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The curvilinear and conditional effects of product line breadth on salesperson performance, role stress, and job satisfaction

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Abstract

The impact of how product line breadth affects a salesperson is unclear in the existing literature. While numerous product lines can provide certain benefits to the salesperson, they may also have a dark side. This research examines the impact of number product lines handled by the salespeople on their performance, role stress, and job satisfaction. Based on role and schema theories, we test a series of curvilinear and conditional effects, using data collected from salespeople across multiple industries. Our analysis indicates non-linear relationships between number of product lines handled by the salesperson and salesperson performance and role stress. Further, these relationships are contingent on the complexity of products, complementarity of product lines, and lines acquired through mergers and acquisitions. These results show the complex effects of product lines on the salesperson and recognize both the benefits and drawbacks of product line breadth.

Keywords: Product line breadth, Number of product lines, Sales force structure, Role theory, Schema theory, Nonlinear, Structural equations modeling

IN RESPONSE TO INCREASINGLY LARGE and powerful customers with ever-increasing expectations of salespeople, organizations are evolving toward a more customer-based specialization structure (Davies et al. 2010; Jones et al. 2005; Piercy 2006). This structure often necessitates that salespeople carry multiple product lines to meet the needs of the customer. Some managers advocate that giving salespeople more product lines allows them to offer a broader product portfolio to customers and enables the company to capitalize on potential synergies and cost reductions. Others argue that when salespeople carry too many product lines, benefits of specialization and focus are lost and overall selling efficacy for the organization is diminished.

This dissention is echoed in the academic literature, with differences in opinion on whether carrying multiple product lines is beneficial or detrimental for salespeople. Some scholars propose that carrying more product lines is better as it enables salespeople to create potential synergies for customers, diversifies their product portfolio, enables them to "cherry pick" products, and maximizes their bottom line (e.g., Kekre and Srinivasan 1990). Conversely, others suggest that too many product lines disjoint the overall marketing effort and create complexity for salespeople (e.g., Quelch and Kenny 1994).

Extant research on how product line breadth and characteristics impact salespeople is limited. Most of the current literature related to sales force and product decisions involves new product issues rather than product line breadth (e.g., Ahearne et al. 2010; Atuahene-Gima 1997; Hultink and Atuahene-Gima 2000; Parthasarathy and Sohi 1997; Wieseke et al. 2008). Further, literature related to sales force organization has focused primarily on structuring the sales force (Rangaswamy et al. 1990), optimizing territory structure and alignment (see Zoltners and Sinha 2005 for a review), allocating sales effort (Davis and Farley 1971; Lodish 1980; Montgomery et al. 1971), sharing the sales force among multiple product divisions (Sohi et al. 1996), and designing compensation plans for multiproduct sales forces (Mantrala et al. 1994).

These studies provide useful insights into salespeople's role in developing and selling new products and also into how firms can structure their sales force based on product strategies. Yet there is a gap in the literature

pertaining to how product line decisions affect salespeople. While asking salespeople to handle more product lines may seem beneficial from an organizational perspective, the impact of such decisions on individual salespeople remains unclear. The sales function is one of the key revenue-generating units for the organization (Mackenzie et al. 2001) and examination of this issue is important from a theoretical perspective. It also has significant managerial implications for firms with multiple product lines.

The primary objective of this paper is to examine how the nature and breadth of product lines handled by salespeople affects their performance, role stress, and job satisfaction. We take a balanced approach and investigate both the potential positive and negative effects of product line breadth, assessed in terms of the number of product lines handled by the salesperson. Related to this, we examine the direct, curvilinear association between the number of product lines handled by the salesperson and salesperson's performance. We also recognize that product line decisions impact salespeople's role stress. As role stress variables can affect the performance and job satisfaction of salespeople (Brown and Peterson 1993; Jaramillo et al. 2006; Jones et al. 2007), this is a consideration that needs to be added to dialogue on product line breadth decisions. Additionally, job satisfaction's impact on salesperson wellbeing and turnover intentions is well-espoused (Jones et al. 2007). Therefore, the indirect impact of product lines on salesperson job satisfaction, through their effects on performance and role stress, is of key concern.

This paper contributes to the literature in three primary ways. First, given that extant literature disagrees as to whether more lines are beneficial or detrimental to salespeople, it is important to understand how product line breadth affects salesperson performance. We show that there is a nonlinear relationship between number of product lines handled by the salesperson and salesperson performance. To a certain point, asking salespeople to carry more product lines is beneficial and increases their performance; however, past a point more product lines are detrimental and decrease performance. This finding helps resolve the debate in the literature on whether handling more product lines is good or bad for the salesperson.

Second, performance outcomes are often a primary consideration for managers in deciding how many product lines salespeople should carry. What is sometimes ignored is that salespeople's performance is impacted by their levels of role stress, and this is likely to depend on the number of product lines they carry. Therefore, in order to understand how product line breadth affects salespeople, it is important to balance the anticipated effects on performance with the effects on role stress. We make a contribution to the literature by examining this issue and shedding more light on the balancing effect of role stress variables—role ambiguity, role conflict, and boundary-spanning task overload.

Third, there is a dearth of literature on the impact of product line characteristics on salespeople. Beyond performance outcomes, managers often ask salespeople to carry additional lines based on customer or market considerations with little consideration for product characteristics such as complexity of products or complementarity of product lines. For example, salespeople are often asked to carry dissimilar lines with complex products that have a common buyer or are sold in a common market. Related to this, when companies acquire new lines through mergers or acquisitions, existing salespeople often end up carrying the new product lines as the new lines may be sold to the same customers or in the same markets as the current ones. Yet it is not clear how the nature and characteristics of the product lines impact salespeople. Our study contributes to this area by showing the moderating effects of product complexity, product line complementarity, and percentage of lines acquired through mergers and acquisitions on the relationships between the number of lines handled and the salesperson's performance and role stress. The results are particularly pertinent to managers in decisions of product line expansion and territory assignment based on observable factors such as number of existing lines and product line characteristics.

The remainder of the paper is structured as follows. In the next section, we develop our theoretical framework and hypotheses based on schema and role theories. We hypothesize that product line breadth, based on the number of product lines handled by salespeople, impacts their performance and role stress in a curvilinear fashion. Drawing on schema theory, we also explicate how these relationships might be governed by boundary conditions. Specifically we examine the moderating effects of three variables posited to increase or decrease the ability of the salesperson to apply cognitive schemas across product lines, namely: (1) product complexity, (2) product line complementarity, and (3) the percentage of lines acquired through mergers and acquisitions. Additionally, as job satisfaction is identified as a key outcome variable in the sales literature, we also examine how salesperson performance and role stress impact job satisfaction. Following the hypotheses section, we provide the details of our sample, measures, and analysis. Using structural equations modeling, we test our hypotheses with a sample of 230 salespeople spanning multiple industries. Next, we discuss the results and their implications for theory and practice. We conclude with a discussion of the limitations and future research directions.

Theoretical framework

The theoretical framework draws from role theory (Kahn et al. 1964) and schema theory (Axelrod 1973). Based on these theories and the extant research on

product line breadth, we hypothesize relationships between the number of product lines handled by salespeople and their performance, role stress, and job satisfaction. Role theory postulates that salespeople experience role stress by virtue of the position they occupy as organizational boundary-spanners (Behrman and Perreault 1984; Kahn et al. 1964; Singh 1993, 1998). This role stress is comprised of three components: role ambiguity, role conflict, and role overload (Singh 1998). Role ambiguity is the extent to which a sales representative is uncertain about others' expectations with respect to the job, the best ways to fulfill known role expectations, and the consequences of different aspects of role performance (Behrman and Perreault 1984, p. 12). Role ambiguity creates a lack of clarity and direction, increasing the difficulty of role performance by the salesperson.

Salespeople must also balance the demands of many internal and external parties, often with disparate wants and needs. This divergence in expectations across different parties can cause the salesperson to experience role conflict. Role conflict is the extent of incongruity or incompatibility of expectations associated with the role (Miles and Perreault 1976, p. 22). The different goals held by heterogeneous role partners such as the supervisor, other managers and company officials, coworkers, and even customers can result in salespeople perceiving the need to meet multiple and often incompatible goals.

