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Service Diversity and Service Quality: Differentiation Strategy as a Strategic Boundary Condition

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Research Article

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Abstract

background and purpose

Service diversity and differentiation strategy are widely viewed as routes to superior service quality, yet their joint effects remain unclear. Grounded in contingency theory, this study examines whether service diversity and differentiation strategy are positively associated with service quality and whether differentiation strategy conditions the diversity-quality relationship. Design/methodology/approach: Survey data from 204 business units in the UK non-manufacturing sector were analysed using hierarchical moderated ordinary least squares regression. Heteroscedasticity-robust HC3 standard errors, simple-slope analysis, and the Johnson-Neyman technique were used to assess and probe the interaction. Multi-item measures demonstrated good internal consistency, and measurement validity and common method variance were assessed. Findings: Service diversity and differentiation strategy were each positively and significantly associated with service quality. However, differentiation strategy significantly and negatively moderated the service diversity-service quality relationship. The positive effect of service diversity was strongest at low-to-moderate levels of differentiation and became statistically indistinguishable from zero beyond the Johnson-Neyman threshold. Value added and limitations: The study identifies differentiation strategy as a strategic boundary condition rather than a uniform enabler of the diversity-quality relationship and extends contingency-based service research by distinguishing additive from interaction effects. The findings offer managers guidance on balancing service-portfolio breadth with differentiation-based capabilities. The cross-sectional, single-respondent design and UK non-manufacturing setting limit causal inference and generalisability.

JEL classification: L84, M10, M31

1. Introduction

Service quality has long been regarded as one of the most important sources of competitive advantage for organisations operating outside the manufacturing sector, where the intangibility, heterogeneity, and inseparability of the core offering make consistent, superior service delivery both harder to achieve and more consequential for customer retention and profitability (Parasuraman et al., 1985). As a non-financial performance outcome, service quality is also of direct interest to business and strategic-management research in its own right: it is more proximate to, and more directly shaped by, day-to-day operational and strategic choices than aggregate financial performance, and it captures value creation for customers in a way that purely financial indicators do not (Amhalhal et al., 2022). Two organisational choices are frequently proposed as levers through which business units can enhance the quality that customers perceive: broadening the range of distinct services offered – commonly termed service diversity – and adopting a differentiation-based competitive strategy that emphasises uniqueness, customisation, and superior value over price competition (Porter, 1980).

These two levers have typically been studied in isolation, or have been entered as parallel, additive predictors within broader contingency-based models of organisational performance (Baird et al., 2024;

Chenhall, 2003). The relationship between service diversity and service quality, in particular, is not unambiguous. On the one hand, a wider service portfolio can allow a business unit to match the heterogeneous needs of different customer segments more precisely, thereby enhancing perceived competence, responsiveness, and reliability (Adem et al., 2026). On the other hand, an expanding portfolio of services places rising demands on coordination, staff training, and quality-control systems, and a growing body of literature on related forms of diversification documents that its performance consequences depend on the presence of complementary organisational resources and strategic commitments, rather than being uniformly positive (Arte & Larimo, 2022).

Contingency theory offers a natural framework within which to reconcile this tension: it holds that no single organisational or operational choice is universally superior, and that the performance consequences of any given choice depend on its fit with other contextual and strategic characteristics of the organisation (Chenhall, 2003; Otley, 2016). Differentiation strategy is a particularly plausible candidate contingency for the service diversity–service quality relationship, since it is itself concerned with how a business unit chooses to create and signal superior value to customers, and might therefore be expected to interact with – rather than simply add to – the effect of service diversity on perceived quality. Despite the conceptual plausibility of such an interaction, and despite an extensive contingency-based literature treating differentiation strategy as an antecedent of internal management practices (Baird et al., 2024; Cagwin & Bouwman, 2002; Gordon & Narayanan, 1984), no study to the author's knowledge has explicitly modelled differentiation strategy as a moderator of the service diversity–service quality relationship.

This study addresses that gap. Using survey data on 204 business units operating in the UK non-manufacturing sector, it tests three hypotheses: that service diversity is positively associated with service quality (H1); that differentiation strategy is positively associated with service quality (H2); and that differentiation strategy moderates the relationship between service diversity and service quality (H3). The moderating hypothesis is developed from two theoretically grounded but competing perspectives – a complementarity perspective and a resource-dilution perspective – that offer different accounts of how differentiation strategy might condition the diversity–quality relationship; the empirical form the interaction actually takes is then interpreted in light of these two perspectives.

The findings show that service diversity and differentiation strategy are each positively associated with service quality, but that differentiation strategy significantly attenuates – rather than amplifies – the positive effect of service diversity on service quality. Using hierarchical moderated regression with robust standard errors, simple-slope analysis, and the Johnson–Neyman technique, the study identifies the specific range of differentiation strategy over which service diversity remains an effective quality-enhancing lever, and the point beyond which it ceases to be so. In doing so, the study identifies differentiation strategy as a strategic boundary condition on the diversity–quality relationship, with direct implications for how business units allocate resources between broadening their service offering and deepening their differentiation-based capabilities.

The remainder of the paper proceeds as follows. Section 2 develops the theoretical background and hypotheses, and articulates the research gap and intended contribution. Section 3 presents the conceptual model. Section 4 describes the materials and methods. Section 5 reports the results. Section 6 discusses the findings. Section 7 articulates the study's theoretical, empirical, and managerial contributions. Section 8 notes its limitations, before Section 9 concludes.

2. Literature Review and Theoretical Background

2.1 Contingency Theory as the Guiding Framework

Contingency theory in strategic management research rests on the proposition that there is no single organisational design, strategy, or operational configuration that is appropriate for all organisations in all circumstances; rather, effectiveness depends on the fit between an organisation's internal choices and the contextual and strategic factors within which it operates (Chenhall, 2003; Otley, 2016). Within this tradition, business or competitive strategy is one of the most frequently studied contingent factors, on the grounds that the strategic posture a business unit adopts shapes the internal capabilities, control systems, and resource allocations that, in turn, determine performance outcomes (Baird et al., 2024; Gordon & Narayanan, 1984). Recent evidence continues to support this view: business strategy has been shown to exert an indirect effect on organisational performance through the practices a firm adopts to pursue it, underscoring that the performance consequences of a given strategic posture are conditional on complementary organisational choices rather than direct or unconditional (Amhalhal et al., 2022).

Contingency-based research has generally modelled such strategic factors either as direct antecedents of an organisational practice of interest, or as one of several parallel predictors of a performance outcome. A smaller but theoretically important strand instead models a strategic or contextual factor as a moderator that changes the strength or sign of the relationship between an operational choice and a performance outcome – an approach sometimes referred to as an interaction form of fit, since fit is not assumed a priori but is instead tested through the significance of an interaction term (Chenhall, 2003). The present study adopts this interaction-based approach, treating differentiation strategy not merely as one more predictor of service quality alongside service diversity, but as a factor that may condition how, and how strongly, service diversity translates into service quality.

2.2 Service Diversity and Service Quality

Service diversity refers to the extent to which a business unit offers a broad and varied range of distinct services, rather than concentrating on a narrow, standardised offering (Adem et al., 2026). Two complementary theoretical arguments support a positive association between service diversity and service quality. First, customers within any given market are rarely homogeneous in their needs; a wider service portfolio allows a business unit to match its offering more closely to the specific requirements of different customer segments, which should be reflected in higher perceived competence, reliability, and responsiveness – core determinants of service quality identified in the SERVQUAL tradition (Parasuraman et al., 1985). Second, from a resource-based perspective, a diverse portfolio of service

capabilities constitutes a bundle of organisational resources that is difficult for competitors to replicate quickly and that can be redeployed flexibly in response to variable or uncertain demand; recent evidence from UK manufacturing firms diversifying into services shows that such diversification is associated with productivity and performance gains, particularly where firms possess the resources needed to support the broader offering (Adem et al., 2026).

