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The Salesperson as Outside Agent or Employee: A Transaction Cost Analysis

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This descriptive study explores the reasons for integration of the personal selling function, i.e., the use of employee (“direct”) salespeople rather than manufacturers’ representatives (“reps”). A hypothesized model is developed based on both transaction cost analysis and the sales force management literature. Data from 13 electronic component manufacturers covering 159 U.S. sales districts are used to estimate a logistic model of the probability of “going direct” in a given district. Results are shown to be stable across specification and estimation methods and to fit the data well. The transaction cost model is generally supported. The principal finding is that the greater the difficulty of evaluating a salesperson’s performance, the more likely the firm to substitute surveillance for commission as a control mechanism, i.e., to use a direct sales force. Among other findings, direct sales forces are also associated with complex, hard-to-learn product lines and with districts that demand considerable nonselling activities. Several factors prove unrelated, including company size, the amount of travel a district requires, and the importance of key accounts.

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The exploding cost of personal selling (Sales and Marketing Management 1983) pressures managers to reconsider fundamental strategic decisions. One such decision is whether to fill a sales district with manufacturers’ representatives¹ (“reps”) or an employee (“direct”) sales force. Traditionally, managers are reluctant to reconsider this choice, preferring to alter training, compensation, or other operating features when problems arise. But the need for greater sales productivity is sparking reconsideration, especially of manufacturer’s representatives, who have increased their share of industry sales vis-a-vis their direct counterparts (Taylor 1981).

*Erin Anderson passed away on November 21, 2007.

¹A manufacturers’ representative is an independent entity (agency). The “rep” (also called “manufacturers’ agent” or “outside agent”) covers all selling expenses and is generally compensated by a commission on sales. Reps usually represent several manufacturers (principals) by combining the (noncompeting) products of these principals into a product line. By arrangement with the principal, reps usually have exclusive right to a customer segment, frequently defined geographically. Reps may be distinguished from distributors (wholesalers) in that they do not take title to the goods they sell (Haas 1976, Diamond 1978, Risley 1972). In sales force management, “going direct” means using employee salespeople instead of manufacturers’ representatives. In distribution channel management, “going direct” means using an in-house distributor, an issue beyond the scope of this paper.

Fully half of all U.S. manufacturers used reps in 1974, either exclusively or only in some districts, filling the rest with employee salespeople (Research Institute of America 1975). Users of reps include some very large companies that can well afford a direct sales force, yet choose not to (Shapiro 1977). In spite of the importance of the rep-direct choice, little empirical research addresses the issue and no comprehensive model of rep-direct usage or of the productivity implications of that choice exists. Even opinion on the question is difficult to come by; sales force texts give little mention to reps and opinion among managers is contradictory and ill codified. Accordingly, managers interested in when other firms use reps are obliged to rely on anecdotes and on occasional statistics that do not account for differences across companies.

This study is a first step toward remedying these deficiencies. Data from the electronic components industry are used to test a hypothesized model of the use of rep and direct sales forces in 159 United States sales districts served by 13 manufacturers. The explanatory power of 15 variables is tested. These variables and their rationales come primarily from transaction cost analysis, a general approach to the issue of vertical integration (Williamson 1975), i.e., make or buy. A direct sales force represents the decision to “make” the performance of the personal

function, while a rep is the “buy” alternative. This study operationalizes the major variables of transaction cost analysis (Williamson 1979) as they apply in the selling setting. The results indicate in general that the constructs are related to rep-direct usage in a manner consistent with theory.²

The first section of this paper reviews the marketing literature on integration of the distribution function, including personal selling. The second section presents hypotheses drawn from transaction cost analysis, the marketing literature, agency theory, and industrial organization. The third section covers data collection, followed by measure development. Then a logistic model of rep-direct usage is estimated, followed by a test of model validity. The paper concludes with a discussion and suggestions for further research.

Review of Marketing Literature

The marketing literature on the rep-direct issue is sparse, conflicting, and largely nonempirical. This review is organized in three parts: arguments advocating the use of reps, arguments for direct salespeople, and contingency perspectives viewing the optimal choice as situation specific.

Arguments for Manufacturers’ Representatives

The manufacturers’ rep is an independent businessperson whose survival depends on performance, since classical reps work on commission and cover all selling expenses, regardless of the outcome of their calls. Rep advocates contend that only superior salespeople can make a living under these conditions, implying the average rep is highly competent.

A number of other advantages have also been cited. Briefly,

By combining product lines of several manufacturers, the rep can generate product synergy and can make calls that no one line will justify.

By using a rep the manufacturer can obtain a trained sales force, relationships in place, immediately and at virtually no fixed cost. Even sales management personnel costs can be minimized, as reps provide their own supervision.

Unlike company salespeople, reps are unlikely to transfer. Their stable presence provides continuity

and excellent knowledge of customers (hence better market research and stronger customer relationships).

Arguments for Direct Sales Forces

In contrast, direct sales forces are thought to offer better control. Direct personnel are considered more willing to perform nonselling activities (paperwork, attending trade shows, services, etc.), push new products, and push products whose selling cycle is very long, while reps are considered unwilling to do anything without an immediate, certain, concrete payoff (a commission). A large enough commission rate, in theory, could induce the rep to be more long-term oriented. But in practice two factors may confound this argument. First, commissions are paid well after expenses are incurred, which can create cash flow problems and force attention on immediate results. Second, the benefits of long-run activities are more apparent to the manufacturer than to the rep, especially when there is little assurance of a long-run relationship. It is impossible to estimate and appropriately discount the expected stream of commissions attributable to attending trade shows or filling out reports, so the benefits to a rep are nebulous. To a manufacturer, however, anything which may enhance sales must have some value. Thus, the manufacturer is more likely to direct a company salesperson to perform such activities and will monitor behavior and reward the salesperson accordingly.

The short-term mentality argument is part of the larger issue of control. A firm dealing with an employee has an exclusive arrangement, one of legitimate authority. The firm can add to that a variety of incentives: promotion, desirable transfers, a satisfying work environment, perhaps the company’s prestige, job security, and so forth. If the firm adds a salary component and the right to monitor activities, management should be able to influence an employee’s behavior considerably more than an outside agent’s behavior. Disagreements are minimized and coordinated action is facilitated, an advantage heavily weighted by Stern and El-Ansary (1982).

Some rep advocates counter that absence of control is actually an advantage. They argue that if a rep can’t be induced to do something, perhaps it shouldn’t be done, akin to saying market outcomes are efficient. For example, if a rep won’t push a new product to his/her valued customer base, perhaps something is wrong with the marketing plan, not the rep.

Clearly, such disagreements impede coordinated action. For this reason, Etgar (1976) hypothesized that direct insurance writers have higher premium volume than independent insurance agents. Yet, at the conventional 5% significance level he found no difference. On other performance measures, Etgar found a mixed pattern, indicating that coordination does not invariably improve performance.

² A related paper appears in the *RAND Journal of Economics* 15(3, Autumn 1984) and is entitled “Integration of the Sales Force: An Empirical Examination,” by Erin Anderson and David C. Schmittlein. In this article, single-item measures are used to test a subset of hypotheses concerned only with transaction cost predictions. Extensive validation and testing of alternative hypotheses are not undertaken, and managerial implications and considerations are not discussed. While the results are compatible, these two papers have different objectives and meet the style and standards of different readers.

