Multimarket Contact Posture and Non-Price Competition: A Firm-Level Test of Forbearance Parameters

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ABSTRACT

Multimarket contact (MMC) research is driven by the mutual forbearance hypothesis, which holds that firms confronting one another in multiple markets tacitly collude. Existing work emphasises price-related dependent variables however, begging the question of whether forbearance effects are pervasive across competitive dimensions, or are limited to price competition and coupled with amplified competitive intensity along such non-price dimensions as marketing and customer service. Interestingly, compelling rationales exist for both *pervasive forbearance* and *partial forbearance* hypotheses. This study theoretically explores and empirically tests the competing hypotheses in the United States (US) passenger airline industry. To this end, I introduce and operationalise a firm-level MMC construct designated *Multimarket Contact Posture*. Positive relationships are found between Multimarket Contact Posture and competitive intensity in both marketing and customer service, indicating support for the partial forbearance hypothesis.

Key Words: Strategic management; competitive dynamics; inter-firm rivalry; multimarket contact

INTRODUCTION

Multimarket contact (MMC) research examines how inter-firm relationships outside a focal market affect inter-firm behaviour within the market. Multimarket theory concentrates on the mutual forbearance hypothesis (Edwards, 1955), which holds that MMC engenders sufficient inter-firm familiarity and retaliatory potential to dampen focal market rivalry. Firms confronting one another across multiple markets recognise that a competitive attack can draw a retaliatory response not only in the attacked market, but at other points of

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contact as well (Edwards, 1955). Multimarket contact thereby magnifies the expected retaliatory costs of initiating an attack, providing firms with a strong incentive to withhold first-mover competitive actions (Karnani and Wernerfelt, 1985). As a result, firms recognising their extended interdependence will tend to 'mutually forbear' (Edwards, 1955), or tacitly collude in the pursuit of rivalry reduction. Numerous empirical studies lend support to the mutual forbearance hypothesis, finding evidence of muted rivalry in higher prices (Alexander, 1985; Busse, 2000; Evans and Kessides, 1994; Fu, 2003; Jans and Rosenbaum, 1997; Kang et al., 2010; Singal, 1996), higher margins (Coccorese and Pellecchia, 2009; Feinberg, 1985; Gimeno, 1999; Gimeno and Woo, 1996, 1999; Hughes and Oughton, 1993; Scott, 1982), and lower entry and exit rates (Baum and Korn, 1996; Boeker et al., 1997; Fuentelsaz and Gomez, 2006; Ghemawat and Thomas, 2008). Existing research, therefore, suggests that firms derive certain market-specific benefits from meeting focal market rivals in multiple other markets. From this perspective, a high level of MMC has salutorious effects on firm–market prices, margins and entry rates.

The compelling body of research on firm–market-level forbearance outcomes, however, does not broach the issue of *firm-level* implications of multimarket contact. Neither existing theory nor empirical evidence explicitly supports any relationship between MMC and firm-wide behaviour or outcomes. Absent demonstrated links to the firm level, the strategic ramifications of multimarket contact remain unknown. Is MMC a peripheral consideration at the firm level, drowned out by more powerful concerns and of little consequence to the way a firm behaves and performs? Or do forbearance dynamics rooted in a firm's individual markets percolate upward one level of analysis, shaping organisation-wide actions and outcomes? If multimarket contact does find expression at the firm level, what is the nature of its influence? Are forbearance effects pervasive across competitive dimensions, or does multimarket contact influence non-price competition differently from price competition?

The purpose of this study is to more firmly establish the nature and significance of MMC's strategic impact. To this end, I employ two fresh investigative tactics. First, I introduce and operationalise a firm-level construct capturing the overall extent to which a firm experiences multimarket contact. I term the new construct *Multimarket Contact Posture (MMCP)*. This firm-level MMC construct is theoretically justified as firm-level managerial processes are deeply implicated in the prevailing firm–market-level construal of MMC. Measurement of firm-level MMC is empirically valuable, as well, because it facilitates examination of firm-level strategic behaviour.

Second, I utilise a competing hypotheses framework that highlights and helps resolve opposing perspectives on the manner in which multimarket contact may influence competitive intensity. The traditional emphasis on prices and margins as dependent variables in MMC research underscores the need to explore how far the bounds of mutual forbearance extend. Firms compete along non-price as well as price dimensions, but it remains unclear precisely how forbearance pertains to the former. One might reasonably hypothesise the relationship between multimarket contact and non-price competition to be positive or, conversely, negative. I develop these competing hypotheses for the purposes of theoretical

juxtaposition and empirical testing. On the one hand, a body of theory can be mustered in support of a *pervasive forbearance* hypothesis that a negative relationship between multi-market contact and non-price competition mirrors the negative relationship established between MMC and price competition. On the other hand, theoretical support can be enlisted for a *partial forbearance* hypothesis that multimarket contact amplifies non-price competition even while it dampens the intensity of price competition. If MMCP relates positively to such non-price competitive dimensions as advertising, promotions and product/service quality then the mutual forbearance hypothesis must be reconceptualised as permeating but a limited rivalrous space. I test competing pervasive and partial forbearance hypotheses in the US passenger airline industry, where existing MMC research most compellingly demonstrates forbearance in pricing.

MULTIMARKET CONTACT POSTURE: A NEW FIRM-LEVEL CONSTRUCT

The multimarket contact construct has been conceptualised and measured at three distinct levels of analysis (Gimeno and Jeong, 2001). Empirical studies at all three levels generally support Edward's (1955) mutual forbearance hypothesis that multimarket contact dampens inter-firm rivalry. Early work conducted by economists treated MMC as a market attribute. Studies in this tradition measure the construct as the overall degree of multimarket contact among firms serving a focal market. Feinberg (1985), for example, finds evidence of mutual forbearance in the positive relationship between industry-wide measures of MMC and industry-wide price–cost margins. Similarly, Evans and Kessides (1994) and Singal (1996) conclude that the average number of external contacts between airlines in a given route positively affects fare levels in that route, while Jans and Rosenbaum (1997) show that geographic market MMC levels positively influence cement prices. Management scholars, on the other hand, typically regard multimarket contact as a characteristic of the relationship between firms (Gimeno and Jeong, 2001). Within the management literature, MMC has been measured at both the dyadic and the firm–market levels of analysis. The dyadic approach measures the overall level of multimarket contact between two firms across all of the markets in which the two meet. Baum and Korn (1999) employ the dyadic approach, finding that the MMC between two airlines across all of the markets in which they meet has an inverted 'U-shaped' relationship with market entry and exit. Most empirical studies of MMC are conducted at the firm–market level of analysis, meaning they measure the level of cross-market contact that a firm has with incumbents in a focal market. In the airline industry, for example, Gimeno and Woo (1996, 1999) find that a carrier's multi-market contact with focal route rivals tends to increase the prices charged by that carrier on that route; Prince and Simon (2009) find that airline-in-route MMC levels relate negatively with on-time performance; and Baum and Korn (1996) find that high airline-in-route MMC levels result in tacitly collusive market entry and exit patterns. In the healthcare industry, Boeker et al. (1997) find a negative relationship between the extent to which a hospital meets focal market competitors in other markets and that hospital's likelihood of exiting the focal market. Like the market and dyadic level studies, therefore, work at the firm-market level generally supports the mutual forbearance hypothesis.

