female?

YRBORN In what year were you born?

EDUC What is the highest level of education you've completed?

HHNUM Including yourself, how many people live in your household?

HHKIDS How many are under the age of 18?

INCOME Now I am going to read some broad categories of household income. When I come to the category that best represents the total combined income, before taxes, of all members of your household during 2003, please stop me.

END Well that is the end of the survey. On behalf of NARI I'd like to thank you for your time today. Good-bye.

ADDITIONAL \*RELEVANT\* COMMENTS MAY BE TYPED BELOW.

TYPE INTERVIEWER I.D.

DISQUAL I'm sorry but we are only interviewing adult homeowners who have recently completed a home remodeling task. Thanks for your time anyway. Good-bye.

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Table 1:  
 Comparing Number of Adults in Household in 2004 General Social Survey with  
 2004 NARI Survey

Number of Adults in Household	<i>Percent with the Specified Number of Adults in Household</i>		
	General Social Survey, Full Sample	General Social Survey, Homeowners	NARI Survey, Full Sample (Homeowners)
1	31.2%	25.5%	3.6%
2	55.2%	60.4%	77.3%
3	9.9%	9.9%	13.6%
4	3.1%	3.5%	5.2%
5	0.5%	0.3%	0.2%
6 or more	0.2%	0.3%	0.2%
N=	2,808	608	502

Table 2  
Comparing Household Income in 2004 General Social Survey with 2004 NARI Survey

Income Category, NARI Survey	<i>Percent with the specified level of Income</i>					
	Coding for calculation of means <sup>29</sup>	GSS, Full Sample	GSS, Homeowners Only	NARI, Full Sample (Homeowners)	GSS, Homeowners 2 Adults in Household	NARI, (Homeowners) 2 Adults in Household
Less Than \$30k	\$12k	31.90%	21.8%	15.8%	17.3%	10.7%
\$30k-50k	\$40k	19.7%	19.9%	18.6%	19.7%	18.9%
\$50k-75k	\$61k	17.6%	19.3%	26.8%	18.9%	27.7%
\$75-\$100k	\$87k			21.2%		24.1%
\$100k-\$150k	\$125k			11.4%		12.2%
\$150k-\$300k	\$225k			5.0%		4.9%
\$300k-\$500k	\$400k					
\$500k-\$1m	\$750k			0.8%		0.9%
\$1m-\$2m	\$1.5m			0.4%		0.3%
\$2m+	\$2.5m			0.2%		0.3%
\$75k+		23.2%	31.1%	38.93%	35.6%	42.68%
	Mean=	\$55,729	\$67,284	\$78,671	\$74,625	\$83,720
		N=2,692	N=585	N=501	N=356	N=328

<sup>29</sup> The GSS categories are more fine-grained at lower income levels and the NARI categories are more refined at upper income levels. The coding for mean values for the first three categories are based on mean values estimated from homeowners in the 2004 GSS sample taken using midpoints for the income ranges. The coding for the income ranges at \$75k and above are derived from midpoints of those ranges. The GSS mean for the range of \$75k-\$110k is derived from its midpoint and the mean for the top-coded category of \$110k+ is derived from the mean for the NARI income range of \$100k+ (\$194,944) with a slight adjustment upwards (to \$200,000) because this range begins at a slightly higher income level.

Table 3

Comparing Educational Achievement in 2004 General Social Survey with 2004 NARI Survey

		<i>Percent with the specified level of education</i>				
Category from NARI Survey	Corresponding Category from GSS	GSS, Full Sample	GSS, Homeowners Only	NARI, Full Sample (Homeowners)	GSS, Homeowners 2 Adults in Household	NARI, (Homeowners) 2 Adults in Household
Less Than HS, No Diploma	0-11 yrs	14.0%	9.7%	4.06%	10.2%	3.63%
High School Diploma or GED	12 yrs	26.1%	27.5%	28.93%	27.5%	27.72%
Some College, No Degree/Associate	13-15 yrs	29.9%	30.5%	35.88%	29.6%	35.49%
Bachelors	16 yrs	16.0%	15.3%	18.61%	14.4%	20.21%
Masters (MA, MS, MBA, MEd)	17-18 yrs	8.7%	11.1%	9.98%	11.8%	10.62%
Doctorate (Phd, EDd) Or Professional (MD, JD, DDS)	19+ yrs	6.5%	6.5%	2.54%	6.5%	2.33%
		N=2,810	N=608	N=591	N=367	N=386

