

# **The Market for Legislative Influence Over Regulatory Policy**

Rui J. P. de Figueiredo, Jr.  
Haas School of Business and Department of Political Science  
University of California at Berkeley

and

Geoff Edwards  
CRA International

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**ABSTRACT**

*We show that in the US telecommunications industry market participants have a sophisticated understanding of the political process, and behave strategically in their allocation of contributions to state legislators as if seeking to purchase influence over regulatory policy. We find that interests respond defensively to contributions from rivals, take into account the configuration of support available to them in both the legislature and the regulatory commission, and vary their contributions according to variations in relative costs for influence by different legislatures. This strategic behavior supports a theory that commercially motivated interests contribute campaign resources in order to mobilize legislators to influence the decisions of regulatory agencies. We also report evidence that restrictions on campaign finance do not affect all interests equally. The paper therefore provides positive evidence on the nature and effects of campaign contributions in regulated industries where interest group competition may be sharp.*

## 1. Introduction

One of the central questions in electoral politics is how money, influence and policy outcomes are related. While substantial scholarship on campaign contributions has developed over the last couple of decades, direct evidence on whether contributions and legislative behavior are related is inconclusive, although the public and media perception of a relationship is strong. A less direct, but no less instructive approach to answering the question is to ask whether contributors act strategically in their allocation of campaign resources to politicians. In other words, do interests tailor their contribution strategies to the political and institutional environment in a manner consistent with maximizing the political return on contribution dollars? While some progress has been made from this angle, the existing literature has yet to fully incorporate a theory of contributions in exchange for legislative influence over *regulatory policy*.

We study a six-year dataset of campaign contributions to state legislators from competing interests in the local telecommunications industry. We show that the interests in this industry are sophisticated and strategic in their contribution decisions. Furthermore, the contribution patterns we observe are consistent with a theory that the interests seek to purchase legislative influence over the decisions of independent regulatory commissions. In essence, we describe a market for the purchase of legislative influence over regulatory policy.

The existing literature on campaign contributions can be classified into two streams: studies of whether contributions affect legislative behavior; and studies of the determinants of contribution patterns, where contributions become the dependent variable. A substantial body of literature has developed on whether campaign contributions affect legislative behavior, but unfortunately, the evidence to date is mixed. Much of the prior research in this area has examined effects of contributions on roll call votes by members of Congress.<sup>1</sup> Ansolabehere, de Figueiredo and Snyder (2003, hereafter ADS) survey 36 empirical studies of contributions and roll call votes and conclude that the weight of the evidence so far favors the view that contributions are unrelated to voting behavior.<sup>2</sup> Combined with evidence that the vast majority of contributions come in small

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<sup>1</sup> Studies that find in the affirmative, that contributions affect voting records, include: Silberman and Durden (1976); Chappell (1981); Kau, Keenan and Rubin (1982); Coughlin (1985); Wilhite and Theilman (1987); Langbein and Lotwis (1990); and Stratmann (1991, 1995 and 2002). Studies that find no effect of contributions on votes include: Chappell (1982); Evans (1988); Grenzke (1989); Wright (1985 and 1990); and Langbein (1993).

<sup>2</sup> This claim is based on a finding that in three out of four instances in the literature, coefficients on contributions were either insignificant or the wrong sign. A conclusion on this basis alone is a little

sums from individual donors rather than through organized Political Action Committees (PACs), ADS propose that most contributions reflect the consumption value individuals receive from giving to campaigns, rather than expectations of private returns on investments. While plausible for the bulk of contributions, ADS acknowledge that their theory is less applicable to contributions from corporate and industry (economic) interests and note that we may find the effects in domains other than direct legislative action such as regulatory arenas. This exception alluded to by ADS is of particular interest since the 2010 *Citizens United* Supreme Court decision lightened constraints on these contributions. Even if the majority of contributions are motivated by the consumption value of consumer contributors, and are consequently benign, the minority of contributions from organized interests with economic motives might still significantly affect legislative behavior, in which case normative concerns for the system of campaign finance remain.

A plausible reason why many studies have failed to find strong evidence of a link between contributions and roll call votes is that votes may be a poor currency of exchange. Herndon (1982) and Hall and Wayman (1990) have argued that the gains for interests from vote buying are marginal, while the risks of suspicion of improper influence on both political careers and the reputations of interest groups are considerable, particularly as both contributions and votes are on the public record. But as many political scientists have observed, it is not necessary to imagine a situation of outright vote buying in order to suspect that contributors act strategically with a view to securing the services of legislators. Non-vote related legislative services are perhaps both more important and more readily exchangeable. An important function of contributions from interest groups is to purchase access to legislators and to keep both doors and minds open to the merits of their positions (Herndon 1982). Beyond mere access, Denzau and Munger (1986) and Hall and Wayman (1990) propose that interest groups provide political resources in an implicit exchange for policy relevant services or effort from legislators.<sup>3</sup> Hall and Wayman (1990) provide

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hasty. In counting the number of significant coefficients out of all coefficients tested, the result is biased by several studies that tested a very large number of coefficients. An alternative assessment of the literature would be to ask how many of the studies reported significant coefficients for at least half of those tested. On this assessment, exactly half the studies support the existence of an effect of contributions on roll call votes. A better conclusion might be that the literature is evenly balanced on this question.

<sup>3</sup> Examples of non-vote related support that legislators can provide to a contributing interest include: influence over the form of legislation developed at the committee stage through the drafting, amendment or vetoing of bills; efforts to negotiate with other legislators to win their support; efforts to rally popular support through the media; intervention with bureaucrats; and the application of

evidence that contributions are allocated by interests in order to mobilize otherwise latent legislative support in the committee stage of the legislative process, and speculate that similar mobilization is likely to occur where the legislative service required by interests is influence over executive agencies.<sup>4</sup> A clear advantage of these forms of legislative service is that the often informal nature of committee processes and interactions with regulatory agencies limits the scope for public scrutiny of legislators' responsiveness to contributing interests, even where the issues involved are highly salient (Hall and Wayman 1990).

Despite these persuasive arguments, and their long grounding in the political science literature, very few studies have tested for an effect of contributions on non-vote related behavior of legislators. The few studies that have examined this relationship support the proposition that private money influences non-vote related legislative behavior. In addition to Hall and Wayman's (1990) study of participation in Congressional committees, Hansen and Park (1995) and de Figueiredo and Edwards (2007) each assume contributions mobilize legislators to influence the decisions of independent regulatory agencies, and test for a relationship between contributions to legislators and regulatory outcomes: the former at the Federal level concerning decisions of the International Trade Administration; the latter at the state level, concerning regulatory outcomes in the telecommunications industry – the context of our current research. Both studies find contributions to legislators to be predictive of regulatory decisions. Together, these three studies provide consistent support for the proposition that, vote-buying aside, contributions purchase legislative services and effort, including legislative influence over regulatory policies set by independent regulators.<sup>5</sup>

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implicit or explicit pressure on independent regulatory agencies to arrive at decisions favorable to the interest (Hall and Wayman 1990; Snyder 1992; Kroszner and Stratmann 1998).

<sup>4</sup> Mobilization might include not simply a financial encouragement to act on an interest's behalf, but also the simultaneous provision of information and arguments that the legislator requires to make a persuasive case in support of the interest's preferred position. In this sense, contributions and the provision of information (lobbying) go hand in hand, consistent with findings of a close correspondence between these two non-market activities for corporate interests (Ansolabehere, Snyder and Tripathi 2002).

<sup>5</sup> In addition to the empirical literature we focus on here, there has been more recent theoretical work more directly linking contributions to legislators and regulatory outcomes. Prominent examples include: Holburn and Vanden Bergh (2004), who examine the allocation of resources by interest groups across multiple institutional options (eg legislature or administrative agency) depending on the configuration of preferences among public officials and interest groups; de Figueiredo and de Figueiredo (2002) present a model which considers how interest groups allocate resources around administrative rule making given the shadow of the courts; and Gordon and Hafer (2005) develop a

Turning from studies of the effects of contributions to studies of the determinants of contribution patterns, there is consistently strong evidence that interests behave as rational investors in legislative outcomes. Again, the work in this area is dominated by studies of contributions to members of the US Congress. Important empirical studies in this regard owe theoretical debt to Denzau and Munger (1986) and include: Grier and Munger (1986, 1991 and 1993); Poole, Romer and Rosenthal (1987); Snyder (1990 and 1992); Stratmann (1991, 1992, 1995, 1996 and 1998); Endersby and Munger (1992); Romer and Snyder (1994); and Kroszner and Stratmann (1998). These studies suggest that interest groups allocate contributions with regard to characteristics of legislators that affect either their willingness to provide services to interest groups (determined by their ideology, the preferences of their geographic reelection constituency, and the intensity of electoral competition they face) or their productivity in providing such services (for example, membership on a relevant committee and seniority).<sup>6</sup> Most of these studies assume interests representing relatively homogenous industries that seek legislative services unopposed but for unorganized constituents. Less common has been work that examines the effects of organized interest group competition on contribution patterns, as will be necessary in the context of our research on the telecommunications industry. Austen-Smith and Wright (1994) present and test a model of counteractive lobbying behavior by competing interests, and Kroszner and Stratmann (1998) model the contribution behavior of competing interests in the course of testing a positive theory that Congressional committees exist to foster repeated dealings between interests and committee members.<sup>7</sup> Both papers report that, in the context of interest group competition over legislative policy, competing interests respond defensively to the non-market activities of their rivals.<sup>8</sup>

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model of strategic signaling in which contributions provide credible information to agencies about interest group's willingness to contest rulemaking activities.