None of the existing MMC measures reflects the extent to which a firm confronts multi-market competitors across the breadth of its corporate portfolio. In other words, there is no firm-level measure of multimarket contact. Conceptualising and measuring MMC at the firm level has theoretical and empirical value, however, because the prevailing firm-market level construal does not relate MMC to the broad range of competitive activities that it may in fact affect. Firms undertake competitive actions specific to individual markets, and they undertake competitive actions common to the entire firm. For example, a firm may cut prices or run promotions in a single product or geographic market, or it may cut prices or run promotions across all of its product or geographic markets. The firm–market-level approach, which dominates existing MMC studies, is designed to capture relationships between MMC and the former, market-specific competitive activities. To capture possible relationships between multimarket contact and the latter, firm-wide competitive activities, a measure reflecting a firm's overall multimarket contact posture (MMCP) must be developed. I explore the details of MMCP measurement in the methods section; I propose calculating a revenue-weighted average of the firm's MMC in its various markets, then controlling for the aggregate number of markets served by the firm. The need for such a measure exists both theoretically and empirically.

The theoretical case for a firm-level construct and measure titled 'multimarket contact posture' derives from the way in which MMC affects managerial decision making. Firm-level vision and decision making are critical – if implicit – components in multimarket theory, which posits that a firm's behaviour in market *a* is affected by competitive contacts in markets *b*, *c*, *d*, and so forth. The mutual forbearance hypothesis assumes a central decision-making body possessing the access and authority to integrate information from multiple corporate units and to coordinate actions across those units. The choice between forbearing and not forbearing resides at the firm level. The mutual forbearance hypothesis has *firms* recognising that MMC magnifies rivals' retaliatory potential, *firms* understanding the incentive to withhold first-mover competitive actions and *firms* tacitly colluding in pursuit of rivalry reduction (Karnani and Wernerfelt, 1985). Thus, firm-level decision processes mediate the relationship between the traditional firm–market-level MMC construct and firm–market-level outcomes. This is significant, because the salience of multimarket contact to corporate decision-makers is likely to vary according not only to the level of MMC in a given firm market, but also to how broadly MMC permeates a firm's numerous markets. In other words, corporate decision makers likely have a feel for a firm's overall multimarket contact posture, and this posture likely affects the influence that multimarket contact considerations have on strategic decision making. As an independent variable, in sum, MMCP is theoretically more tightly linked than is MMC to the corporate locus of decision making.

The empirical case for developing a firm-level construct and measure titled 'multimarket contact posture' centres on the wealth of dependent variables that such a measure has the potential to tap. As discussed above, firms undertake competitive actions common to the entire firm as well as actions specific to individual markets, yet existing MMC research fails to capture firm-level outcomes. The reason for this gap is that firm-level outcomes

cannot be related to the prevailing firm–market-level independent variable. The firm-level measure MMCP will enable empirical testing of relationships with a wide range of competitive activities – such as customer service enhancements and marketing initiatives – as well as profitability metrics reported at the firm level.

PERVASIVE VERSUS PARTIAL FORBEARANCE EFFECTS OF MMCP

Even at the firm–market and dyadic levels of analysis, where MMC research is concentrated, the breadth and boundaries of forbearance effects remain uncertain. Initially focused during the 1970s and 1980s on *whether* MMC induces tacit collusion, research has only in the past decade begun to shift toward examination of *how* firms engaged in multimarket contact collude. Prices and margins – readily accessible standbys of collusion studies in oligopoly contexts – represent the most studied outcomes in the MMC literature. Forbearance effects along non-price competitive dimensions have begun to receive attention in recent years. Scholars have found evidence that MMC dampens rivalry in focal market entry and exit (Baum and Korn, 1999; Boeker et al., 1997; Fuentelsaz and Gomez, 2006; Ghemawat and Thomas, 2008; Korn and Baum, 1999), advertising (Shankar, 1999), innovation (Greve and Mitsuhashi, 2004), sales growth (Greve, 2008) and customer service (Prince and Simon, 2009). Still, the nature of relationships between MMC and various types of non-price competition is far from settled. In this section, I approach the issue at the firm level. I introduce competing rationales and testable hypotheses addressing relationships between MMCP and non-price competition. One perspective anticipates widespread forbearance effects in service quality and marketing similar to those associated with price competition, while the counterview anticipates MMCP amplifying rather than dampening non-price competition. Implications for firm financial performance are hypothesised.

Parallel Price and Non-Price Effects of MMCP: Pervasive Forbearance

A body of theory anticipates MMCP engendering *pervasive forbearance*, defined here as a negative relationship between MMCP and competitive intensity along both non-price and price dimensions. The negative relationship between multimarket contact and price competition is theoretically and empirically established in the existing literature; therefore, the ensuing discussion of pervasive forbearance focuses on rationales for a negative relationship between MMCP and non-price competition. Dampened rivalry in advertising or product/service quality may derive from either or both of two distinct sets of processes. Multimarket contact may dampen non-price competitive intensity directly via tacit collusion, or indirectly by dampening price competition which in turn decreases problemistic search and competitive solutions. Figure 1 represents both direct and mediated paths from MMCP to non-price competition.

The direct path from MMCP to lower levels of non-price competition via tacit collusion is theoretically identical to that linking multimarket contact to lower levels of price competition. Firms confronting rivals across many markets risk inducing retaliation along several fronts should they pursue promotional campaigns or quality improvement initiatives. A promotional campaign in one market, for instance, may be met by rivals with

Figure 1: Negative Relationship between MMCP and Non-Price Competition
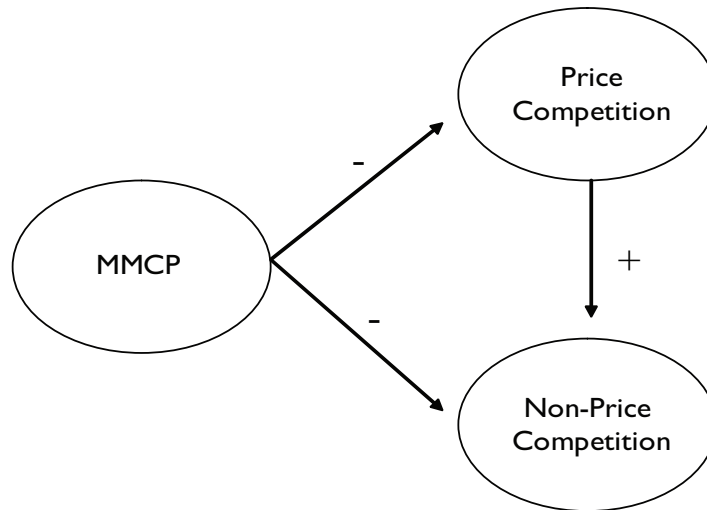
counter-campaigns in numerous markets. The threat of retaliation decreases the expected value of such initiatives, therefore dampening the motivation to pursue them. Inter-firm familiarity resulting from cross-market contact promotes the mutual recognition of interde-pendence upon which collusion depends. This view, then, interprets the mutual forbearance hypothesis as broadly applicable to non-price as well as to price competition. Empirical research in oligopoly contexts suggests that the boundaries of muted rivalry can indeed be broad. High concentration – a well-established antecedent to collusion in pricing – has been linked as well to decreased service quality in the airline industry (Mazzeo, 2003), decreased product offerings in the banking industry (Heggestad and Mingo, 1976) and decreased product quality when the fixed costs of quality improvement display economies of scale (Banker et al., 1998). The effects of multimarket contact posture may be similarly broad.