Service quality itself has been conceptualised and measured in several ways. Cronin and Taylor (1992) showed that performance-based measures capture service quality more parsimoniously than the gap-based SERVQUAL approach, and Brady and Cronin (2001) proposed a hierarchical conceptualisation in which overall perceptions of service quality are formed from interaction, physical-environment and outcome quality. Across two decades of applications in many industries and countries, the core SERVQUAL dimensions have nonetheless remained a common reference point (Ladhari, 2009). Service quality also matters because of its consequences: higher perceived quality is associated with more favourable behavioural intentions, such as loyalty and willingness to recommend (Zeithaml et al., 1996), which makes its organisational antecedents, including the breadth of the service portfolio, practically important.

The continued centrality of these SERVQUAL-derived determinants is reinforced by recent systematic reviews of the service-quality literature, which confirm that competence, reliability, and responsiveness remain robust predictors of customer satisfaction and loyalty across a wide range of service contexts (Darzi et al., 2023; Prasad & Verma, 2022; Tedja et al., 2024).

A countervailing perspective, drawn from the wider diversification literature, cautions that the benefits of diversification are not unconditional: a meta-analysis of product diversification's moderating role in the international diversification–performance relationship shows that the performance consequences of a broader portfolio depend heavily on complementary firm resources and on the type of diversification pursued, with unrelated or resource-unsupported diversification sometimes eroding rather than enhancing performance (Arte & Larimo, 2022). A large-scale meta-analysis of operational complexity more broadly reinforces this picture, finding that complexity's performance consequences are not uniform but instead differ markedly depending on the performance dimension considered and the organisational conditions under which complexity is managed (Akın Ateş et al., 2022). Evidence from service settings points in the same direction. In manufacturing firms that move into services, the effect of service sales on firm value remains flat or slightly negative until services reach a critical mass, after which it becomes increasingly positive (Fang et al., 2008). In hospitals, greater focus has been found, on average, to improve clinical quality, although specialisation in related areas can complement it (Clark & Huckman, 2012), and the benefits of focus persist at the level of operating units and processes even after controlling for patient selection, while firm-level benefits disappear (KC & Terwiesch, 2011). Most directly, a hospital's service variety has been found to be negatively associated with patients' experiential quality, an association that administrative information technology mitigates (Peng et al., 2020). At the level of front-line service work, specialisation improves productivity in the short run, whereas variety yields benefits through learning over time (Staats & Gino, 2012). Taken together, the balance of theory

and evidence supports a positive average association between service diversity and service quality across business units, while leaving open the possibility – examined later through H3 – that this association is not uniform across all strategic contexts. Accordingly:

H1

Service diversity is positively associated with service quality.

2.3 Differentiation Strategy and Service Quality

Differentiation strategy, in Porter's (1980) classic formulation, describes a competitive posture in which a business unit seeks to create superior, unique value for customers – through service excellence, customisation, reliability, or brand reputation – rather than competing primarily on price. Because service quality is itself one of the principal means by which a non-manufacturing business unit can differentiate its offering, firms that adopt a differentiation strategy would be expected to invest disproportionately in the organisational capabilities that determine perceived quality: staff selection and training, customer relationship management, complaint handling, and quality-control routines (Baird et al., 2024).

Recent empirical evidence is broadly consistent with this expectation. Baird et al. (2024) show that the intensity of competitive forces interacts with the use of management accounting practices to shape competitive advantage and organisational performance, underscoring the centrality of strategic emphasis – including differentiation – to performance outcomes more generally. Navaia et al. (2023) find that differentiation strategy is positively associated with the export performance of small and medium-sized enterprises, operating in part through the positional advantage that differentiation confers. Zhu et al. (2023) similarly find that firms pursuing more intensive differentiation strategies engage more heavily in stakeholder-oriented investment behaviour, consistent with the view that differentiators build organisational systems that extend beyond the core offering itself. On this basis:

H2

Differentiation strategy is positively associated with service quality.

2.4 The Moderating Role of Differentiation Strategy

The theoretical status of differentiation strategy as a moderator of the service diversity–service quality relationship is less settled, and two genuinely plausible accounts can be constructed from existing theory, each implying a different form of interaction.

A first, complementarity account draws on the “systems” variant of contingency fit, in which two organisational choices jointly reinforce a desired outcome because each supplies a capability the other requires (Chenhall, 2003). Under this account, a differentiation strategy provides the managerial infrastructure – customer-intelligence systems, quality-control routines, and empowered front-line staff – needed to convert an increasingly diverse service portfolio into consistently high quality; without such

infrastructure, a broader portfolio might otherwise outstrip a business unit's capacity to maintain uniform standards across its offerings. This account implies that differentiation strategy should positively moderate – that is, amplify – the effect of service diversity on service quality.

A second, resource-dilution account draws on the "too-much-of-a-good-thing" (TMGT) logic, according to which the marginal benefit of one generally beneficial practice or resource commonly declines, and can even reverse, once a related resource-intensive commitment is already being pursued at a high level (Ma & Tang, 2023; Pierce & Aguinis, 2013). Differentiation strategy and service diversity can plausibly be understood as two partially overlapping routes to the same underlying goal – creating superior perceived customer value – rather than as fully independent levers. A business unit that already competes intensively through differentiation typically channels its finite managerial attention, staff training, and quality-control resources into deep, relationship-specific customisation of its existing, often comparatively narrow, set of offerings (Porter, 1980). For such a unit, the incremental customer-matching benefit of adding further service lines is smaller, while the coordination and consistency costs of managing a wider portfolio alongside an already resource-intensive differentiation posture may partly offset any residual benefit – consistent with evidence that diversification's performance benefits are conditional on the availability of supporting resources rather than being additive to other strategic commitments (Adem et al., 2026; Arte & Larimo, 2022; Peng et al., 2020). Conversely, for a business unit with a lower-differentiation, more standardised or cost-oriented posture, broadening the service range may be one of the few levers available for signalling superior value to customers, so that its marginal quality payoff is comparatively larger. This account implies that differentiation strategy should negatively moderate – that is, attenuate – the effect of service diversity on service quality.

Theory alone does not adjudicate between these two accounts, and the literature offers support for each: contingency-based reasoning about complementary organisational capabilities is consistent with an amplifying interaction (Chenhall, 2003), while too-much-of-a-good-thing reasoning and evidence that diversification's benefits are conditional on the availability of supporting resources are consistent with an attenuating interaction (Adem et al., 2026; Arte & Larimo, 2022; Ma & Tang, 2023; Pierce & Aguinis, 2013; Ye et al., 2023). Rather than committing to a directional prediction that the data could only confirm or disconfirm, this study formulates the moderation hypothesis in a form that leaves its direction to be established empirically, and subsequently interprets whichever form the interaction takes against the two accounts set out above:

H3

Differentiation strategy moderates the relationship between service diversity and service quality, such that the relationship changes as the level of differentiation strategy increases.

The specific form taken by this moderation – amplifying or attenuating – and the range of differentiation strategy over which service diversity remains a significant predictor of service quality, are established empirically in Section 5 and interpreted against the two accounts above in Section 6.