<sup>6</sup> In addition, Grier, Munger and Roberts (1991 and 1994) report that industry structure is an important determinant of whether and how much industries contribute, and Tripathi (2000) finds that the size of the government's defense budget is an important driver of political activity in the defense industry.

<sup>7</sup> See also Stratmann (2002) and Bombardini and Trebbi (2011).

<sup>8</sup> These results are consistent with theoretical models of interest group competition for public policy (Bernheim and Whinston 1986; Grossman and Helpman 1994; and Baron 2001). These models predict that the interests play a prisoners' dilemma game, with each interest preferring to give less, but forced in equilibrium to choose its non-market strategy in a defensive fashion, to counteract the non-market activities of its rival.

Complementary to this literature has been a very robust if more recent strand of scholarship on campaign contributions from the perspective of the non-market strategy of firms. In a series of papers on campaign contributions, Fremeth, Richter and Schaufele (2013) connect contribution activity to strategic behavior of executives and firms. Macher and Mayo (2012, 2014) examine cross-national data to highlight how market and non-market competition are highly important in understanding political influence activities of firms in general and in regulatory arenas in particular. Further, Holburn and Vanden Bergh (2014) note that particular events such as mergers and acquisitions prompt substantially higher contributions from firms attempting to protect potential rents created by successful prosecution of these transaction. Perhaps closest to the study here is Holburn and Vanden Bergh's extensive theoretical and empirical work tracing the same pathway of influence studied here: namely from firm to legislator to regulator. Holburn and Vanden Bergh (2004, 2008) first develop a series of theoretical predictions (consistent with many of the results developed below) about when interest groups influence regulatory policy indirectly through the legislature. In subsequent work (Vanden Bergh and Holburn 2007, Holburn and Vanden Bergh 2014), they test these results—indicating that the channel we explore here appears in other regulatory politics settings by showing that contributions are indeed strategic. The primary difference between this work and the present study is that while they examine cases of “client politics” (i.e. a single interest group attempting to influence a legislator and regulator), we examine a setting where there is competition between groups, or so-called “interest group politics”. In addition, considering together with the related work in de Figueiredo and Edwards (2007), the work here also provides subsequent linkages to non-market outcomes which has been elusive in other work.

Our current research adds to the literature on the determinants of contribution patterns. Intense interest group competition in the industry we study allows us to contribute to the less developed empirical research in this area. Our research is also novel in two important respects. First, we study patterns of contributions in the context of an industry in which legislative influence over regulatory policy is likely to be the main focus of non-market activities by competing interests, and we reveal patterns in contributions that are particular to that form of legislative service. We provide strong evidence that interests in the telecommunications industry contribute strategically to legislators with a view to influencing the decisions of independent regulatory agencies. In this sense, the current study complements recent research that is itself novel in demonstrating a link between the relative contributions of competing interests and important regulatory outcomes (de Figueiredo and Edwards 2007). Second, we study patterns of contributions to state legislators

and test the generalizability to the state level of the extensive learning on contribution patterns derived from analyses of representatives of the US Congress. Our research is, to our knowledge, the first to test theories of the strategic determinants of contribution behavior at the state level. The state level offers great potential for research in this field due to the scope to develop both time series and cross-sectional variation in dependent and explanatory variables.

Both of these contributions fit squarely in the broader, if newer, literature on the non-market strategy of firms. As noted in the introduction to this volume (de Figueiredo, Lenox, Oberholzer-Gee and Vanden Bergh, forthcoming), this burgeoning field requires a greater understanding of the linkages between the factors that affect firms' strategic choices, the way those translate into non-market outcomes and how those connect to firm performance. In this context this paper provides the underpinnings for the first two of those links. First, it demonstrates the import of *strategic factors* in environments where firms compete in the non-market arena. This stands in contrast to the literature as noted above which often studies contexts when firms within an industry either collaborate on non-market strategy or are unopposed in the sense that Wilson (1990) termed "client politics." Second, the paper provides an important underpinning for the second link—between strategies of firms and outcomes—by providing the foundation for the policy outcomes as a result of the strategies studied here in de Figueiredo and Edwards (2007).

We proceed as follows. Section 2 introduces the research design and explains the choice of empirical context for this study. In Section 3 we draw from a broad range of literature to develop conjectures regarding the strategic nature of contributions by interests seeking influence over regulatory policy, and provide predictions as to how contribution patterns are determined by elements of the political and institutional environment. These hypothesis provide a foundation for documenting patterns which we can evaluate in the data, our primary purpose. In section 4, we set out our empirical model and describe our data and measures. Section 5 reports results, and finally, section 6 concludes, including a discussion of some future directions for research on patterns of contributions to state legislators.

## **2. Research design**

We examine patterns of contributions from rival interests in the local telecommunications industry to candidates for state legislatures. We assume that the primary objective of legislators is to maximize votes and prospects of reelection (Mayhew 1974; Fiorina 1977); that legislators maximize votes by providing services to geographic constituents, and raising campaign resources (which can be used in advertising and campaigning to purchase votes or defend votes from



challengers); that as a quid pro quo for campaign resources, legislators provide services to contributing private interests (Welch 1974; Chappell 1982; Denzau and Munger 1986; Grier and Munger 1991); and that these services extend beyond activities related to the drafting and voting on legislation (Hall and Wayman 1990; Kroszner and Stratmann 1998). In particular, we assume that legislators are capable of influencing the decisions of independent regulatory commissions.<sup>9</sup>

The empirical context for our research concerns the contribution patterns of rival entrant and incumbent firms in the local telecommunications industry since the introduction of a regime permitting entry and competition in 1996. We choose this industry focus for several reasons. First, this industry is well suited to examination of hypotheses regarding the contribution behavior of interest groups seeking to purchase legislative influence over regulatory policy. Since 1996, the focus of the industry at the state level has been on regulatory policy, and the main service legislators can offer in this context is influence over the decisions of the independent regulatory commissions (also known as Public Utility Commissions or Public Service Commissions).<sup>10</sup> Second, the regulatory battle over entry into the local telecommunications industry offers the chance to study the contribution patterns of competing interests, rather than an homogenous industry group. The interests are well organized and funded on both sides and the regulatory battle is essentially a zero-sum game – a decision benefiting entrant firms imposes an equally large cost on incumbents, and vice versa. Third, with the decisions of the regulatory commissions carrying enormous potential to determine the prospects for entry and competition in local telecommunications, and the profitability of the rival interests, effective non-market strategies are particularly important in this industry. Finally, deliberations on regulatory policy and the

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<sup>9</sup> This follows a substantial literature on the theory of legislative control of regulatory policy (Fiorina 1979; Weingast and Moran 1983; Weingast 1984; McCubbins and Schwartz 1984; McCubbins 1985; Calvert, Moran and Weingast 1987; McCubbins, Noll and Weingast 1987, 1989; Calvert, McCubbins and Weingast 1989; Vanden Bergh and de Figueiredo 2003; de Figueiredo and Vanden Bergh 2004). This theory proposes that, even if less than perfect, legislatures can exert influence over regulators using coercive mechanisms that include procedural requirements, oversight, and budgetary and appointment decisions. Oversight can be direct (for example, through committee hearings in which the regulator must demonstrate in a transparent manner that it has properly exercised its mandate) or indirect (for example, through interest group feedback to legislative committee members).

<sup>10</sup> The *Telecommunications Act of 1996*, and the First Report and Order of the Federal Communications Commission (FCC), confers on independent regulatory commissions in each state the responsibility for a wide array of decisions with the potential to substantially determine the prospects for entry and competition in local telecommunications, and the profitability of incumbent and entrant firms. This includes settling the terms and conditions on which incumbent firms must provide interconnection, resale services, and unbundled network elements.

interactions between legislators and regulators are typically of low saliency to the general constituency, providing scope for influence activities in the absence of close public scrutiny. Overall, we suspect that if strategic contribution behavior to influence regulatory outcomes is to be revealed anywhere, it will be in a context in which a set of conditions such as these prevails.

### **3. Theory and hypotheses**

As noted earlier, our purpose in this paper is to document the degree of and factors which may lead to counteractive campaign contributions by competitive firms in a regulatory context. To that end, we draw on the existing literature to derive and test six empirical conjectures or, more loosely, predictions concerning the strategic contribution behavior of the rival interests in the local telecommunications industry. The first prediction concerns contribution behavior in the context of interest group competition for legislative services. Two further predictions concern contribution patterns under varying political compositions of the regulatory commission and the legislature. The final three predictions concern relationships between contributions and determinants of the “price” contributors face for the supply of legislative influence services.

*Responsive Contributions:* All else equal, we expect that interests will respond defensively to the contributions of their rivals, consistent with a number of models and prior tests of the non-market strategies of competing interests (Bernheim and Whinston 1986; Austen-Smith and Wright 1992 and 1994; Grossman and Helpman 1994; Kroszner and Stratmann 1998; and Baron 2001). In our study, as we look at overall pattern of contributions to state legislatures rather than contributions to individual legislators, it is not necessary that matching contributions go to the same politicians. Contributions to one legislator could be matched by a rival interest’s contributions to a second legislator in an attempt to mobilize the second politician to defend the rival’s position against the influence activities of the first.