Finally, salespeople face issues with work-life balance, time allocation, and the impact of having too much territory or too many clients (Beehr et al. 1976; Bolino and Turnley 2005; Montgomery et al. 1996). This can create a sense of role overload when they perceive that their role demands exceed their motivation and ability to perform their jobs (Singh 1998). While the literature has investigated role overload at a more general level impacted by factors both inside and outside the work environment (Beehr et al. 1976; Jones et al. 2007; Singh 1998), salespeople can also experience overload directly related to the sales job (Babakus et al. 1999; Oliver and Anderson 1994). This type of role overload, which we refer to as boundary-spanning task overload, is the extent of overload perceived by salespeople related to their sales-related tasks and activities. Boundary-spanning task overload captures the salesperson's sense of overload on the external-facing behaviors that differentiate a sales position from other organizational positions. In contrast to the more global role overload, this conceptualization of overload provides a much more targeted measure of the salesperson's overload germane to specific sales tasks. While role overload can be experienced by any member of the organization, boundary-spanning task overload is specific to the sales role.

Several of the tasks and activities salespeople engage in, and which form the focus for our investigation of boundary-spanning task overload, include servicing existing customers, generating new business, and monitoring the competition. Servicing existing customers and maintaining quality customer relationships, is of paramount importance as it allows organizations to minimize expenses and drive overall profitability (Page et al. 1996; Reichheld and Teal 1996). Organizations also need salespeople to prospect for new business. Though an onerous process (Jolson 1988), new business development is necessary for continued organizational success. Additionally, in their role as organizational boundary spanners, salespeople represent a key conduit of information pertaining to the competitive landscape (Chonko et al. 1991; Rapp et al. 2011; Verbeke et al. 2011).

The performance and role stress of salespeople depend on many factors, and intricacies exist in the effects of impacting variables. In our model, we propose nonlinear relationships between the number of product lines handled and these outcome variables. While we discuss the argument for these relationships in the hypotheses section, the performance-decreasing incremental effect is posited from the relevant benefits and costs of carrying more lines, and the role stress–decreasing incremental effects are grounded in schema theory (Axelrod 1973). A schema is a "cognitive structure that represents the organized knowledge about a given concept and contains both the attributes of the concept and the relationship among the attributes" that allows one to make inferences and simplify situations (Busenitz and Lau 1996, p. 28). The foundational tenets of schema theory are the constructive nature of processing and comprehension, as well as the role of prior knowledge in that construction (Sadoski et al. 1991). Schemas enable individuals to reduce information overload and strain of processing (Billig 1985; Leahy and Sweller 2005). Problems that require a great deal of processing become easier to solve as schema are developed (Sweller 2006). Thus, when faced with situations that require a lot of information processing, such as when salespeople handle multiple product lines, schemas enable individuals to handle the information and reduce cognitive load (Sweller et al. 1998; van Merriënboer and Sweller 2005). The roots of schema theory lie in educational psychology and learning (see McVee et al. 2005 for a review); however, it has been extended to many applications in the marketing domain (Leigh and McGraw 1989; Lynch and Schuler 1994; Szymanski and Churchill 1990). Specific to the context of sales, the aspects of schemas affecting salespeople revolve around their ability to more efficiently process information in complex situations. Salespeople can leverage the knowledge structures they have formed to maximize their performance and help reduce the stress-inducing aspects of their role.

Figure 1 shows the theoretical model for the impact of product line breadth on the performance, role stress, and job satisfaction of the salesperson. Based on the extant product line breadth literature and role and schema theories, we hypothesize curvilinear effects of number
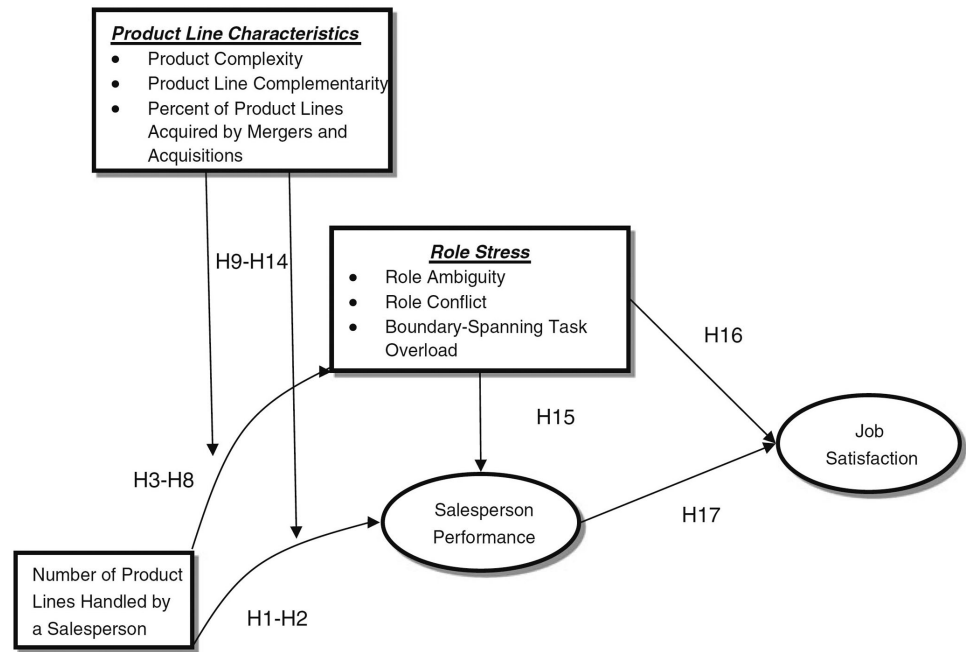
Figure 1. Conceptual model

of product lines handled by a salesperson on both performance and role stress variables. In addition, role and schema theories suggest that contextual factors can affect the efficacy with which schemas can be applied to different situations. Accordingly, we examine the moderating effect of three variables: (1) the complexity of the products, (2) the complementarity between the product lines, and (3) whether the product lines were acquired through mergers or acquisitions. Complexity increases cognitive and role demands (Jones et al. 2005), while similarity conveys efficiency (Sloman and Rips 1998). Additionally, newly acquired lines increase demands on the salesperson (Atuahene-Gima 1997). We also include job satisfaction as an outcome variable due to its central role in salesperson examinations (Brown and Peterson 1993; Goolsby 1992). Based on prior literature, we hypothesize the effects of salespeople's performance and role stress on their job satisfaction.

Hypotheses

The curvilinear effect of number of product lines handled on salesperson performance

Factors affecting salesperson performance occupy a central position in sales research, and several studies have examined a multitude of such variables. With respect to number of product lines, however, the effect on salesperson performance is unknown and opinions differ drastically as to whether they are beneficial or detrimental to salespeople (Kekre and Srinivasan 1990; Quelch and Kenny 1994).

There are several performance-related benefits to salespeople of carrying a larger number of product lines. More lines allow salespeople to increase their customers' total spending through the cross-selling of a diverse array of products. Cross-selling can be an efficient way for salespeople to maximize customer interactions and increase sales by capturing customer share-of-wallet (Kamakura et al. 2003). Carrying more product lines also allows for salespeople to better capitalize on selling opportunities; conversely, a limited number of lines may result in substantial amounts of unrealized sales as salespeople are not granted infinite access to decision makers (Rangaswamy et al. 1990). Product line breadth can also prevent detrimental competitor inroads, as salespeople who handle a larger number of product lines are in a better position to deter competitor entry by virtue of their ability to offer more product solutions (Christensen 2001; Kekre and Srinivasan 1990). Further, a broad array of product lines provides the salesperson with several additional options to achieve performance objectives.

However, as product lines handled by the salesperson increase, they also have negative implications for salesperson performance. Customers' expectations of their salespeople continue to rise and in fact "are increasing in relation to salesperson knowledge, speed of response, breadth and depth of communication, and customization of information and product/service offerings" (Jones et al. 2005, p. 106). When salespeople are tasked with selling an abundance of product lines, they may become more generalists than specialists and become less efficacious in their customer interactions (Quelch and Kenny 1994). Further, as boundary spanners, salespeople play an important role communicating with and providing product information to customers. Handling a multitude of lines

lessens their ability to perform this role effectively. Additionally, when the number of product lines handled increases, it results in certain tradeoffs, such as salespeople focusing selling effort on those lines with better and more immediate payoffs at the expense of other lines.

As such, the performance benefits of increasing product lines are likely to diminish as more and more lines are added. Specifically, the number of product lines handled is expected to be positively related to salesperson performance but in a curvilinear decreasing incremental effects manner. This relationship can be represented by a positive linear effect and a negative quadratic effect, indicating that the positive effect of a predictor on an outcome abates as the predictor increases (Agustin and Singh 2005). Consistent with previous work examining linear and nonlinear effects (e.g., Wangenheim and Bayón 2007), we offer the following hypotheses:

> H1: The number of product lines handled by the salesperson is positively related to salesperson performance.
> H2: The effect of the number of lines handled on salesperson performance decreases as the number of product lines handled by the salesperson increases.