An alternate, distinct set of processes may link MMCP indirectly to dampened non-price rivalry. According to this view, price competition mediates outcomes in non-price competition. Tacit collusion in pricing shields the firm from market forces, artificially propping up margins. Beneath the price forbearance shield, firms experience less pressing incentives to allocate resources to advertising, promotions or product/service quality. This is because firm search tends to be problem oriented or failure induced (Nelson and Winter, 1982: 173; Tushman and Romanelli, 1985), meaning that it is stimulated by a problem and directed toward finding a solution to the problem (Cyert and March, 1963: 169; March and Simon, 1958: 194). Forbearance pricing and margins reduce firm perception of performance problems, thus curtailing search for solutions in advertising or quality initiatives (Will, 2011). Muted rivalry along non-price dimensions, according to this view, does not result directly from collusion, but rather indirectly from contextual munificence associated with forbearance in pricing.

Direct and indirect forbearance effects along non-price dimensions are not mutually exclusive; either or both may operate in a given context. Singly or in conjunction with one another, rivalry-muting processes induced by MMCP may reduce the extent to which a firm allocates resources to promotions and sales, product quality or customer service functions. Muted rivalry resulting from MMCP may reduce, as well, the quality of products and services a firm delivers to its customers. Accordingly:

H_{1a}: Multimarket Contact Posture will be negatively related to firm allocation of resources to promotion and sales.

H_{2a}: Multimarket Contact Posture will be negatively related to firm allocation of resources to customer service.

H_{3a}: Multimarket Contact Posture will be negatively related to customer service quality.

Divergent Price and Non-Price Effects of MMCP: Partial Forbearance
In contrast to the theoretical arguments supporting a pervasive negative relationship between MMCP and both price and non-price competitive intensity, an alternate body of logic anticipates MMCP engendering *partial forbearance*, defined here as a negative relationship between MMCP and price competition accompanied by a positive relationship between MMCP and non-price competition. Oligopoly studies find inverse relationships between price competition and competition in arenas such as advertising, and research and development (R&D) (Symeonidis, 2000a, 2000b), suggesting that similar relationships may hold in multimarket contact scenarios. Three lines of reasoning can be invoked to explain why MMCP may increase non-price competition even while decreasing price competition. First, the relatively low observability of non-price competition may undermine tacit collusion; second, organisational slack accumulated as a result of forbearance in price competition may fuel non-price competitive activity; and third, multimarket competitors may pursue non-price competition out of recognition that it uniquely aligns group and individual interests.

The first line of reasoning supporting the partial forbearance hypothesis focuses on the critical role played by observability in establishing and maintaining tacit collusion. In order for rivals to tacitly collude, they must be able to recognise and apprehend one another's competitive intent. Some competitive intentions, however, are more observable – and thus more readily recognised and apprehended – than are others. On the one hand, firm pricing decisions have immediate, public, standardised outcomes. On the other hand, firm resource allocation decisions in the realms of marketing and, especially, product/service quality generate less immediate, public and standard outcomes. Marketing and quality outcomes are therefore more difficult to observe and interpret, rendering firm intentions more difficult for rivals to divine. Thus, price coordination and collusion may be easier to establish and maintain than non-price (Symeonidis, 2000b). This line of thought informs Greve's (2008) reference to the importance of observability to the success of mutual

forbearance in multimarket contexts. In the absence of observability, inter-firm contact in multiple markets fuels rather than mutes intensity of rivalry. These considerations support a direct, positive relationship between MMCP and non-price competition, as represented in Figure 2.

Figure 2: Positive Relationship between MMCP and Non-Price Competition
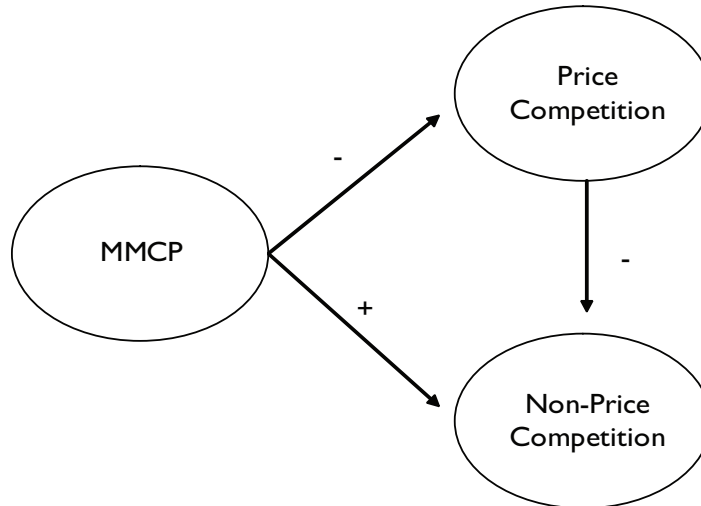
The second line of reasoning supporting the partial forbearance hypothesis holds that organisational slack accumulated as a result of forbearance in price competition may fuel non-price competitive activity. Price forbearance confers excess resources upon the firm. Therefore, firms high in multimarket contact posture are able to allocate more resources to marketing and product/service quality by virtue of the fact that they have more resources available for allocation. According to this logic, price forbearance mediates the relationship between MMCP and non-price outcomes.

The third line of reasoning supporting the partial forbearance hypothesis maintains that multimarket competitors may pursue non-price competition out of recognition that it uniquely aligns group and individual interests. Increased non-price competition in high MMCP contexts may represent a rational group effort to grow overall market size. This outcome is uniquely possible along non-price dimensions because price and non-price competition have fundamentally different implications for the alignment of individual and group interests. Tacit collusion emerges when 'prisoners' dilemmas' are mitigated by a combination of inter-firm communication and the mutual capacity to punish defection. Price competition represents a prisoners' dilemma. While a unilateral price cut may serve a firm's short-term interests by increasing market share, revenues and profits, the move undermines rivals' interests. The dilemma is that while each firm thereby has an incentive to cut prices, all will be worse off if all cut prices. Familiarity and deterrence associated

with multimarket contact circumvent the dilemma by aligning group and individual interests, assuring each firm that a unilateral price cut will be punished. What hurts the group hurts the first-mover even more. Individual and group interests are less clearly opposed in non-price competition, however. Unilateral improvements in actual or perceived quality may steal some market share from rivals, but it may also grow market size without undermining rivals' margins. More importantly, if all rivals pursue advertising campaigns and/ or product/service quality initiatives, all stand to gain by increasing overall market size and by differentiating in ways that justify sustained high prices and margins. Non-price competition, therefore, does not necessarily represent a prisoners' dilemma. A positive relationship between MMCP and non-price competition may derive not so much from difficulties in communicating, interpreting and enforcing collusion, or from excess resources, as from rivals' mutual recognition that they stand to gain more than they lose by rigorous multilateral attention to advertising and quality.

The three strains of thought supporting a positive relationship between MMCP and non-price competition may operate singly or in tandem. The arguments considered suggest that MMCP heightens the allocation of resources to marketing and product/service quality – whether directly, mediated through price forbearance or both – and enhances the quality of products and services actually delivered. Accordingly:

H_{1b}: Multimarket Contact Posture will be positively related to firm allocation of resources to promotion and sales.