2.5 Research Gap and Contribution

Three gaps in the existing literature motivate this study. First, although business or competitive strategy is a well-established contingent factor in strategic and service-management research, it has typically been modelled as an antecedent of internal practices or as a parallel predictor of performance, rather than as a moderator of a specific operational choice – service diversity – and a specific, managerially actionable outcome – service quality. Consequently, the conditions under which broadening a service portfolio is, and is not, an effective route to higher perceived quality remain unclear.

Second, much of the related literature relies on simple correlational analysis, mean-comparison tests across strategy groups, or structural equation path estimates that report only the significance of individual paths, without formally testing an interaction term, applying robust inference, or probing the full range of a continuous moderator. This leaves open the possibility that a genuine but conditional relationship between service diversity and service quality has gone undetected in prior work, or that its boundary conditions have been characterised only approximately using pre-selected values of the moderator (e.g., ± 1 standard deviation) rather than the full range over which the relationship holds.

Third, the recent literature on service diversification (Adem et al., 2026) has examined its consequences primarily for broad firm performance measures (productivity, profit, turnover) in a manufacturing-to-services transition context, leaving open whether analogous logic extends to a purely non-manufacturing setting and to service quality specifically – an outcome that is arguably more proximate to, and more directly under the control of, operational managers than aggregate financial performance.

This study addresses these gaps by (i) developing and testing a theoretically justified moderation hypothesis in which differentiation strategy conditions the service diversity–service quality relationship; (ii) applying hierarchical moderated regression with heteroscedasticity-robust standard errors, together with simple-slope and Johnson–Neyman analyses, to characterise the full boundary condition rather than a small number of arbitrarily chosen points; and (iii) extending the theoretical logic of resource-contingent diversification benefits to a non-manufacturing setting and to service quality as the focal outcome. In doing so, the study's principal contribution is to identify differentiation strategy as a strategic boundary condition – rather than a uniform enabler – of the service diversity–service quality relationship.

3. Conceptual Research Model

Figure 1 depicts the conceptual model tested in this study. Service diversity is modelled as the independent variable, service quality as the dependent variable, and differentiation strategy as the moderator of the direct path between them. Consistent with H1 and H2, service diversity and differentiation strategy are each expected to exert a direct, positive association with service quality; consistent with H3, differentiation strategy is additionally expected to condition the strength of the service diversity–service quality path.

4. Methods

4.1 Data Source and Sample

The data analysed in this study were drawn from a broader research project examining organisational and operational practices among business units operating in the UK non-manufacturing sector. That project employed a structured, self-administered questionnaire directed at senior finance and operations managers within business units sampled from a commercial database of UK companies, covering multiple non-manufacturing industries classified under the UK Standard Industrial Classification (SIC 2007). The present study utilises the subset of survey items concerned with service diversity, differentiation strategy, service quality, and associated firm-level and strategic control variables, and addresses a research question that is analytically distinct from those examined elsewhere using this dataset: rather than modelling the antecedents of internal costing or control-system design, the present study develops and tests an interaction-based contingency model in which differentiation strategy moderates the relationship between service diversity and service quality – a relationship not previously examined with these data.

The questionnaire was mailed to 2,000 UK non-manufacturing companies randomly selected from the FAME database and addressed to the financial director or, where it could be identified, a named finance manager. It was administered in three waves between September and November 2018: the initial mailing, which included a covering letter, participant information sheet, consent form and prepaid return envelope, was followed by two postal reminders, and telephone follow-ups were made to non-respondents. Seventy-eight companies requested, and were sent, an online version of the questionnaire. In total, 263 questionnaires were returned (212 by post and 51 online), a gross response rate of 13.15%. Forty-four questionnaires were excluded as unusable because the respondents fell outside the target SIC classifications, gave inconsistent answers, or had more than 10% missing values, leaving 219 usable questionnaires (an effective response rate of 10.95%). Of these, 15 respondents completed only the company-information section and could not be included, giving the 204 business units analysed here (10.2% of the companies contacted).

Non-response bias was assessed with the wave method, which treats late respondents as proxies for non-respondents. Questionnaires received before the first reminder (n = 38) were compared with those received after the first and second reminders using Mann–Whitney tests. No significant differences were found on any of the constructs used in this study; the few significant differences that emerged concerned variables that are not part of the present analysis. Non-response bias is therefore unlikely to be a serious concern.

Of the respondents to the broader project's questionnaire, 204 business units provided complete responses on the constructs analysed here and constitute the analytic sample for this study. Table 1 (below, alongside the descriptive statistics) summarises the distribution of the sample across non-manufacturing SIC sections: wholesale and retail trade (Section G, n = 65, 31.9%); administrative and

support service activities (Section N, n = 36, 17.6%); professional, scientific and technical activities (Section M, n = 27, 13.2%); information and communication (Section J, n = 25, 12.3%); transportation and storage (Section H, n = 18, 8.8%); and a combined “other services” category comprising accommodation and food service, real estate, education, human health and social work, arts and entertainment, and other service activities (n = 33, 16.2%). Business-unit size, measured by number of employees, ranged from 49 to 60,000 (M = 2,277.6, SD = 6,212.2, Mdn = 615.5); given the pronounced positive skew in this variable, it was log-transformed prior to use as a control.

4.2 Measures

All substantive constructs were measured using multi-item, five-point Likert-type scales (typically anchored 1 = not at all/no extent to 5 = very high level/extent), consistent with established survey-based contingency research in strategic management and service operations (Chenhall, 2003).

The full wording of every item, the question stems and the response anchors are reported in Appendix A (Table A1).

Service diversity (independent variable) was measured with four items capturing the extent of diversity in the design of services offered and in the volume of services provided across different service lines (Cronbach's α = .886).

Differentiation strategy (moderator) was measured with three items capturing the extent to which the business unit competes by offering distinctive, high-quality, or customised services rather than by competing primarily on price, consistent with Porter's (1980) conceptualisation of differentiation as a generic competitive strategy (α = .870).

Service quality (dependent variable) was measured with eight items capturing the determinants of service quality identified in the SERVQUAL tradition – competence, reliability, understanding and knowing the customer, access, communication, and responsiveness (Parasuraman et al., 1985) (α = .956).

Cost-leadership strategy, competitive intensity, business-unit size (log employees), and industry sector (dummy-coded from SIC 2007 section, with wholesale and retail trade as the reference category) were included as control variables. Cost-leadership strategy was measured with three items (α = .852) and competitive intensity with four items (α = .875). All reliability coefficients exceed the conventional .70 threshold, indicating good internal consistency (Podsakoff et al., 2003). All composite scores were computed as the mean of their constituent items; where a small number of items were missing for a given respondent (never more than two items per scale), the composite was computed as the mean of the non-missing items.

4.3 Analytical Strategy

Hypotheses were tested using hierarchical (sequential) ordinary least squares moderated regression, with service quality as the dependent variable throughout. Model 1 entered the control variables only (log business-unit size, competitive intensity, cost-leadership strategy, and industry-sector dummies); Model

2 added the mean-centred main effects of service diversity and differentiation strategy; Model 3 added their mean-centred product term. Mean-centring predictors prior to computing the interaction term reduces non-essential multicollinearity between the interaction and its constituent terms and aids the interpretation of simple slopes (Aiken & West, 1991).