The curvilinear effects of number of product lines handled on role stress

Role ambiguity — As role theory indicates, stressors can increase the uncertainty regarding others' expectations about the job, the optimal way to satisfy these expectations, and the consequences of performing the job (Behrman and Perreault 1984). The impact of number of product lines on role ambiguity can be understood by examining their impact on each of these definitional facets. First, more product lines make it more difficult for salespeople to know what is expected of them. The extent of authority and discretion a salesperson can utilize in things like pricing and the provision of value-added benefits may be heterogeneous across lines. Additional ambiguity arises due to lack of clarity on what customers expect from the multiple lines. For example, does a customer want to be sold multiple products or will attempts to do so be seen negatively? Second, understanding how best to achieve goals and objectives will also diminish when more product lines are handled. The complex interaction of the customer interface requires a well-crafted understanding of how the firm's offerings provide superior value. Handling more lines will increase the chances that the salesperson will be unsure of the optimal manner to advance the right benefits to the right customers. Last, the salesperson may have ambiguity on the consequences of selling different lines. Different product lines can have vastly disparate strategies and objectives. Evaluations of success amongst different products and product lines are not a homogeneous

undertaking and, in fact, significant differences may exist in success criteria (Griffin and Page 1996). For example, different lines may be at different stages in the product life cycle. Accordingly, what may be evaluated as successful for one line (e.g., revenue growth) may not be consistent with that of other lines (e.g., margin growth). As such, role ambiguity should increase as number of lines handled by the salesperson increases.

Consistent with schema theory and related work done in the sales literature (Leigh and McGraw 1989; Sujan et al. 1988; Szymanski and Churchill 1990), the adverse impact of number of lines handled on role ambiguity is likely to taper off as salespeople handle additional lines. While the procedures and consequences of performing sales activities across multiple lines differ, salespeople can build schemas of procedures to gain clarity on their role expectations about other product lines. Salespeople's learning on mechanisms for reducing uncertainty of expectations and consequences can be extrapolated to additional lines. These schemas allow the salesperson to deal with role ambiguity in a more efficacious manner. Accordingly, we expect that as the number of product lines handled by the salesperson increases, role ambiguity will increase, but at a diminishing rate.

> H3: The number of product lines handled by the salesperson is positively related to role ambiguity.
> H4: The effect of the number of lines handled on role ambiguity decreases as the number of product lines handled by the salesperson increases.

Role conflict — Role theory also posits that certain stressors can increase the incongruity of role expectations perceived by the salesperson (Miles and Perreault 1976). Handling many product lines can increase this perception in the salesperson's external and internal interfaces. When the number of product lines handled goes up, it increases the salesperson's chances of being put into conflicting situations that require dealing with the divergent expectations of the company and the customer. The selling of an incremental line may be in the best interest of the selling organization, but it could provide suboptimal value for the customer. This can result in the erosion of the salesperson's credibility in the eyes of the customer (Anderson and Robertson 1995). Internally, product lines may "compete" for the salesperson's attention and effort, with the salesperson often facing conflicting and incompatible demands from product managers responsible for the lines. The salesperson may also encounter situations where the sale of one product line cannibalizes the sale of other product lines. While some product lines may provide synergies and integrative outcomes, others may result in a zero-sum outcome where high performance on one product line may come to the detriment of another.

Consistent with schema theory and similar to role ambiguity, we expect the adverse impact of lines to be lessened as the number of lines handled increases. Salespeople develop schemas for resolving role conflict situations and apply them to the additional lines they carry. These schemas provide a foundation for the resolution of incongruities across situations. While different lines may require different resolutions of incongruity, the structure for how the incongruities are resolved may be applied across contexts. This could result in the number of lines handled by the salesperson affecting perceptions of role conflict in a decreasing incremental fashion.

H5: The number of product lines handled by the salesperson is positively related to role conflict.
H6: The effect of the number of lines handled on role conflict decreases as the number of product lines handled by the salesperson increases.

Boundary-spanning task overload — The many demands of a sales position necessitate that a finite amount of attention can be allocated to boundary-spanning tasks. Boundary-spanning tasks are those that occur between the firm and its environment (Kahn et al. 1964; Singh 1993) and include servicing existing customers, generating new business, and monitoring competitors. When salespeople perceive that their role demands restrict their ability to conduct these tasks, they experience boundary-spanning task overload. For several reasons, boundary-spanning task overload is likely to increase when the number of product lines handled by a salesperson increases. First, multiple product lines require the salesperson to know a wider breadth of product features that must be incorporated into the selling propositions. More lines handled equates to needing more disparate selling propositions. Additionally, a multitude of product lines may make after-sales service more difficult for the salesperson. A bevy of product lines can also dilute salespeople's expertise, rendering them less able to provide quality service (Zoltners et al. 2006). Further, they take more time for salespeople to learn and manage and thus may reduce their perceived capacity to engage in new business prospecting, a time-intensive activity (Deutscher et al. 1982). Additionally, a multitude of product lines may require salespeople to monitor multiple markets and respond to a wider breadth of competitive activity. This increases their demands on this activity and results in an increased perception of overload on boundary-spanning tasks.

These boundary-spanning activities across lines, however, do share some commonalities. Though the specifics about the products and markets across product lines can be vastly different, there are generalities between conducting these activities across multiple lines. For example, while different lines may necessitate the monitoring of different sets of competitors, the processes and manner in which this monitoring is done can

be extrapolated across lines. This procedural knowledge allows for greater economies for the salesperson to apply across the product lines. This should create a greater amount of efficiency on incremental lines, with the adverse effect on boundary-spanning task overload diminishing at higher levels of lines handled.

H7: The number of product lines handled by the salesperson is positively related to boundary-spanning task overload.
H8: The effect of the number of lines handled on boundary-spanning task overload decreases as the number of product lines handled by the salesperson increases.

Effects of moderator variables

Product complexity — Product complexity reflects the extent to which the products in the lines are technically complex and difficult to explain to customers. Handling complex products can increase the amount of information that salespeople need to process (Jones et al. 2005), increasing the adverse effect of handling multiple product lines on their boundary-spanning task overload. Complex products also make it more difficult to know the optimal way to satisfy role expectations and resolve inconsistencies and incongruities. Further, such products typically have a complex selling proposition as they require technical knowledge and additional effort by salespeople in order to explain product features and applications to customers. Additionally, increased product complexity across many product lines requires substantially more time to learn and master the selling propositions. While schemas help abate some of the negative aspects of multiple product lines, their creation and application become more difficult when people have to assimilate complex information (Pollock et al. 2002).

Accordingly, product complexity is expected to moderate the effects of product lines handled on both salesperson performance and role stress. When products are complex, the potential increase in a salesperson's performance due to handling multiple lines is likely to be diminished. Further, increased product complexity is likely to enhance the adverse effects of handling multiple product lines on salespeople's role ambiguity, role conflict, and boundary-spanning task overload.

H9: The greater the product complexity, the weaker is the relationship between the number of product lines handled and salesperson performance.
H10: The greater the product complexity, the stronger is the relationship between the number of product lines handled and salesperson (a) role conflict, (b) role ambiguity, and (c) boundary-spanning task overload.

Product line complementarity — Product line complementarity is the degree to which the product lines handled by the salesperson complement each other. This complementarity may be reflected by the product lines being used jointly, in similar situations, or when their demands are interdependent and provide cross-selling opportunities. It must be noted that complementarity and complexity are not polar ends of the same construct. While complexity reflects the extent to which products within a line are complex and difficult to explain, complementarity reflects the synergies between product lines.

Schema theory "suggests that information regarding a new entity is processed through comparison with established schemas and subsequently, attitudes and beliefs are transferred from a schema to a new entity depending on the level of congruence" (Badrinarayanan et al. 2010, p. 5). Complementarities between product lines allow salespeople to better learn their product portfolio and focus on interdependencies between products and prospects (Rao and Turner 1984). These cognitive economies obtained by salespeople in the application of schemas for complementary lines should increase the positive effect of number of product lines handled on salespeople's performance through spillover learning effects. Further, congruent lines are more likely to have similar role expectations and mechanisms for reducing inconsistencies amongst internal parties and customers. Finally, complementary product lines convey efficiency in selling for the salesperson, thus reducing the adverse effect of product lines on boundary-spanning task overload. Therefore, we hypothesize:

H10: The greater the product line complementarity, the stronger is the relationship between the number of product lines handled and salesperson performance

H11: The greater the product line complementarity, the weaker is the relationship between the number of product lines handled and salesperson (a) role conflict, (b) role ambiguity, and (c) boundary-spanning task overload.