H_{2b}: Multimarket Contact Posture will be positively related to firm allocation of resources to customer service.

H_{3b}: Multimarket Contact Posture will be positively related to customer service quality.

METHODS

Sample

The US passenger airline industry was a particularly attractive setting for my empirical analysis of firm-level MMCP, given the prominence of airline studies in the MMC literature. The mutual forbearance hypothesis has met with repeated support at the firm–market level in airline studies. Researchers have found that multimarket contact generates higher prices (Evans and Kessides, 1994), increased revenue per passenger seat mile (Gimeno, 1999; Gimeno and Woo, 1996), wider price–cost margins (Gimeno and Woo, 1999; Singal, 1996) and lower entry and exit rates (Baum and Korn, 1996, 1999). The numerous indications of carriers' firm–market-level forbearance make the airline industry an ideal context for examining whether tacit collusion translates to the firm level as well. Additionally, the demonstrated presence of price forbearance in the industry is appropriate for my purpose of determining whether non-price effects accompany price effects of multimarket contact. The questions motivating this article build on and extend existing MMC work, so the heavily studied airline industry represents an ideal context for my analysis.

I collected flight, financial and customer service data for each of the seventeen US passenger airlines that accounted for at least 1 per cent market share in 2003. For these target airlines, I analysed nonstop and one-stop flights conducted in July 2003 to and from the 68 airports in the continental United States categorised by the Department of Transportation (DOT) as either large or medium-sized. It was necessary to calculate firm-market level MMC in order to obtain values for the firm-level dependent variable MMCP, because the former is an input in the equation yielding the latter. Calculation of MMC entails defining market parameters. Consistent with previous multimarket contact studies in the airline industry (Gimeno and Woo, 1996, 1999), I defined a market as a city pair. Airports were considered in the same city if the distance separating them was 30 miles or less. The following airports were treated as occupying the same city: Midway and O'Hare (Chicago); Hobby and Intercontinental (Houston); Love Field and Dallas/Fort Worth International (Dallas); Dulles and Reagan (Washington DC); San Francisco International and Metro Oakland International (San Francisco); Burbank and Los Angeles International (Los Angeles); Fort Lauderdale and Miami International (Miami); and La Guardia, JFK and Newark (New York). The 68 airports in 59 cities generate 1,740 potential distinct city-pair markets, and the 17 target airlines actually flew nonstop and/or one-stop flights in 1,704 city-pair markets.

Data were obtained from US Department of Transportation databases. Nonstop flights were determined from the database 'On-Time Performance', while one-stop flights were determined from the database 'DB1B Market'. For the purposes of coding a carrier's presence in or absence from a particular market, I utilised two data sets: one consisting of 398,833 flights, or all nonstops flown in July 2003; and a second consisting of 1,428,861 flights, which was a 10 per cent random sampling of all one-stops flown in the third quarter of 2003. Balance sheet and income statement data were collected from the 'Schedule B-1' and 'Schedule P-12' components of the 'Form 41 Financial Schedule'. Service quality data were obtained from the 'Air Travel Consumer Report'.

Measures
Dependent Variables
I used two variables to measure firm allocation of resources to promotion and sales. 'Promotion and Sales Expenses' describes a carrier's allocation of resources to promotion and sales relative to its allocation of resources to other functions. The variable was calculated by dividing each carrier's 2003 promotion and sales expenses by its total operating expenses. The Bureau of Transportation Statistics (BTS) reports as promotion and sales expenses those costs 'incurred in promoting the use of air transportation generally and creating a public preference for the services of particular air carriers' (Bureau of Transportation Statistics, n.d.). The BTS includes in this category the functions of selling, advertising, publicity and developing flight schedules for publication. 'Promotion and Sales Share' describes a carrier's resource commitment to promotion and sales relative to rivals' resource commitments to the same functions. The variable's numerator was calculated by dividing the focal carrier's promotion and sales expenses by the total promotion and sales expenses of all

seventeen firms. The variable's denominator, intended to adjust the variable to market share differentials between firms, was calculated by dividing the focal carrier's operating revenues by the total operating revenues of all seventeen firms. 'Promotion and Sales Share', therefore, is a measure of a firm's promotion and sales expenses market share relative to its revenue market share.

I used two variables to measure firm allocation of resources to customer service. 'Passenger Service Expenses' describes a carrier's allocation of resources to passenger service relative to its allocation of resources to other functions. The variable was calculated by dividing each carrier's 2003 passenger service expenses by its total operating expenses. The BTS defines passenger service expenses as the costs of 'activities contributing to the comfort, safety, and convenience of passengers while in flight or when flights are interrupted' (Bureau of Transportation Statistics, n.d.). The category includes flight attendant salaries and passenger food expenses. 'Passenger Service Share' describes a carrier's resource commitment to passenger service relative to rivals' resource commitments to the same function. The variable's numerator was calculated by dividing the focal carrier's passenger service expenses by the total passenger service expenses of all seventeen firms. The variable's denominator, intended to adjust the variable to market share differentials between firms, was calculated by dividing the focal carrier's operating revenues by the total operating revenues of all seventeen firms. Thus, 'Passenger Service Share' is a measure of a firm's passenger service expenses market share relative to its revenue market share.

I used three variables to measure customer service quality. The variables 'Mishandled Baggage' and 'Consumer Complaints' reflect rates of reports and complaints filed by passengers with the US Department of Transportation in 2003. Airline passengers may file DOT reports and complaints against carriers by telephone, by e-mail and in person. 'Mishandled Baggage' indicates the number of reports lodged against a carrier, per 1,000 passengers, concerning lost, damaged, delayed or pilfered baggage. I used the natural logarithm of this variable to correct for adverse skew. 'Consumer Complaints' is a measure of the number of complaints lodged against an airline, per 100,000 passengers. The DOT recognises a wide range of complaint categories encompassing customer service broadly: complaints about rude or unhelpful employees; inadequate meals or cabin service; treatment of delayed passengers; cancellations; delays; over-sales; airline mistakes in reservations and ticketing; problems making reservations or obtaining tickets due to busy phones, waiting in line or delays in mailing tickets; overcharges; incorrect or incomplete information about fares or fare conditions and availability; problems in obtaining refunds for unused or lost tickets or for fare adjustments; claims for lost, damaged or delayed baggage; charges for excess baggage; and carry-on problems. Therefore, 'Consumer Complaints' is a multidimensional reflection of the general service quality a carrier delivers to its passengers. Submitting a complaint to the DOT is a rather unusual step for a dissatisfied customer to take. Most passengers likely take their complaints to the airline before they take them to the US Department of Transportation. Complaints filed with the DOT, therefore, indicate a strong customer mindset and a twofold failure in customer service on the carrier's behalf. Not only did some initial occurrence engender passenger dissatisfaction, but the carrier's

failure to assuage the dissatisfaction motivated the customer to invest the time and effort into seeking out the DOT. The 'Consumer Complaints' variable, therefore, is highly appropriate to my purpose of capturing the quality of service an airline delivers to its customers. Additionally, the measure possesses the virtue of objectivity, in that it is recorded and reported in a standardised manner by a third party.