Table 4:  
Comparing Age Distribution in 2004 General Social Survey with 2004 NARI Survey

	<i>Age at each Percentile of the Age Distribution</i>				
Percentile of Age Distribution	GSS, Full Sample	General Social Survey, Homeowners	NARI Survey, Full Sample (Homeowners)	GSS, Homeowners 2 Adults in Household	NARI, (Homeowners) 2 Adults in Household
10 <sup>th</sup>	25	29	35	31	34
25 <sup>th</sup>	32	36	43	36	43
50 <sup>th</sup>	44	49	53	48	53
75 <sup>th</sup>	57	61	65	59	64
90 <sup>th</sup>	69	71	76	70	72
	N=2,803	N=606	N=578	N=367	N=379

Table 5:  
Comparing Population Density of Residence in 2004 General Social Survey with 2004 NARI Survey

<i>Percent with the Specified in Each Density Zone</i>						
Category from NARI Survey	Corresponding Category from GSS	GSS, Full Sample	General Social Survey, Homeowners	NARI Survey, Full Sample (Homeowners)	GSS, Homeowners 2 Adults in Household	NARI, (Homeowners) 2 Adults in Household
Urban	City (50,000+, including unincorporated areas)	45.9%	44.7%	19.56%	44.7%	20.21%
Suburban	City (10,000-50,000), Suburb	46.5%	46.6%	41.65%	46.3%	39.64%
Rural	Smaller Areas, Open Country	7.6%	8.7%	38.79%	9.0%	40.16%
		N=2,812	N=609	N=593	N=367	N=386

Table 6

Distribution of Within-Network Exchange (WNE) for Home Maintenance in 1996 GSS and Home Remodeling in 2004 NARI Survey, Selected and Rejected Remodelers

	N	Relative (including in-laws)	Friend or Acquaintance	Strong Two- Step Tie <sup>30</sup>	Someone you've done business with	No Relationship	Any Relationship
<i>1996 GSS: Home Maintenance</i>							
Full Sample	547	3.3%	16.8%	7.1%	11.9%	60.9%	39.1%
Homeowners only	310	3.9%	16.5%	5.2%	13.2%	61.3%	38.7%
<i>2004 NARI (Homeowner Sample): Home Remodeling</i>							
Selected Remodeler	371	5.4%	18.3%	11.9%	8.1%	56.3%	43.7%
Selected Remodeler: If Did not Seriously Consider Alternatives	152	11.2%	28.3%	10.5%	13.8%	36.2%	63.8%
Selected Remodeler: If Rejected an Alternative	223	1.4%	12.1%	12.6%	4.5%	69.5%	30.5%
Rejected Remodeler	224	2.7%	7.1%	5.4%	6.7%	78.1%	21.9%

<sup>30</sup> The category for the 1996 GSS was “A friend of a friend or relative, or a relative of a friend.” The category in the NARI survey was “A friend of a friend” but survey-takers were instructed to probe that this included “friends of relatives, or relatives of friends.”

Table 7:  
 Number of Remodelers Considered by Relationship with Seller, 2004 NARI Survey

<i>Percent of those who hired</i>	Number Seriously Considered				N
	1	2	3	4+	
Relative	84.2%	5.3%	10.5%	0.0%	19
Friend	60.3%	16.2%	13.2%	10.3%	68
Two-Step Tie Someone You've Done Business With	36.4%	22.7%	29.6%	11.4%	44
Any WN Remodeler	67.8%	12.9%	12.9%	6.5%	31
Non-WN Remodeler	58.0%	16.1%	17.3%	8.6%	162
Any Remodeler	25.7%	18.9%	35.4%	19.9%	206
	40.0%	17.7%	27.5%	15.0%	368