Heteroscedasticity-robust (HC3) standard errors were used throughout, given both evidence of non-constant error variance in preliminary diagnostics and the recommendation that HC3 performs well in samples of the size analysed here (Long & Ervin, 2000). Model comparison across the three nested models was conducted using incremental R^2 (ΔR^2) with corresponding F-change tests. Where the interaction term was significant, the conditional ("simple-slope") effect of service diversity on service quality was estimated at the mean and at ± 1 standard deviation of differentiation strategy (Aiken & West, 1991), and the Johnson–Neyman technique was additionally applied – following Spiller et al. (2013) and Hayes (2018) – to identify the complete region of differentiation strategy over which the conditional effect of service diversity on service quality is statistically significant, rather than relying solely on three arbitrarily chosen points.

Multicollinearity was assessed using variance inflation factors (VIFs) for all predictors in the final model. Measurement quality was assessed in two complementary ways. First, convergent and discriminant validity were examined through a confirmatory factor analysis (CFA) of the full five-factor measurement model (service diversity, differentiation strategy, service quality, cost-leadership strategy, and competitive intensity), estimated by maximum likelihood, from which standardised loadings, average variance extracted (AVE), and composite reliability (CR) were obtained for each construct; discriminant validity was then evaluated using both the Fornell–Larcker criterion (comparing the square root of each construct's AVE with its correlations with other constructs) (Fornell & Larcker, 1981) and the heterotrait–monotrait ratio of correlations (HTMT), a criterion recommended as more reliable than the Fornell–Larcker test for detecting discriminant-validity problems (Henseler et al., 2015). Second, because the data were collected from a single respondent per business unit at a single point in time, the possibility of common method variance was additionally assessed using Harman's single-factor test (Podsakoff et al., 2003), in which all substantive Likert-scale items are entered into an unrotated principal-component analysis and the variance explained by the first factor is examined; common method variance is considered a material concern when a single factor accounts for the majority of the covariance among the measures. All analyses were conducted in Python using the statsmodels, semopy, and factor_analyzer packages.

5. Results

5.1 Descriptive Statistics, Reliability, and Correlations

Table 1 reports descriptive statistics and reliability coefficients for the study's continuous variables, and Table 2 reports their zero-order Pearson correlations. All variables displayed skewness within generally

acceptable bounds for OLS-based analysis (absolute skewness ≤ 0.52) and no evidence of severe non-normality. Business-unit size was log-transformed given its markedly higher raw skew (see Section 5.1).

Table 1
Descriptive Statistics and Reliability Coefficients (N = 204)

Variable	M	SD	Skewness	Cronbach's α
1. Service Diversity	3.02	0.88	0.36	.886
2. Differentiation Strategy	3.05	1.05	0.14	.870
3. Service Quality	3.29	0.93	−0.03	.956
4. Competitive Intensity	3.15	0.94	0.26	.875
5. Cost-Leadership Strategy	2.95	0.95	−0.20	.852
6. Business-Unit Size (employees, ln)	6.49	1.47	0.45	—

Note: M = mean; SD = standard deviation. Reliabilities are Cronbach's alpha for multi-item composites.

Table 2
Pearson Correlation Matrix (N = 204)

Variable	1	2	3	4	5	6
1. Service Quality	—					
2. Service Diversity	.665*	—				
3. Differentiation Strategy	.769*	.686*	—			
4. Cost-Leadership Strategy	−.451*	−.353*	−.502*	—		
5. Competitive Intensity	.709*	.715*	.695*	−.419*	—	
6. Business-Unit Size (ln)	.335*	.522*	.423*	−.322*	.480*	—

Note: * p < .001 (two-tailed).

Consistent with H1 and H2 at the bivariate level, service diversity (r = .665) and differentiation strategy (r = .769) are each strongly and positively correlated with service quality. Service diversity and differentiation strategy are themselves positively correlated (r = .686), underscoring the importance of estimating their joint, mean-centred effects in a multivariate model before drawing conclusions about their independent or interactive contributions. Cost-leadership strategy is negatively correlated with all three focal constructs, consistent with cost leadership representing a distinct, and to some extent competing, competitive logic.

5.2 Measurement Validity and Common Method Variance

Convergent and discriminant validity were assessed through a confirmatory factor analysis (CFA) of the full five-factor measurement model (service diversity, differentiation strategy, service quality, cost-leadership strategy, and competitive intensity), estimated by maximum likelihood on the 188 business units with complete item-level data. The measurement model showed an acceptable fit to the data: $\chi^2(199) = 452.39$, $p < .001$; CFI = .927; TLI = .915; RMSEA = .083. All 22 standardised factor loadings exceeded .70 and were statistically significant ($p < .001$), providing evidence of convergent validity at the item level.

Table 3 reports average variance extracted (AVE) and composite reliability (CR) for each construct. AVE exceeded the conventional .50 threshold for all five constructs (range = .627 to .730), and CR exceeded the conventional .70 threshold for all five constructs (range = .854 to .956), jointly indicating adequate convergent validity and internal consistency at the construct level.

Table 3
Average Variance Extracted (AVE) and Composite Reliability (CR)

Construct	**AVE**	**CR**	**√AVE**
Service Diversity	.660	.885	.812
Differentiation Strategy	.686	.868	.828
Service Quality	.730	.956	.854
Cost-Leadership Strategy	.664	.854	.815
Competitive Intensity	.627	.871	.792

Note: AVE = average variance extracted; CR = composite reliability; √AVE = square root of AVE, used in the Fornell–Larcker comparison below.

Discriminant validity was assessed using both the Fornell–Larcker criterion (Fornell & Larcker, 1981) and the heterotrait–monotrait ratio of correlations (HTMT) (Henseler et al., 2015). Under the Fornell–Larcker criterion, the square root of each construct's AVE (reported in the final column of Table 3) should exceed its correlations with all other constructs. This condition held for every construct except one narrow case: the latent correlation between differentiation strategy and service quality (.836) marginally exceeded the square root of differentiation strategy's AVE (.828), a gap of .008. Because the Fornell–Larcker criterion is known to be conservative and can be sensitive to sample-specific estimation error, and because more recent simulation evidence recommends HTMT as the more reliable indicator of discriminant-validity problems (Henseler et al., 2015), HTMT ratios were computed for all ten construct pairs. All ten ratios fell below the conservative .85 threshold (range = .413 to .835), including the differentiation strategy–service quality pair, and all fell well below the more permissive .90 threshold sometimes used in the literature. Taken together, these results support the discriminant validity of the five constructs, while the borderline Fornell–Larcker result for differentiation strategy and service quality is noted as a reminder that these two constructs, though empirically distinguishable, are conceptually related – consistent with the

theoretical expectation that businesses pursuing differentiation invest in the very capabilities that produce perceived quality.

As an additional, single-source diagnostic, Harman's single-factor test was conducted on the same 22 items: an unrotated principal-component analysis extracted a first factor accounting for 54.5% of total variance. Because this exceeds the conventional 50% threshold used to judge Harman's test, common method variance cannot be fully ruled out as a contributing factor to the observed associations, notwithstanding the convergent and discriminant validity evidence above and procedural safeguards embedded in the broader project's data collection (guaranteed respondent confidentiality and varied response formats across questionnaire sections). This is addressed further as a limitation in Section 8.

5.3 Hierarchical Moderated Regression

Table 4 reports the three hierarchical regression models predicting service quality, estimated with HC3 heteroscedasticity-robust standard errors. Model 1, containing only the control variables, was significant, $F(8, 195) = 55.83$, $p < .001$, and explained 55.1% of the variance in service quality (adjusted $R^2 = .532$); competitive intensity was a strong positive predictor ($b = .642$, $p < .001$) and cost-leadership strategy a significant negative predictor ($b = -.175$, $p = .009$), while business-unit size and the industry-sector dummies were not significant.