The third variable used to measure customer service quality, 'Late and Cancelled Flights', indicates the 2003 percentage of a carrier's flights that did not arrive or that arrived fifteen or more minutes later than the scheduled time shown in the carrier's computerised reservation system. Cancelled and diverted operations, as well as flights arriving late for any reason, were counted in the 'Late and Cancelled Flights' variable. Customers value dependability, and carriers have some discretion over their on-time performance. Airline decisions concerning pre-emptive maintenance, the number of reserve planes kept on-site, plane turn-around processes and scheduled turn-around times all factor into on-time performance. Thus, 'Late and Cancelled Flights' is an appropriate measure of the service quality a carrier delivers to its customers.

Independent Variable

The independent variable 'Multimarket Contact Posture (MMCP)' was obtained by a three-step process. First, firm–market-level multimarket contact (MMC) values were determined for each market served by a focal firm. Following prior research, I used a count measure of multimarket contact (Baum and Korn, 1996; Evans and Kessides, 1994; Gimeno and Woo, 1996, 1999). For each airline in each city-pair market, I counted the number of markets in which the carrier in question met a specific focal market rival outside the focal market. I computed MMC by summing all multimarket contacts that the focal firm had with focal market rivals, then dividing by the number of rivals. In this way, a multimarket contact value was obtained for each firm in each market. For example, if firm *a* encountered two rivals in market *m*, and one rival shared 200 multimarket contacts with firm *a* while the other rival shared 400 multimarket contacts with firm *a*, then the MMC value for firm *a* in market *m* was 300 ([200 + 400] / 2).

The first step yielded an MMC value for each market served by each firm. Because my objective was to examine the extent to which multimarket contact posture affects firm-level behaviour and outcomes, it was necessary to create an independent variable that captured not only the level of MMC in each market served by the firm but also the relative impact that the firm's participation in a market was likely to have on firm-level strategic orientation. Some markets are more salient to organisational decision makers and more important to firm-level outcomes than are others. Competitive position in the Albuquerque–Omaha market is likely to be of less consequence to most firms than is competitive position in the Chicago–New York market. Therefore, the second step in calculating MMCP involved weighting each market according to the proportion of total firm operating revenues for which it accounted. I divided firm operating revenues derived from the focal market by total firm operating revenues, then multiplied this proportion by the firm's MMC value in the focal market. This calculation yielded a revenue-weighted MMC value for each firm in

each market. I summed these revenue-weighted MMC values from all markets served by a given firm, obtaining a raw revenue-weighted MMCP value for each firm.

The third and final step in obtaining MMCP involved indexing the raw MMCP values according to the number of markets served by the focal firm. Carriers participating in a great many markets are more likely to meet rivals in multiple markets than are carriers that serve fewer markets. Raw MMCP, therefore, strongly reflects the breadth of a firm's presence in its industry. My interest, however, was in the firm's relative exposure to multimarket relationships, *given the breadth of its presence in its industry*. To capture this relative exposure to multimarket relationships, I divided each firm's raw MMCP value by the number of city-pair markets in the sample served by the firm. Finally, I multiplied resulting values by 1,000 for rescaling. The entire equation used to calculate MMCP is represented in Figure 3, and the values for markets served, raw revenue-weighted MMCP, and MMCP are listed in Table 1.

Figure 3: MMCP Equation

$$MMCP = \frac{(MMC_{am}) \dfrac{(Revs_{am})}{(Revs_{mTot})} + (MMC_{an}) \dfrac{(Revs_{an})}{(Revs_{nTot})}}{markets\ served_a} \times 1000$$

Where:
MMC = firm–market-level multimarket contact
a = firm a
m, n, . . . = market m, market n, . . .

Table 1: Carriers Ranked by MMCP

Carrier	MMCP	Raw Revenue-Weighted MMCP	Markets Served (Nonstops and One-Stops)
American Eagle Airlines	449	53	118
United Airlines	490	570	1,165
American Airlines	502	641	1,277
Delta Airlines	511	699	1,369
Southwest Airlines	517	417	807
Skywest Airlines	540	104	192
Independence Air	546	63	116
Continental Airlines	548	579	1,057
Expressjet Airlines	573	227	395

(*Continued*)

Table 1: (*Continued*)

Carrier	MMCP	Raw Revenue-Weighted MMCP	Markets Served (Nonstops and One-Stops)
America West Airlines	575	335	583
Northwest Airlines	579	680	1,174
US Airways	604	352	583
Atlantic Southeast Airlines	634	96	151
ATA Airlines	688	118	171
Alaska Airlines	695	75	108
JetBlue Airways	714	42	59
Airtran Airways	752	168	223

Control Variables

The denominator of the equation for MMCP embeds within the independent variable a control for one dimension of organisational size. The number of markets served by a firm reflects the breadth of the firm's resource deployments, but it does not fully capture the size of the firm's resource endowments. Resource allocation to promotion, sales and passenger service functions, as well as the ability to deliver quality service, are likely influenced by economies of scope and economies or diseconomies of scale. To account for effects attributable to the size of firm resource endowments, I included the control variable 'Total Assets' at the fiscal year ending 2003. I used the natural logarithm of this variable to correct for skew. Dependent variables relating to service quality and resource allocations are likely as well to be sensitive to differences in profitability. More profitable firms may be better equipped than less profitable firms to devote resources to promotion, sales and passenger service functions, and to deliver quality service. For this reason, I included the control variable 'ROE 2002–2004' in the regression analyses. I used return on equity (ROE) averaged across the three years 2002, 2003 and 2004 to limit the effects of short-term variance in profitability.

RESULTS

Table 2 provides descriptive statistics and Spearman correlations for the study variables. I tested for multicollinearity by calculating the variance inflation factors (VIFs) in each regression equation. Multimarket contact posture had VIFs of 1.361 in regression equations for all resource allocation and service quality variables, which is well below the level of 10 that is regarded as problematic (Ryan, 1997).

I used ordinary least squares (OLS) regression analysis to test my hypotheses. H_{1a} predicts that MMCP will be negatively related to firm allocation of resources to promotion and sales functions. H_{1b}, on the other hand, anticipates a positive relationship between MMCP and the allocation of resources to promotion and sales. Results appear in Table 3.

Table 2: Descriptive Statistics and Correlations for MMCP Analysis[a]

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10
1. MMCP	583.420	86.594										
2. Raw revenue-weighted MMCP	307.048	244.793	-0.35									
3. Promotion and sales expenses	0.067	0.040	0.27	0.29								
4. Promotion and sales share	0.752	0.456	0.09	0.46†	0.92***							
5. Passenger service expenses	0.078	0.028	-0.11	0.52*	0.57*	0.65**						
6. Passenger service share	0.753	0.316	-0.14	0.63**	0.54**	0.70**	0.94***					
7. Mishandled baggage[b]	1.502	0.500	-0.46†	-0.20	-0.77***	-0.66**	-0.36	-0.32				
8. Consumer complaints	0.645	0.269	0.03	0.59*	0.22	0.36	0.42†	0.50*	-0.27			
9. Late and cancelled flights	0.189	0.034	0.24	-0.37	-0.42†	-0.41	-0.64**	-0.54*	0.31	0.09		
10. ROE 2002–2004	-0.045	0.097	0.15	-0.39	-0.05	-0.17	-0.28	-0.42†	-0.22	-0.51*	-0.20	
11. Total assets[b]	8.233	1.328	-0.49*	0.67**	0.43†	0.58*	0.72**	0.79***	-0.20	0.44†	-0.47†	-0.34