Product lines acquired by mergers and acquisitions — Schemas possessed by salespeople in relation to handling product lines are not static structures but rather are dynamic and must be adapted to new information (Narvaez and Bock 2002). The more novel the information, the more difficult it is to adjust schemas and incorporate this information. When lines are acquired through mergers and acquisitions, new and unfamiliar information must be incorporated into the salesperson's schemas for dealing with product lines. Mergers and acquisitions can impact the sales force drastically and place an additional burdens on salespeople (Capron and Hulland 1999). When mergers and acquisitions occur, the salesperson may be tasked with carrying new

product lines. However, the acceptance of the new lines by salespeople is not a given. In fact, it can have a negative impact on their behaviors and attitudes (Atuahene-Gima 1997). Previous examinations have found that new products take more effort for salespeople to comprehend and sell (Roberts and McEvily 2005). The unfamiliarity and newness of lines acquired through mergers and acquisitions makes the application of schema much more difficult. Newly acquired lines put additional strain on salespeople's cognitive load and also reduce the efficacy with which they deliver their selling propositions. This is likely to decrease the positive effect of handling multiple product lines on their performance. Concurrently, it takes salespeople time to build schemas and understand new role expectation associated with acquired lines, thus increasing the adverse impact of lines on role ambiguity. Further, salespeople may feel a conflict between new and old product lines and be uncertain of how to resolve competing objectives from both internal and external parties, resulting in higher levels of role conflict. Finally, consistent with schema theory, efficiency is built through experience, and by definition, salespeople have less experience with newly acquired lines. As such, their efficiency with newly acquired lines will be lower, causing an increase in their perception of boundary-spanning task overload.

H13: The greater the percentage of product lines acquired through mergers and acquisitions, the weaker is relationship between the number of product lines handled and salesperson performance.

H14: The greater the percentage of product lines acquired through mergers and acquisitions, the stronger is relationship between the number of product lines handled and salesperson (a) role conflict, (b) role ambiguity, and (c) boundary-spanning task overload.

Relationships between salesperson role stress, performance, and job satisfaction

The relationships between role stress, performance, and job satisfaction of salespeople have been extensively tested in the literature (see Brown and Peterson 1993 for a meta-analysis). With respect to the relationship between role stress and performance, the results have been mixed. A meta-analysis by Jackson and Schuler (1985) found that the role stress variables have a negative effect on performance. This finding has been validated in other studies (e.g., MacKenzie et al. 1998). However, studies have also found non-significant effects of role conflict, role ambiguity, and role overload on salesperson performance (e.g., Babakus et al. 1996; Brown and Peterson 1993; Jones et al. 2007). For this study, based on the dominant logic that role stressors adversely affect performance, we test the following hypothesis:

H15: Salesperson (a) role ambiguity, (b) role conflict, and (c) boundary-spanning task overload are negatively related to salesperson performance.

A large body of literature has examined the relationship between role stress and job satisfaction, finding that role conflict, role ambiguity, and task overload are negatively related to the job satisfaction of salespeople (e.g., Behrman and Perreault 1984; Brown and Peterson 1993; MacKenzie et al. 1998). Accordingly, we hypothesize:

H16: Salesperson (a) role ambiguity, (b) role conflict, and (c) boundary-spanning task overload are negatively related to salesperson job satisfaction.

An extensive body of work has also examined the causality between performance and job satisfaction (see Brown and Peterson 1993). Some studies indicate a positive causal linkage from performance to job satisfaction (Avlonitis and Panagopoulos 2006; Brown and Peterson 1993; Christen et al. 2006; Jones et al. 2007; Piercy et al. 2006). Others, however, contend that this causality may be spurious because of common antecedent variables, and in fact, the reverse may be true with job satisfaction driving performance (Franke and Park 2006). Regardless of the causality, evidence indicates a weak positive relationship between performance and job satisfaction. In this study, we follow the body of literature which argues that performance drives job satisfaction and test the following hypothesis:

H17: Salesperson performance is positively related to job satisfaction.

Method

Sample and data collection

We collected our data using a mail survey of salespeople across multiple companies in the manufacturing industry. Prior to the actual mailing, we pre-tested the survey instrument with salespeople working for a major Midwestern corporation. Since this corporation had a number of diverse divisions, it provided an ideal setting to test the instrument in different selling contexts. The survey instrument was pretested with a sample of 30 salespeople to ensure there would be no interpretational issues by potential respondents. Based on the feedback received, we made a few changes to the format of the questionnaire and the wording of several items.

The sampling frame for the data collection consisted of 1,650 salespeople (1,542 deliverable) that were randomly selected from a commercial mailing list. The response rate was 17.83%, yielding a total of 275 returned surveys. This response rate is comparable to other studies involving examinations of multi-company salespeople (Chakrabarty et al. 2010; Miao and Evans 2007; Wang and Netemeyer 2002).

We checked for nonresponse bias using the method suggested by Armstrong and Overton (1977) and compared the responses of late and early responders on demographic variables as well as constructs in the model. In addition, we compared the early respondents with late respondents, on firm and industry-level variables (industry code, size of firm based on sales and number of employees). No significant mean differences were found on any of the variables, assuaging concern of nonresponse bias.

To insure that our final sample consisted primarily of salespeople and not those who were only partially involved in sales, we included a constant sum scale in our survey instrument that asked the respondents to provide a breakdown of their time in terms of various selling and non-selling activities. Based on this, we eliminated 45 respondents who indicated they spent less than 50% of their time performing selling-related activities. This resulted in a final sample of 230 useable responses. Each respondent represented a different company, and the final sample was comprised of salespeople from 230 companies across the following manufacturing industries: food products (77), chemical products (30), rubber and plastic products (72), computers and electronics (11), furniture and fixtures (15), and machinery and miscellaneous manufacturing (25). Companies of multiple sizes were represented in the sample with 10.7% having less than $5 million in annual sales, 34.8% $5–50 million, and 54.5% greater than $50 million. The average age of the respondents was 37.5 years, experience in their current position 5.8 years, and 85% had a college degree.

Measures

The number of product lines handled is the independent variable measured by the salesperson's report of how many lines they sold. Specific instruction and examples were provided to clarify the meaning of different product lines versus different products within a line. The examples clarified the distinction between a product line (e.g., snack foods line) and products within the line (e.g., cheese puffs, popcorn, pretzels, and chips). To determine whether salespeople were reporting actual product lines instead of products within lines, they were asked to list all the lines they carried rather than simply reporting a single number. Two independent coders unfamiliar with the research project then went through all the reported lines and determined the number of unique lines handled by the salesperson. Inter-rater reliability of their assessment was 0.83.

Salesperson performance was operationalized with a three-item Likert scale (Sohi et al. 1996), assessing the financial performance of salespeople during the previous year on sales, profitability, and market share. These

three items are theoretically grounded in the self-report salesperson performance scale developed by Behrman and Perreault (1982) and have been used by several studies that adapted this scale to assess salesperson performance (e.g., Behrman and Perreault 1984; Challagalla and Shervani 1996; Jones et al. 2007; Sujan et al. 1994). Self-report salesperson performance measures have also been used by many other studies in the marketing literature (e.g., Homburg et al. 2011; Larson et al. 2008; Shannahan et al. 2013; Wang and Netemeyer 2002). As shown in the meta-analysis by Churchill et al. (1985), self-report measures of salesperson performance essentially give the same results as performance evaluations provided by managers and peers. While objective measures of salesperson performance are preferred, our multi-company sample precluded their use since objective measures cannot be used to compare salespeople's performance across companies (Behrman and Perreault 1982; Homburg et al. 2011).

Role ambiguity and role conflict were operationalized with five-item Likert scales adapted from Rizzo et al. (1970). Boundary-spanning task overload was operationalized with a nine-item Likert scale assessing salespeople's perceived overload on their ability to serve existing customers, generate new business, and react to competitors. Job satisfaction was operationalized by a five-item Likert scale adapted from the satisfaction with the job facet of Churchill et al.'s (1974) INDSALES satisfaction scale.

The moderator product complexity was operationalized with a five-item Likert scale assessing the technical difficulty in describing the products sold. Product line complementarity was operationalized using a four-item Likert scale assessing the extent to which lines were complements based on joint usage, spillover of selling effort on one line to the others, demand for one line promoting the sales of others, and usage of lines in similar situations. Lines acquired through acquisitions or mergers were indicated by the participants, and a percentage figure based on the number of lines acquired divided by the total number of lines handled was calculated to assess the relative impact.