Hypothesis 1: All else equal, interests contribute defensively in response to contributions from rival interests.

*Party Ideologies:* We suspect that the party compositions of the regulatory commission and the legislature will be important for the contribution strategies of incumbent and entrant firms. As noted elsewhere (see e.g. de Figueiredo and Edwards 2007), Republicans are most likely to support the interests of regulated incumbent telecommunications firms, while Democrats, interested in the benefits for consumers of greater competition in telecommunications, are more

likely to support the interests of entrants.<sup>11</sup> Contributions to purchase legislative influence over regulatory outcomes will be most valuable where the regulatory commission is not ideologically aligned with the interest's position. Indeed, where the regulatory commission is already aligned, purchasing legislative influence might be unnecessary. For example, incumbents will be more likely to contribute to legislators when Democrats control the regulatory commission than when the commission is controlled by Republicans. Conversely, entrant contributions should be higher when the regulatory commission is Republican.

Hypothesis 2: All else equal, contributions will be greater when the party ideology of the regulatory commission is not aligned with the contributing interest.

In addition, we expect that the dominant party ideology in the legislature will affect contribution strategies in an interactive way. Interestingly the literature is somewhat divided on when and to whom groups will contribute to; this is particularly true in the context of competitive interest groups. On the one hand, in the context of one-sided vote buying, Snyder (1991) posits that a group will contribute to "marginally opposed" policymakers. On the other hand, there are at least two reasons to believe in a competitive context we may see that friendly legislators are the objects of focused influence. First, strategically, when there are competitive groups, it may be that groups will act defensively and support "friendly" policymakers to make purchase of these voters more difficult (see, e.g. Groseclose and Snyder 1996). Second, if contributions are intended to mobilize legislative support in the context of a broad array of choices for even a "friendly legislator", they will tend to be directed to legislatures predisposed to support the interest's position, and that consequently offer low supply prices for the provision of legislative services on behalf of that interest (Denzau and Munger 1986; Hall and Wayman 1990; Grier and Munger 1991).<sup>12</sup> Which of these two views holds is essentially an empirical question.

Based on these factors, we test the degree to which the latter argument holds when a regulator is misaligned with the group (versus the null that the opposite holds as with Snyder 1991).

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<sup>11</sup> Support for these alignments abounds. For example, see Teske (1991) and de Figueiredo and Edwards (2007).

<sup>12</sup> Empirical confirmations of a positive relationship between contributions and the predisposition of Congressional legislators to support particular interests (implying a *negative* relationship with supply prices for legislative services and effort) include: Jacobson (1980); Chappell (1982); Poole, Romer and Rosenthal (1987); Grier and Munger (1986, 1991 and 1993); Stratmann (1991, 1992 and 1995); and Kroszner and Stratmann (1998).

Specifically, we evaluate whether contributions are greatest where the regulatory commission is not aligned with the contributing interest, but the legislature is aligned. For example, when Democrats control the regulatory commission, are incumbents more likely to contribute to purchase legislative influence from “friendly” Republican legislatures than from less friendly Democrats?

Hypothesis 3: All else equal, given an unaligned regulatory commission, interests will contribute more to aligned (“friendly”) legislatures than to unaligned legislatures.

*Constituencies and Electoral Competition:* Next we explore further the idea that interests are more likely to contribute to “friendly” legislatures (in contrast to regulators). The literature has identified three factors that determine the willingness of legislators to provide services: their ideology; the preferences of their geographic reelection constituency; and the degree of electoral competition they face. The effects of alternative party ideologies on contribution patterns in the local telecommunications industry have just been mentioned: we expect incumbent firms to contribute more to Republican legislatures and entrant firms to contribute more to legislatures controlled by Democrats.<sup>13</sup> Constituency characteristics have also been shown to determine costs for legislative services.<sup>14</sup> Legislatures with constituencies that have more (less) reason to favor competition and entry in telecommunications have lower supply costs for servicing entrant

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<sup>13</sup> In our current research, we examine contributions to state legislatures rather than individual legislators. We therefore proxy for ideology using the ideology of the dominant party in the state legislature. Ideology has long been considered determinative of contribution patterns from rival interests, whether measured using roll call vote scores for individual legislators (for example, Americans for Constitutional Action ratings or Chamber of Commerce vote scores) or party dummies. For example, in the battle between corporate interests and labor unions, Chappell (1982) and Grier and Munger (1986) report, respectively, that corporate interests tend to give more to conservative and Republican legislators, while unions tend to give overwhelmingly to liberals and Democrats. See also, Grier and Munger (1991) and Stratmann (1996). It is also worth noting that we examine a linkage which is implicit in the sense of regulators ultimately determining policy at the behest of the legislature. As noted earlier, this linkage relies on a well-grounded literature on political control of the bureaucracy by elected officials (eg legislators and/or executives). For a deeper discussion on this topic and potential microfoundations, respectively, see de Figueiredo and Edwards (2007) and Holburn and Vanden Bergh (2004, 2008).

<sup>14</sup> A large number of studies demonstrate the effects of constituency characteristics on contribution patterns. Contributions are consistently greater to legislators with constituencies that are supportive of the contributing interest’s position. For example, see Chappell (1982); Poole, Romer and Rosenthal (1987); Grier and Munger (1986, 1991 and 1993); Stratmann (1991, 1992 and 1995); and Kroszner and Stratmann (1998).

(incumbent) firm interests and are consequently more (less) likely to receive contributions from entrants than from incumbents.<sup>15</sup>

Hypothesis 4: All else equal, interests will contribute more when constituency characteristics are more favorable.

The literature also predicts that the willingness to supply legislative services will increase, and contributions will increase, as electoral competition intensifies – legislators will be more willing to provide services in exchange for campaign resources in tight electoral battles.<sup>16</sup>

Hypothesis 5: All else equal, interests will contribute more as electoral competition intensifies.

*Elected Commissions:* Supply prices for legislative services depend not only on the willingness of legislators to provide services, but also how effective legislative effort may be. Legislators will be less willing to supply service when the effectiveness of legislative effort to influence regulators is lower.<sup>17</sup> An element of the institutional environment of telecommunications regulation that could affect the degree of legislative influence is whether regulatory commissioners are elected or appointed.<sup>18</sup> We propose that elected commissions enjoy greater independence from legislative influence, and legislators are therefore less productive in seeking to

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<sup>15</sup> We expect that urban constituencies will favor greater entry and competition in local telecommunications, as competition places pressure for the rebalancing of retail prices that have traditionally seen urban constituents subsidize rural constituents. Rural constituencies will be less enamored by the supposed benefits of entry and competition – most entry will take place in urban areas, and the subsidies that rural constituents have traditionally enjoyed will be at threat. Notably, it is important

<sup>16</sup> For example, see Jacobson (1980), Chappell (1982), Poole, Romer and Rosenthal (1987), Grier and Munger (1986, 1991 and 1993) and Stratmann (1991 and 1992). Notably, a maintained assumption here is that demand for services is sufficiently elastic such that aggregate contributions are increasing with supply shifts.

<sup>17</sup> Existing literature suggests that legislators with greater productivity in providing legislative services (for example, through membership on a relevant committee or some leadership position) will have lower supply costs and receive greater contributions (Denzau and Munger 1986). For confirmatory empirical evidence of this relationship, see Chappell (1982), Poole, Romer and Rosenthal (1987), Hall and Wayman (1990), Grier and Munger (1986, 1991 and 1993), Stratmann (1991, 1992 and 1995), Romer and Snyder (1994) and Kroszner and Stratmann (1998), but see Gopoian (1984) and Wright (1985 and 1990)).

<sup>18</sup> Appointments are typically by the governor, with legislative assent.

influence regulatory decisions.<sup>19</sup> Costs for legislative services are consequently higher, and interests will contribute less.

Hypothesis 6: All else equal, interests will contribute less when regulatory commissioners are elected.

*Controls:* In order to test these predictions, we include important controls in our analysis. A further aspect of the institutional environment is particularly relevant: campaign finance laws. We control for the effects of statutory prohibitions on corporate contributions, and limits on corporate and PAC contributions. We expect that the existence of prohibitions and limits on contributions will reduce contributions from the rival interests, although ADS (2003) note that contribution limits for Congressional candidates are rarely binding, and Che and Gale (1998) argue that, in the context of interest group competition, tighter limits could in fact increase aggregate contributions by constraining contributions from high value interests but encouraging low value interests to contribute more aggressively. We also control for effects on entrant (incumbent) contributions of the presence of a major entrant (incumbent) firm headquarter office in a state,<sup>20</sup> and, as the largest incumbent firms are geographically delimited into four separate regions, we control for the possibility that these firms employ different contribution strategies in their respective regions.<sup>21</sup> Finally, we expect that both entrants and incumbents will contribute most aggressively in the largest states, where the potential gains from favorable regulatory

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<sup>19</sup> Theoretically, Snyder and Weingast (2000) among others have shown that political appointees to regulatory commissions are highly responsive to the chief executive and relevant legislative chambers. In contrast, when the regulator is elected, they are more responsive directly to constituents. Empirically, the hypothesis proposed here is consistent with the empirical evidence for this institutional setting examined in de Figueiredo and Edwards (2007).