[a] Spearman Correlations (2-tailed)
[b] Natural logarithmic transformation used to correct for adverse skew
† $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Table 3: Results of OLS Regression Analysis for Allocation of Resources to Promotion and Sales and to Passenger Service[a]

Variables	Promotion and Sales Expenses		Promotion and Sales Share		Passenger Service Expenses		Passenger Service Share	
	Step 1	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*
Intercept	-0.055	-0.358**	-0.858	-4.018**	-0.041	-0.173*	-0.677†	-1.878**
	(0.061)	(0.087)	(0.656)	(0.958)	(0.036)	(0.063)	(0.336)	(0.600)
	$p = 0.381$	$p = 0.001$	$p = 0.212$	$p = 0.001$	$p = 0.267$	$p = 0.016$	$p = 0.063$	$p = 0.008$
Total assets[b]	0.015†	0.027**	0.196*	0.320***	0.014**	0.020**	0.171**	0.218***
	(0.008)	(0.006)	(0.081)	(0.066)	(0.004)	(0.004)	(0.041)	(0.042)
	0.501	*0.898*	*0.569*	*0.931*	*0.671*	*0.914*	*0.716*	*0.914*
	$p = 0.065$	$p = 0.001$	$p = 0.029$	$p = 0.000$	$p = 0.005$	$p = 0.001$	$p = 0.001$	$p = 0.000$
ROE 2002–2004 average	0.036	0.042	0.019	0.079	-0.021	-0.018	-0.573	-0.550
	(0.103)	(0.071)	(1.102)	(0.789)	(0.060)	(0.052)	(0.564)	(0.494)
	0.087	*0.101*	*0.004*	*0.017*	*-0.070*	*-0.062*	*-0.176*	*-0.169*
	$p = 0.732$	$p = 0.570$	$p = 0.987$	$p = 0.922$	$p = 0.736$	$p = 0.732$	$p = 0.327$	$p = 0.286$
MMCP		0.000***		0.004**		0.000*		0.001*
		(0.000)		(0.001)		(0.000)		(0.001)
		0.762		*0.695*		*0.466*		*0.381*
		$p = 0.001$		$p = 0.002$		$p = 0.030$		$p = 0.039$
R^2	0.228	0.655	0.322	0.678	0.488	0.647	0.631	0.737
Adj. R^2	0.118	0.575	0.225	0.603	0.415	0.566	0.578	0.677
ΔR^2	0.228	0.426	0.322	0.355	0.488	0.160	0.631	0.107
Model F	2.071	8.219**	3.329†	9.106**	6.665**	7.959**	11.954**	12.163***
	$p = 0.163$	$p = 0.003$	$p = 0.066$	$p = 0.002$	$p = 0.009$	$p = 0.003$	$p = 0.001$	$p = 0.000$
ΔF	2.071	16.060**	3.329†	14.324**	6.665**	5.891*	11.954**	5.277*
	$p = 0.163$	$p = 0.001$	$p = 0.066$	$p = 0.002$	$p = 0.009$	$p = 0.030$	$p = 0.001$	$p = 0.039$

[a] N = 17; unstandardised regression coefficients, standard errors (parentheses), and standardised coefficients (italics), in that order
[b] Natural logarithmic transformation used to correct for adverse skew
† $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

After controlling for total assets and return on equity, I found that MMCP contributed significantly to prediction of the two dependent variables tested. Multimarket contact posture predicted statistically significant variance in promotion and sales expenses (ΔR^2 = 0.43, ΔF = 16.06, $p < 0.01$) and promotion and sales share (ΔR^2 = 0.36, ΔF = 14.32, $p < 0.01$). Overall model F was non-significant for promotion and sales expenses before the introduction of MMCP, but with the inclusion of that single variable the model explained a sizable proportion of variance at a high level of statistical significance (adjusted R^2 = 0.58, F = 8.22, $p < 0.01$). For promotion and sales share, as well, overall model significance and explained variance increased appreciably with the introduction of MMCP (adjusted R^2 = 0.23, F = 3.33, $p < 0.10$ without MMCP; adjusted R^2 = 0.60, F = 9.12, $p < 0.01$ with MMCP). Signs were positive for both regression analyses, supporting H_{1b}.

According to H_{2a}, MMCP will be negatively related to firm resource allocation to customer service, while H_{2b} predicts a positive relationship between MMCP and the allocation of resources to customer service. The results, shown in Table 3, indicated that MMCP contributed significantly to prediction of the two variables tested, controlling for total assets and profitability. Multimarket contact posture predicted statistically significant variance in passenger service expenses (ΔR^2 = 0.16, ΔF = 5.89, $p < 0.05$) and passenger service share (ΔR^2 = 0.11, ΔF = 5.28, $p < 0.05$). Explained variance in passenger service expenses was sizable and significant for the model without MMCP (adjusted R^2 = 0.42, F = 6.67, $p < 0.01$), but grew appreciably with the addition of MMCP (adjusted R^2 = 0.57, F = 7.96, $p < 0.01$). Similarly, the model was effective in predicting passenger service share without MMCP (adjusted R^2 = 0.58, F = 11.95, $p < 0.01$), but was even more effective with MMCP (adjusted R^2 = 0.68, F = 12.16, $p < 0.001$). Signs were positive for analyses on both dependent variables, lending support to H_{2b}.

H_{3a} predicts that MMCP will be negatively related to customer service quality, while H_{3b} predicts that MMCP will be positively related to customer service quality. Results for the three measures of customer service quality appear in Table 4.

Table 4: Results of OLS Regression Analysis for Customer Service Quality[a]

Variables	Mishandled Baggage[b]		Consumer Complaints		Late and Cancelled Flights	
	Step 1	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*
Intercept	2.552**	5.646**	0.212	-0.348	0.302***	0.308**
	(0.816)	(1.419)	(0.370)	(0.762)	(0.047)	(0.099)
	p = 0.007	p = 0.002	p = 0.576	p = 0.655	p = 0.000	p = 0.008
Total assets[b]	-0.134	-0.256*	0.045	0.067	-0.015*	-0.015*
	(0.100)	(0.098)	(0.045)	(0.053)	(0.006)	(0.007)
	-0.357	*-0.681*	*0.222*	*0.331*	*-0.576*	*-0.585*
	p = 0.202	p = 0.022	p = 0.339	p = 0.663	p = 0.023	p = 0.049

(*Continued*)

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Table 4: (*Continued*)

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Variables	Mishandled Baggage[b]		Consumer Complaints		Late and Cancelled Flights	
	Step 1	*Step 2*	*Step 1*	*Step 2*	*Step 1*	*Step 2*
ROE 2002–2004 average	-1.243 (1.371) -0.242 p = 0.380	-1.302 (1.169) -0.253 p = 0.286	-1.392* (0.621) -0.503 p = 0.042	-1.382* (0.628) -0.499 p = 0.046	-0.172* (0.079) -0.492 p = 0.046	0.172† (0.082) -0.493 p = 0.055
MMCP		-0.004* (0.001) -0.622 p = 0.027		0.001 (0.001) 0.209 p = 0.414		0.000 (0.000) -0.017 p = 0.949
R²	0.126	0.410	0.381	0.413	0.377	0.377
Adjusted R²	0.001	0.273	0.292	0.277	0.287	0.233
ΔR²	0.126	0.284	0.381	0.032	0.377	0.000
Model F	1.006 p = 0.391	3.007† p = 0.069	4.300* p = 0.035	3.044† p = 0.067	4.227* p = 0.037	2.619† p = 0.095
ΔF	1.006 p = 0.391	6.253* p = 0.027	4.300* p = 0.035	0.711 p = 0.414	4.227* p = 0.037	0.004 p = 0.949

