Strategic Management Journal
Strat. Mgmt. J., **36**: 2021–2038 (2015)
Published online EarlyView 2 October 2014 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smj.2326
Received 24 August 2011; *Final revision received 30 July 2014*

INFLUENCING PUBLIC POLICYMAKING: FIRM-, INDUSTRY-, AND COUNTRY-LEVEL DETERMINANTS

JEFFREY T. MACHER and JOHN W. MAYO
Robert E. McDonough School of Business, Georgetown University, Washington, District of Columbia, U.S.A.

This paper examines the determinants of firms' public policymaking influence. Using a novel and global database that measures firms' perceived influence over the executive and legislative branches of government, a systematic analysis of the firm-, industry-, and country-level determinants, and interrelationships among these determinants of firms' public policymaking influence is undertaken. The empirical results indicate that large firms perceive they have more public policymaking influence than small firms, but these differences are conditioned by the number of industry competitors and the structure of the country political institution environment. Nonmarket strategy implications that follow from this refined understanding are developed and discussed.

INTRODUCTION

Firms' abilities to influence public policymaking has alternatively intrigued, fascinated, and infuriated industry practitioners, academics, and the general public alike. Several factors have inhibited empirical examinations of the circumstances when and the conditions where firms can effectively shape policymaking at sufficient and comprehensive levels of detail. First, direct measures of public policymaking influence are not widely available across firms, industries, or countries. Most prior empirical studies instead examine policymaking influence using indirect measures that are relatively poor proxies or are derived from either a single industry or single country. Second, several academic disciplines—including strategy, economics, and political science—examine public policymaking influence. But the extant research predominantly examines policymaking influence at a single level of analysis (i.e., firm, industry, or country), with limited consideration of the multiple levels that exist. Third, there have been relatively few attempts to empirically explore the interrelationships between and among these levels.

This paper attempts to alleviate some of these historical limitations and subsequently improve understanding of firms' public policymaking influence. It does so by drawing upon a novel survey of thousands of firms from dozens of countries that reports firms' perceived influence over different branches of government. These data allow for empirical tests of the direct and interrelated effects of firm-level determinants (i.e., size), industry-level determinants (i.e., competition), and country-level determinants (i.e., political structure) on firms' public policymaking influence. The empirical setting and approach therefore add to developing research that examines firms' nonmarket strategies and corporate political activities (Baron, 1995; Bonardi, Hillman, and Keim, 2005) and emphasizes the resources (Bonardi, 2011), capabilities (Holburn and Zelner, 2010), organizational approaches (Henisz and Zelner, 2003), and performance (Bonardi, Holburn,

Keywords: public policymaking; nonmarket strategy; firm size; industry competition; country political institution environment

*Correspondence to: Jeffrey T. Macher, Rafik B. Hariri Building, Robert E. McDonough School of Business, Georgetown University, Washington, DC 20057, U.S.A. E-mail: jeffrey.macher@georgetown.edu

and Vanden Bergh, 2006) of firms operating in nonmarket (e.g., political, legal, regulatory) environments.

The empirical results indicate a direct effect of size on firms' public policymaking influence. Large firms report more influence over public policymaking than their smaller counterparts in the executive and legislative branches of government. But empirical support is also found that the number of industry competitors and the structure of the country political institution environment in which firms operate shape firms' perceived policymaking influence. Firms indicate that they have more policymaking influence in industries with fewer competitors and in countries with more independent government branches and greater preference heterogeneity across these branches.

The empirical investigation also reveals insights into nonmarket strategy in general and these interrelationships in particular. First, small and large firms report decreasing public policymaking influence in more competitive industries. Second, small and large firms report increasing public policymaking influence in countries with more independent government branches and greater preference heterogeneity. Third, increases in the number of industry competitors or increases in the number of independent government branches and the distribution of preferences increase the perceived "influence gap" between small firms and large firms. These results are consistent across the government branches examined. Depending upon industry competition and country political structure, the empirical results indicate conditions in which small and large firms are equally influential in policymaking and conditions where large firms have particular advantages over small firms in influencing policymaking. We suggest that the empirical identification of these conditions is particularly important to academic researchers and industry practitioners concerned with firms' nonmarket strategies.