<sup>20</sup> We expect that the presence in a state of a headquarter office of a major firm will increase contributions by virtue of the number of interested employees resident in that state and likely to contribute to PACs that are active in that state.

<sup>21</sup> These firms are the Regional Bell Operating Companies (RBOCs). In 1985, US West (now Qwest) was the most politically active of the (then) seven RBOCs, requiring Teske (1991) to include a special dummy for the presence of this company in his study of the determinants of state regulatory policy. The political strategies of the (now) four RBOCs have likely changed significantly since 1985, and while we expect variation in strategies persist, we do not presume that Qwest is the most active in our study period.

decisions will be greatest (Tripathi 2000). We therefore control for state size using Gross State Product (GSP).<sup>22</sup>

#### 4. Econometric specification, data and measures

As we study the contribution strategies of competing interests, we estimate a simultaneous equation model of contribution behavior summarized in (1) and (2) below:

$$C_{i,t}^E = \alpha^E + \beta^E C_{i,t}^I + \gamma^E X_{i,t} + \delta^E Z_{i,t}^E + \eta_{i,t}^E \quad (1)$$

$$C_{i,t}^I = \alpha^I + \beta^I C_{i,t}^E + \gamma^I X_{i,t} + \delta^I Z_{i,t}^I + \eta_{i,t}^I \quad (2)$$

where  $C_{i,t}^E$  and  $C_{i,t}^I$  are contributions from the rival interests in state  $i$  and election cycle  $t$ ;  $X$  is a vector of exogenous political and institutional variables that affect the contribution patterns of both interests;  $Z^E$  and  $Z^I$  are vectors of exogenous variables that are peculiar to entrant and incumbent contribution patterns; and  $\eta^E$  and  $\eta^I$  are error terms for each equation.

We utilize a panel data set of the 50 US states over three electoral cycles (1997/1998, 1999/2000 and 2001/2002),<sup>23</sup> so the unit of analysis is a state-cycle.<sup>24</sup> Descriptive statistics of the variables included in the analysis are provided in Table 1. This table indicates that there is substantial

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<sup>22</sup> In robustness tests, we found that measures of per capita income (GSP per capita, and average disposable income) were insignificant as determinants of contribution patterns from the telecommunications industry to state legislators. Although individuals, through PACs, make a large amount of contributions in this context, insignificant coefficients on measures of per capita income suggest that consumption value theory (ADS 2003) is not predictive of contribution patterns in this context.

We also tested for an effect of the size of state legislatures (expecting that larger legislatures receive more contributions) but did not find a significant effect.

<sup>23</sup> Five states – Kentucky, Louisiana, Mississippi, New Jersey and Virginia – have odd cycles (cycles that conclude in odd years) and we account for this in the data construction. Excluding these states does not significantly alter our results. Also given its unicameral legislature we exclude Nebraska in our regression results which explains the total observations of 142 in the tables that follow.

<sup>24</sup> This unit of analysis is necessary in order to study the effects of the political and institutional environment of utility regulation on contribution patterns. Using state-cycles permits the examination of variables that are not usually included in studies of contribution patterns, such as regulatory commission ideology and whether the regulatory commission is elected or appointed. Unfortunately, the choice of this unit of analysis involves a trade off, and precludes us from studying here the effects of individual legislator characteristics, such as committee membership and seniority.

variation in all variables in our analysis. A correlation matrix is presented in Table 2. Variable means state by state are displayed in Table 3.

Data on campaign contributions from the telecommunications industry to candidates for state legislatures (lower and upper houses) were obtained from the Institute on Money in State Politics ([www.followthemoney.org](http://www.followthemoney.org)).<sup>25</sup> Complete data was available for most states for each of the three electoral cycles.<sup>26</sup> Contributions at the state level can come directly from corporations, from Political Action Committees (PACs) or from individuals.<sup>27</sup> We therefore measure contributions from entrant and incumbent interests as the sums of contributions direct from entrant and incumbent corporations, from PACs associated with each type of corporation, and from individual employees of each type of corporation.<sup>28</sup> In all, the contribution dataset we use consists of 54,649 contributions from more than 1,000 different contributors, totaling just over \$23 million. Statewide totals of contributions on behalf of each interest were calculated for each electoral cycle. These totals were then normalized for state size using state population in thousands. The units of our final measures of contributions from the rival interests are therefore contribution dollars per 1000 capita.

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<sup>25</sup> A detailed description of the Institute's process for collecting and entering data into its database is available at [http://www.followthemoney.org/Institute/about\\_data.phtml](http://www.followthemoney.org/Institute/about_data.phtml).

<sup>26</sup> No data was available for five states in the 1997/1998 cycle. This reduced the number of available observations for the study from 150 to 145. In the later regression analysis, we also exclude the non-partisan Nebraska legislature reducing the observations in those models to 142.

<sup>27</sup> While the *Federal Election Campaign Act of 1971* prohibits corporate contributions direct to parties and candidates at the federal level, many states still permit direct corporate contributions to candidates for state offices.

<sup>28</sup> Entrant and incumbent corporations were identified using the FCC's *Telecommunications Provider Locator* (October 2000 and February 2003 editions), Hoovers Online, Internet searches and other industry resources. Corporations listed as incumbent local exchange companies (ILECs) were classified as incumbent firms; corporations listed as inter-exchange companies (IXCs) were classified as entrants. PACs were associated with entrant or incumbent corporations using PAC names. Individuals were associated with entrant or incumbent corporations using information on their employer provided in the contribution data from the Institute.

It is worth noting that we aggregate contributions into incumbents and entrants in aggregate. In general this poses little issue for the analysis of the incumbent ILECs which were generally operating in non-overlapping geographic areas. For IXCs it does mean that the maintained hypothesis is that aggregating these contributions together is sensible on the basis that entrant interests were sufficiently aligned in comparison to their alignment with the incumbent. In practice, this was less of an issue since many of the IXCs were entering also in non-overlapping ways during the period under study given the regulatory hurdles (i.e. single incumbent-entrant combinations in a state for some period).



From Table 1, we note that on average, incumbent interests give a lot more than entrants (roughly double in fact). There are many possible reasons for this. One possibility is that entrants are more capital constrained than incumbents. Later in this section we discuss one possible form of capital constraint: entrants appear to enjoy less comprehensive or effective PAC machines through which to organize and deliver contributions. Another possibility is that, on average, propensity for the provision of legislative services differ between incumbents and entrants. A third possibility is that incumbents have cause to contribute on a wider range of issues than entrants. For example, incumbents must not only consider the threat of entry to their markets, but also the method by which their retail prices are determined. Contributions from incumbents could in part represent attempts to influence regulation of retail rates, among other things.<sup>29</sup>

Table 4 presents summary information on the patterns of contributions from the three classes of contributors: corporations; associated PACs; and associated individuals.<sup>30</sup> All data in Table 4 are averages over the 145 state-cycles in our sample. Table 4 reveals significant differences in the *sources* of contributions on behalf of entrant and incumbent firms, but little difference in their *destinations*. On average across our sample, entrant contributions are predominantly direct from entrant corporations, whereas most contributions on behalf of incumbent firms come from associated PACs. Indeed, although total contributions on behalf of incumbent interests are roughly twice those on behalf of entrants, entrant firms give more direct contributions than incumbent firms. Nearly two-thirds of entrant contributions come direct from entrant corporations. Incumbents dominate PAC giving, with incumbent associated PACs giving more than four times as much as entrant associated PACs. This is likely a reflection of the larger employee bases of the incumbent firms in most states. More than two-thirds of incumbent contributions come from PACs.<sup>31</sup> Contributions from individual employees of the rival firms are

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<sup>29</sup> In robustness tests, the method of retail rate regulation (price caps or rate of return regulation) was not a significant determinant of contribution patterns.

<sup>30</sup> While we consider Table 4 to be broadly indicative, we caution that identifying PAC contributions separately from corporate contributions is, unfortunately, imprecise. The Institute gathers information on contributions by reviewing contribution disclosure filings by each candidate for state office, and there is unavoidable variability in the description of contributors in these filings. In particular, it is possible that some contributions attributed as direct from corporations were actually provided by PACs associated with those corporations.

<sup>31</sup> Two paired t-tests comparing the means of percents of contributions in each state-cycle 1) direct from entrant firms and direct from incumbent firms, and 2) from PACs on behalf of entrant firms and from PACs on behalf of incumbent firms, confirm that the sources of contributions on behalf of entrant and incumbent firms vary systematically as described in the text.

relatively trivial in the data. As noted above, for the purpose of the main analysis in this paper we measure contributions from entrant and incumbent interests as the sums of contributions from all three sources, without distinction. Nonetheless, some implications of the different sources of contributions on behalf of entrant and incumbent firms can be derived from our results, and we discuss these implications in Sections 5 and 6 below. Table 4 also presents the average split in contributions from each interest to Democrat and Republican legislators. There is no clear evidence here that entrant firms give more to Democrat legislators or that incumbent firms give more to Republicans. On average, both interests divide their contributions more or less equally between Democrat and Republican legislators (Republican legislators enjoy a very slight advantage).