[a] N = 17; unstandardised regression coefficients, standard errors (in parentheses), and standardised coefficients (in italics) are presented, in that order
[b] Natural logarithmic transformation used to correct for adverse skew
† $p < 0.10$ * $p < 0.05$ ** $p < 0.01$ *** $p < 0.001$

Controlling for total assets and return on equity in all regression analyses, I found that MMCP contributed significantly to the prediction of mishandled baggage ($\Delta R^2 = 0.28$, $\Delta F = 6.25$, $p < 0.05$). The sign was negative, lending support to H$_{3b}$, for lower rates of mishandled baggage reflect better customer service. Overall model F was non-significant for mishandled baggage before the introduction of MMCP, but with MMCP the model explained a statistically significant proportion of variance (adjusted $R^2 = 0.27$, $F = 3.01$, $p < 0.10$). However, MMCP did not contribute significantly to the prediction of consumer complaints or late and cancelled flights, nor did models with or without MMCP account for variance in these two dependent variables. In all, H$_{3b}$ received partial support.

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DISCUSSION

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This study considered firm-level implications of multimarket contact. I introduced MMCP – a construct and associated measure reflecting firm-level multimarket contact – and proposed competing hypotheses on the scope of mutual forbearance effects. One set of hypotheses represented the pervasive forbearance argument that MMCP dampens

non-price competitive intensity. An opposing set of hypotheses represented the partial forbearance argument that MMCP amplifies non-price competition. I tested my hypotheses in the airline industry, where numerous existing studies report evidence of mutual forbearance in pricing. On balance, results backed the partial forbearance perspective. In support of partial forbearance hypotheses H_{1b} and H_{2b}, findings indicate a positive relationship between MMCP and the allocation of resources to promotion and sales and to customer service. Partial forbearance hypothesis H_{3b} received mixed support. A positive relationship was found between MMCP and baggage-handling service quality, but no relationship appeared between MMCP and either rate of consumer complaints or on-time performance.

It is not surprising that findings were stronger for resource allocation variables than for customer service variables. Resource allocation reflects the depth of a firm's commitment to particular objectives. I interpret relative resource allocation to promotion, sales and passenger service as indicative of a firm's intent to compete or not compete vigorously along those dimensions. Commitment and intent, however, do not necessarily translate to success. The quality of service a carrier actually delivers is governed not only by the carrier's intent, but also by the carrier's effectiveness in actualising its intent. While the hypothesised relationship between MMCP and intent to deliver quality service is direct, the relationship between MMCP and quality of service delivered is indirect. The latter relationship is mediated by intent and moderated by managerial effectiveness. Thus, one might expect stronger relationships between MMCP and resource allocation than between MMCP and passenger service delivered. This may explain why strong results were obtained for the former while the latter met with mixed results.

Measurement issues represent an alternate explanation for mixed customer service results. The lack of significant findings for 'Consumer Complaints' and 'Late and Cancelled Flights' may derive from problems pertaining to those dependent variables specifically. Reliability of the variable 'Consumer Complaints' may be compromised by extremely low report rates for all airlines. The mean report rate for all carriers for 2003 was 0.645 per 100,000 passengers, or just 1 complaint reported per 155,111 passengers. No airline had a consumer report rate greater than 0.95 per 100,000 passengers. Therefore, the variable was exceedingly sensitive to small variations, and may not constitute a reliable indicator of consumer dissatisfaction with service quality. The variable 'Late and Cancelled Flights' may measure a service dimension over which carriers exercise too little discretion for the purposes of this study. While airlines can take certain actions to mitigate delays and cancellations, such as keeping extra planes on hand in case of maintenance problems or building slack into schedules, multiple other factors may drown out those that carriers can influence. Flights are delayed or cancelled for many reasons beyond carriers' control, including weather, airport security issues and random passenger behaviour. Minimal carrier discretion over variance in outcomes measured by 'Late and Cancelled Flights', therefore, may account for the non-significant relationship between that variable and MMCP.

The support for partial forbearance with regard to the dependent variables 'Passenger Service Expenses', 'Passenger Service Share' and 'Mishandled Baggage' runs counter to the

findings of the sole other study to date exploring MMC effects on service quality. Prince and Simon (2009) examine the US airline industry during the years 1995 through 2001, finding evidence of a negative relationship between multimarket contact and service quality. The difference in the direction of the results in this study as compared to the Prince and Simon (2009) study may be attributable to the use of different independent and dependent variables. Prince and Simon's variables differ from those employed by this study in terms of both level of analysis and dependent variable observability. With regard to level of analysis, Prince and Simon (2009) employ firm–market-level MMC as an independent variable, while this study's use of the firm-level measure MMCP enables examination of firm-level dependent variables. With regard to dependent variable observability, Prince and Simon (2009) operationalise service quality with the measures on-time performance, cancellations, plane size and frequency of flights. While these measures are important indicators of service quality, they are all characterised by high levels of observability. Given the important role that observability plays in making tacit collusion possible (Greve, 2008), it is likely that the MMC–service quality relationship is highly sensitive to this particular dependent variable attribute. The less perfectly observable the type of service quality activity or outcome in question, the less likely multimarket competitors are able to establish and monitor mutual forbearance. Thus, the differences between this study's results and the Prince and Simon (2009) results may be explained in part by differences in the observability of the dependent variables employed. While the Prince and Simon dependent variables on-time performance, cancellations, plane size and frequency of flights are tracked, publicised and readily available at the flight level, the variables 'Passenger Service Expenses' and 'Passenger Service Share' used in this study consist of more opaque 'activities contributing to the comfort, safety, and convenience of passengers while in flight or when flights are interrupted' (Bureau of Transportation Statistics, n.d.), such as flight attendant salaries and passenger food expenses. It should be noted that the dependent variable 'Mishandled Baggage' is more in line with the Prince and Simon variables in terms of observability, suggesting that imperfect observability does not play a role in the support the 'Mishandled Baggage' results lend to the partial forbearance hypothesis.

In all, the robust effect sizes found for 'Promotion and Sales Expenses', 'Promotion and Sales Share', 'Passenger Service Expenses', 'Passenger Service Share' and 'Mishandled Baggage' inform two major deductions with important implications for multimarket contact theory and research. First, this study establishes that multimarket contact contributes to the explanation of certain firm-level behaviours and outcomes. The MMCP construct I propose and measure bridges the gap between levels of analysis, for it is compiled of firm–market-level data and it accounts for sizable variance in firm-level outcomes. Results represent the first empirical confirmation of cross-level relationships deriving from multimarket contact. The theoretical implication is that part-whole relationships merit deeper consideration in the multimarket contact literature. Traditionally, MMC theory cleaves organisations, addressing how contact between segments of rival organisations affects segmented behaviour. The effects found for MMCP underscore the inextricability of organisational segment and organisational whole. Micro- and macro-level decisions and behaviours are mutually

constitutive. Decisions and behaviours at the periphery invoke firm-wide vision – at least if they are to bear an MMC imprint – while, reciprocally, organisational strategic orientation is produced by contacts and conditions experienced at the periphery. Research implications arising from this study are substantial. Firm-level measurement of multimarket contact activates a broad range of potential new dependent variables reflecting strategic impact.