Model 2 added the mean-centred main effects of service diversity and differentiation strategy, significantly improving model fit ($\Delta R^2 = .136$), $F(2, 193) = 42.03$, $p < .001$. Both service diversity ($b = .201$, $SE = .096$, $p = .035$) and differentiation strategy ($b = .395$, $SE = .080$, $p < .001$) were significant, positive predictors of service quality, supporting H1 and H2.

Model 3 added the mean-centred service diversity × differentiation strategy interaction term, which further and significantly improved model fit ($\Delta R^2 = .011$), $F(1, 192) = 6.82$, $p = .010$. The interaction term was significant and negative ($b = -.097$, $SE = .036$, $p = .006$), indicating that differentiation strategy attenuates – rather than amplifies – the positive association between service diversity and service quality, consistent with the resource-dilution perspective discussed in Section 2.4 rather than the complementarity perspective. The main effects of service diversity ($b = .242$, $SE = .091$, $p = .008$) and differentiation strategy ($b = .399$, $SE = .070$, $p < .001$) remained significant and positive in the full model. Variance inflation factors for all predictors in Model 3 were below 2.8 (maximum = 2.73 for the mean-centred service diversity term), indicating that multicollinearity is not a material concern for interpreting these coefficients.

Table 4
Hierarchical Moderated Regression Predicting Service Quality (HC3 Robust Standard Errors)

Predictor	Model 1 b (SE)	Model 2 b (SE)	Model 3 b (SE)
Constant	3.301 (.077)***	3.301 (.066)***	3.366 (.072)***
Business-Unit Size (ln, centred)	−.025 (.034)	−.075 (.028)**	−.069 (.028)*
Competitive Intensity (centred)	.642 (.062)***	.283 (.075)***	.259 (.076)**
Cost-Leadership Strategy (centred)	−.175 (.067)**	−.064 (.059)	−.067 (.055)
Industry-sector dummies (5)	included, ns	included, ns	included, ns
Service Diversity (SD, centred)	—	.201 (.096)*	.242 (.091)**
Differentiation Strategy (DIFF, centred)	—	.395 (.080)***	.399 (.070)***
SD × DIFF	—	—	−.097 (.036)**
R^2	.551	.687	.698
Adjusted R^2	.532	.671	.681
ΔR^2	—	.136***	.011**
F for ΔR^2 (df1, df2)	—	42.03 (2, 193)***	6.82 (1, 192)**
N	204	204	204

Note: Unstandardised coefficients with HC3 robust standard errors in parentheses. Reference category for industry-sector dummies is wholesale and retail trade (SIC Section G); no individual industry dummy was significant at $p < .05$ in any model. * $p < .05$, ** $p < .01$, *** $p < .001$.

5.4 Simple Slope and Johnson–Neyman Analysis

Because the interaction term was significant, the conditional effect of service diversity on service quality was probed at representative levels of differentiation strategy and, subsequently, across its entire observed range. Table 5 reports simple slopes of service diversity on service quality at one standard deviation below the mean of differentiation strategy, at its mean, and at one standard deviation above its mean. Figure 2 plots the corresponding regression lines.

Table A1
Measurement items, question stems and response anchors

Code	Item wording
Service diversity (independent variable; 4 items; α = .886)	
Question: What level of service diversity has your business unit provided for each of the following areas?	
Anchors: 1 = Not at all; 2 = Small level; 3 = Medium level; 4 = High level; 5 = Very high level	
SD1	Our business unit requires different processes to design services.
SD2	Our business unit requires different processes to provide services.
SD3	Our business unit has differences in the volume of services provided across different services.
SD4	Our business unit has differences in the volumes of services provided across different service segments.
Differentiation strategy (moderator; 3 items; α = .870)	
Question: To what extent does your business unit emphasise each of the following strategies?	
Anchors: 1 = Not at all; 2 = Small extent; 3 = Medium extent; 4 = High extent; 5 = Very high extent	
DS1	We seek to maintain brand identification.
DS2	We seek to be unique in our industry and find that buyers are willing to pay a premium price for that uniqueness.
DS3	We invest in technology to develop unique service designs.
Service quality (dependent variable; 8 items; α = .956)	
Question: Please indicate your level of agreement about the level of service quality in your business unit.	
Anchors: 1 = Not at all; 2 = Small level; 3 = Medium level; 4 = High level; 5 = Very high level	
SQ1	Our business unit has the required skills and knowledge to perform services.
SQ2	Our business unit performs services properly first time and honours its promises.
SQ3	Our business unit aims to keep our customers informed about when services will be performed.
SQ4	Our business unit provides easily accessible services.
SQ5	Our business unit has convenient locations for service facilities.
SQ6	Our business has convenient operating hours.
Note: Service-quality items capture the determinants of service quality identified by Parasuraman et al. (1985); differentiation and cost-leadership items reflect Porter's (1980) generic strategies. Cronbach's alphas are those reported in Section 4.2.	

Code	Item wording
Service diversity (independent variable; 4 items; α = .886) **Question: What level of service diversity has your business unit provided for each of the following areas?** **Anchors: 1 = Not at all; 2 = Small level; 3 = Medium level; 4 = High level; 5 = Very high level**	
SQ7	Our business unit's customers feel safe with their transactions with our business unit.
SQ8	Our business unit readily responds to customers' requests.
Cost-leadership strategy (control; 3 items; α = .852) Question: To what extent does your business unit emphasise each of the following strategies? Anchors: 1 = Not at all; 2 = Small extent; 3 = Medium extent; 4 = High extent; 5 = Very high extent	
CL1	We seek to be the lowest cost service provider in our industry.
CL2	We place considerable emphasis on reaping cost advantages from all services.
CL3	We invest in technology to develop low-cost service designs.
Competitive intensity (control; 4 items; α = .875) Question: What level of competition does your business unit face in each of the following areas? Anchors: 1 = None or not at all; 2 = Small level; 3 = Medium level; 4 = High level; 5 = Very high level	
CI1	The intensity of competition for the major services provided.
CI2	Our suppliers have the ability to negotiate higher prices with our business unit.
CI3	Our customers have the ability to negotiate lower prices with our business unit.
CI4	The degree to which our business unit is threatened by substitute services.
Other control variables Question: Questions in the company-information section of the questionnaire. Anchors: Not applicable (numeric or categorical responses)	
Size	What is the approximate number of employees in your business unit? (Analysed as the natural logarithm of the number of employees.)
Industry	The business unit’s main activity, classified by UK SIC 2007 section. (Dummy-coded, with wholesale and retail trade as the reference category.)
Note: Service-quality items capture the determinants of service quality identified by Parasuraman et al. (1985); differentiation and cost-leadership items reflect Porter's (1980) generic strategies. Cronbach's alphas are those reported in Section 4.2.	

Table 5
Conditional (Simple-Slope) Effects of Service Diversity on Service Quality at Representative Levels of Differentiation Strategy

Level of Differentiation Strategy	DIFF value	b	SE	t	p
−1 SD	2.00	.344	.107	3.21	.0015
Mean	3.05	.242	.091	2.65	.0087
+ 1 SD	4.10	.140	.090	1.56	.1200

Note: b = unstandardised conditional effect of service diversity on service quality; SE = HC3 robust standard error; df = 192.