We also incorporated several control measures to partial out extraneous sources of variation in the outcome variables. To exclude the possibility that the effect of product lines is a function of the total number of products, rather than the number of lines handled, we included the total number of products handled by the salesperson as one of the covariates. We also included firm size as a covariate to assuage concern of impacts on performance and role stress that may result due to organizational size. Further, we controlled for salespeople's product knowledge and experience level, to rule out the possibility that the decreasing incremental effects could be attributed to these variables. Product knowledge was assessed by a direct question about the salesperson's knowledge of the product they sell. Experience was assessed by the number of years the salesperson had worked in their job. Finally, as the number of customers a salesperson calls on could also impact performance and role stress, we included the salesperson's number of accounts as a control.

Details of the multi-item scales used to operationalize the constructs are in the Appendix and Table 1 shows the descriptive statistics and scale reliabilities.

Common method variance

We used Harman's single factor test to assess the presence of common method variance. Consistent with the approach proposed by Podsakoff et al. (2003), we compared the measurement model to an alternative model allowing all items to load on a single construct. Should the alternative model explain a majority of the covariance, there is a high probability of CMV (Podsakoff et al. 2003). However, the comparison of the models showed that CMV was not a concern as the chi-square change (36 d.f.) was 847.12 and highly significant ($p < 0.001$).

Scale development, reliability, and validity

Since some of the constructs used in this study were operationalized with new scales, we followed the procedure recommended by Churchill (1979) and Gerbing and Anderson (1988) to develop and purify the measures of the multi-item scales, establish their psychometric properties, and assess their reliability and validity. This involved performing an exploratory factor analysis (EFA) with Varimax rotation to assess the item loadings and cross loadings. The EFA analysis showed that all items loaded on their factors with minimum loading values of 0.30, and no cross loadings above this threshold level (Hair et al. 1998).

Next, using EQS, we performed a confirmatory factor analysis (CFA) to validate the scales and their dimensionality. We modeled all items to load on their a priori hypothesized factors, with all factors being allowed to covary freely. To assess the convergent and discriminant validity of the measures, we used the procedures recommended by Anderson and Gerbing (1988). Convergent validity was established by examining the loadings of the items on their proposed factors in the CFA model. All items loaded significantly on their specified factors and none of the measurement errors were correlated, providing satisfactory evidence of convergence in measurement and dimensionality of the constructs (Anderson and Gerbing 1988). Discriminant validity was assessed through a nested model CFA approach. Taking each pair of constructs in turn, we first ran a CFA model in which each item was set to load on its hypothesized factor, and the factors were correlated and allowed to covary freely. Next, the factor pair was constrained by fixing the covariance to one (implying they are the same construct). The difference in the chi-square

values was compared between the two models. In all cases, the chi-square values of the constrained-factor models were significantly higher than their corresponding free-covarying factor models, providing strong evidence of discriminant validity (Anderson and Gerbing 1988). As an additional test for discriminant validity, we used the Fornell and Larcker (1981) approach. For each construct pair, we compared the average variance extracted (AVE) with the square of the factor intercorrelations. The AVE for each pair of factors compared was greater than the factor intercorrelation, providing further evidence of discriminant validity. Finally, to assess the reliability of the scales, we computed the coefficient alphas for all constructs. All the alphas were 0.80 or higher, indicating the scales were reliable (Nunnally and Bernstein 1994).

Analyses and results

We tested our hypotheses using structural equations modeling (SEM) in EQS with maximum likelihood estimation. To minimize concerns associated with non-essential multicollinearity, we standardized the observed variables (Agustin and Singh 2005; Cohen et al. 2003). By using reliable measures and ensuring that our model had adequate power, we were further able to avoid problems with model estimates due to multicollinearity (Grewal et al. 2004). To alleviate concerns that measurement error could curtail the magnitude of higher order effects, we modeled the measurement error in our nonlinear and interaction variables, using the two step, single-indicant approach advanced by Ping (1998). In accordance with this approach and based on the formulae provided by Ping (1998), we calculated the indicant loadings and measurement errors for the nonlinear and interaction terms and incorporated them into the SEM analysis.

The estimated model had the following fit indices: χ^2 (981) = 2,189.29, p < .0001; CFI = 0.96; IFI = 0.96; NFI = 0.92; NNFI = 0.95; RMSEA 0.07; and AOSR = 0.07. These fit indices suggest that the model fits the data adequately (Hu and Bentler 1999). To establish adequacy of sample size and assuage concerns that non-significant relationships could be due to low statistical power, we used the guidelines indicated by MacCallum et al. (1996) to verify the power of the model. This check indicated that as a close-fitting model with over 200 respondents and 100° of freedom, the power level of the model was over 0.96.

Table 2 provides a summary of the results. The linear effect of product lines handled on salesperson performance is non-significant (β = 0.09, p > .05) and thus does not support H1, but the negative quadratic effect is significant (β = −0.20, p < .01) in support of H2. The non-significant linear, but significant negative quadratic effect, indicate an inverted U-shaped relationship between the number of lines handled and salesperson performance. Hypothesis 3 is also supported as there is a significant linear effect of product lines handled on role ambiguity (β = 0.58, p < .01). The quadratic effect on role ambiguity, however, is non-significant (β = 0.05, p > .05), failing to support H4. Both the linear (β = 0.57, p < .01) and quadratic (β = −0.11, p < .05) effects of product lines handled on role conflict are significant. The signs of the coefficients are consistent with a decreasing incremental curvilinear effect and fully support H5 and

Table 1. Correlations and descriptive statistics

	LINES	PRDCPX	PRDCOM	LNACQ	RA	RC	BSTO	SAT	PERF
LINES	–								
PRDCPX	0.14*	–							
PRDCOM	0.08	0.00	–						
LNACQ	0.13	−0.08	0.04	–					
RA	−0.42**	−0.09	0.05	−0.13*	–				
RC	0.54**	0.23**	−0.03	−0.08	0.55**	–			
BSTO	0.63**	0.08	0.08	0.01	0.37**	0.52**	–		
SAT	−0.41**	−0.08	0.12	0.05	−0.45**	−0.40**	−0.31**	–	
PERF	−0.05	0.01	0.06	−0.08	−0.07	−0.12	−0.13	0.18**	–
# of items	1	5	4	1	5	5	9	5	3
Mean	2.62	2.43	3.39	0.16	1.82	2.36	3.13	4.32	3.35
Range	1–8	1–5	1–5	0–1	1–5	1–4.8	1–4.8	1.5–5	1–5
Standard deviation	1.76	0.93	1.15	0.31	0.80	1.00	0.55	0.65	0.93
Coefficient alpha	–	0.84	0.85	–	0.85	0.87	0.82	0.91	0.80

LINES Number of Product Lines Handled; PRDCPX Product Complexity; PRDCOM Product Line Complementarity;
LNACQ Percent Lines Acquired through Mergers and Acquisitions; RA Role Ambiguity; RC Role Conflict;
BSTO Boundary-Spanning Task Overload; SAT Job Satisfaction; PERF Performance
* p < .05 ; ** p < .01

H6. Similarly, the linear (β = 0.75, p < .01) and quadratic (β = −0.28, p < .01) effects of product lines handled on boundary-spanning task overload are large and significant. These positive linear and negative quadratic coefficients provide full support for H7 and H8.

Pertaining to the moderator hypotheses, H9 is not supported as an increase in product complexity does not decrease the hypothesized positive effect of lines on salesperson performance as evident from the non-significant LINES × PRDCPX interaction term (β = 0.09, p > .05). Product complexity does increase the positive relationship between lines handled and role conflict, supporting H10b (β = 0.17, p < .05). However, contrary to H10a and H10c, it does not significantly moderate the relationship between lines handled and role ambiguity (β = 0.05, p > .05) or boundary-spanning task overload (β = 0.05, p > .05). Product line complementarity moderates all four relationships as evident from the significant LINES × PRDCOM interaction terms, supporting H11 and H12. Specifically, an increase in product line complementarity increases the positive relationship between lines handled and salesperson performance (H11: β = 0.20, p < .05) and decreases the positive relationship between lines handled and role ambiguity (H12a: β = −0.22, p < .01), role conflict (H12b: β = −0.23, p < .01), and boundary-spanning task overload (H12c: β = −0.14, p < .01). As hypothesized in H13, an increase in the percentage of lines acquired through mergers and acquisitions significantly decreases the hypothesized positive relationship between lines handled and salesperson performance as shown by the significant LINES × LNACQ interaction term (β = −0.18, p < .01). It also increases the positive relationship between lines handled and role ambiguity in accordance with H14a (β = 0.18, p < .05). However, contrary to what was hypothesized in H14b and H14c, it does not significantly moderate the relationship between the number of lines handled and role conflict (β = 0.07, p > .05) or boundary-spanning task overload (β = 0.09, p > .05).