The control issue is more heavily weighted by managers when they feel salespeople are irreplaceable. This comes about in numerous ways: for example, salespeople get “too close” to customers (becoming more important than the company name), or amass an intimate knowledge of the company, of products, or of key accounts, which makes their experience too valuable to lose. Some writers (Research Institute of America 1975, Risley 1972) caution that critical personnel are easier to keep and deal with when they are employees rather than reps.

Contingent Views

Some writers suggest that circumstances do or should determine the choice of rep or direct system. Shapiro (1972) treats one circumstance, company size, as determinant. He reports a “new view” among managers that small companies should (and must) start rep, go direct to gain control when they reach moderate size, and switch back to reps when they become large. The premise is that large firms are cumbersome, bureaucratic, ineffective, and inefficient in running sales departments.

Lilien (1979) combines selling and distribution to model a company's use of captive (direct) channels vs. independent channels for a product line. He finds use of captive channels associated with larger firms, larger average orders, and products that are more complex, earlier in their life cycles, less standard, and less frequently purchased. Unfortunately, it is not clear why these effects occur. Nonetheless, ADVISOR II is a substantial contribution that indicates the importance of situational factors in determining distribution patterns.

Summary

The marketing literature presents plausible arguments for both rep and direct sales forces. Unfortunately, the importance of each factor is difficult to assess. A comprehensive framework is needed to develop hypotheses as to when a district would be served by reps and when by company salespeople. One such framework is offered by transaction cost analysis.

A Model of Sales Force Integration

In order to explore the above questions more analytically, a model based on transaction cost analysis is developed of when the selling function in a district is integrated (performed by employees) rather than non-integrated (performed by outside agents). The objective is to explain broad, observable patterns of industry usage rather than the dynamics that drove each decision when it was made.

Underlying this model is the premise that competition is vigorous, albeit imperfect, and has not

yet reached its long-run equilibrium.³ Accordingly, although industry practice broadly consistent with efficiency considerations will in general be observed, practices which may be optimal only in the short run (given near-term constraints) may also be observed. Since the efficiency properties of these practices are not well understood, competing predictions and explanations of their direction of effect may be found. This study reviews such explanations and tests them in the context of the electronic components industry.

Transaction Cost Hypotheses

Transaction cost analysis (Williamson 1975, 1979, 1981a, b) concerns the question of when a function is more efficiently performed within a firm (vertical integration) vs. across independent entities (market contracting). Consistent with Coase (1937), emphasis is given to transaction costs (actual and opportunity costs of transacting under various governance structures) rather than production costs. Transactions are assumed to occur under “bounded rationality,” i.e., cognitive limitations. Further, actors are assumed to be imperfectly informed and operating under some degree of uncertainty. Finally, at least some actors are assumed to be “opportunistic” (tending to cheat other parties whenever profitable). Thus, would-be transactors must try to anticipate changing circumstances and must be wary of being cheated; however, their limited cognitive ability assures they will not even set up the problem “correctly” from an unconstrained point of view, let alone solve for the optimal decision, write a complete contract, and enforce it perfectly.

Transaction costs analysis treats market contracting as more efficient than vertical integration *a priori* based on the benefits of competition (Williamson 1979, 1981b). Salutary competitive pressure enforces efficient contract execution and encourages agents to be adaptable, even cooperative, when the inevitable unspecified contingencies arise. Of course, there is

³ Jensen and Meckling (1976, p. 329) state the assumption by quoting Williamson:

Where competitors are numerous and entry is easy, persistent departures from profit maximizing behavior inexorably leads to extinction. Economic natural selection holds the stage. In these circumstances, the behavior of the individual units that constitute the supply side of the product market is essentially routine and uninteresting and economists can confidently predict industry behavior of these individual units.

When the conditions of competition are relaxed, however, the opportunity set of the firm is expanded. In this case, the behavior of the firm as a distinct operating unit is of separate interest. Both for purposes of interpreting particular behavior within the firm as well as for predicting the responses of the industry aggregate, it may be necessary to identify the factors that influence the firm's choices within this expanded opportunity set and embed these in a formal model.

(Williamson 1964, p. 2)

still hard bargaining, but it is honest and flexible (“good faith”). The presumption of market superiority is also based on the potential limitations of firms. Transactions within integrated companies may be insulated from competitive pressure, subject to company politics, hampered by communication distortion, employee alienation, uninformed decision making, inertia, and other bureaucratic phenomena, and made unprofitable by the overhead of an administrative mechanism.

The model presented here follows this presumption by treating reps (market contracting) as the “default option” and framing most hypotheses as reasons to deviate by going direct (vertically integrating). Thus, the model describes a set of variables that indicate when the competitive forces of the marketplace will not be strong enough to assure efficient performance.

Transaction-Specific Assets. Williamson (1979) suggests that the principal cause of “market failure”⁴ (hence integration) is the presence of valuable “transaction-specific assets,” which help contractors and suppliers carry out a transaction. Klein et al. (1972) make a closely related argument. Unlike general purpose assets (e.g., machinery, capital, communications skills), which can be freely transferred across applications, transaction-specific assets are tailored to a particular user (transaction) and thus are valuable only in a narrow range of alternative uses. The narrower the range, the more specific the asset. An example of a highly specific asset is a machine for stamping automobile fenders. To modify a machine for stamping General Motors fenders to make Ford fenders instead is very expensive; hence the machine is specific to GM uses and difficult to transfer.⁵ Transaction-specific assets are also of a human nature in the form of special-purpose knowledge and working relationships, which arise in a learning by doing fashion and create specific, rather than general, human capital. An example is the extensive training and experience needed for IBM salespeople to learn the IBM method of selling, the IBM corporate culture, and the unique features of IBM products, as well as to form and deepen essential working relationships in such a large, complex bureaucracy.

Special-purpose assets are important because they eliminate competitive pressure, the major basis of the market superiority argument. The few suppliers of goods or services (at the extreme, only one) who possess transaction-specific assets are uniquely qualified

to perform the transaction. Knowing they are difficult to replace, suppliers may become opportunistic or inflexible. Therefore, the firm is better off integrating to exert control, in spite of the potential limitations of company management. Suppliers who have become employees, while still hard to replace, will be easier to control than suppliers who retain their independence. This leads to the hypothesis that for a given district:

HYPOTHESIS 1 (H_1). *The greater the potential transaction specificity of assets, the greater the likelihood of using a direct sales force.*

Difficulty of Evaluating Performance. Rewarding what the firm considers performance through the market mechanism is feasible when performance is easy to assess. In such circumstances, rewards can be unambiguously linked to results. When performance cannot be assessed easily, using markets can be “inefficient” (i.e. less profitable than integrating) because it is not known what to reward and how (Williamson 1981a). Jensen and Meckling (1976) stress how performance assessment difficulties complicate attempts to write an incentive compatible contract. Organizations can reduce (though not eliminate) the problem by monitoring behavior (inputs) and using subjective assessments as the basis of rewards; indeed, Alchian and Demsetz (1972) take the extreme position that the sole *raison d’être* of organizations is to substitute monitoring inputs for counting outputs when individual productivity cannot be assessed by the results alone. This situation occurs when output measures are unreliable or invalid, perhaps because records are inaccurate or no readily observable indicators of what a firm means by “performance” exist. This is particularly likely when “performance,” as the firm defines it, can only be measured by combining indices of both input and output. Performance can also be difficult to evaluate at the individual level, for example, when responsibility is shared by a team. For a given district, then

HYPOTHESIS 2 (H_2). *The more difficult it is to evaluate sales performance, the more likely the use of a direct sales force.*

Environmental Unpredictability. In some districts the sales environment is volatile and complex, making forecasting and control difficult. Complex, little known, turbulent circumstances (environmental unpredictability) make it difficult to manage under either direct or rep modes. Williamson (1979) argues that reps are preferable even in unpredictable settings. Although some observers argue that managers need control to cope, Williamson argues that managers may not use control wisely. “Organizational efforts are often myopic, and demands for control can

⁴ “Market failure” in transaction cost terminology means merely that integration is more efficient than market contracting, not that the market mechanism cannot be used.