The rest of this paper is organized as follows. The next section provides theoretical motivation and an empirical overview of the extant literature that examines nonmarket strategy in general and firms' public policymaking influence in particular. The following section describes the data and variables, provides summary and correlation statistics, and considers potential data biases. The following section provides an empirical analysis of the determinants of firms' public policymaking influence, and discusses the empirical results that were obtained. The final section makes concluding comments.

BACKGROUND

Theoretical motivation

Research that examines firms' public policymaking influence derives from several academic disciplines, including strategy, economics, and political science.[1] Three features largely characterize the extant literature. First, measuring the antecedents and outcomes of firms' corporate political activity (CPA) in meaningful ways presents research challenges (Hillman, Keim, and Schuler, 2004). Bonardi *et al.* (2006) suggest that these difficulties result from limited data available that accurately relate firms' nonmarket strategies to their policymaking performance impact. The absence of direct measures has subsequently resulted in the use of either ancillary or highly aggregated data. For instance, many studies examine governmental influence using proxies, including measures of political action committee (PAC) activity, campaign contributions, congressional testimonies, petition filings, and lobbying efforts (Bonardi *et al.*, 2005; Hillman *et al.*, 2004). Other studies use even more indirect measures—such as cross-industry variations in effective tax rates or particular regulatory outcomes (Lenway and Rehbein, 1991; Salamon and Siegfried, 1977; Schuler, Rehbein, and Cramer, 2002)—or highly aggregated (and thereby indirect) data—such as corporate financial profitability (Hillman, Zardkoohi, and Bierman, 1999; Shaffer, Quasney, and Grimm, 2000). Most studies also examine public policymaking influence solely within the confines of a single industry or single country.[2] While these approaches have advanced understanding of firms' corporate political activity, more direct and more comprehensive (i.e., interindustry or intercountry) measures of public policymaking influence are desirable.

Second, a variety of firm-, industry-, and country-level factors are argued to be important to firms' nonmarket and policymaking strategies. But the academic disciplines that examine these

[1] See Baron (1995) and Bonardi *et al.* (2005) for comprehensive reviews.

[2] See Grier *et al.* (1994) and Salamon and Siegfried (1977) as notable industry exceptions and Henisz (2000b) and Chong and Gradstein (2010) as notable country exceptions.

DOI: 10.1002/smj

determinants have predominantly operated within a single level, providing limited theoretical or empirical accounting for determinants at other levels that may also affect firms' public policymaking influence. Failure to develop a more integrative and comprehensive picture of the determinants of firms' public policymaking influence, however, increases the risk that academic scholars and industry practitioners operate from a series of incomplete analyses.

Third, potential interrelationships between and among levels of public policymaking influence have not been considered. Recent efforts unpack the multiple levels with which public policymaking influence manifests (Macher and Mayo, 2012; Macher, Mayo, and Schiffer, 2011; Weymouth, 2012), but more comprehensive analyses of how firm-, industry-, and country-level factors interrelate to shape firms' public policymaking influence are nevertheless required.

Empirical overview

Empirical research on firms' CPA around public policymaking influence is predominantly conducted at three levels: firm, industry, and country.[3] We provide a concise overview of each level, highlighting in particular empirical research that examines a dimension within each level—size at the firm-level, competition at the industry-level, and political structure at the country-level—to motivate our approach.

Firm size

The management and political science literatures most commonly propose a large and positive relationship between firm size and firms' public policymaking influence. The theoretical underpinnings of this relationship stem largely from studies that correlate firm size with CPA. First, size is considered an important antecedent to CPA (Boddewyn and Brewer, 1994; Masters and Keim, 1985). As size is often a proxy for resources available, it represents an indicator of firms' abilities to become politically active and engaged (Schuler and Rehbein, 1997). Second, size conveys advantages in establishing the firm-level infrastructure required to influence policymaking, which normally entails substantial costs. As such, large firms are more likely to possess the requisite resources to warrant such efforts. Third, size conveys advantages in working with government officials. Large firms offer more to policymakers in the way of votes, income, or post-governmental employment, in comparison to their smaller counterparts. Finally, large firms are better able to capture public policy participation rents than small firms (Hillman *et al.*, 2004), given their resource commitments and infrastructure in place.