The effect of service diversity on service quality is positive and significant at low (b = .344, p = .0015) and average (b = .242, p = .009) levels of differentiation strategy, but is not statistically distinguishable from zero at high levels of differentiation strategy (b = .140, p = .120). Because the pick-a-point approach illustrated in Table 5 and Fig. 2 characterises only three values of the moderator, the Johnson–Neyman technique was additionally applied to identify the complete region of differentiation strategy over which the conditional effect of service diversity is statistically significant (Hayes, 2018; Spiller et al., 2013). Figure 3 plots the conditional effect of service diversity across the full observed range of differentiation strategy, together with its 95% confidence band.

The Johnson–Neyman analysis identifies a single boundary within the observed range of differentiation strategy (1 to 5), located at a differentiation-strategy value of 3.75. Below this value, the conditional effect of service diversity on service quality is statistically significant at $p < .05$; above it, the confidence band for the conditional effect includes zero and the effect cannot be distinguished from zero. In the present sample, 155 business units (76.0%) fall below this threshold and 49 (24.0%) at or above it. Substantively, this indicates that for the large majority of the business units sampled here, broadening the range of services offered remains an effective, if strategy-contingent, route to enhancing perceived service quality; for the minority of business units with the most intensive differentiation postures, however, further service diversification is not associated with any additional, statistically detectable improvement in service quality.

6. Discussion

This study set out to test whether service diversity enhances service quality, whether differentiation strategy is independently associated with service quality, and – most centrally – whether differentiation strategy conditions the relationship between the two. All three hypotheses received empirical support, and the pattern of results carries clear theoretical implications for how service diversity and differentiation strategy should be understood in combination, rather than in isolation.

The support for H1 – a significant, positive association between service diversity and service quality – is consistent with the customer-matching logic and resource-based reasoning developed in Section 2.2: a

broader service portfolio appears, on average, to help business units meet more varied customer needs, in line with recent evidence that service diversification is associated with enhanced performance outcomes when firms possess the resources to support it (Adem et al., 2026). The support for H2 – a significant, positive association between differentiation strategy and service quality – is likewise consistent with the view that business units competing on differentiation invest disproportionately in the very capabilities, systems, and staff behaviours that determine perceived quality (Baird et al., 2024; Navaia et al., 2023).

Notably, business-unit size was not a significant predictor of service quality once competitive intensity and cost-leadership strategy were controlled for. This null result for a conventional structural control variable echoes recent archival evidence from this journal that expected relationships between organisational size and disclosure-related outcomes do not always materialise once governance and contextual factors are taken into account (Gomes et al., 2025), reinforcing the broader point that structural characteristics such as size are not a substitute for the strategic and operational contingencies examined here.

The central finding, however, concerns H3. The significant, negative interaction between service diversity and differentiation strategy indicates that differentiation strategy functions as a boundary condition, rather than a uniform amplifier, of the diversity–quality relationship – consistent with the resource-dilution perspective discussed in Section 2.4 rather than the complementarity perspective. Substantively, business units that already compete intensively through differentiation appear to derive comparatively little additional quality benefit from broadening their service range further; their capacity for perceived-quality improvement instead appears to have already been substantially realised through the deep, relationship-specific customisation that differentiation itself entails. For business units with a lower-differentiation, more standardised competitive posture, by contrast, broadening the service range remains a meaningfully effective route to higher perceived quality – plausibly because it is one of comparatively few levers available to such units for signalling superior value to customers.

This pattern is consistent with, and extends, the broader contingency-theoretic caution against assuming that resource-intensive strategic levers combine additively (Chenhall, 2003; Otley, 2016), and with too-much-of-a-good-thing reasoning showing that the marginal returns to one generally beneficial organisational choice frequently decline once a related, resource-intensive commitment is already being pursued at a high level (Ma & Tang, 2023; Pierce & Aguinis, 2013). It also qualifies the more general service-diversification literature (Adem et al., 2026; Arte & Larimo, 2022): where that literature emphasises firm resources as the condition under which diversification pays off, the present findings suggest that a firm's prevailing competitive strategy – specifically, the intensity of its differentiation posture – is itself a resource-absorbing commitment capable of diluting the marginal benefit of diversification, even holding firm size and competitive intensity constant.

It is important to be precise about what the data can and cannot support. The research design is cross-sectional and correlational: all constructs were measured through a single survey administered at one

point in time, and the associations reported here – including the moderating effect of differentiation strategy – describe statistical relationships rather than established causal mechanisms. In particular, it remains possible that unobserved organisational characteristics jointly influence differentiation strategy, service diversity, and service quality, or that the direction of influence between differentiation strategy and service diversity itself runs, in part, in the reverse direction (for example, business units that have already diversified extensively may subsequently find it harder to sustain an intensive differentiation posture). The findings are therefore best interpreted as identifying a robust, theoretically grounded, and practically informative association – differentiation strategy as a boundary condition on the diversity–quality relationship – rather than as establishing a causal claim about the effect of increasing service diversity or differentiation strategy on service quality.

More broadly, this focus on the operational and strategic contingencies that shape service-related outcomes is consistent with recent calls to broaden the scope of accounting and auditing research beyond core financial reporting and assurance concerns toward the organisational and strategic factors that condition performance and disclosure outcomes (Di Vaio, 2025).

7. Theoretical, Empirical, and Managerial Contributions

7.1 Theoretical Contribution

The study extends contingency theory's application to service management by demonstrating an interaction form of fit in which two competitive levers – service diversity and differentiation strategy – that are often assumed, implicitly or explicitly, to be complementary routes to superior customer-perceived value are shown, once jointly and interactively modelled, to be partial substitutes rather than complements. In doing so, it extends the recent service-diversification literature (Adem et al., 2026) from firm performance broadly, and from a manufacturing-to-services transition context, to service quality specifically and to a purely non-manufacturing setting, and it extends the differentiation-strategy literature (Baird et al., 2024; Navaia et al., 2023) by treating differentiation strategy as an explicit statistical contingency on another strategic lever, rather than as a background classification variable or a stand-alone predictor.

7.2 Empirical Contribution

Methodologically, the study demonstrates the value of combining hierarchical moderated regression, heteroscedasticity-robust standard errors, and Johnson–Neyman floodlight analysis in survey-based strategic management and service-quality research, where pick-a-point simple-slope tests at ± 1 standard deviation remain the norm. The boundary condition identified here – a differentiation-strategy value of approximately 3.75 on a five-point scale, below which roughly three-quarters of the sampled business units fall – would not have been visible from the ± 1 SD probing alone, since the + 1 SD point (DIFF = 4.10) understates how much of the observed range of differentiation strategy actually lies within the region of significance. This illustrates the incremental empirical value of floodlight analysis for

characterising boundary conditions precisely, rather than approximately, in moderated regression designs of the kind common in this literature.

7.3 Managerial Contribution

For managers of business units with low-to-moderate differentiation postures – the large majority of the sample analysed here – the findings offer evidence-based support for broadening the service portfolio as an effective route to enhancing perceived service quality. For managers of business units that already compete intensively on differentiation, however, the findings suggest that resources may be more productively directed toward deepening and safeguarding the quality of the existing, narrower service offering – for example, through further investment in staff training, customer relationship management, or quality-control systems – than toward further service-line expansion, which is not associated with additional, statistically detectable quality gains once a business unit's differentiation strategy is already highly developed. More generally, the results caution against treating service diversification as a uniformly beneficial strategy independent of a business unit's prevailing competitive posture, and instead point to differentiation strategy as a specific, measurable factor that managers and their advisors can use to judge whether further diversification is likely to be a productive use of scarce organisational resources.