A second major point emerging from this study is that multimarket contact amplifies rather than dampens competitive intensity along certain dimensions. Carriers with high multimarket contact postures were more likely than those with lower MMCPs to channel resources toward promotion, sales and customer service. Prevailing MMC theory, which emphasises the mutual forbearance hypothesis, neither predicts nor explains these findings. Evidence of a positive relationship between MMCP and non-price competitive intensity signifies the need for reconceptualising the mutual forbearance hypothesis as bounded and contingent. Specifically, it appears that multimarket contact may engender forbearance primarily with regard to forms of rivalry that are highly observable or particularly damaging. The research implication is that non-price competitive dimensions warrant greater emphasis in the multimarket contact literature. Whereas research traditionally asks *whether* MMC engenders mutual forbearance in the form of higher prices and margins in a given context – assuming a yes or no answer – this study's results support a re-orientation toward asking *how* MMCP affects rivalry, *where* it mutes rivalry and *where* it amplifies rivalry.

Limitations and Future Research

Although this study sheds light on firm-level implications of multimarket contact, it has certain limitations. The direction of causal pathways cannot be assessed confidently under the study's cross-sectional design. While it is more plausible that MMCP affects marketing and service orientation than vice versa, it cannot be ruled out that firms with higher marketing and service orientations are more likely to enter into multimarket contact. Longitudinal research is needed to confidently assess the causal direction between specified relationships. The study's relatively small sample size de-sensitises OLS regression analyses to all but very large effect sizes. Larger sample sizes will better equip future researchers to detect relationships between MMCP and non-price competitive behaviour. Generalisability is a concern for any study focused on a single industry. Examination of other industries is needed to determine whether hypothesised relationships hold beyond the US passenger airline industry. Another limitation pertains to the range of dependent variables used to measure non-price competition. On-time performance, baggage-handling complaints, general consumer complaints and resource allocation to promotion and sales and to passenger service represent important indicators of marketing and customer service competition, but they do not capture the full dimensionality of non-price competitive orientation. Other industries may afford better measures of customer service delivered, as well as the opportunity to examine additional non-price competitive dimensions such as innovation.

A final limitation derives from this study's assumption that the negative relationship between MMC and price competition in the airline industry – established in numerous previous studies – holds for the year 2003. The most influential studies linking multimarket contact to price forbearance in the airline industry draw on data from the years 1984 to 1988, or within the first decade following the 1978 federal deregulation. For example, Gimeno (1999) and Gimeno and Woo (1996, 1999) examined data from 1984 to 1988, while Singal (1996) examined data from 1985 to 1988. This study, on the other hand, examines data from 2003. Thus, my conclusion that multimarket contact amplifies marketing and customer service competition *while* muting price competition assumes that previous findings persist through time. Existing evidence for price forbearance, however, may be outdated. It is possible that by 2003 multimarket contact amplified price *as well as* non-price competition. Furthermore, work focused on the importance of industry concentration as a moderator of the MMC–rivalry relationship suggests that deregulation may indeed undermine price forbearance. As Scott (1982, 1991, 1993) demonstrates, the mutual forbearance hypothesis collapses in the absence of high concentration; under low concentration conditions MMC is *negatively* associated with profitability. As concentration declines, familiarity erodes, coordination becomes unwieldy, monitoring becomes more costly and mutual recognition of competitive interdependence fades. As a result, tacit collusion disintegrates and rivalry ensues. The spate of new entrants into the airline industry since the 1978 deregulation lends support to the low concentration argument. Tacit collusion borne of – and nurtured by – governmental regulation may have persisted into the early to mid-1980s time period comprising the focus of influential MMC studies, then eroded as concentration levels decreased over the following two decades. Future studies might extend analysis of MMC price effects past the 1980s and up to the present, in order to determine whether they parallel or diverge from non-price amplification.

Future research motivated by the two major lines of inquiry introduced in this study – firm-level MMC effects and forbearance parameters – might concentrate on resolving three fundamental issues. First, what attributes of a competitive dimension promote forbearance and what attributes intensify rivalry under multimarket contact? For example, does firm proclivity toward forbearance or rivalry along a given dimension ride on the difficulty of communicating and interpreting competitive behaviour, or does the potential for a form of competition to erode profit margins or grow overall market size appear more instrumental? Specification of the properties of competitive dimensions driving forbearance and the properties driving rivalry entails further examination of the non-price dimensions featured in this study, as well as examination of alternate non-price dimensions.

Second, future research should identify contextual moderators influencing relationships between MMCP and competitive behaviour. For example, do industry concentration levels moderate the MMCP–rivalry relationship? Analysis of this issue will entail either a multi-industry approach where concentration levels vary between industries or a longitudinal single industry approach where concentration varies within the same industry over time. Similarly, future research might explore moderators of the relationship between

MMCP and firm financial performance. For instance, if MMCP is found to dampen non-price rivalry along marketing or customer service dimensions in some contexts, or along alternate non-price dimensions such as innovation, might dampened rivalry along a given dimension enhance firm financial performance in certain contexts while undermining performance in other contexts? In particular, might variance in concentration levels resulting from industry entry by new competitors be necessary to expose competence depletion among industry incumbents to the detriment of financial performance? Analysis of this issue will entail longitudinal examination of an industry with both variance in concentration levels and a link between firm competencies and firm financial performance that is not heavily diluted by the influence of external environmental factors.

Third, future research should seek a deeper understanding of the process by which MMCP dampens or amplifies firm-level rivalry. Do the behaviours and outcomes of market-level decisions percolate upward to the firm level, or do market-level structural relationships aggregately affect firm-level decisions? For instance, does market-level MMC affect market-level promotional activity, which firm-level measurement merely reflects? Or does market-level MMC define firm-level MMCP, which in turn affects firm-level promotional activity? While this study found evidence of an overall relationship between MMCP and firm-level behaviours and outcomes, it did not specify the level at which decision processes were actually affected by multimarket contact because the data were not conducive to examining non-price competitive behaviours and decisions at the firm–market level. Future research in other industries should seek dependent variables at the firm–market level reflecting resource allocation to marketing, resource allocation to customer service, customer service delivered and so forth. Comparisons between MMCP effects at the firm-market level and the firm level will enable researchers to parse out the relative influence of decisions at each level, and thus to more precisely explain the process by which MMCP dampens or amplifies rivalry.

CONCLUSION

This study has highlighted a latent tension between rivalry reduction and rivalry amplification under multimarket contact. The evidence provided here compels a broader, more complex conceptualisation of multimarket contact than currently pervades the literature. The well-established tendency to reduce rivalry represents but one facet of multimarket contact's contradictory nature. A Janus-faced MMCP emerges from this study, with rivalry amplification representing the understudied countenance. The ramifications of multimarket contact extend well beyond the bounds of the mutual forbearance hypothesis, and so too should future research. Subsequent work in this domain will benefit from substituting a partial forbearance perspective for pervasive forbearance assumptions. Further validation of the mutual forbearance hypothesis represents a less pressing need than does resolution of the parameters of rivalry reduction and amplification under multimarket contact. It is my hope that, by illuminating another side of multimarket contact, this study will promote a more comprehensive accounting of MMC's strategic impact.

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