To test our hypotheses, we develop measures of the dominant party ideologies in the state legislatures and regulatory commissions, relevant constituency characteristics, the intensity of electoral competition, and relevant institutional features. We measure the dominant party ideology of the legislature as a categorical variable coded zero if both houses are Democrat controlled, one if Republicans control both houses, and 0.5 if the houses are divided, there is no clear majority in one house or the legislature is non-partisan (Nebraska).<sup>32</sup> Regulatory commission ideology enters the analysis as a categorical variable coded zero if the majority of commissioners were Democrat, one if Republican, and 0.5 if the commission was evenly divided or entirely composed of Independents.<sup>33</sup> Our empirical analysis includes an interaction term between these measures of legislative ideology and regulatory commission ideology. We employ two measures of constituency characteristics: percentages of state populations living in metropolitan areas – a measure of the urbanization of state populations,<sup>34</sup> and per capita Gross State Product in the Financial, Insurance and Real Estate sector (GSP in FIRE per capita) – a

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<sup>32</sup> This measure is similar to Teske (1991). An alternative approach to measuring legislative ideology was tested for robustness. Two dummy variables were created – one for Democrat control of both houses and another for Republican control of both houses. Substituting these alternative measures makes little difference to our results and does not add additional insight. Data on the party composition of the state legislatures is from annual editions of the US Census Bureau's *Statistical Abstract of the United States* (1997-2003).

<sup>33</sup> Data on the party ideologies of the regulatory commissioners were obtained from annual membership directories of the National Association of Regulatory Utility Commissioners (1996, 2000, 2001 and 2002).

<sup>34</sup> Data is from the US Census Bureau's *Statistical Abstract of the United States* (1997-2003). In an earlier study, Chappell (1982) similarly used urban population percentage as a measure of constituency preferences.

measure of the strength of business customer demand for telecommunications services.<sup>35</sup> Highly metropolitan states and states with stronger business demand should favor greater competition and entry in telecommunications.<sup>36</sup> The intensity of electoral competition in state legislatures is measured as minus one multiplied by the average of the absolute values of the current shares of Democrat seats minus 0.5 in the upper and lower houses respectively.<sup>37</sup> This measure is very similar to a Ranney Index.<sup>38</sup> We multiply by minus one so that higher values in our measure reflect closer electoral races.<sup>39</sup> A dummy variable is included for states that elect their regulatory commissioners.<sup>40</sup> Eleven states elected their commissions throughout our study period. Analysis of unconditional correlations suggests a significant negative relationship between this variable

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<sup>35</sup> The FIRE sector is a major consumer of telecommunications services (Teske 1991). Data were obtained from the *Regional Economic Accounts* provided by the US Department of Commerce's Bureau of Economic Analysis (<http://www.bea.gov/bea/regional/gsp/>).

<sup>36</sup> Entry and competition will tend to occur first in high margin metropolitan areas and in the provision of services to business customers, placing pressure on cross-subsidies in incumbent firm retail pricing structures from metropolitan customers to non-metropolitan customers and from business customers to residential customers. Metropolitan and business customers will favor greater entry and competition in the expectation that this will not only drive down retail prices they face, but also enhance service quality and expand product options available to them.

<sup>37</sup> This is most accurately described as a measure of the intensity of electoral competition in the prior electoral cycle, rather than the current one. Nonetheless, this measure is preferred due to concerns of endogeneity when using a measure of the intensity of electoral competition in the current cycle: electoral competition in the current cycle is potentially partly determined by contribution levels. This measure is less accurate as a measure of electoral competition than measures used in studies where the units of analysis are individual legislators. In those studies, the margin of votes over 50 percent earned by a legislator is a good measure of the intensity of electoral competition that legislator faces. In our study, our measure of electoral competition is less than ideal, as the seats-votes curve is likely to vary from state to state: for example, 51 percent of the vote might translate into 51 percent of the seats in some states, but 80 percent of the seats in others.

<sup>38</sup> A Ranney Index of the intensity of party competition averages together the proportion of seats won by Democrats in the state house and senate elections along with the Democratic percentage in the gubernatorial election.

<sup>39</sup> For example, where Democrats hold all seats in both houses, our measure of electoral competition is  $-0.5$ . Where Democrats hold half the seats of both houses, electoral competition is measured as zero. And where Democrats hold no seats in either house, our measure of electoral competition is again  $-0.5$ . In our sample, the least competitive state-cycle ( $-0.393$  by our measure) was Idaho in 2001/2002, in which Democrats held only 7 of 70 lower house seats and just 3 of 35 senate seats. The most competitive state-cycle ( $-0.005$  by our measure) was Washington in 2001/2002, in which Democrats held exactly half (49) of the 98 lower house seats and 25 of the 49 senate seats.

<sup>40</sup> Data on elected commissions is from annual editions of the Council of State Governments' *The Book of the States* (1996-2002).

and our measures of entrant and incumbent contributions.<sup>41</sup> Another dummy measures whether there is a statutory prohibition on direct contributions to legislators from corporations, and a categorical variable has been created to represent the presence of upper limits on the size of corporate and PAC contributions.<sup>42</sup> This latter variable is coded zero where there are no limits, one if contributions from either corporations or PACs are limited, and two if contributions from both corporations and PACs are limited. In Table 3 we can see that most states limit at least one of these source, exceptions being Illinois, New Mexico, Oregon and Virginia. Two further dummy variables denote the presence of a major entrant or incumbent firm headquarter office in a state,<sup>43</sup> and a final set of dummy variables code the states into the respective regions of the four largest incumbent firms (the Regional Bell Operating Companies (RBOCs): BellSouth, Qwest, SBC and Verizon).<sup>44</sup>

We can now rewrite Eqs. (1) and (2) in expanded form.<sup>45</sup>

$$\begin{aligned} \text{Entrant Contributions}_{i,t} = & \alpha^E + \beta^E \text{Incumbent Contributions}_{i,t} + \gamma^E_1 \text{Legislative Ideology}_{i,t} + \\ & \gamma^E_2 \text{Commission Ideology}_{i,t} + \gamma^E_3 \text{Interaction}_{i,t} + \gamma^E_4 \text{Metropolitan Population}_{i,t} + \\ & \gamma^E_5 \text{GSP in FIRE}_{i,t} + \gamma^E_6 \text{Electoral Competition}_{i,t} + \gamma^E_7 \text{Elected Commission}_{i,t} + \\ & \gamma^E_8 \text{Prohibition on Corporate Contributions}_{i,t} + \gamma^E_9 \text{Limits on Corporate and PAC} \\ & \text{Contributions}_{i,t} + \delta^E_1 \text{Entrant Headquarters}_{i,t} + \eta^E_{i,t} \end{aligned} \quad (3)$$

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<sup>41</sup> In states with elected commissions, entrant (incumbent) contributions average 1.77 (9.45) per 1000 capita. For states with appointed commissions, the average value is 8.76 (15.87). The unconditional correlation coefficient between elected commissions and entrant (incumbent) contributions is  $-0.29$  ( $-0.17$ ) with a p-value of 0.0004 (0.038).

<sup>42</sup> Data on prohibitions and limits on contributions to candidates for state legislatures is from Feigenbaum and Palmer (1998, 2000 and 2002).

<sup>43</sup> Information on the location of major entrant (IXC) and incumbent (ILEC) firm headquarter offices is from various editions of the FCC's *Statistics of Communications Common Carriers* (1997-2002). This dataset records the locations of headquarter offices only for firms with greater than \$100 million in operating revenues. Firms with less than \$100 million in operating revenues are relatively trivial in the context of the telecommunications industry, and we do not expect their exclusion to bias results in any significant way.

<sup>44</sup> In our estimations, the dummy for BellSouth is omitted to avoid collinearity.

<sup>45</sup> For notational purposes, GSP has been omitted here, but is included in all estimations. Data on GSP were obtained from the *Regional Economic Accounts* provided by the US Department of Commerce's Bureau of Economic Analysis (<http://www.bea.gov/bea/regional/gsp/>).

$$\begin{aligned}
 \text{Incumbent Contributions}_{i,t} = & \alpha^I + \beta^I \text{ Entrant Contributions}_{i,t} + \gamma^I_1 \text{ Legislative Ideology}_{i,t} + \\
 & \gamma^I_2 \text{ Commission Ideology}_{i,t} + \gamma^I_3 \text{ Interaction}_{i,t} + \gamma^I_4 \text{ Metropolitan Population}_{i,t} \\
 & + \gamma^I_5 \text{ GSP in FIRE}_{i,t} + \gamma^I_6 \text{ Electoral Competition}_{i,t} + \gamma^I_7 \text{ Elected Commission}_{i,t} \\
 & + \gamma^I_8 \text{ Prohibition on Corporate Contributions}_{i,t} + \gamma^I_9 \text{ Limits on Corporate and} \\
 & \text{ PAC Contributions}_{i,t} + \delta^I_1 \text{ Incumbent Headquarters}_{i,t} + \delta^I_2 \text{ Qwest}_i + \delta^I_3 \text{ SBC}_i \\
 & + \delta^I_4 \text{ Verizon}_i + \eta^I_{i,t}
 \end{aligned} \tag{4}$$

This model reflects our theoretical setup. Contributions from each interest are modeled as a function of rival contributions. Contributions from each interest are also functions of aspects of the political environment that feature in our hypotheses (the dominant party ideologies in the legislature and the regulatory commission and an interaction term between these; constituency characteristics; and the degree of electoral competition) and the institutional environment (elected commissions; and the existence of statutory prohibitions and limits on contributions). In addition, contributions from entrants are a function of the presence of a major entrant firm headquarter office in a state; and incumbent contributions are determined by the presence of a major incumbent firm headquarter office and the peculiar strategies of the four major incumbent firms in their respective regions.