8. Limitations and Future Research

Several limitations of this study should be acknowledged, and each points to a corresponding direction for future research.

First, and most importantly, the cross-sectional design precludes causal inference. Although the theoretical arguments developed in Section 2 imply a particular direction of influence – from service diversity and differentiation strategy to service quality – the data cannot rule out reverse or reciprocal influence, nor can they rule out omitted-variable confounding. Longitudinal or panel designs that track business units' service portfolios, competitive strategies, and quality outcomes over time would allow the direction and stability of the observed associations, and of the identified boundary condition, to be established with greater confidence.

Second, all constructs were measured through self-reported perceptual items completed by a single respondent within each business unit at a single point in time. Although the confirmatory factor analysis reported in Section 5.2 supported the convergent and (with one narrow exception) discriminant validity of the five constructs, Harman's single-factor test indicated that a single unrotated factor accounted for 54.5% of the variance among the study's substantive items, a proportion that exceeds the conventional 50% threshold and that therefore does not allow common method variance to be ruled out entirely as a contributing explanation for some portion of the observed associations, notwithstanding the procedural safeguards embedded in the broader project's data-collection design (Podsakoff et al., 2003). Future research would benefit from multi-respondent designs (for example, combining manager-reported

strategy and diversity measures with customer-reported quality measures) or from triangulation with objective, archival indicators.

Third, service diversity and differentiation strategy were both measured using perceptual Likert-type items rather than objective or archival indicators, such as the number of distinct service lines offered or a revenue-based diversification index. While such perceptual measures are well established in the contingency-based strategic management literature (Chenhall, 2003), future research could usefully triangulate the present findings using archival measures of service-line breadth and strategic positioning.

Fourth, the sample, while reasonably sized (N = 204) and drawn from a broad cross-section of non-manufacturing industries, is confined to business units operating in the United Kingdom; the extent to which the identified boundary condition generalises to other national, institutional, or regulatory contexts remains untested and merits further examination.

Finally, this study modelled a single moderator of the service diversity–service quality relationship. Future research could usefully examine additional boundary conditions – such as organisational size, environmental dynamism, or the degree of digitalisation of service delivery – or investigate the organisational mechanisms (for example, the allocation of managerial attention, or the extent of service standardisation) that may explain why an intensive differentiation strategy attenuates, rather than amplifies, the returns to service diversification.

9. Conclusions

This study examined when, rather than simply whether, service diversity enhances service quality, by testing differentiation strategy as a theoretically grounded moderator of that relationship among 204 UK non-manufacturing business units. Consistent with contingency theory, both service diversity and differentiation strategy were positively associated with service quality, but differentiation strategy significantly attenuated the diversity–quality relationship: service diversity was a significant, positive predictor of service quality among business units with low-to-moderate differentiation, but its effect could no longer be distinguished from zero once differentiation strategy exceeded a threshold identified through Johnson–Neyman analysis – a threshold below which roughly three-quarters of the sampled business units fall. These findings identify differentiation strategy as a strategic boundary condition, rather than a uniform enabler, of the service diversity–service quality relationship, with direct implications for how business units allocate finite managerial and organisational resources between broadening their service offering and deepening their differentiation-based capabilities.

Declarations

Author Contribution

The author was solely responsible for the conception and design of the study, data collection, analysis and interpretation, and the drafting and revision of the manuscript. The author read and approved the final manuscript.

Data Availability

The survey data analysed during the current study are not publicly available because confidentiality was promised to the participating business units at the time of data collection. Anonymised data are available from the corresponding author on reasonable request.

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Figures

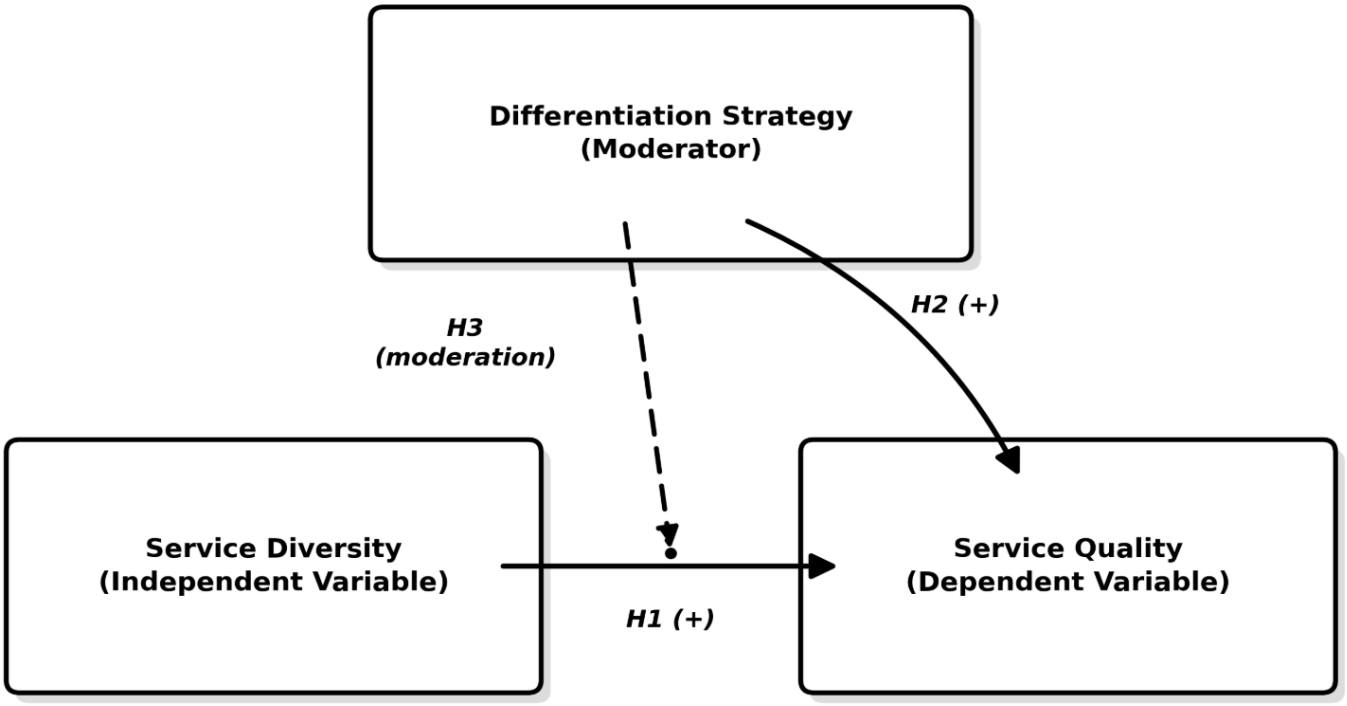


Figure 1

Conceptual research model: service diversity, service quality, and the moderating role of differentiation strategy