⁵ Klein et al. (1972) argue that the transactional difficulties surrounding such specific assets led GM to acquire Fisher Body in 1926.

and often do give rise to dysfunctional outcomes” (1981a, p. 551). Firms are better off retaining flexibility by using reps. But if transaction-specific assets are present, flexibility disappears. The outside agent is now in position to use each adjustment to uncertainty to “hold-up” the company with relative impunity. The firm is better off dealing with an employee. For a given district, this complex argument may be expressed as an interactive hypothesis:

HYPOTHESIS 3 (H_3). *The higher the combination of environmental unpredictability and transaction-specific assets, the higher the likelihood of a direct sales force.*

If Williamson is correct that unpredictability *per se* does not favor vertical integration, the presumption that reps are the appropriate default option is unchanged. Accordingly, unpredictability alone is irrelevant. We would expect *only* its interaction (H_3) with specificity to influence the rep-direct choice in an efficient industry.

Travel Requirements. Earlier we noted the overhead of an administrative mechanism. For small or rarely occurring transactions, that overhead makes integration infeasible. The firm is better off tolerating some opportunism and inflexibility by outsiders than incurring the certain fixed costs of insiders performing minor transactions. Transactions must be in some sense large enough to justify overhead.

When is a sales district large enough to justify the overhead of a direct sales force? Managers approach the issue from two directions. One is sales potential; the higher a district’s potential, the greater the feasibility of direct personnel. Unfortunately, good estimates of potential are often hard to obtain. A second approach is to consider how much traveling a salesperson representing only one company would have to do to cover what management considers a reasonable district. The more travel a one-line salesperson is required to do, the less time s/he can spend selling, generating contributions toward overhead. Eventually travel requirements become so great a direct salesperson cannot be supported. Firms will be obliged to use rep agencies, which cut any individual salesperson’s travel requirement by covering the district with more people, each of whom sells multiple lines on each call and generates greater contributions to the agency’s overhead. The principal, relieved from covering overhead, pays only commission. Thus, for reasons of feasibility,

HYPOTHESIS 4 (H_4). *The greater a district’s travel requirement per unit of sales potential, the less likely a direct sales force.*

Other Hypotheses

Transaction cost analysis has suggested that, *if managers operate efficiently*, integration will only be observed when specificity is high, performance is difficult to assess, specificity and environmental unpredictability occur together, or districts require little travel. But Williamson (1981a) agrees that in a given setting other factors are bound to operate as well. The sales force literature suggests what some of these factors might be. Literature from industrial organization and agency theory suggest efficiency rationales. These factors have been used to complete the model.

Attractiveness of Product Line. Managers hotly debate whether rep or direct sales forces are more likely to carry the better product lines, those which are attractive to the customer. Rep advocates argue that since these lines are easier to sell, there is no need to go direct. Direct advocates counter that firms want to invest in better lines and hence have a stronger interest in controlling them.

If reps are superior salespeople, they should be better able to sell the more difficult lines, in particular, those which are high priced and of lower quality relative to competition. Thus, if a firm wants to support direct salespeople, it makes sense to give them easier to sell, more attractive lines. Hence,

HYPOTHESIS 5 (H_5). *The more favorable a firm’s price-quality combination relative to competition in a district (the more attractive a product line), the more likely the district will be served by a direct sales force.*

Company Size. The importance of firm size is stressed by managers and by industrial organization economists and organization theorists. Scherer (1980) argues that a large firm achieves economies of scale in finding, holding, and utilizing management skills, making it able “to get more mileage out of its expenditures on a field sales force and other marketing instruments” (p. 84). More generally, size is viewed as an important influence on firm behavior (Miles 1980) and firm and industry performance for reasons of scope and scale economy and market power aspirations (Scherer 1980). Finally, the larger the firm, the more easily it can carry administrative overhead and short-term efficiency losses.

HYPOTHESIS 6 (H_6). *The larger the firm, the more likely it will serve any district with direct personnel.*

Time Horizon. Many managers appear to believe that reps have a short time horizon, a “harvesting” mentality, that keeps them from undertaking activities that don’t have an immediate dollar payoff (Risley 1972). If so, managers will avoid reps when a district demands nonselling support activities. Managers will also avoid reps when customers take a long time to signal their decisions; managers will fear that reps

will ignore the long-term sale to go after the short-term sale. Thus, the probability of going direct in a given district increases:

HYPOTHESIS 7 (H_7). *The greater the importance of non-selling activities,*

HYPOTHESIS 8 (H_8). *The longer the time span to feedback (selling cycle).*

A second explanation for H_7 and H_8 is given by agency theory. Performing nonselling activities is an input whose effect on the output of sales may be hard to specify. Hence, a control mechanism such as a commission, which is based solely on output (sales), may not be sensitive enough to detect some shunning of support activities (Jensen and Meckling 1976, Fama 1980). As for long selling cycles, an output control mechanism will take considerable time to detect lack of effort (hence lost sales). To circumvent these problems, management may prefer to *monitor and reward inputs* as they occur rather than wait for the perhaps imperfect signal of an output measure. Monitoring and rewarding inputs is facilitated by integration, i.e., going direct.

Sampling and Data Collection Procedure

The above eight hypotheses were tested in the electronic components industry. This industry exhibits considerable variation in the nature of its products, the uncertainty of its market environment, market size and nature, and usage of rep and direct sales forces. The industry is competitive but not perfectly so and information is costly to obtain. One industry, rather than several, was chosen to detect real differences in practice that might otherwise be confounded with industry-specific effects.

Unit of Analysis

The unit of analysis is a U.S. sales district, i.e., a set of customers covered by a sales force (rep or direct) reporting to a sales manager.⁶ The district rather than the company was selected because the rep-direct choice is a function of circumstances, which vary from district to district. Each district can have different travel requirements, different customers, and different selling requirements. Even the products sold vary. Not all firms sell all lines in all districts and in the same manner as in other districts. What products are sold and how is determined in consideration of both the customer base and the strength and nature of competition in the district. A firm's sales force in

Boston may stress design capabilities and carry only the most sophisticated customized products, the Los Angeles force may emphasize less sophisticated consumer product components, and the Rocky Mountain force may handle only low end passive components sold on a price basis—yet all these salespeople represent the same company. Thus, Bobrow (1982) reports that most marketers hire reps for certain market segments or geographical regions only. This can create a hybrid company (some reps, some direct); indeed, Lawrence and Lawrence (1982) suggest that the 1980's will be the decade of the hybrid.

The Sample

A list of recognized firms was generated using the 1980 *Audit of Brand Recognition*, a survey of purchasers of electronic components. Purchasers of a given electronic component (e.g., switching diodes) were asked to list manufacturers they would consider in planning purchases of the product. For major categories of components, every manufacturer mentioned by at least 10% of purchasers was noted. For convenience at this stage, non-West-Coast firms were eliminated. With the endorsement of the EIA (Electronic Industries Association), the vice-presidents of sales of 21 firms were personally contacted and asked for their participation in return for a customized report of the findings. Eleven have done so. In addition, nine other recognized firms (not from the West Coast but suggested by EIA) were contacted and five have participated to date, which increases the geographic coverage of the firms in the sample.