Table 8: Selection and Rejection of WN and non-WN Remodelers, 2004 NARI Survey

		Percent of:			
		(1)	(2)	(3)	(4)
<i>Selected WN-Remodeler</i>	N	Total WNE	Comparisons Involving WN Option	Comparison of WN with non-WN	Total Transactions
Rejected non-WN Remodeler	34	21.1%	41.0%	69.4%	9.2%
Rejected WN Remodeler	34	21.1%	41.0%		9.2%
Rejected no one	93	57.8%			25.2%
Total WNE	161				43.6%
<i>Selected non-WN-Remodeler</i>	N	Total non-WNE			
Rejected non-WN Remodeler	140	67.3%			37.9%
Rejected WN Remodeler	15	7.2%	18.1%	30.6%	4.1%
Rejected no one	53	25.5%			14.4%
Total non-WNE	208				56.4%
Total Comparisons Involving WN Option	83				22.5%
Total Comparisons of WN with non-WN	49				13.3%
Total Valid Transactions	369				

Table 9

Reasons for Not Seriously Considering More Than One Remodeler by Whether Engaged in Within-Network Exchange, 2004 NARI Survey

<i>Importance</i>	Not WNE (N=52) <sup>31</sup>	WNE (N=90)	t-test for Greater Importance in WNE	Total (N=142)
<i>Item 1: "Difficult to Find Good Remodelers"</i>				
1. Very	19.2%	18.9%	-0.05	19.0%
2. Somewhat	15.4%	11.1%		12.7%
At least Somewhat	34.6%	30.0%	-0.29	31.7%
3. Not very	19.2%	7.8%		11.9%
4. Not at all	46.2%	62.2%	-1.87**	56.3%
<i>Item 2: "Difficult to find available remodelers"</i>				
1. Very	13.5%	11.8%	-0.46	12.4%
2. Somewhat	13.5%	7.5%		9.7%
At least Somewhat	26.9%	18.5%	-1.18	22.1%
3. Not very	17.3%	11.8%		13.8%
4. Not at all	55.8%	68.8%	-1.67**	64.1%
<i>Item 3: "You Personally know someone who works within the company"</i>				
1. Very	22.6%	81.7%	8.49***	60.3%
2. Somewhat	1.9%	8.6%		6.2%
At least Somewhat	24.5%	90.3%	10.76***	66.5%
3. Not very	22.6%	1.1%		8.9%
4. Not at all	52.8%	8.6%	6.76***	24.7%
<i>Item 4: "You have had good experiences in the past (with this remodeler)"</i>				
1. Very	45.3%	76.6%	3.96***	65.3%
2. Somewhat	7.6%	6.4%		6.8%
At least Somewhat	52.9%	82.0%	4.06***	72.1%
3. Not very	7.6%	2.1%		4.1%
4. Not at all	39.6%	14.9%	3.46***	23.8%
<i>Item 5: "Someone you trust gave a good reference (for this remodeler)"</i>				
1. Very	73.6%	80.7%	0.95	78.1%
2. Somewhat	1.9%	6.5%		4.8%
At least Somewhat	75.5%	87.2%	1.77**	82.9%
3. Not very	5.7%	4.3%		4.8%
4. Not at all	18.9%	8.6%	1.79**	12.3%

\* p<.05    \*\*<.01    \*\*\*p<.001 (one-tailed test for hypothesis that importance is greater in WNE)

<sup>31</sup> The given N reflects valid cases for first panel. Valid N varies slightly across panels.