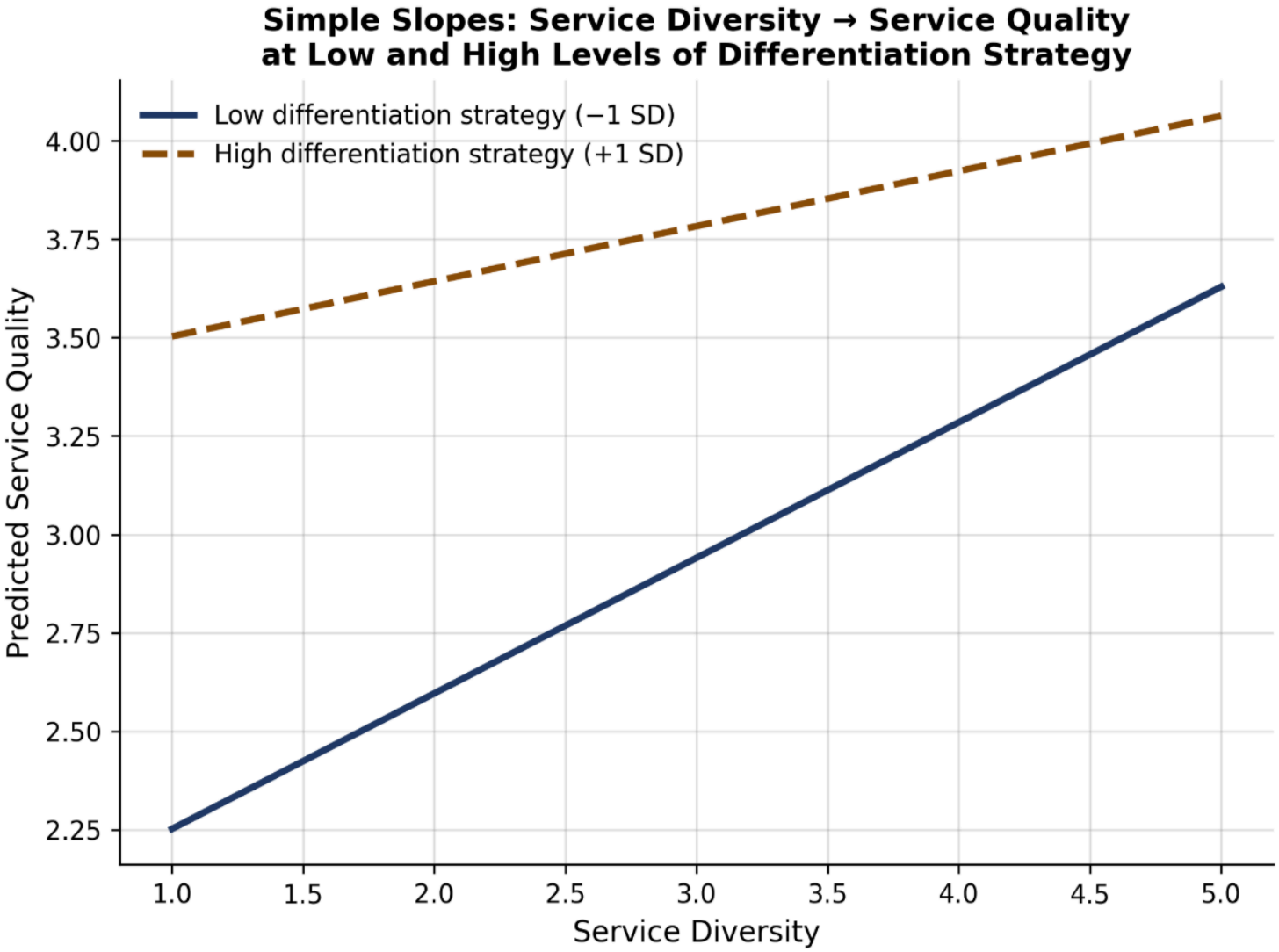


Figure 2

Simple slopes of service diversity on service quality at low (−1 SD) and high (+1 SD) levels of differentiation strategy

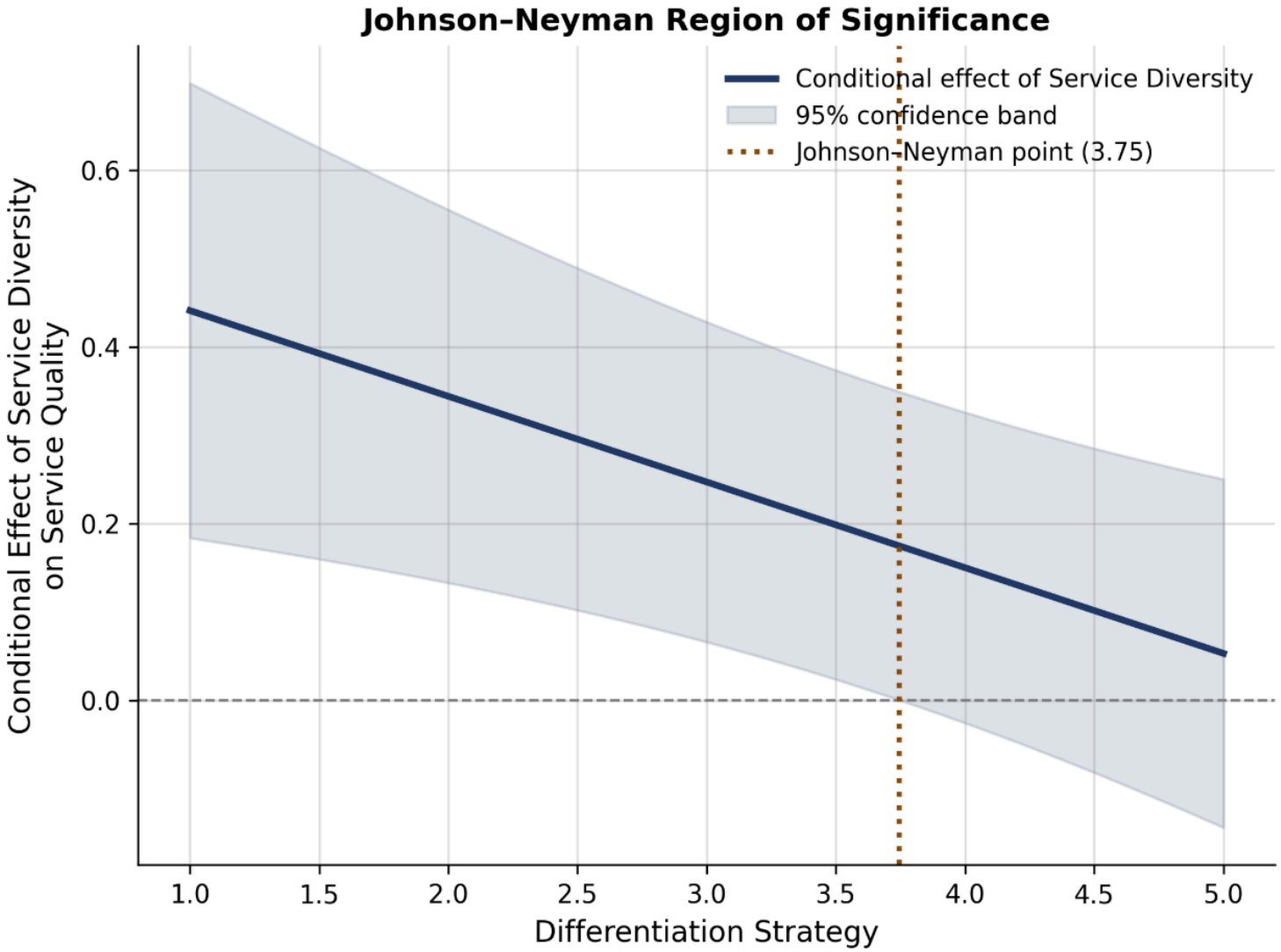


Figure 3

Johnson–Neyman plot of the conditional effect of service diversity on service quality across the observed range of differentiation strategy

Supplementary Files

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- AppendixA.docx