Nonparticipants

In total, 16 of the 30 companies contracted gave data. To assess the seriousness of nonresponse bias, the 16 respondents and 14 nonrespondents were compared on size, the sophistication of their product line, and whether they were rep or direct. The nonparticipants have little in common on these grounds. Furthermore, the profile of each nonparticipant was roughly matched by at least one of the participants. Since these three variables are important descriptors of electronic component manufacturers, the threat of nonresponse bias does not appear serious, although it is doubtlessly present.

Respondents

Respondents are district sales managers, who are in excellent position to know both the selling environment and the firm's environment. Each manager spans both sides of the boundary between the firm and the customer in a particular district. The respondents are quite knowledgeable; most were once salespeople, and the median length of time they have served in their district is six years. The median percent of working time in the field, observing operations

⁶ Since all firms cover the U.S., there is some overlap in districts at different firms. However, each firm defines districts differently and along more than the geographic dimension.

firsthand, is 40. Many managers also make sales calls in addition to supervising salespeople.

Each sales manager was directed by top sales management to fill out a 12-page questionnaire and return it directly to the researchers. To minimize key informant bias, the questionnaire was constructed, pretested, and revised according to criteria set forth in Campbell (1955) and Phillips (1981). In total, 159 completely usable responses (of 172 questionnaires returned) are available. The response rate per company is virtually 100% because company personnel followed up missing questionnaires. Thirteen companies are in the final sample, used for model estimation. Three others, each consisting of only one observation, provided enough data for some scale development but not enough to be included in the estimation sample.

Each sales district was recorded as zero (all rep sales force) or one (all direct sales force). In this sample, the rep agencies worked on a 100% commission basis, while the direct sales forces were salaried, often with a small bonus or commission in addition. However, salary constituted over 90% of total compensation.

Measures

Development

Thirteen constructs were hypothesized to be representable by a pool of item measures. For each construct, the internal consistency of the relevant items was assessed by factor analysis. With one exception (to be discussed), all or virtually all of the items loaded with the expected sign on the large first factor for the construct analyzed, followed by small factors reflecting wording or item nuances unrelated to the hypothesized construct. Once the unidimensional nature of the items was confirmed, internal consistency was further assessed by calculating coefficient alpha and dropping items with very low item-to-total correlations (which substantially depress coefficient alpha). A few items were deleted in this fashion. Finally, the unidimensional nature of the reduced set of items was re-checked via factor analysis, confirming the original results before deletion (Nunnally 1978).

To construct measures, standardized item scores were added (subtracted for reversed items). Reliabilities range from 0.42 to 0.84, with most estimates from 0.5 to 0.7. Nunnally (1967) suggests that reliabilities over 0.5 are adequate for basic research, but, in apparent reconsideration, Nunnally (1978) suggests 0.7 as the adequate level. The effect of low reliability is to attenuate correlation, biasing results toward insignificance. Hence, unless effects are quite powerful, we

Table 1 Overview of Measures

Hypothesis	Construct	Number of items	Coefficient alpha
H ₁	Transaction specificity of assets:		
	Company nature	10	0.78
	Products	12	0.84
	Confidential information	3	0.42
	Need to know accounts	3	0.54
	Customer complexity	2	0.46
	Customer loyalty	4	0.45
	Importance of key accounts	3	0.53
	Composite		0.75
H ₂	Difficulty of evaluating performance	7	0.54
H ₃	Environmental unpredictability	9	0.65
H ₄	Travel requirements	5	0.55
H ₅	Attractiveness of product line (price-quality relative to competition)	Constructed from 2 items	NA
H ₆	Company size	1	NA
H ₇	Importance of nonselling activities	5	0.63
H ₈	Time span to feedback	3	0.69

would expect null results with some of these measures. Table 1 summarizes their reliabilities.⁷

Transaction Specificity of Assets (Hypothesis 1)

To say that a given sales position entails a high degree of transaction-specific assets is to say that experience gained in a particular job (*not* general experience) improves selling performance in that job. Human assets tailored to the transaction (position) are specialized knowledge and working relationships (Williamson 1979). The more valuable they are, the more knowledge and relationships improve selling performance. Hence the firm would prefer the holder of these assets to be an employee (Hypothesis 1).

Specialized knowledge and working relationships are divided into two categories: company-based and customer-based. Company-based assets have to do with the idiosyncracies of the principal: its people, its procedures, the information it has, and special features of its products. Customer-based assets are similar but are connected with the firm's current and potential customer base. Seven types of transaction-specific assets are developed and scaled such that higher scores imply that more transaction-specific assets arise with job experience.

Transaction Specificity: Company Nature. This measure reflects how necessary it is for salespeople to forge working relationships within the firm in order to be effective and how much salespeople must learn ("the ins and outs of our company," "our ways of doing things"). Higher scores represent complex, unusual, bureaucratic operating procedures which

⁷ The scales used may be obtained from the author or from the Marketing Science Institute's Report No. 84-107.

change slowly (making the knowledge of them a durable asset).

Transaction Specificity: Products. Transaction-specific learning refers to the amount of product knowledge that a salesperson *experienced in the industry* needs to pick up. Thus, it refers not to product class knowledge but to brand-specific knowledge. On this measure, scores increase the longer it takes experienced salespeople to learn product lines and the more that products are technical, have high engineering content, change fast, and are sophisticated, customized, unique, and complex.

Transaction Specificity: Confidential Information. In this measure scores are higher when salespeople are in a position to acquire damaging information; not surprisingly, extensive security procedures are associated with this position.

Transaction Specificity: Customer Nature. The more unusual (atypical) the accounts in a district, the more there is to know about them; thus, the more experience counts. In addition, the more working relationships with accounts matter, the more experience with them counts. This is a two-factor measure of transaction specificity arising from the nature of the customer. The first measure associates unusual needs with the need to take time to know accounts and build a relationship. This measure may be called “need to know accounts.” The second measure reflects the accounts’ complexity, which is associated with sophistication.

It is interesting to note that these items encompass two factors rather than one. Here, complexity/sophistication is distinct from the need to get to know accounts and to form relationships. Conceivably, a firm might deal with customers who are relatively simple and unsophisticated (low score on measure two), yet the salesperson might still need to invest time in coming to know the account (high score on measure one). In other words, customer specificity can arise even with a relatively simple, unsophisticated customer base. Conversely, a customer or prospect may be complex and sophisticated, yet not demand considerable familiarity or working relationships as the price of salesperson effectiveness. In short, specificity can arise in two ways: from needing to get to know customers and prospects or from sheer complexity/sophistication.

Transaction Specificity: Customer Loyalty. A significant asset that a salesperson may acquire over time is the loyalty of the firm’s customers. This measure reflects positions in which customer loyalty to a salesperson (as opposed to the principal) can arise. Scores are highest when personal relationships count, the identity of the salesperson matters to the customer,

and the principal’s product features do not entirely compensate for the loss of the principal’s current representative. The measure taps only the potential for loyalty, not the conditions that create that potential.

Transaction Specificity: Importance of Key Accounts. As large accounts (key accounts) become a greater proportion of sales, their importance to the principal increases. Thus, it pays to specialize, to learn all the idiosyncracies of a customer and to cultivate working relationships (i.e., develop transaction-specific assets). The more concentrated sales are in key or priority accounts, the more customer-specific assets the salesperson acquires. This measure concerns concentration of firm sales in large accounts. For example, the more accounts a salesperson services, the less the concentration of key accounts.