Table 10: Association of Expected Budget with WNE and Agreement that Selected Remodeler Seemed the Most Trustworthy, 2004 NARI Survey

Panel A

Expected Budget <sup>32</sup>	Percent WNE	Chosen Remodeler Seemed the Most Trustworthy?		N
		Strongly Agree	Any Agreement	
Under \$5k	43.4%	82.4%	97.1%	136
\$5k-\$10k	46.8%	85.9%	94.7%	78
\$10k-\$20k	40.0%	79.6%	97.7%	44
\$20k-\$30k	35.3%	70.6%	100.0%	17
\$30k-\$50k	35.3%	68.8%	93.8%	16
\$50k-\$100k	50.0%	70.0%	90.0%	10
\$100k+	22.2%	77.8%	100.0%	9
N	133	192	272	310
Mean	42.5%	81.0%	97.1%	

Panel B

Expected Budget (EB) as % of Household Income <sup>33</sup>	Percent WNE	Chosen Remodeler Seemed the Most Trustworthy?		N
		Strongly Agree	Any Agreement	
EB ≤ 5% of I	43.6%	87.2%	97.5%	39
5% of I > EB ≤ 7.5% of I	46.0%	91.9%	97.3%	37
7.5% of I > EB ≤ 10% of I	52.8%	75.0%	94.4%	36
10% of I > EB ≤ 15% of I	40.9%	86.4%	100.0%	22
15% of I > EB ≤ 20% of I	38.5%	69.2%	96.2%	26
20% of I > EB ≤ 33% of I	41.5%	75.6%	100.0%	41
33% of I > EB ≤ 50% of I	26.7%	60.0%	93.3%	15
50% of I > EB ≤ 75% of I	37.5%	70.8%	91.6%	24
75% of I > EB	44.4%	88.2%	100.0%	17
N	110	204	249	257
Mean	42.6%	78.4%	96.9%	

<sup>32</sup> Answer to the question: “When the remodeler first began the project, how much did you think it would cost?”

<sup>33</sup> To calculate this, household income and expected budget were translated into dollar figures, according to the translations given in tables 2 and A2 respectively.

Table 11

Percent Engagement in WNE by Strong and Lesser Agreement with Eight Reasons for Selecting the Chosen Remodeler and Stratified by Whether Considered Multiple Remodelers, 2004 NARI Survey

	<i>Percent Within-Network Exchange</i>					
	Full Sample		Considered 1 <sup>34</sup>		Considered 2+	
<i>The Chosen Remodeler...</i>	Strongly Agree	Less Agreement	Strongly Agree	Less Agreement	Strongly Agree	Less Agreement
Had the lowest price	51.02%•	40.00%	75.00% (91.67%)	60.64% (85.11%)	37.70%•	27.10%
Had the highest level of service	45.07%	38.55%	63.96% (86.49%)	64.71% (82.35%)	33.14%•	20.41%
Had the best reputation and referrals	47.01%	40.00%	66.00% (91.00%••)	60.53% (73.68%)	32.58%	30.26%
Was the most trustworthy	46.82%••	31.82%	67.48%• (86.18%)	47.62% (80.95%)	32.37%	25.00%
Had the best personality	50.75%••	33.99%	64.44% (85.56%)	62.00% (86.00%)	40.19%••	20.39%
Offered the best advice	48.37%••	36.55%	68.89% (86.67%)	56.86% (84.31%)	33.61%	25.53%
Was affiliated with industry associations	38.27%	45.86%	66.67% (83.33%)	64.62% (86.15%)	26.79%	32.61%
Seemed the most capable	46.35%	37.08%	65.79% (87.72%)	61.54% (84.62%)	32.48%	27.42%
	N=348 <sup>35</sup>		N=130		N=216	

••  $p \leq .05$ , two-tailed t-test

•  $p \leq .10$ , two-tailed t-test

<sup>34</sup> Percentages in parentheses calculate WNE as WNE2—i.e., those who said that “personal knowledge” of the remodeler or “good past experience” with the remodeler were important factors in why they considered only one remodeler (see table 90).

<sup>35</sup> The number of observations is based on the valid cases for the first item (“The chosen remodeler had the lowest price”). Most of the items had slightly more valid cases, though the penultimate item (“Was affiliated with industry associations”) has considerably fewer cases, as shown in figure 5.