With these theoretical underpinnings, the extant literature predominantly documents a substantial and positive relationship between firm size and CPA using several measures, including sales (Schuler *et al.*, 2002), assets (Meznar and Nigh, 1995), market share (Schuler, 1996), and employees (Hillman, 2003). More recent empirical research finds firm size and firm age are positively associated with policymaking influence across different government branches and regulatory agencies (Chong and Gradstein, 2010; Macher and Mayo, 2012; Macher *et al.*, 2011). Given their resources, infrastructure, and relationships, large firms are expected to have more public policymaking influence in comparison to small firms (Hillman *et al.*, 2004), *ceteris paribus*.

Industry competition

Early economics research considers the effects of industry competition on regulatory and legislative approaches and outcomes. Olson (1965) notes that more participants (e.g., firms) in a group (e.g., industry) erode the effectiveness of successfully securing outcomes that are in the collective interest, given increasing organization costs and subsequent free rider problems. Stigler (1971) and Peltzman (1976) subsequently propose an economic theory of regulation, whereby large firms gain over small firms in a regulatory/legislative sense as more concentrated industries can more effectively organize for political action and curtail collective action problems. More recent research across strategy, economics, and political science considers the effects of industry competition on CPA approaches and outcomes (Getz, 1997; Hillman *et al.*, 2004).

The number of industry competitors may or may not affect firms' public policymaking influence. Policymaking is inherently a public good because it provides non-rivalrous and non-excludable benefits to other firms. Given the existence of or potential

[3] See Hillman *et al.* (2004) and the references provided therein for a comprehensive review of the firm-, industry-, and institutional-specific antecedents to corporate political activity (CPA).

DOI: 10.1002/smj

for these benefits, firms' incentives to engage in influence-seeking activities with policymakers is lessened in more competitive markets (McNutt, 2002). At the same time, large firms may still benefit policywise by applying special interest pressures on regulators or legislators irrespective of the number of political rivals.

Empirical examinations of the relationship between industry structure (e.g., concentration or firm number) and firms' political involvement and influence not surprisingly yield mixed results. Salamon and Siegfried (1977) find a negative relationship between larger industries (i.e., more firms) and influence—albeit ineffectively measured by tax rates—but Pittman (1976) finds a positive relationship between industry concentration and campaign contributions. Schuler *et al.* (2002) find firms in concentrated industries are more likely to lobby and engage in campaign contributions than firms in fragmented industries. Grier, Munger, and Roberts (1994) similarly find industry concentration positively affects political contribution levels and the probability of forming political action committees. But Potters and Sloof (1996: 417) suggest that firms in more concentrated industries neither need nor require political assistance. Having fewer competitors lowers the cost of obtaining favorable policy outcomes but simultaneously reduces the benefits of engaging (or the need to engage) in political activity. Holburn and Vanden Bergh (2008) suggest that the abilities and/or effectiveness of securing favorable policy outcomes are decreased in fragmented industries as policymakers consider the varied concerns of myriad industry players. Getz (1997) notes that more concentrated industries allow firms either more opportunities to make their case—via more or more frequent face time with policymakers—or greater abilities to overcome collective action problems. Potters and Sloof's (1996: 417) empirical survey best summarizes the extant literature by noting that "most scholars indeed find an increased scope for political influence with higher degrees of concentration, but there are many that find no effect or even a negative effect."

Political structure

Institutions represent constraints that structure political, economic, and social interaction (North, 1990). Institution-based research most commonly takes a comparative approach, highlighting in particular the impact that institutional variation has on economic development (Borner, Brunetti, and Weder, 1995; Olson, 1996), economic growth (Henisz, 2000a; Keefer and Knack, 1997), and foreign direct investment (Henisz, 2000b; Henisz and Macher, 2004), among others. The positive political economy (PPE) approach more directly suggests that formal political structures (e.g., voting rules, committee jurisdictions, veto thresholds) both govern policymaking and shape policy outcomes. One finding posited from this research stream is that governments' abilities to credibly commit to not interfere with private property rights is instrumental to securing long-term capital investment and realizing economic development and growth.