A General Measure of Transaction Specificity of Assets

Transaction specificity of assets has been operationalized as seven detailed measures reflecting various sources of specificity. A given company fielding a sales force in a given territory may find that its salespeople can develop one type of transaction-specific asset but not another. For example, the firm might be typical of firms in this industry (low company specificity), may sell to a broad range of rather unsophisticated accounts (low importance of key accounts, low customer complexity), and may have an ordinary product line (low product specificity). Yet it may be critical for the salesperson to get to know the accounts and the potential for the customer to become loyal to the salesperson may be high. A situation which appears at first glance to be characterized by low specificity may in fact be one of moderate specificity.

The seven measures of transaction specificity that have been presented are tied together by one thread: the value of experience with a particular principal. This study considers the separate impact of each source of specificity on the rep-direct choice. Also of interest is the overall level of specificity. Therefore, the sum of the seven average scores was used to reflect the overall extent of specificity in a selling situation. (Averages were used because measures had differing numbers of items.) The composite reliability of the linear combination (Nunnally 1978, p. 248) is 0.75, indicating a high degree of association among the seven measures.

Difficulty of Evaluating Performance (Hypothesis 2)

Uncertainty exists for the manager of a sales force when performance is ambiguous, i.e., it is difficult to tell how well the individual salesperson is doing. This measure increases when managers indicate that (1) team sales are common (who gets the credit?),

(2) sales and cost records tend to be inaccurate at the individual level, (3) mere sales volumes and cost figures (which are relatively clear cut) are not enough to make a fair evaluation.

Environmental Unpredictability (Hypothesis 3)

Unpredictable sales environments are those which are made difficult to forecast by turbulence (instability) and by venturing into the unknown (new products, new markets). This measure covers both sources of unpredictability. Some items reflect instability (complex, volatile, difficult to monitor, uncertain markets, high forecast error). Other items reflect venturing into the unknown as the firm's emphasis on new activities (new product sales, new markets).

Interaction (Hypothesis 3). Testing H_3 requires forming a multiplicative interaction term between the summed measure of the overall level of transaction-specific assets and the measure of environmental unpredictability. Their product should be zero if there is no specificity or complete certainty. But given some specificity, their product should increase as uncertainty mounts. Large values for the interaction term should indicate the state of small-numbers bargaining under uncertainty that is hypothesized to lead firms to go direct (H_3 , positive sign).

Since the measures described above are expressed as standardized values, a problem arises when interactions are expressed as products. For example, a low/low combination would yield a large positive term, making low/low and high/high indistinguishable. Clearly, an interaction is interpretable only if the low/low combination is represented by a smaller number than the high/high combination. Consequently, it is necessary to use a transformation which allows interpretation of low/low and high/high combinations and intermediate points. One such transformation, zeta squared, is as follows (Cooper and Nakanishi 1983):

$$\begin{aligned}\zeta_{ij}^2 &= 1 + Z_{ij}^2 \quad \text{if } Z_{ij} \geq 0, \\ &= \frac{1}{1 + Z_{ij}^2} \quad \text{if } Z_{ij} \leq 0,\end{aligned}$$

where

Z_{ij} = standardized score of district i on variable j .

This transformation removes the negative sign of low Z values and is bounded by zero (for highly negative scores) and infinity (for highly positive scores). When Z is zero, the mean of a standardized score, zeta squared is one. Thus, meaningful interaction terms can be formed by multiplying the variables (each transformed to zeta squared).

Travel Requirements Per Unit of

Sales Potential (Hypothesis 4)

Travel requirements were assessed by asking how long it takes to drive between two accounts in a typical call pattern, how many nights per year a salesperson would spend in a hotel, and so forth. Unfortunately, estimates of sales potential were unobtainable. Both the companies and the trade associations (Electronic Industries Association) indicated that reliable potential measures have not been developed. Accordingly, travel requirements were used as a proxy for travel requirements per unit of sales potential.

Price-Quality (Hypothesis 5)

An interaction term is used to reflect the combination of price and quality. However, price is scaled "backward" such that a high relative price is a low number and vice versa. Thus, the price times quality term is lowest when the product is relatively high priced and of low relative quality. The term is highest when relative price is low and relative quality is high. Price and quality are both measured by seven-point scales (high relative price-low relative price, low relative quality-high relative quality).

Size (Hypothesis 6)

Company size is measured here by the dollar value of assets (of the division in the case where the firm is a subsidiary: see Gupta 1980).

Importance of Nonselling Activities (Hypothesis 7)

Certain products carried in a district require nonselling activities, e.g., information gathering, attending trade shows, or service from the salesperson after sale. In this measure, highest scores represent products that involve salespeople in post-sale activities and products that demand heavy nonselling activities.

Time Span to Feedback (Hypothesis 8)

Some products cannot be sold quickly; from the time selling effort begins to the time the sale is agreed upon, the salesperson has a long wait. In this measure, larger scores arise from a longer wait to know if an order will be placed, and slow customer decision making.

Results

Analysis Procedure

Usage of rep vs. direct sales forces was modelled via logistic regression, wherein the probability of going direct is the dependent variable. Positive coefficients imply a tendency to go direct; negative coefficients imply a tendency to use a rep. Table 2 summarizes the hypotheses, the appropriate measures, and the expected sign of the coefficient.

Mild collinearity is present in the correlation matrix of the independent variables. Most signs are small

Table 2 Summary of Hypotheses

Hypothesis	Variable	Expected sign of coefficient
H ₁	Transaction specificity of assets:	
	Company nature	+
	Products	+
	Confidential information	+
	Need to know accounts	+
	Customer complexity	+
	Customer loyalty	+
	Importance of key accounts	+
H ₂	Difficulty of evaluating performance	+
H ₃	Interaction: Transaction specificity of assets and environmental unpredictability	+
	Environmental unpredictability	0
H ₄	Travel requirements	—
H ₅	Attractiveness of product line (price-quality relative to competition)	+
H ₆	Company size	+
H ₇	Importance of nonselling activities	+
H ₈	Time span to feedback	+

with the exception of uncertainty and the uncertainty/specificity interaction ($r = 0.75$). However, model estimation with and without the most collinear terms indicated that results were stable. Table 3 presents the distribution of the 159 complete observations by company. “Hybrid” companies (some districts direct, some rep) supplied 117 of the 159 usable districts (observations), while the remaining 42 usable responses are from “uniform” firms (mostly all rep).

That 8 of 13 companies, comprising 74% of the districts, were hybrid indicates the necessity of treating the integration decision at the district level. Nonetheless, a potential issue is whether some unmeasured company-level variable accounts for the uniform observations. This possibility was assessed by testing for the poolability of hybrid and uniform observations (Cox 1970, Maddala 1977) in a logistic model (described below).⁸ Hybrid and uniform observations were found to be poolable and were combined.⁹

⁸ The test statistic is constructed as follows. A model combining hybrid and uniform observations, restricting them to have the same coefficients, is estimated within $n_1 + n_2 - K$ degrees of freedom. Then an unrestricted model is estimated, using hybrids only, with $n_1 - K$ degrees of freedom. Their maximized likelihood functions are designated as ML_R (restricted) and ML_U (unrestricted). Then $\lambda = ML_R/ML_U$ and $-2\ln \lambda$ follows a chi square distribution with n_2 degrees of freedom.