Table 12

## Logit Models of Whether Engaged in Within-Network Exchange, 2004 NARI Survey

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	B	B	B	B	B	B
Covariates	(Std. Err)	(Std. Err)	(Std. Err)	(Std. Err)	(Std. Err)	(Std. Err)
Level of Education <sup>36</sup>	-0.115• (0.070)	-0.122• (0.072)	-0.113 (0.073)			
Agreement that remodeler...						
“Was most trustworthy”	0.505•• (0.246)	0.324 (0.271)	0.198 (0.278)			
“Offered best advice”		0.301• (0.169)	0.211 (0.177)			
“Had best personality”			0.330•• (.156)	0.417•• (.146)	0.095 (0.206)	0.642•• (0.249)
Seriously Considered 2+ Remodelers				-1.344•• (0.234)	-3.727•• (1.126)	Yes
Personality*Considered 2+					0.687•• (0.314)	NA
Whether 2 <sup>nd</sup> Choice was WN						2.316•• (0.386)
Constant	-2.693•• (0.991)	-3.101•• (1.027)	-3.392•• (1.056)	-2.160•• (1.109)	0.215 (0.734)	-3.685 (0.902)
-2* Log-likelihood	482.40	468.00	449.38	432.21	427.11	206.27
Pseudo-R <sup>2</sup>	0.015	0.024	0.034	0.096	0.107	0.206
N=	365	357	346	343	343	212

•• p ≤ .05, • p ≤ .10

<sup>36</sup> Measured as 1=“Less than high school, no diploma”; 2=High school diploma or GED”; 3=“Some college—no degree”; 4=“Associate degree”; 5: “Bachelors degree; 6=“Masters (MA, MS, MBA, MED)”; 7=“Doctorate (PhD, EdD) or Professional (MD, JD, DDS).”

Table 13

Logit Models of Whether “Very Satisfied” with the “Project Overall”, 2004 NARI Survey

	Model 1	Model 2	Model 3	Model 4	Model 5
Covariates	B (Std. Err)	B (Std. Err)	B (Std. Err)	B (Std. Err)	B (Std. Err)
WNE	0.773** (0.335)		0.542 (0.353)	0.686** (0.382)	0.633• (0.355)
Number Remodelers Considered		-.334** (0.139)	-.266• (0.146)		
Went Over Budget <sup>37</sup> (14% of all projects)				-0.678• (0.378)	
Went Over Time <sup>38</sup> (34% of all projects)					-1.155** (0.336)
Constant	1.598** (0.185)	2.665** (0.378)	2.305** (0.437)	1.593** (0.214)	2.083** (0.261)
-2* Log-likelihood	283.63	278.27	275.82	256.07	240.67
Pseudo-R <sup>2</sup>	0.019	0.021	0.029	0.029	0.056
N=	369	365	365	310	316

•• p ≤ .05

• p ≤ .10

<sup>37</sup> An indicator of whether the total cost of the project exceeded the amount budgeted<sup>38</sup> An indicator of whether the answer to “Approximately how many days did the job actually take from start to finish?” exceeded the answer to “When work on the project first began, how many days did you think it would take?”

Table A1  
 Rating of Importance of Reasons for DIY, 2004 NARI Survey

<i>“How important are the following reasons in your decision to do the work yourself?”</i>							
	Expense of hiring someone	Enjoy doing the work yourself	Difficulty of finding a remodeler who...	Does high quality work	Within my budget	Who is reliable	Who is trustworthy
Very Important	58.71%	77.95%	23.66%	35.27%	32.95%	32.43%	
Somewhat Important	15.53%	13.31%	13.36%	13.57%	12.79%	12.36%	
Not Very Important	6.44%	4.18%	11.07%	7.75%	10.85%	8.49%	
Not at all important	19.32%	4.56%	51.91%	43.41%	43.41%	46.72%	
N=	264	263	262	258	258	259	

Table A2

Total Cost of the Project<sup>39</sup> by DIY or Professional

		All Projects	DIY Projects	Professional Projects
Category:	Coding for calculating mean values:	Frequency	Frequency	Frequency
Under \$5k	\$4k	50.95%	62.75%	41.72%
\$5k-\$10k	\$7,500	23.75%	18.43%	27.91%
\$10k-\$20k	\$15k	10.67%	9.02%	11.96%
\$20k-\$30k	\$25k	5.34%	3.14%	7.06%
\$30k-\$50k	\$40k	4.13%	4.71%	3.68%
\$50k-\$100k	\$75k	3.44%	1.96%	4.60%
\$100k-\$200k	\$150k	1.03%		1.84%
\$200k-\$500k	\$350k	0.52%		0.92%
\$500k+	\$600k	0.17%		0.31%
	Mean=	\$15,377	\$9,382	\$20,083
		N=581	N=255	N=326

<sup>39</sup> The question wording was: “Was the total cost of the project...? (You can stop me at any point.)”