The role of and differences among country political institution-level factors can be extended to empirically examine whether and how they might affect firms' nonmarket policymaking strategies. Consider two dimensions of political institutions that are structurally derived and internationally comparable: (1) the number of independent government branches with veto power, and (2) the distribution of preferences within and across those branches. The first dimension draws on Tsebelis (1995), who defines veto players as those political actors whose agreement (by majority rule) is required for policy change. The second dimension draws on Henisz (2000a), who suggests preferences are determined by party affiliations (i.e., ideology) within and across government branches.[4] These dimensions offer insights as to whether political actors are constrained in future policy choices and, thereby, whether status quo policy changes are feasible.

In countries with relatively few independent government branches and homogeneous preferences, political actors have wide discretion in altering public policy. These environments might simplify and facilitate firms' policymaking approaches, especially if interest alignment between the concentrated polity and the firm exists. But the likelihood of alignment is questionable, given the relatively "thin" markets that exist in terms of political actors willing to support firms' nonmarket strategies, *ceteris paribus*. In countries with relatively many independent government branches and

[4] If two or more political institutions (e.g., executive and legislature) are controlled by the same political party, alignment between these political institutions exists. Alignment is "expected to expand the range of political discretion in policymaking, and thereby reduce the level of political constraints" (Henisz, 2000a).

DOI: 10.1002/smj

heterogeneous preferences, more independent and ideologically different political actors create more "veto points" in the policymaking process (Henisz, 2000a). Firms' influence on public policymaking might be reduced in these countries, given the additional checks and balances in place. But more political actors with heterogeneous ideologies also increase the number of "entry points" by which firms can access and lobby to champion their policymaking agendas (Macher *et al.*, 2011). From a public choice perspective (Buchanan and Tullock, 1962), such lobbying efforts are considered desirable if they provide benefits to political actors' local constituencies and/or increase political actors' district votes and campaign contributions.

Interrelationships

The effects of industry competition on firms' policymaking influence might not be constant across the population of firms. In industries with few competitors, firms of all sizes face limited political competition on industry-specific policy issues (Holburn and Vanden Bergh, 2008). With small numbers vying for influence, firms are better able to garner policymaking benefits (Getz, 1997). Increased competition likely impedes firms' policymaking influence, however, given the likelihood for increased disagreement among industry rivals (Olson, 1965). Large firms might be better able to navigate more politically competitive environments than their smaller brethren, given their political resources and capabilities (Bonardi, 2011; Holburn and Zelner, 2010), capital (Siegel, 2007), and relationships (Faccio, 2006; Fisman, 2001; Okhmatovskiy, 2010) in place. Political assets can be effective in limiting, controlling, and/or blocking rival firms' access to the policymaking arena, and thereby allow large firms to maintain or potentially gain influence. But market competition typically leads to greater CPA competition (e.g., lobbying, campaign contributions), as rival firms match and subsequently crowd each other out (Bhagwati, 1982). While small firms often free ride on the influence-seeking efforts of their larger counterparts (McNutt, 2002), the benefits accrued might actually decrease in more competitive markets as public policy interests among firms increasingly diverge. More competitive industry conditions might therefore force small firms to undertake their own concerted nonmarket approaches to achieve policymaking influence.

The abilities of large firms to influence public policymaking more than small firms may or may not hold across all country political institution environments. In countries with relatively few independent government branches and homogeneous preferences, firms face uncertain policymaking influence opportunities. On the one hand, the potential for policy change increases with fewer veto players and greater preference congruence (Henisz and Zelner, 2006). On the other hand, the thin number of political actors with veto power and the potential for limited preference alignment between firms and political actors suggest uncertain support for particular firms' public policy agendas. Large firms might benefit in these less-structured political environments relative to their smaller counterparts by leveraging their superior resources and capabilities (Bonardi, 2011; Holburn and Zelner, 2010), capital (Siegel, 2007), and relationships (Faccio, 2006; Fisman, 2001; Okhmatovskiy, 2010), but this outcome is conditioned by policy position congruence with the focal political actors. In countries with relatively many independent government branches with veto power and heterogeneous preferences, firms again face uncertain influence opportunities. On the one hand, more veto points and limited preference congruence constrain the feasible range of policy outcomes (Henisz and Zelner, 2006). On the other hand, the "thicker" markets provided by more veto points and preference heterogeneity provide additional pathways (i.e., entry points) by which firms can establish, maintain, or enhance policymaking influence (Macher *et al.*, 2011). Large firms might benefit in these more structured political environments by leveraging their superior political assets in comparison to small firms, but simultaneously face challenges in increased CPA costs (e.g., lobbying, coalition building) and in increased political actor opposition (Hillman *et al.*, 2004). Small firms might benefit from more structured political environments, given the additional entry points (Macher *et al.*, 2011) and special interests available (Buchanan and Tullock, 1962), but face commensurate challenges related to their more limited scale (Hillman *et al.*, 2004).