⁹ As a further examination of the level of aggregation issue, the correlation matrix of independent variables was computed for each company (grouping the four who supplied the fewest number of districts). Each of the resulting ten company matrices was compared to the overall matrix (pooled districts across companies). The company matrices were similar to the overall (pooled) matrix. Had the districts for a given company been extremely homogeneous, the within company correlations would have been much higher than the correlations obtained by pooling all districts across companies.

Table 3 Complete Responses by Company

Firm	Direct districts	Rep districts	Total
1	3	2	5
2	1	5	6
3	3	3	6
4	9	6	15
5	5	11	16
6	3	13	16
7	9	7	16
8	34	3	37
9	1	0	1
10	1	0	1
11	0	2	2
12	0	17	17
13	0	21	21
	69	90	159

Tests of Hypotheses: Estimation of a Logistic Model

Table 4 presents the results of a logistic regression estimated via maximum likelihood. Beginning with a full model (all terms included), terms were deleted unless their inclusion improved the log of the likelihood function significantly ($p \leq 0.15$). The initial full model contained 15 variables, the final model only seven terms. The C. C. Brown goodness of fit chi-square statistic compares the fit of the data to a logistic curve; large chi square values and small p values indicate a poor fit. These data fit well ($p \leq 0.97$). Further, the model correctly classifies 79% of the

Table 4 Results: Logistic Regression

Hypothesis	Variable	Coefficient	Coefficient/ standard error
H ₁	Transaction specificity of assets:		
	Company nature	—	1.44*
	Products	0.343	1.68**
	Confidential information	0.401	
	Need to know accounts	—	
	Customer complexity	—	
	Customer loyalty	−0.584	−2.45**
	Importance of key accounts	—	
H ₂	Difficulty of evaluating performance	0.957	3.83**
H ₃	Interaction: Transaction specificity of assets and environmental unpredictability	0.452	1.76**
	Environmental unpredictability	—	
H ₄	Travel requirements	—	
H ₅	Attractiveness of product line (price-quality relative to competition)	0.492	2.16**
H ₆	Company size	—	
H ₇	Importance of nonselling activities	0.835	3.26**
H ₈	Time span to feedback	—	
	Constant	−0.440	

Notes. Log likelihood = −74.16; C. C. Brown goodness of fit chi-square = 0.058; d.f. = 2; $p = 0.972$.

* $p < 0.10$; ** $p < 0.05$; — denotes deleted term.

observations (74% of the direct and 82% of the reps). However, since the same data were used in model development and classification, the true “hit rate” is somewhat lower.

Since all variables are standardized, the magnitudes of their coefficients are comparable. Of the seven terms in the final model, six have the expected sign (from Table 2).

According to Hypothesis 1, transaction specificity of assets leads to integration. If so, the model would contain seven specificity terms, all with a positive sign. However, the final model contains only three specificity terms, and only two have the expected sign. When the product requires considerable learning or when the salesperson can acquire damaging confidential information, districts are served by company employees. But, contrary to expectations, the greater the possibility of the customer developing loyalty toward the salesperson, the greater the likelihood of using a rep.

Consistent with Hypothesis 2, the strongest effect is that of the difficulty of evaluating performance. Firms appear to fill districts in which simple output measures (sales, cost) are inadequate by using direct personnel. Also as expected, the greater the combination of transaction-specific assets and environmental unpredictability, the greater the likelihood of integration (H_3). Here, the summed measure of specificity is used because we are interested in how managers cope with new and shifting conditions (unpredictability) when in a small-numbers bargaining position with their salespeople (high overall specificity of assets).¹⁰ In these circumstances, firms apparently prefer to be locked in with employees rather than with outside agents. Also, consistent with Williamson’s argument, unpredictability alone appears to have no impact on the use of direct salespeople, as the term does not contribute significantly to the fit of the model. Collinearity between unpredictability and the interaction terms, while high (0.75), does not appear to account for this finding. When unpredictability was eliminated in the deletion process, the coefficient of the interaction term did not change greatly. Further, the unpredictability term is small even without the presence of the interaction term.

Strikingly, travel requirements, company size, and time span to feedback are insignificant. But when the firm offers an attractive product line (low price

and high quality relative to competition in a district), direct personnel sell it; less attractive lines are more likely to be given to reps (H_5). In addition, nonselling activities have a strong impact: where they are important, a direct sales force covers the district (H_7).

Validity of Results

A well-accepted way to validate a classification procedure is to estimate the classification function on a subset of the sample and validate the results against a holdout sample. Unfortunately, maximum likelihood estimation requires a large sample relative to the number of terms, and 159 districts are not enough to split.

A second way to validate results is to see if they replicate under another method (Campbell and Fiske 1959). A popular classification method, though not as robust as logistic regression, is discriminant analysis (Press and Wilson 1978). A discriminate function was estimated and was found to significantly discriminate between rep and direct districts ($F = 5.419$, $d.f. = 15, 143$). Although the standard errors of discriminant coefficients cannot be interpreted (Crask and Perreault 1977), the signs and order of magnitude of the coefficients were comparable to those of the logistic function. The discriminant function correctly classifies 78% of the observations (68% of the direct, 86% of the reps). This is comparable to the logistic function (79% correct), although slightly less balanced between the two groups (the logistic function classified 74% of the direct and 82% of the reps).

The BMDP analysis package has the advantage of computing jackknifed classification rates for discriminant functions, wherein cases are classified by a function computed from all data except the case being classified. This procedure reduces the upward bias inherent in classifying cases used to develop classification functions. Under those circumstances, the jackknifed “hit rate” is more appropriate for comparison with the hit rate expected by chance. By the proportional chance criterion, the chance correct rate is 51%, given 69 direct and 90 reps, and the more conservative maximum chance criterion is 57% (Morrison 1969). The jackknifed rate compares favorably at 69% (62% of direct, 74% of the reps).

In short, the results appear insensitive to the logistic specification and maximum likelihood estimation.

Contribution of Transaction Cost Variables

The final model (Table 4) contains seven significant terms, including five from transaction cost analysis. A simpler model containing only nontransaction cost terms (attractiveness of product line, importance of nonselling activities) appears in Table 5. This model classifies well (with 67% of the observations correctly classified) and has the advantage of parsimony.

¹⁰ This test is useful to determine how firms react to being locked into their agents while coping with uncertainty. It would be interesting to create seven interaction terms to see if all sources of lock in are equally powerful. However, this approach is empirically intractable. Multicollinearity would become serious and the maximum likelihood estimation procedure would become problematic with such a large number of terms, especially given the moderate number of observations.

Table 5 Logistic Regression: Transaction Cost Variables Omitted

Hypothesis	Variable	Coefficient	Coefficient/ standard error
H ₅	Attractiveness of product line (price-quality relative to competition)	0.340	1.81**
H ₇	Importance of nonselling activities	0.809	4.07**
	Constant	−0.315	

Notes. Log likelihood = −97.35; C. C. Brown goodness of fit chi-square = 1.379; d.f. = 2; $p = 0.502$.

** $p < 0.05$.

Adding transaction cost terms significantly improves the fit of the data. The improvement χ^2 is 46.38 ($p < 0.001$), rejecting the hypothesis that $B_i = 0$ for all transaction cost terms. These terms also improve the predictive ability of the simpler model. One index of predictive effectiveness is Akaike's Information Criterion (Akaike 1974):

$$AIC = -2(l^* - n) \quad l^* = \text{Log}(\text{maximum likelihood})$$

n = number of estimated parameters.