Table A3  
 Project Type<sup>40</sup> by Project Cost and DIY/Professional

Type	All Projects		DIY Projects		Professional Projects	
	Frequency	Mean Cost	Frequency	Mean Cost <sup>41</sup>	Frequency	Mean Cost
Kitchen	16.06%	\$19,806	19.32%	\$9,429	14.46%	\$29,830
Bathroom	8.81%	\$6,333	11.36%	\$5,096	6.46%	\$7,786
Basement	5.18%	\$12,433	6.44%	\$4,583	4.31%	\$20,071
Other rooms	6.91%	\$8,288	9.09%	\$6,194	5.23%	\$10,912
Flooring	7.25%	\$5,619	6.44%	\$6,529	7.69%	\$5,000
Windows	7.77%	\$6,478	5.30%	\$14,724	9.85%	\$5,797
Addition	13.82%	\$32,781	12.12%	\$4,875	14.77%	\$45,260
Whole House	3.97%	\$67,674	4.17%	\$35,722	3.69%	\$98,333
Deck	4.32%	\$6,000	6.06%	\$4,538	2.77%	\$8,000
Porch/Yard	2.25%	\$9,808	1.52%	\$4,875	2.77%	\$12,000
Roof	12.95%	\$7,253	7.58%	\$8,412	16.92%	\$7,009
Siding	6.04%	\$8,129	5.30%	\$8,636	6.77%	\$8,250
Other Exterior	2.59%	\$5,700	4.17%	\$5,222	1.54%	\$4,700
Misc.	2.07%	\$4,292	1.14%	\$5,750	2.77%	\$4,000
	N=579	\$15,231	N=264	\$9,124	N=325	\$20,005

<sup>40</sup> Response to the question “Was this an addition, a kitchen, bath, or basement remodel, an exterior remodeling project such as decking, roofing, or siding or something else? (Probe: If more than one, the largest or most expensive.)” All listed categories that were not in the question were offered as a verbatim response.

<sup>41</sup> Excludes 39 respondents who reported hiring a professional remodeler in the past five years but did the most recent major remodeling project themselves. This set of respondents was asked about the total cost of the professional remodeling project but not the DIY project.

Table A4

Logit Models of Whether Hired a Professional Remodeler (vs. DIY) in Most Recent Remodeling Project, 2004 NARI Survey