Salesperson performance is found to be affected by role conflict (β = −0.24, p < .05) but not role ambiguity (β = .09, p > .05) or boundary-spanning task overload (β = −0.15, p > .05). This provides support for H15b, but not for H15a and H15c. Role ambiguity (β = −0.33,

Table 2. Standardized structural model path coefficients

	Role ambiguity	Role conflict	Task overload	Salesperson performance	Job satisfaction
Independent variable					
Number of lines (LINES) (linear effect)	0.58** (H3)	0.57** (H5)	0.75** (H7)	0.09 (H1)	
LINES × LINES (Non-linear quadratic effect)	0.05 (H4)	−0.11* (H6)	−0.28** (H8)	−0.20** (H2)	
Moderator direct effects					
Product complexity (PRDCPX)		0.05	0.25**	0.08	0.09
Product line complementarity (PRDCOM)	−0.08	−0.04	0.03	0.04	
Percent lines acquired (LNACQ)		0.14**	0.06	0.06	−0.22
Moderator interaction effects					
LINES × PRDCPX	0.05 (H10a)	0.17** (H10b)	0.05 (H10c)	0.09 (H9)	
LINES × PRDCOM	−0.22** (H12a)	−0.23** (H12b)	−0.14** (H12c)	0.20* (H11)	
LINES × LNACQ	0.18** (H14a)	0.07 (H14b)	0.09 (H14c)	−0.18** (H13)	
Endogenous variables					
Role ambiguity				0.09 (H15a)	−0.33** (H16a)
Role conflict				−0.24* (H15b)	−0.14* (H16b)
Boundary spanning task overload				−0.15 (H15c)	−0.12 (H16c)
Salesperson performance					0.18** (H17)
Controls					
Total number of products handled	−0.04	0.07	−0.02	−0.06	
Number of accounts	0.06	−0.02	0.02	0.02	0.02
Product knowledge	0.08	−0.01	0.08	−0.01	
Sales experience	−0.13*	−0.04	0.02	−0.04	−0.10
Firm size	−0.05	0.01	−0.03	0.19**	0.05
Goodness of Fit Statistics: χ^2 (981 d.f.) = 2189.29**; CFI = 0.96; IFI = 0.96; NFI = 0.92; NNFI = 0.95; AOSR = 0.07; RMSEA = 0.07					

Hypothesis number in parentheses
* p < .05 ; ** p < .01

$p < .01$) and role conflict ($\beta = -0.14$, $p < .05$) have a significant negative association with job satisfaction, in support of H16a and H16b, but boundary-spanning task overload is only marginally significant ($\beta = -0.12$, $p < .10$), thus refuting H16c. Finally, salesperson performance has a significant positive relationship with job satisfaction ($\beta = 0.18$, $p < .01$), in support of H17.

Based on the interrelationships between the outcome variables, we estimated the indirect and total effects of the number of lines handled on the performance and job satisfaction of salespeople. Our analysis shows that lines handled do not have a significant indirect effect on performance. The total effect therefore remains an inverted-U with a significant negative quadratic term ($\beta = -0.12$, $p < .05$), and this is primarily accounted for by the direct effects of the number of lines handled on performance. With respect to the effects on job satisfaction, however, lines handled have a significant negative indirect and consequent total effect on satisfaction ($\beta = -0.38$, $p < .01$).

Discussion

In this paper we examined how the nature and breadth of product lines impact salesperson performance, role stress, and job satisfaction. Our analysis reveals some interesting findings that make a theoretical contribution to the literature and also have important managerial implications. Contrary to conventional belief that giving salespeople more products to sell is inherently beneficial because it enables them to cherry pick from many lines (Kekre and Srinivasan 1990), we find that a more nuanced relationship exists. As shown in Figure 2a, we find that the number of product lines handled by the salesperson has a nonlinear, inverted U-shaped relationship with salesperson performance. While this is contrary to our decreasing incremental effects hypothesis, it provides key insights pertinent to product line allocation decisions. Product lines initially have a positive impact on salesperson performance. However, this is only to a certain point, beyond which asking salespeople to carry more lines actually results in lower performance. The ability to provide multiple offerings to customers and maximize selling opportunities (Finch 1985; Kamakura et al. 2003) is overshadowed by the dilution of expertise and attention that occurs at high levels of product lines (Quelch and Kenny 1994). Accordingly, when salespeople sell too many lines, their selling efficacy decreases and performance is adversely affected.

Further, role stress experienced by the salesperson has been identified as one of the most important issues in sales management (Brown and Peterson 1993; Churchill et al. 1985; Goolsby 1992; Singh 1998), and our findings illustrate the impact of a new role stress-inducing variable—number of product lines handled. Results

show that an increase in the number of lines handled has a significant positive linear and a significant negative quadratic effect on role conflict and boundary-spanning task overload, indicating a decreasing incremental effect on these two components of role stress (see Figure 2c and d). This suggests that when salespeople are given more lines to handle, it raises their levels of role conflict and boundary spanning task overload, but after a certain point, learning effects based on knowledge structures developed from the product lines handled help abate the adverse effect of the additional lines. However, the same is not true for role ambiguity (Figure 2b). While we find a significant positive linear relationship between the number of lines handled and role ambiguity, the quadratic effect is non-significant, implying salespeople's role ambiguity increases when they are given more lines to handle, but it does not taper off.

The disparity between the results offers an interesting insight to role theory. Salespeople may be able to effectively leverage product line schemas to reduce their perceptions of incompatibility of expectations related to their role, or to reduce their sense of overload on performing tasks that interface with the external environment, but these schemas are not very useful in reducing the sense of ambiguity pertaining to their role requirements. This may be due in part to the disparate nature of the composition of role ambiguity, conflict, and overload. The mechanisms necessary to reduce conflict and overload may exist at a more concrete level of abstraction. Especially for boundary-spanning tasks, many of these tasks will share similarities and allow for the salesperson to use a generalized knowledge structure across lines. Even role conflict may be more amenable to generalized schemas as situations that generate role conflict (e.g., different price demands from the customer and the salesperson's own organization) may occur similarly across different lines. Role ambiguity, however, lies on a higher level of abstraction and is less amenable to generalization. As different product lines may be in different product cycle stages, be valued differently by customers, or have divergent success criteria (Griffin and Page 1996), it may be difficult to apply the schemas across lines.

Based schema theory, we also hypothesized the moderating effects of three variables (product complexity, product line complementarity, and percentage of lines acquired through mergers and acquisitions) on the relationships between number of lines handled and salesperson performance and role stress. We find that product complexity enhances the adverse effect of number of product lines on role conflict (Figure 3a), implying that while simple products may provide salespeople with more straightforward and defensible solutions to resolve incompatible requests across product lines, complex products make this more difficult. However, product complexity does not significantly impact
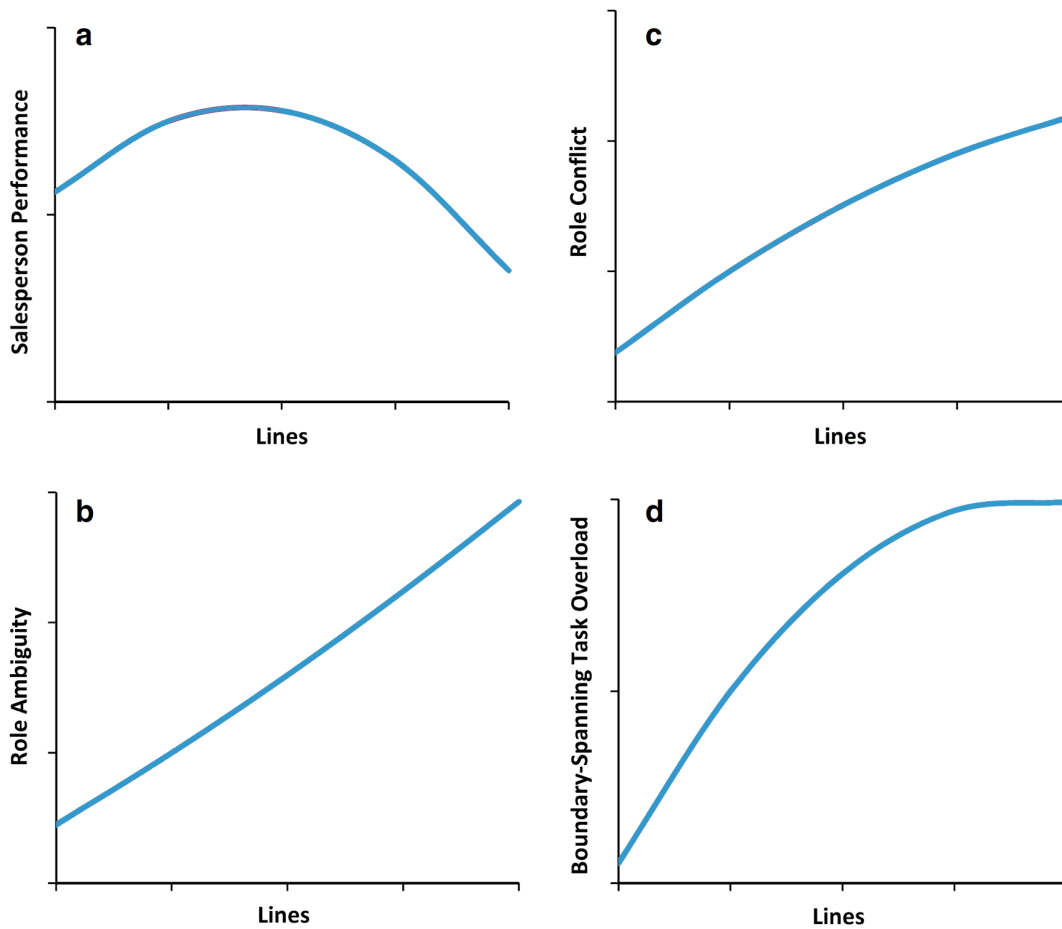
Figure 2. a–d Product lines' effects on salesperson performance, role ambiguity, role conflict, and boundary-spanning task overload.