AIC penalizes models with more parameters, since the smallest value of AIC is preferred.¹¹ For the full model, $AIC = 200.71$, and for the parsimonious model, $AIC = 164.32$. Hence, the addition of transaction cost variables should improve the prediction of rep-direct usage for districts not included in the sample used to develop the model.

Discussion

On the whole, the transaction cost framework (H₁ through H₄) appears to offer a useful explanation of the use of direct sales forces; however it is by no means a complete explanation. A number of variables outside the framework are related, and not all transaction cost hypotheses are supported.

The mixed pattern of results for transaction-specific assets is intriguing. As expected, firms go direct for complex product lines and where confidential information is important. Coughlan (1985) finds a similar pattern in the semiconductor industry (one segment of the electronic components industry). She models use of in-house distribution when going overseas. Distribution is one step further downstream than selling (since title changes hands). However, the issues involved are similar.

¹¹ AIC has been used to assess predictive validity in a wide variety of settings, including regression, time series analysis, multidimensional scaling, and cluster analysis (Rust and Schmittlein 1984). Stone (1977) shows that comparing models via AIC is asymptotically equivalent to use of the cross-validated likelihood function. For the logistic response function, Rust and Schmittlein (1984) also found AIC and cross validation to be very close in small samples (10–12 observations per estimated parameter).

Why do firms enter small-numbers bargaining with a rep when the rep can earn the loyalty of the firm's customers? One explanation is that one of the foremost advantages of reps is stability. While direct personnel expect promotion and transfer (and may leave without it), reps make a career of selling in one district and do not consider it a "dead end," low prestige job. Firms may use reps to make sure the loyal relationships are undisturbed by turnover.¹² A second explanation is that reps can do more business with a given customer than their direct counterparts, since they represent several lines. This may make a rep more capable of developing the potential for customer relationships. Presumably, a firm may incur opportunism losses by being locked in with reps who have customers' loyalty; however, these potential losses are more than offset by sales gains from a stable relationship with accounts.

Taken together, these results indicate that uncertainty in the form of difficult-to-monitor performance is more powerful than any of the seven sources of transaction specificity of assets in explaining the integration of personal selling. This may be because of the four types of specific assets (physical, site, dedicated, and human) covered by Williamson (1981b), only human assets are significant in personal selling. The specificity idea may prove more powerful when integrating production, where significant nonhuman assets are at stake as well.

These results suggest that special attention be given to that form of uncertainty which Alchian and Demsetz (1972) call the "metering problem" and which Williamson (1981a) labels "internal uncertainty." Ouchi (1979) also identifies performance assessment difficulty as a critical issue in the study of organizational control mechanisms. It is this lack of clarity as to how well an agent performs—more than the unpredictability of the market—that seems to be crucial to the issue of contracting the selling function.

The importance of difficulty of evaluating performance is further underscored by Basu et al. (1984). They take an analytical, nonempirical approach, based on agency theory, to the problem of designing the optimal compensation plan for a salesperson. In spite of different assumptions, they derive the same result, that the optimal compensation plan is more heavily weighted toward salary (vs. commission) as the environment becomes more uncertain (random) in

¹² Anecdotally, some reps and managers in our pretest indicated that direct salespeople are increasingly refusing transfers and quitting to become reps or join rep firms themselves. Reluctance to transfer was variously attributed to the high cost of moving and of housing (especially if the transferee has an older mortgage), the increasing incidence of two-career marriages (which creates mobility barriers), and heightened concern about the effect of relocation on family life.

terms of sales response to selling effort. This randomness contributes to the difficulty of evaluating performance, which here is shown to be related to the use of direct personnel (generally salaried) vs. manufacturers' representatives (paid on commission).

Generalized environmental unpredictability also enters the picture, but with less impact than performance evaluation uncertainty and in a roundabout manner, i.e., in combination with transaction specificity of assets. The results support the contention that integration, with its attendant overhead, inflexibility, and organizational myopia, is not a sure solution to the problems caused by new and shifting circumstances. As long as agents are replaceable, non-integrated options work well. But when agents' experience is too valuable to replace, firms *do* appear to react to unpredictability by taking the selling function in house, negotiating their responses to change with employees rather than outsiders.

It is surprising to see no effect of travel requirements, though it is consistent with Ryans and Weinberg's (1979) finding that geographical dispersion has mixed effects on territory performance. The result here indicates that the importance of travel *per se* is overrated for companies that are recognized in their industry, as all these participants are. Perhaps for such companies all territories contain receptive customers, and a salesperson can generate significant sales without an unreasonable amount of travel. If so, the importance of travel would be much greater for less-recognized firms than for their well-recognized competitors. Recall that travel was used as a proxy for travel requirements per unit of sales potential. Potential may be more relevant than travel alone in determining whether a district can support the overhead of a direct sales force. Potential measures were unobtainable in this case, as the companies themselves indicated either they did not have the information or that they did not trust their estimates. However, Ryans and Weinberg's review concludes that potential has a large impact on selling performance; such a measure might prove more relevant than travel requirements in determining rep-direct usage.

Company size, in spite of its pervasive impact on costs and on firm behavior, proved insignificant *once all other factors were controlled out*. In fact, many factors that were found related to the direct choice are also somewhat related to size (e.g. product complexity, nonselling activities) and exhibited weak positive correlations in these data. However, size *per se* does not appear to drive rep-direct usage.

Easier-to-sell product lines do go to direct sales forces. This result is consistent with the complaints of many reps that principals withhold the best lines from them. It is also consistent with a conclusion derived

by McGuire and Staelin (1983), who take a game theoretic approach to downstream vertical integration. They consider the case of two powerful manufacturers, each facing a retailer who carries only one brand of one product. McGuire and Staelin derive the conclusion that a manufacturer's profits are maximized by vertical integration (in their case, company-owned stores) when consumers perceive the two manufacturers' products are not highly similar, ergo not highly substitutable. Coughlan (1985) reaches a similar conclusion. The finding that reps get more difficult lines may also be interpreted as a backhanded compliment to their selling ability.

The notion that managers attribute a short time horizon to reps receives mixed support. The time span to feedback has no apparent effect, although manufacturers do use direct sales forces more frequently for products that require nonselling support. It appears that managers are more confident that such support will be provided by salespeople freed from the immediate pressures of covering expenses and making commissions and subject to managerial surveillance. This option seems to be preferred to simply paying the rep a higher commission and presuming support will be provided. Coughlan (1985) also found a pronounced tendency to have company-owned distribution channels when entering foreign markets requiring high levels of customer service. Taken together, these findings indicate that the ability to monitor behavior and reward based on subjective evaluations is highly valued when nonselling activities are important.

Limitations

As in any study, measurement error is always a possibility. Special effort was made to reduce this type of error by using multiple measures. However, since this study was the first of its kind, future research might benefit from more thorough scale development and testing. Given that only 16 companies participated in scale development and only 13 in model estimation, it would also be interesting to see if these results generalized to other industries (where perhaps such factors as confidential information are less important and mundane factors, such as travel requirements, are more important).

Suggestions for Further Research

Several avenues for further research are especially interesting. One is further development of explanations for observable patterns of integration. This study did not explore a class of reasons related to circumstances at the time the decision was made. For example, a number of respondents suggested that one missing variable is simply the availability of "good" reps in a district at the time the company entered.