## 5. Results

We estimate our model using both Ordinary Least Squares (OLS) and Two-Stage Least Squares (2SLS) methods.<sup>46</sup> Data is pooled over all three electoral cycles. All estimations include GSP to control for effects of state size, but estimated coefficients suggest, somewhat surprisingly, that state size is not a significant determinant of per capita contribution patterns.<sup>47</sup> All estimations also include year dummies to control for nationwide differences between cycles. All standard errors reported in this paper are consistent in the presence of heteroskedasticity using the Huber-White robust covariance estimator (White 1980).

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<sup>46</sup> With dependent variables bounded below by zero, it is sometimes preferable to perform a Tobit procedure rather than linear regressions. However, the lower bound on contributions is unlikely to be quantitatively important in our data, as only a small fraction of observations lie at this bound (entrant contributions were zero in 18 of 142 state-cycles; incumbent contributions were zero in just six state-cycles). In robustness tests we alternatively estimated Tobit models and found very similar results.

<sup>47</sup> This is surprising as it suggests that states offering bigger potential profits do not necessarily attract more political activity per capita (see, e.g. Tripathi 2000).

Columns 1 and 2 of Table 5 present OLS estimates of Eqs. (3) and (4) respectively. The results from these estimations are mostly supportive of our hypotheses, although many coefficients in the entrant contribution equation lack statistical significance at conventional levels.

First, we find strong evidence in both equations that interests respond positively to increasing contributions from rivals, consistent with our first hypothesis that predicts defensive and responsive contribution strategies.

Second, for the incumbent contribution equation, coefficients on legislative ideology, commission ideology, and the interaction term between these, reveal that incumbents give more when the regulatory commission is controlled by Democrats, but only to Republican legislatures, consistent with both hypotheses concerning ideology.<sup>48</sup> For the entrant contribution equation, however, we report insignificant coefficients on each of the ideology variables.

Third, all four coefficients on our two measures of constituency characteristics are signed as predicted by our hypothesis concerning the propensity to provide legislative services. Entrant contributions tend to respond positively to higher metropolitan populations and GSP in FIRE per capita. Conversely, incumbent contributions are lower in states with constituencies more favorable to competition and entry in local telecommunications. In terms of statistical significance, only the coefficient on GSP in FIRE in the incumbent contribution equation is significant at conventional levels. The remaining three coefficients nonetheless provide weak additional support for this hypothesis.<sup>49</sup>

Fourth, testing for the effects of electoral competition returns a result contrary to our predictions. While we find that entrants tend to give more in closely contested electorates (although again, this coefficient is not statistically significant) we find that incumbents appear to give less. One possible explanation for this unexpected result draws again on the concept that contributions

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<sup>48</sup> Note that the interaction term between legislative ideology and commission ideology almost completely offsets the main effect on legislative ideology, suggesting that when Republicans control the regulatory commission, incumbent interests do not discriminate between contributions to Democrat and Republican legislatures.

<sup>49</sup> The coefficient on metropolitan population percent in the entrant contribution equation is positive as predicted, and the probability of a coefficient of this magnitude or greater is just 0.103. The coefficient on GSP in FIRE in the entrant contribution equation is also positive as predicted and would be significant at the 10 percent level on a one-sided test. Finally, the coefficient on metropolitan population percent in the incumbent contribution equation is negative as predicted and would also be significant at the 10 percent level on a one-sided test.

depend on the relative costs and thus willingness for legislators to supply legislative influence, but in a manner that we did not at first predict. According to Denzau and Munger (1986), more informed voters increase the willingness to provide for policies that voters favor, and vice versa for policies that voters oppose. We imagine that greater electoral competition will cause voters to become better informed on issues that concern them, including telecommunications prices and the extent of competition and entry in the industry. The majority of voters in most states are likely to benefit from greater competition and entry and lower prices for telecommunications services. As these voters become better informed, legislators should be more disposed to performing services for entrant firms and less disposed to assisting incumbents – the costs of influence on behalf of entrants will fall, and the costs for providing services to incumbents will rise. If this is the case, entrants will contribute more and incumbents less as electoral competition intensifies.

Finally, we find that both interests give fewer contributions when regulatory commissions are elected rather than appointed. This supports our proposition that as elected commissions are less susceptible to influence from legislators, influence services by legislators are less productive, and interests consequently provide fewer contributions in exchange for legislative services. In an industry context in which interests seek influence over regulatory policy, elected commissions appear to provide some insulation from the legislative avenue for such influence.

Turning to the controls in our analysis, we find that prohibitions on corporate contributions have a significant impact on entrant contributions, but no significant effect on incumbent contributions; while limits on corporate and PAC contributions clearly impede incumbent contributions without affecting entrant contributions. We interpret these results having regard to our preliminary summary of the sources of contributions from the rival interests. Entrants, without established operations and employee bases in most states, appear to lack PAC machines to match those of the incumbent firms. To compensate, entrants rely very much on direct corporate contributions. Prohibitions on corporate contributions therefore significantly constrain the ability of entrant interests to contribute in those states. Meanwhile, with contributions on behalf of incumbents on average nearly double those on behalf of entrants, limits on corporate and PAC contributions are binding on incumbent contributions, but do not appear to limit contributions from entrants. We also report evidence consistent with our expectations that incumbent contributions are higher in states in which there is an incumbent firm headquarter office, and the different RBOCs employ different contribution strategies between their respective regions, with Qwest and Verizon in particular appearing to be less aggressive contributors than the omitted RBOC, BellSouth.

In a simultaneous equation model, OLS estimates are likely to suffer from simultaneity bias, as all factors that predict entrant contributions also predict incumbent contributions (and vice-versa). In the present context if simultaneity does exist, the bias could go in either direction depending on whether contributions crowd out or crowd in competing groups' contributions. We therefore employ a 2SLS (Instrumental Variables) estimation technique to control for simultaneity. In the first stage, we estimate contributions from each interest as functions of all exogenous variables in the model. Identification of the second stage structural equations in (3) and (4) requires that we include in each first stage (reduced form) equation at least one instrument that has a non-zero coefficient in the first stage and is excludable from the corresponding second stage. In other words, for validity, we need instruments that are both strong (correlated with the endogenous second stage regressor) and excludable (uncorrelated with the error term in the second stage). The natural choice for excluded instruments are those built into our simultaneous equation model: entrant headquarters is an excluded instrument for entrant contributions in (4); incumbent headquarters and the RBOC regions are excluded instruments for incumbent contributions in (3). We then use the predicted values of entrant and incumbent contributions from the first stage as independent variables, along with the common and peculiar exogenous variables, to estimate (3) and (4) in the second stage. With valid instruments, this method allows us to generate consistent estimates of the effects on each interest's contributions of exogenous changes in contributions by the rival interest. Columns 3 and 4 of Table 5 report results from 2SLS estimations of (3) and (4) using the modeled instruments.<sup>50</sup>

Before discussing results of these estimations, it is important to conduct specification tests to assess the validity of our instruments. First, weak excluded instruments lead to bias in estimated 2SLS coefficients (Bound, Jaeger and Baker 1995; Staiger and Stock 1997).<sup>51</sup> The incumbent headquarters dummy and the RBOC region dummies are, together, reasonably strong predictors of incumbent firm contributions in the first stage (the first stage F-test on these instruments is  $F(4,121) = 10.92$ ,  $p\text{-value} < 0.0001$ ). Unfortunately, the entrant headquarters dummy is, on its own, too weak to qualify as a valid instrument for entrant contributions (the first stage F-test is  $F(1,121) = 0.59$ ,  $p\text{-value} = 0.442$ ). In the absence of a suitable naturally occurring excludable instrument for entrant contributions, we re-estimate (4) supplementing the entrant headquarters

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<sup>50</sup> We report only the second stage results of 2SLS estimations, for simplicity of presentation.

<sup>51</sup> A common rule of thumb is that, for a single endogenous regressor, an F-statistic below 10 is cause for concern (Staiger and Stock 1997).



dummy with a rank-based instrument, following Evans and Kessides (1993) and Kroszner and Stratmann (1998). We construct this instrument by sorting the observations in our sample from lowest entrant contributions to highest and assigning ranks (1, 2 and 3 respectively) to observations in the smallest, middle and largest thirds of the sample. By construction, this instrument is correlated with entrant contributions (the first stage F-test with the inclusion of the rank instrument is  $F(2,120) = 25.61$ ,  $p\text{-value} < 0.0001$ ). Under a reasonable set of assumptions, the rank instrument is also orthogonal to the error in (4), as shown by Wald (1940) and Koenker and Bassett (1978).<sup>52</sup> Results for the incumbent contribution equation (4) using this alternative instrumentation method are reported in column 6 of Table 5.