the relationship between number of lines handled and salesperson performance, role ambiguity, or boundary-spanning task overload. Of these non-significant effects, the one pertaining to boundary-spanning task overload is particularly interesting. While it would stand to reason that complex products would exacerbate the effect of lines on boundary-spanning task overload, the lack of significance bears relevance to schema theory. The salesperson's schemas in reducing perceived overload are robust whether the products are complex or not, and therefore, their sense of overload remains unaffected. When the percentage of lines that have been acquired through mergers or acquisitions in a salesperson's product line portfolio increases, it lessens the positive effect of product line breadth on performance (Figure 3b) and enhances the adverse effect on perceived role ambiguity (Figure 3c). Since salespeople are unfamiliar with the lines that have been acquired, it requires them to develop new selling schemas or reconfigure existing ones to incorporate the acquired lines, reducing the positive effects of handling multiple product lines on performance. Additionally, for lines acquired through mergers and acquisitions, the adverse effect on role ambiguity is enhanced, in part due to the lack of clarity associated with newly acquired lines and how they should be integrated with the existing product portfolio. With respect to product line complementarity, we find that a higher level of complementarity enhances the effect of product line breadth on performance and lessens the effect on all role stress variables (Figure 4a–d).

These differential moderating results suggest asymmetry in the impact of schema-abating and schema-enhancing factors. The schema-enhancing factor of product line complementarity provides wide-reaching economies to salespeople, which enables them not only to perform better but also to deal with the adverse consequences on role stress that result from handling a larger number of product lines. The impact of the schema-abating factors of product complexity and lines acquired through acquisitions and mergers, however, are less encompassing.

The relationships between the salesperson's role stress, performance, and job satisfaction have been extensively studied in the literature. We hypothesized these relationships in our model to be consistent with the extant literature and also examined the indirect effects of the number of lines handled on salesperson performance and job satisfaction. We find that role conflict has a significant negative effect on performance, but role ambiguity and boundary-spanning task overload do not. This result is similar to that of other studies which also found non-significant effects of role ambiguity
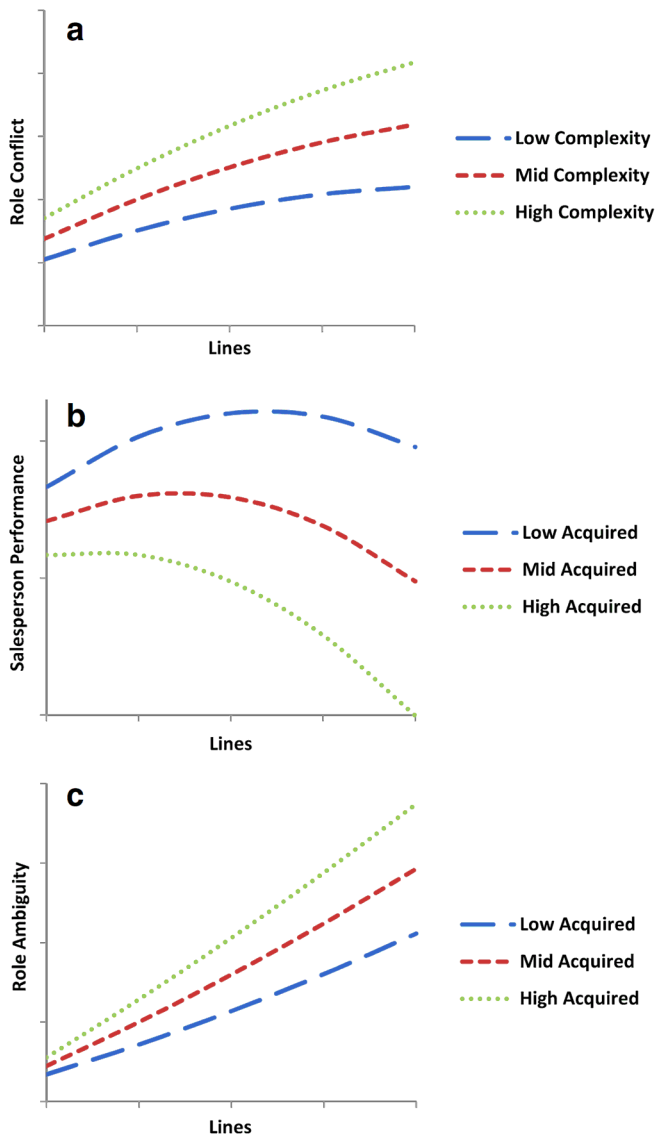
Figure 3. a–c Moderating effects of product complexity and lines acquired.

and role overload on performance (Babakus et al. 1996; Jones et al. 2007). Job satisfaction is impacted positively by performance and negatively by role ambiguity and role conflict. The effect of boundary-spanning task overload on job satisfaction is also negative but only marginally significant. These interrelationships result in a negative net effect of the number of lines handled on job satisfaction.

Managerial implications

Sales managers are continually seeking to discover ways to improve the performance of their salespeople. Our findings suggest that managers should exercise caution when asking their salespeople to handle more product lines. While on the surface giving them more product lines may seem inconsequential, or even beneficial from

a company perspective, doing so can be detrimental to the salesperson's performance at high levels. It also can increase their role stress and indirectly lower job satisfaction. As such, sales managers should be cognizant of both the benefits and drawbacks of increasing the salesperson's number of lines handled.

Salespeople's role stress is a key concern for organizations due to the significant costs associated with salesperson turnover (Brashear et al. 2005; Sager 1991; Tyagi and Wotruba 1993), and managers should recognize the complex effect of number of product lines handled by salespeople. More lines increase the role conflict and boundary-spanning task overload of salespeople; however, the impact of this effect diminishes with each incremental line. Conversely, the effect of number of lines on role ambiguity does not diminish with incremental lines. As such, sales managers wishing to give salespeople a multitude of lines should focus on offsetting the increases in role ambiguity, role conflict, and boundary-spanning task overload that result from the additional lines.

Several factors have been identified in the literature for reducing these role stress variables. Consistent with this, managers could provide closer supervision for those salespeople who require it, to help alleviate role ambiguity. Managers could also reduce role ambiguity by formalizing product line objectives based on input from salespeople and provide training on how to achieve these objectives. Setting objectives based on salespeople's input could also help alleviate issues related to boundary-spanning task overload. To reduce role conflict, salespeople could be trained on how to deal with the conflicting expectations that tend to increase when multiple product lines are handled. Finally, managers may want to consider tying rewards to the achievement of specific performance criteria for the product lines.

Managers should be cognizant of the nature of the product lines when making decisions regarding product line breadth for the salesperson. For complementary product lines, the adverse impact of number of product lines on all role stressors is lessened and the positive effect on performance is enhanced. Accordingly, managers should be less concerned about negatively impacting salespeople when asking them to handle additional lines that are highly complementary. However, caution should be exercised when adding non-complementary lines. Additionally, rather than summarily following the trend from product-based to customer-based sales structures, sales managers should thoroughly examine the fit of their lines prior to making structural changes. Product-based sales structures are not intrinsically inferior and may provide superior value to organizations when product lines are highly disparate.