They argue that good reps are scarce and frequently are locked into competitors, driving a firm to go direct initially. Since switching costs are high and firms are loath to reconsider fundamental strategic decisions, the firm may not go rep when a “good” rep does become available. More generally, an interesting research program would explain the process firms go through in making the decision. Likely reasons would include interpersonal dynamics within the company and the behavior of competitors.

Another avenue for research is the study not of practice but of efficiency (e.g., the sales/cost ratio achieved by rep and direct sales forces). Operating results are difficult to measure and data are carefully guarded. However, the study of efficiency itself is highly important and deserves research attention. Such research offers the best test of theories such as transaction cost analysis, whose rationale is based on performance outcomes and whose extension to managerial practice depends on the assumption that organizations are more concerned with efficient outcomes than with other goals.

Integration issues abound in marketing. Almost any marketing function (advertising, distribution, new product development, even strategic planning) can be contracted to an outside firm rather than performed by employees. Why and when integration is chosen (practice) and the consequences of those choices (performance) are neglected areas. Also neglected is the question of how to operate a nonintegrated function. For example, what is the best way to work with a manufacturers’ representative, or a franchisee, or an advertising agency, distributor, or consulting firm? In all these cases the agent is an outsider and the principal has no legitimate authority, as s/he would with employees. What contract arrangements and working arrangements are best suited to these cases?

This exploratory study indicates that integration of the selling function is more than a question of size or capability. Hopefully, future research will establish the generalizability of these findings and will illuminate the consequences, as well as the causes, of the rep vs. direct choice.

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References

- Akaike, H. 1974. A new look at the statistical model identification. *IEEE Trans. Automatic Control* **19**(6) 716–723.
- Alchian, A. A., H. Demsetz. 1972. Production, information costs, and economic organization. *Amer. Econom. Rev.* **62**(December) 777–795.
- Anderson, E., D. C. Schmittlein. 1984. Integration of the sales force: An empirical examination. *RAND J. Econom.* **15**(Autumn) 385–395.
- Basu, A. K., R. Lal, V. Srinivasan, R. Staelin. 1984. Optimal compensation plans: A theory. Working paper, Graduate School of Business, Stanford University, Stanford, CA.
- Bobrow, E. E. 1982. Suddenly, an urge to boost their potential: Commentary. *Sales & Marketing Management* **128**(June 7) 31–41.
- Campbell, D. T. 1955. The informant in quantitative research. *Amer. J. Sociol.* **60** 339–342.
- Campbell, D. T., D. W. Fiske. 1959. Convergent and discriminant validation by the multitrait-multimethod matrix. *Psych. Bull.* (March) 81–105.
- Coase, R. N. 1937. The nature of the firm. *Economica N.S.* **4**(16) 86–405.
- Cooper, L. G., M. Nakanishi. 1983. Standardizing variables in multiplicative choice models. *J. Consumer Res.* **10**(June) 96–108.
- Coughlan, A. T. 1985. Competition and cooperation in marketing channel choice: Theory and application. *Marketing Sci.* **4**(2) 110–129.
- Cox, D. R. 1970. *Analysis of Binary Data*. Chapman and Nall, London.
- Crask, M. R., W. D. Perreault. 1977. Validation of discriminant analysis in marketing. *J. Marketing Res.* **16**(February) 60–68.
- Diamond, W. T. 1978. *Distribution Channels for Industrial Goods*. Ohio State University, Columbus, OH.
- Electronic Design. 1980. *Audit of Brand Recognition by the Electronic Original Equipment Market*. Hayden Publishing Company, Rochelle Park, NJ.
- Etgar, M. 1976. Effects of administrative control in efficiency of vertical marketing systems. *J. Marketing Res.* **13**(February) 120–124.
- Gupta, N. 1980. Some alternative definitions of size. *Acad. Management J.* **23**(4) 759–766.
- Haas, R. W. 1976. *Industrial Marketing Management*. Petrocelli/Charter, New York.
- Jensen, M. C., W. N. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *J. Financial Econom.* **3**(4) 305–360.
- Klein, B., R. G. Crawford, A. A. Alchian. 1972. Vertical integration, appropriable rents, and the competitive contracting process. *J. Law Econom.* **21**(October) 297–325.
- Lawrence, T., S. Lawrence. 1982. For a “hybrid” sales force, plant the seeds early. *Sales & Marketing Management* **128**(June 7) 57–58.
- Lilien, G. L. 1979. Advisor 2: Modeling the marketing mix decision for industrial products. *Management Sci.* **25**(2) 191–204.
- Maddala, G. S. 1977. *Econometrics*. McGraw-Hill Book Company, New York.
- McGuire, T. W., R. Staelin. 1983. An industry equilibrium analysis of downstream vertical integration. *Marketing Sci.* **2**(2) 161–191.
- Morrison, D. G. 1969. On the interpretation of discriminant analysis. *J. Marketing Res.* **6**(May) 156–163.
- Nunnally, J. C. 1967. *Psychometric Theory*, 1st ed. McGraw-Hill, New York.
- Nunnally, J. C. 1978. *Psychometric Theory*, 2nd ed. McGraw-Hill, New York.

- Ouchi, W. G. 1979. A conceptual framework for the design of organizational control mechanisms. *Management Sci.* **25**(9) 833–848.
- Phillips, L. W. 1981. Assessing measurement error in key informant reports: A methodological note on organizational analysis in marketing. *J. Marketing Res.* **18**(November) 395–415.
- Press, S. J., S. Wilson. 1978. Choosing between logistic regression and discriminant analysis. *J. Amer. Statist. Assoc.* **73**(December) 699–705.
- Research Institute of America. 1975. When, where, and how to use manufacturers' representatives. Staff Report.
- Risley, G. 1972. *Modern Industrial Marketing*. McGraw-Hill, New York.
- Rust, R. T., D. C. Schmittlein. 1985. A Bayesian cross-validated likelihood method for comparing alternative specifications of quantitative models. *Marketing Sci.* **4**(1) 20–40.
- Ryans, A. B., C. B. Weinberg. 1979. Territory sales response. *J. Marketing Res.* **16**(November) 433–465.
- Sales and Marketing Management. 1983. Survey of selling costs. *Sales and Marketing Management* **130**(February 21) 1–22.
- Scherer, F. M. 1980. *Industrial Market Structure and Economic Performance*. Houghton Mifflin Company, Boston.
- Shapiro, B. 1977. *Sales Program Management: Formulation and Implementation*. McGraw-Hill Book Company, New York.
- Stern, L. W., A. El-Ansary. 1982. *Marketing Channels*. Prentice Hall, Inc., Englewood Cliffs, NJ.
- Stone, M. 1977. An asymptotic equivalence of choice of model by cross validation and Akaike's criterion. *J. Roy. Statist. Soc. B* **39**(1) 44–47.
- Taylor, T. C. 1981. A raging "Rep" idemic. *Sales Marketing Management* (June 8) 33–35.
- Williamson, O. E. 1964. *The Economics of Discretionary Behavior: Managerial Objectives in a Theory of the Firm*. Prentice-Hall, Englewood Cliffs, NJ.
- Williamson, O. E. 1975. *Markets and Hierarchies: Analysis and Antitrust Implications*. The Free Press, New York.
- Williamson, O. E. 1979. Transaction-cost economics: The governance of contractual relations. *J. Law Econom.* **22**(October) 233–262.
- Williamson, O. E. 1981a. The economics of organization: The transaction cost approach. *Amer. J. Sociol.* **87**(3) 548–577.
- Williamson, O. E. 1981b. The modern corporation: Origins, evolution, attributes. *J. Econom. Literature* **19**(December) 1537–1568.