Second, valid instruments must be uncorrelated with the error term in the structural equation. As our model includes more than one excluded instrument for incumbent contributions, we can perform an overidentification test – a test of the joint null hypothesis that the excluded instruments are uncorrelated with the error term in the structural equation (3) and correctly excluded from it. A rejection casts doubt on the validity of the excluded instruments.<sup>53</sup> For the entrant contribution equation estimated in column 3, we reject the null hypothesis that all our excluded instruments for incumbent contributions (incumbent headquarters and the RBOC regions) satisfy the exclusion restriction – at least one of these may not be valid.<sup>54</sup> To control for this concern, we construct another three level rank instrument, this time for incumbent contributions. As discussed above, we are confident on theoretical grounds that this instrument is both strong and excludable. Overidentification tests of each of the originally excluded instruments with the rank instrument suggest that of these, only Verizon is properly excluded from (3). We therefore re-estimate (3) using only Verizon and the rank instrument as excluded instruments, and report the results in column 5 of Table 5.

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<sup>52</sup> If a change in entrant contributions does not alter the rank, then the rank is independent of the error term. This condition will be violated only for observations near the thresholds between the ranks, so we have chosen a small number of ranks to reduce the likelihood of changes in ranks.

<sup>53</sup> We test the exclusion restriction using Hansen's J statistic (Hansen 1982) – a test of overidentifying restrictions that is robust to heteroskedasticity in the errors.

<sup>54</sup> Hansen's J statistic (distributed as  $\chi^2$  with three degrees of freedom) is 13.96,  $p$  value 0.003.

Columns 5 and 6 of Table 5 therefore present our preferred 2SLS estimations of (3) and (4) respectively.<sup>55</sup> In the remainder of this section we discuss the results of these estimations and ignore the poorly specified 2SLS estimations in columns 3 and 4. Durbin-Wu-Hausman specification tests<sup>56</sup> of whether there are systematic differences in the coefficients in the OLS and 2SLS estimates report weak evidence of endogeneity. For example, for the incumbent contribution equation (4), the Durbin-Wu-Hausman  $\chi^2$  statistic with one degree of freedom is 2.24 with a p value of 0.135.<sup>57</sup> We would reject the null hypothesis that the OLS estimation of (4) yields consistent estimates at the 15 percent confidence level. We therefore consider that, while sacrificing some efficiency, it is prudent to prefer our 2SLS estimates to ensure consistent estimates of the effects of rival contributions.

The results of our 2SLS estimations in columns 5 and 6 are similar to, but generally stronger than our OLS results, and are again generally supportive of our predictions. There are essentially four differences between the OLS and 2SLS results. First, while the 2SLS results again confirm our first hypothesis on matching contributions, the coefficient on entrant contributions in the incumbent contribution equation is now much larger. It is interesting to us that, even after controlling for potential simultaneity bias, we find that entrants and incumbents do not appear to match dollar for dollar and nor do they defend equally. For each extra dollar of entrant contributions (per 1000 capita), incumbents match with \$0.72; but in response to an extra incumbent dollar, entrants match with only \$0.37. Similar results have been reported in two previous studies of interest group competition.<sup>58</sup>

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<sup>55</sup> The instruments used in these estimations appear both strong and excludable. For the entrant contribution equation (3), the excludable instruments we use for incumbent contributions (Verizon and the rank instrument) also appear to be strong instruments (the first stage F-test is  $F(2,120) = 65.50$ , p-value  $< 0.0001$ ). For the incumbent contribution equation (4), the instruments we use for entrant contributions (entrant headquarters and the rank instrument) appear to be excludable (Hansen's J statistic with one degree of freedom is 0.03, p value 0.866) as well as strong.

<sup>56</sup> Durbin (1954), Wu (1973) and Hausman (1978).

<sup>57</sup> For the entrant contribution equation (3), there is, surprisingly, no evidence of endogeneity, even at the conservative 15 percent level. The Durbin-Wu-Hausman  $\chi^2$  statistic with one degree of freedom is 0.80 with a p value of 0.3701. We cannot reject the null of no endogeneity. This suggests that our OLS estimates of this equation are consistent, assuming we have validly instrumented for incumbent contributions in our 2SLS estimation.

<sup>58</sup> In similarly constructed 2SLS estimations, Austen-Smith and Wright (1994: 40-41) and Kroszner and Stratmann (1998: 1177) also find that interests respond defensively to their rivals, but not dollar for dollar and not equally. In a study of the lobbying behavior of organized interests involved in the

Second, while our 2SLS results again report that incumbents give significantly more to aligned (Republican) legislatures when the regulatory commission is ideologically unaligned (Democrat), we now also find a statistically significant positive coefficient on the interaction term in the entrant contribution equation. Consistent with our second hypothesis, this implies that entrants give more when the regulatory commission is ideologically unaligned (Republican). But contrary to our third hypothesis, when Republicans control the regulatory commission, entrants prefer to purchase influence services from Republican rather than Democrat legislatures. In other words, it would appear that Republican legislatures are, for some reason, more willing than Democrats to perform influence services for interests that find themselves faced with unsympathetic regulatory commissions. While our findings are not quite as expected (we find consistent support for our second hypothesis, but conflicting results for our third) there is little doubt that the party ideologies of both regulatory commissions and legislatures are important considerations for the contribution strategies of both interests.

Third, our 2SLS estimates are generally more significant than our OLS estimates. For example, all four coefficients on our measures of constituency characteristics are now statistically significant at the 10 percent level or lower. And while the coefficient on electoral competition in the entrant contribution equation is not significant at conventional levels, it is positive as predicted, and the probability of a coefficient of this magnitude or greater is just 0.11.

Finally, the entrant contribution equation now includes three additional variables that were previously excluded from (3): incumbent headquarters, Qwest and SBC. The Qwest dummy is significant at the 5 percent level and the incumbent headquarters and SBC dummies are not convincingly close to zero.<sup>59</sup> This helps us understand a little better the rejection of the overidentification test in our first attempt at instrumentation in column 3: it seems probable that each of these variables is properly included rather than excluded from the structural equation for entrant contributions.

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confirmation battle over Robert Bork's nomination to the US Supreme Court in 1987, Austen-Smith and Wright find that the interests lobbied pre-disposed legislators in a defensive fashion (in response to lobbying from their rivals) but the response of one of the interests was 1.34, more than counteractive, while the response of the other was just 0.12. Kroszner and Stratmann report that in a competition between banking PACs and securities PACs, banking PACs matched an extra dollar from securities PACs with \$0.80, but securities PACs matched an extra dollar of contributions from banking PACs with only \$0.38.

<sup>59</sup> For the incumbent headquarters dummy, the probability of a coefficient of  $-2.848$  or larger is just 0.13. For the SBC dummy, the probability of a coefficient of  $4.702$  or larger is just 0.12.

## 6. Discussion and conclusion

We have extended the literature on strategic contribution behavior beyond Congress, to examine patterns of contributions by competing interests to state legislatures. And we have elicited and tested predictions of contribution behavior from the extant literature that are peculiar to a context in which regulatory (rather than legislative) outcomes feature. Our empirical context is the battle between opposed interests over regulatory policy in the local telecommunications industry. With regulatory policy the main focus of the interests in this industry, it might surprise some that the interests bother to contribute at all to candidates for state legislatures. A consumption theory of contributions – that interests contribute purely for the satisfaction of political participation – would predict that contributions are mostly benign, varying mainly with income. An alternative theory – that the interests contribute in strategic fashion with a view to purchasing influence by legislators over regulatory policy – would predict that rival contributions, the configuration of support for each interest in the dominant party ideologies of the regulatory commission and the legislature, and relative costs of legislative services, will each be important determinants of contribution patterns in this industry.

We report results generally supportive of our proposition that interests in the local telecommunications industry contribute strategically to state legislators with a view to purchasing legislative influence over decisions of independent regulatory commissions. We demonstrate that interests contribute in defensive patterns in response to contributions from rival interests. We report that the dominant party ideologies of regulatory commissions and state legislatures are important considerations for the contribution strategies of both interests. And we show that contributions follow the comparative advantages of legislatures in providing legislative services to the rival interests. For example, the intensity of electoral competition drive contributions from the competing interests higher, consistent with contributions being positively related to the willingness (predisposition) of legislators to perform influence services on behalf of those interests. And the interests give less when regulatory commissions are elected and legislatures are likely to be less productive in efforts to influence those commissions. Most notable, perhaps, is that we find elements of the political and institutional environment of telecommunications regulation to be significant determinants of patterns of contributions to state legislators. In other words, the interests act as if the regulatory environment matters for their contribution strategies. We suggest this is compelling evidence that there exists a competitive market for the purchase of legislative influence over regulatory policy. Moreover, these results are suggestive of an important normative element to our work, in the spirit of the literature discussed earlier on non-

market strategy. Following on the puzzles introduced by ADS, our paper is suggestive of the possibility that influencing votes may be difficult but instead providing resources to legislators to influence actors downstream in the policy process (i.e. at the agency level) may be more fruitful.

In addition to tests of the strategic nature of contributions, our study reports interesting results on our controls for campaign finance laws. We find that alternative approaches to restricting contributions affect the two main interests in the telecommunications industry in different ways, distorting the competitive outcome in each case. Prohibitions on contributions direct from corporations (mirroring the prohibition at Federal law under the *Federal Election Campaign Act of 1971*) restrict the ability of entrant interests to compete for legislative services, without significantly impeding the flow of incumbent contributions. Conversely, limits on corporate and PAC contributions appear binding on the contributions of incumbents without constraining contributions from entrants. In short, a state's choice of campaign finance laws appears to do more than affect the total level of contributions in the state – different laws impact on the activities of some interests more than others. These results have normative implications for a state's choice of campaign finance laws as well as more recent developments at the federal level given *Citizens United*, and raise the positive question whether private interest beneficiaries of the alternative laws are influential in the choice of those laws.