Further, when products are complex, managers seeking to give additional lines to their salespeople should provide specific training on the selling propositions of these lines and why they are beneficial to both the
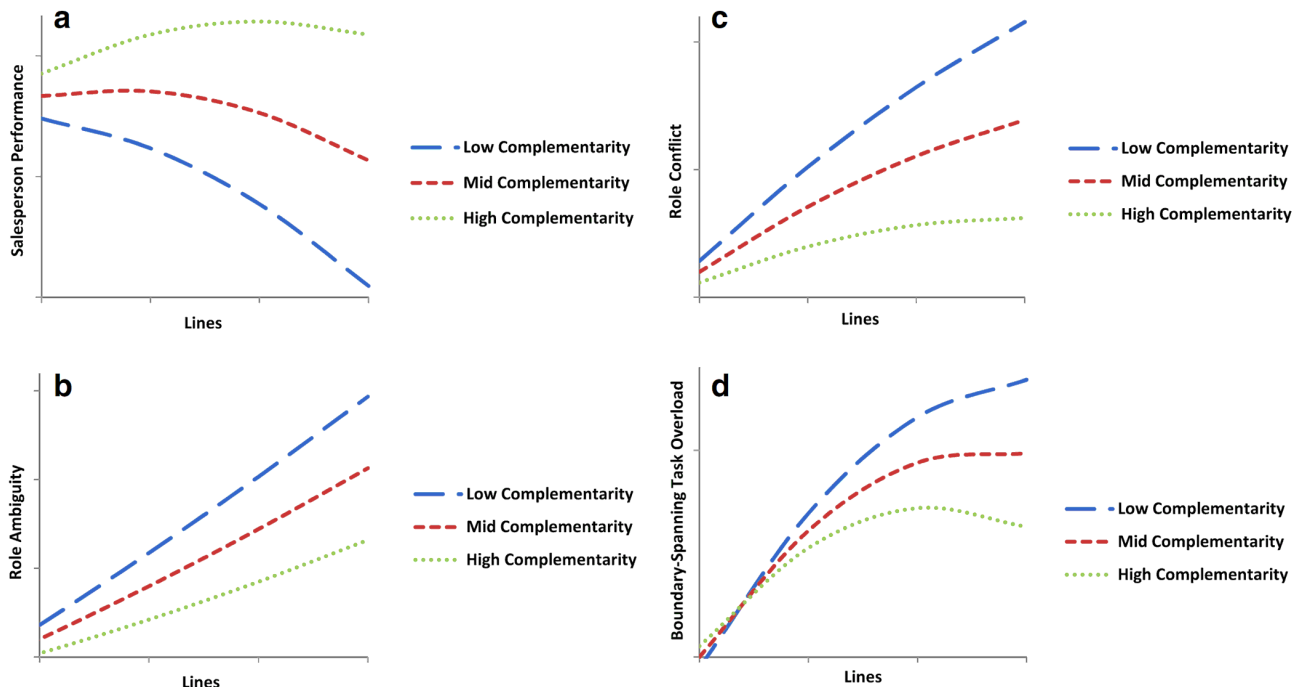
Figure 4. a–d Moderating effects of product line complementarity.

customer and the selling organization to abate the adverse effect on role conflict. Additional training is also necessary when product lines are added through mergers and acquisitions as salespeople are unfamiliar with these lines and do not have a clear understanding on how to sell these lines, how they fit with their existing portfolio of lines, and what benefits if any would accrue to the salespeople for allocating selling effort to these lines. Managers must also provide clear guidance to salespeople on the expectations associated with these acquired lines.

Finally, this research has significant ramifications on the structure of sales forces within organizations. While firms may be tempted to migrate to a customer-centric structure with salespeople carrying a multitude of product lines, this practice may actually be detrimental to salespeople. Further, firms should be highly cognizant of the costs associated with a move to this structure. In addition to the immediate hard-dollar costs of training and redeployment, there are long-terms costs associated with lower job satisfaction of salespeople. The indirect, negative effect of product lines on salesperson job satisfaction may result in reduced extra-role behaviors and increased turnover. Therefore, firms should evaluate the costs of restructuring and giving salespeople more product lines. These evaluations should be in concert with how many product lines a salesperson currently handles and the nature of these lines.

Limitations and future research directions

These findings must be interpreted in light of the study's limitations. These limitations also provide

avenues for further research. The primary purpose of this paper was to examine how the nature and breadth of product lines handled by salespeople affect their performance, role stress, and job satisfaction. To do so, we needed to collect data across multiple companies and industries. While this gave us the necessary variance in product line variables and helped increase the generalizability of the results, it necessitated the use of a cross-sectional study. The cross-sectional data shows the nonlinear effects of product line breadth on the outcome variables, but we are unable to determine if these effects vary over time as salespeople learn to adapt. Future research could examine this issue based on longitudinal data collected from companies. Further, by collecting data prior and subsequent to the addition of product lines, insight could be obtained on the impact of increasing the number of product lines. Additionally, our sample is based on business-to-business salespeople in the manufacturing industry. The results might be different if we were to test our model in a business-to-consumer context or with services instead of physical product lines. Future research could expand this inquiry into these contexts. Finally, a myriad of factors impact salespeople's performance and role stress (Schwepker et al. 1997; Schwepker 2003; Singh et al. 1996; Teas 1983). Examination of number of product lines in isolation provides a concise but underspecified account of its impact on the salesperson. Future inquiries could examine the impact of number of product lines handled on the performance and role stress of the salesperson in concert with other predictor variables. Additionally, the moderators suggested by schema theory show the relationship between number

of product lines handled and salesperson performance and role stress variables is conditional. Including other theoretically-derived moderating variables in future examinations may prove illuminating. Individual differences, organizational policies and reward systems, and environmental factors are also likely to impact the extent to which product lines handled are beneficial or detrimental to the salesperson.

Appendix

Multi-item scales

Product complexity (new 5-point Likert scale; strongly agree/strongly disagree)	1. The products that I handle are very complex and difficult to explain to customers
	2. The products that I handle are simple to understand and easy to explain to customers. (R)
	3. A lot of technical knowledge is needed to sell my products.
	4. It takes a lot of effort to explain the features of my products to the customers.
	5. It takes a lot of effort to explain the uses/applications of my products to the customers.
Product line complementarity (new 5-point Likert scale; very high extent/very low extent)	1. To what extent does the selling effort for one line help sell products in the other lines?
	2. To what extent are your product lines used jointly?
	3. To what extent does the demand for one line promote the sales of the other lines?
	4. To what extent are your product lines used in similar situations?
Role ambiguity (5- point Likert scale adapted from Rizzo et al. 1970; strongly agree/strongly disagree)	1. I am certain about how much authority I have in my selling position. (R)
	2. I know what my responsibilities are. (R)
	3. I know exactly what is expected of me. (R)
	4. My goals and objectives have been clearly defined. (R)
	5. I am certain how frequently I should call on my customers. (R)
Role conflict (5- point Likert scale adapted from Rizzo et al. 1970; strongly agree/strongly disagree)	1. I work under incompatible policies and guidelines
	2. I receive incompatible requests from two or more people.
	3. I have to work under vague directives and orders.
	4. I have to do things that should be done differently.
	5. I have to work on unnecessary things.
Boundary-spanning task overload (new 5- point Likert scale; strongly agree/strongly disagree)	1. I do not have enough time to identify and search for new business.
	2. I do not have enough time to call on potential buyers/customers.
	3. With my current workload, I am unable to generate an adequate amount of new business.
	4. My customers would like me to call on them more frequently.
	5. I am able to maintain adequate after-sales service for all my products. (R)
	6. My customers are extremely happy with the level of service that I provide. (R)
	7. I do not have enough time to collect information about competitors' activities.
	8. I need to be more responsive in dealing with competitive action.
	9. I need to react more quickly to competitors' moves.
Job satisfaction (5- point Likert scale adapted from Churchill et al. 1974; strongly agree/strongly disagree)	1. I find my work very satisfying.
	2. I feel that I am really doing something worthwhile in my job.
	3. My work is challenging.
	4. My job is very interesting.
	5. My work gives me a sense of accomplishment.
Salesperson performance (5-point Likert scale from Sohi et al. (1996); much lower than objective/much higher than objective)	During the last year, how did you perform relative to your objectives on the following?
	1. Sales
	2. Profitability
	3. Market share

(R) – Item is reverse scaled

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