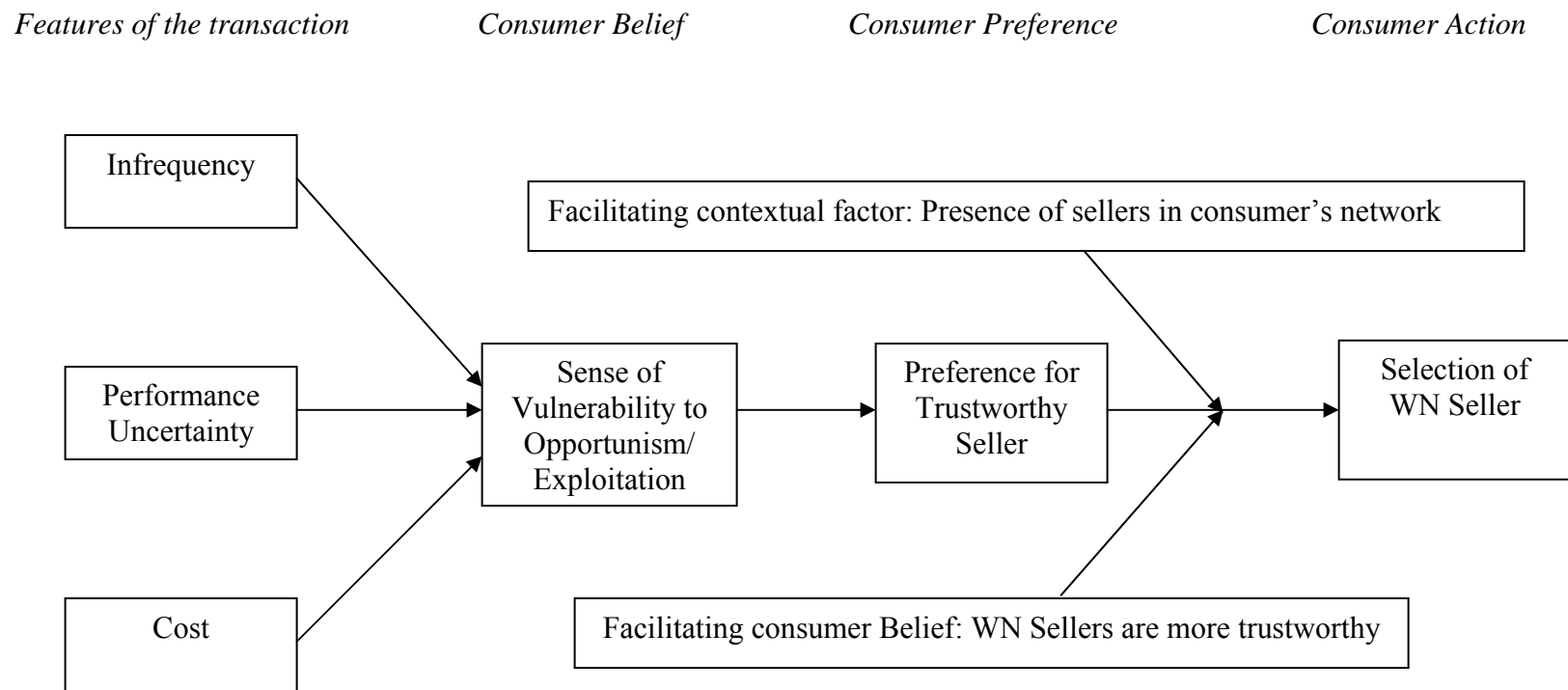
	Model 1	Model 2	Model 3 <sup>††††††††††††††††††††</sup>	Model 4 <sup>††††††††††††††††††††</sup>
Covariates	B (Std. Err)	B (Std. Err)	B (Std. Err)	B (Std. Err)
<i>Socio-Demographic</i>				
Ruralness	-.274** (.122)	-.247* (.133)		-.442** (.156)
Age	.030** (.006)	.048** (.007)		.044** (.009)
Female	.508** (.178)	.609** (.197)		.748** (.222)
Household Income (\$1000)		6.693** (2.085)		7.674** (2.547)
<i>Project Characteristics</i>				
Total Cost of Project (\$1000)			.029** (.007)	0.043** (.010)
Roof or Siding			.966** (.246)	1.169** (.306)
Windows			1.397** (.411)	1.215** (.444)
Whole House			-1.061* (.581)	-.522** (.755)
Constant		-3.224** (.639)	-0.174 (.129)	-3.42** (.718)
<i>-2*</i>				
Log-likelihood	729.40	606.74	745.20	491.96
Pseudo-R <sup>2</sup>	0.681	0.099	0.067	0.185
N=	571	489	542	445

\*\* p ≤ .05

\* p ≤ .10

†††††††††††††††††††† Excludes 39 respondents who reported hiring a professional remodeler in the past five years but did the most recent major remodeling project themselves. This set of respondents was asked about the total cost of the professional remodeling project but not the DIY project.

Figure 1:  
Embeddedness-as-Control Thesis  
(Derived from DiMaggio and Louch 1998)



**Figure 2:**  
**Reasons Given by Respondent for Choosing Remodeler, 2004 NARI Survey**