Our analysis perhaps raises as many questions as it has been able to answer. With respect to the empirical results, there are also a number of open issues for future research. One question arises out of our failure to find consistent support for our third hypothesis on the effects of party ideologies in the legislature. Our results imply that both sides of the industry seek out *Republican* legislatures to provide influence services when the ideology of the regulatory commission is unsympathetic. In a recent study of Congressional votes on financial services legislation, Stratmann (2002: 360) similarly found Republicans to be more responsive than Democrats to changes in contribution levels. Future research might examine whether Republican legislators are systematically more responsive than Democrats to quid pro quo service provision in exchange for contributions. Another possible explanation concerns a potentially important omitted variable in our analysis that is the governorship. Because appointed elected officials are most likely influenced by the governor, not controlling—or potentially interacting—governor's ideology creates faulty interpretation on the legislative variables. Unfortunately because of the fact that in our data set here there are only three electoral cycles—of which there were at most one gubernatorial change per state, there was not sufficient variation to identify such interactions

between the governor and legislature. That said, in future research, with longer panels it may be possible to disentangle these effects.

With regard to the theory of responsive contributions, the paper highlights a need for future theory development as well as a number of open puzzles. At a general level, the results in this paper highlight the need to more explicitly develop an integrated model of legislative and executive politics (a la Baron 2001) that provides sharper comparative statics when interest groups are competing for influence of regulators. Such a model would incorporate the executive, legislator and multiple interest groups with differential valuations over policy outcomes (de Figueiredo, Jacobi and Weingast 2006). Although no small task, the progress we have seen on the theory side in analyzing the components provides an opportunity for such a valuable integration, which in turn may provide the linkages between strategy, non-market outcomes and firm performance envisioned by de Figueiredo, Lenox, Oberholzer-Gee and Vanden Bergh (forthcoming). In addition, the paper leaves for future research two persistent puzzles in the empirical literature on interest group competition that arose again in our analysis: why defensive and responsive contributions does not appear to be dollar for dollar, and why interests differ in their propensities to respond. We find that incumbents are roughly twice as responsive to entrant contributions as entrants are to contributions by incumbents. One possible explanation worthy of further exploration is that defensive responses by entrants are capital constrained, perhaps in part due to the absence of adequate PAC machinery in many states. Another possibility is that there are not common valuations of the outcomes leading to some but not perfect responsiveness. Still another possibility is that defensive contributions to “friends” carry different prices than other contributions.

Finally, as noted earlier, the paper provides an important extension of ADS (2003) in that it does show that unlike in other contexts, in settings such as ours—where there is interest group competition between profit-motivated actors in a regulatory domain—there do appear to be important strategic factors affecting behavior. But at the same time, our results show that despite what may be important stakes the dollar values as ADS point out are quite small, even in such a setting. This leaves open the question of why even in these special cases, as ADS ponder, there is so little contributed.

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**Table 1: Descriptive Statistics**

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
Entrant Contributions (\$ per 1000 capita)	145	7.170	10.218	0	66.026
Incumbent Contributions (\$ per 1000 capita)	145	14.409	15.665	0	100.933
Legislative Ideology	150	0.493	0.430	0	1
Commission Ideology	150	0.64	0.460	0	1
Metropolitan Population (%)	150	0.678	0.205	0.278	1
GSP in FIRE (\$Thousands per capita)	150	5.545	2.857	2.322	18.404
Electoral Competition	147	-0.127	0.088	-0.393	-0.005
Gross State Product (\$Trillions)	150	0.179	0.215	0.016	1.260
Elected Commission	150	0.233	0.424	0	1
Prohibition on Corporate Contributions	150	0.353	0.480	0	1
Limits on Corporate and PAC Contributions	150	1.6	0.655	0	2
Entrant Headquarters	150	0.067	0.250	0	1
Incumbent Headquarters	150	0.267	0.444	0	1
Qwest	150	0.28	0.451	0	1
SBC	150	0.24	0.429	0	1
Verizon	150	0.26	0.440	0	1

[TABLES 2 AND 3 ABOUT HERE]

**Table 4: Summary (Means) of Contributions to State Legislators (Statewide Totals and Per 1000 Capita): from Entrant and Incumbent Corporations, Associated PACs and Associated Individuals; and to Democrats and Republicans**

	Total Contributions (\$)		Contributions Per 1000 Capita (\$)	
	Entrants	Incumbents	Entrants	Incumbents
<b>From</b>				
Corporations (Direct)	31,395 (65.0%)	25,698 (28.4%)	4.55	3.99
Associated PACs	14,756 (30.6%)	61,450 (67.8%)	2.62	9.00
Associated Individuals	2,119 (4.4%)	3,461 (3.8%)	1.90	1.41
<b>To</b>				
Democrats	23,806 (49.3%)	43,321 (47.8%)	3.89	6.23
Republicans	24,310 (50.4%)	46,988 (51.9%)	5.11	8.07
Other	153 (0.3%)	301 (0.3%)		
Totals	48,269	90,610		



**Table 5: Ordinary Least Squares and Two-Stage Least Squares Panel Estimations of Entrant and Incumbent Contributions (\$ per 1000 capita) to State Legislators**

	Ordinary Least Squares		Two-Stage Least Squares <sup>1</sup>		Two-Stage Least Squares <sup>2</sup>	
	Entrant Contributions	Incumbent Contributions	Entrant Contributions	Incumbent Contributions	Entrant Contributions	Incumbent Contributions
	(1)	(2)	(3)	(4)	(5)	(6)
Incumbent Contributions (\$ per 1000 capita)	0.311*** (0.092)		0.389*** (0.108)		0.372*** (0.079)	
Entrant Contributions (\$ per 1000 capita)		0.488*** (0.157)		0.575 (0.811)		0.722*** (0.209)
Legislative Ideology	-1.466 (2.927)	21.521*** (7.244)	-3.055 (3.052)	21.171** (8.254)	-4.851 (2.986)	20.577*** (6.262)
Commission Ideology	-1.453 (2.321)	3.459 (3.664)	-1.569 (2.249)	3.531 (3.345)	-2.232 (2.170)	3.654 (3.460)
Leg Id x Com Id	4.654 (3.276)	-18.864** (7.383)	6.192* (3.619)	-18.795*** (6.934)	6.444* (3.415)	-18.679*** (6.659)
Metropolitan Population (%)	9.530 (5.795)	-9.685 (6.683)	9.475* (5.372)	-10.258 (7.983)	8.511* (4.693)	-11.228* (6.790)
GSP in FIRE (\$Thousands per capita)	0.375 (0.283)	-0.784** (0.378)	0.530 (0.341)	-0.854 (0.704)	0.921** (0.413)	-0.971** (0.391)
Electoral Competition	10.052 (8.075)	-29.688*** (10.844)	11.596 (7.699)	-29.677*** (9.952)	11.375 (7.107)	-29.659*** (9.898)
Gross State Product (\$Trillions)	-8.340 (7.010)	1.483 (6.532)	-9.279 (6.464)	2.282 (11.002)	-7.392 (5.718)	3.636 (6.506)
Elected Commission	-3.310** (1.452)	-7.246** (2.796)	-2.662* (1.459)	-6.632 (6.940)	-2.684* (1.399)	-5.592** (2.499)
Prohibition on Corporate Contributions	-4.491*** (1.269)	1.538 (2.504)	-4.231*** (1.273)	1.884 (3.438)	-4.040*** (1.120)	2.471 (2.518)
Limits on Corporate and PAC Contributions	-0.350 (1.171)	-5.216*** (1.650)	-0.068 (1.167)	-5.056** (1.969)	0.479 (1.055)	-4.785*** (1.589)
Entrant Headquarters	-2.461 (1.640)		-2.457 (1.577)		-2.165 (1.620)	
Incumbent Headquarters		5.865** (2.357)		5.946*** (2.271)	-2.848 (1.887)	6.082*** (2.180)
Qwest		-14.936** (5.965)		-14.764** (6.165)	4.605** (1.937)	-14.471*** (5.422)
SBC		-4.610 (4.440)		-4.854 (4.180)	4.702 (2.999)	-5.267 (4.298)
Verizon		-16.110*** (4.180)		-15.336* (9.020)		-14.024*** (3.881)
Constant	-2.613 (4.000)	23.920*** (4.141)	-3.938 (3.452)	23.617*** (4.945)	-5.416 (3.682)	23.104*** (3.867)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	142	142	142	142	142	142
Adjusted R2	0.30	0.50	0.29	0.50	0.32	0.49
First Stage F-Test of Excluded Instruments			F(4,121) =10.92	F(1,121) =0.59	F(2,120) =65.50	F(2,120) =25.61
Hansen's J Test of Over-Identifying Restrictions			13.96 (0.003)	N/A	0.44 (0.508)	0.03 (0.866)

Robust standard errors in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

<sup>1</sup> Excluded instrument for entrant contributions: entrant headquarters. Excluded instruments for incumbent contributions: incumbent headquarters, Qwest, SBC and Verizon.

<sup>2</sup> Excluded instruments for entrant contributions: entrant headquarters and a rank instrument. Excluded instruments for incumbent contributions: Verizon and a rank instrument.