EMPIRICAL SETTING

Our theoretical motivation and empirical overview indicates that the determinants of firms' public policymaking influence are varied and operate

DOI: 10.1002/smj

at multiple levels. While a positive relationship between firm size and firms' policymaking influence is predominantly observed, the relationships between firms' policymaking influence and industry competition and country political institution structure are at best not agreed upon and at worst not well understood.[5] Questions also remain as to whether the effects of industry competition or country political institution structure on firms' policymaking influence are constant across the population of firms. This discussion of the determinants of and interrelationships around firms' public policymaking influence motivates our empirical analysis. We describe immediately below the data and variables used, provide summary and correlation statistics, and address some common biases that are susceptible to survey data.

Data

The World Bank collected firm and business environment information during 1999–2000 from more than 10,000 firms in 80 countries via its World Business Environment Survey (WBES) using stratified random sampling.[6] Sampling frames were tailored to reflect the distribution of firms in each country by sector, size, and location. Adequate representation of firms was achieved via the following sampling targets across all countries (Batra, Kaufmann, and Stone, 2003): *Sectoral composition*—The numbers of manufacturing versus service firms were allocated according to gross domestic product (GDP) contribution, with 15 percent minimums for each firm type. *Size*—At least 15 percent of the sample firms in the small category (less than 50 employees) and at least 15 percent of the sample firms in the large category (more than 500 employees). *Ownership*—At least 15 percent of the sample firms have foreign control (or where the law prohibits this, have substantial foreign ownership). *Exporters*—At least 15 percent of the sample firms export at least 20 percent of their output. *Location*—At least 15 percent of the sample firms are located in small towns (i.e., populations of 50,000 or less) or in the countryside. *Number* —At least 100 firms surveyed per country. Survey data were collected via personal interviews. A high survey response rate was obtained, but missing values reduce the number of observations for different measures. Table 1 provides a list of WBES countries and observations.

Table 1. WBES countries

Country	OBS	Country	OBS
Albania	156	Italy	94
Argentina	96	Kazakhstan	127
Armenia	121	Kyrgyz Republic	124
Azerbaijan	128	Lithuania	110
Belarus	121	Malaysia	92
Belize	46	Mexico	94
Bolivia	100	Moldova	125
Bosnia and Herzegovina	104	Nicaragua	96
Brazil	198	Pakistan	96
Bulgaria	125	Panama	94
Canada	95	Peru	99
Chile	99	Philippines	97
China	98	Poland	225
Colombia	99	Portugal	91
Costa Rica	98	Romania	125
Croatia	127	Russian Federation	525
Czech Republic	137	Singapore	95
Dominican Republic	110	Slovak Republic	128
Ecuador	98	Slovenia	125
El Salvador	104	Spain	100
Estonia	132	Sweden	100
France	93	Trinidad and Tobago	100
Georgia	129	Turkey	149
Germany	95	Ukraine	225
Guatemala	103	United Kingdom	98
Haiti	101	United States	95
Honduras	98	Uruguay	99
Hungary	129	Uzbekistan	107
Indonesia	95	Venezuela	95

OBS = observations.

The WBES queries firms directly on the extent of their perceived influence over the establishment of new national laws, rules, regulations, and decrees—separated by country of operation and branch of government. The WBES also includes detailed firm- and industry-level information, which we supplement with country-level information via multiple data sources. The combined data permit novel analyses of the determinants of firms' perceived public policymaking influence.

Variables

Our dependent variables represent firms' responses to their perceived level of public policy making

[5] The literature generally argues industry structure determines policymaking influence, but causality might in fact run the other direction. It is plausible—particularly in regulated industries—that firms' policymaking influence shapes industry structure.

[6] See Batra *et al.* (2003) for detailed description of the WBES questionnaire, design, and findings.

influence in the legislative and executive branches of government. *Executive branch influence* and *Legislative branch influence* measure firms' perceived influence on the content of any new laws, rules, regulations, or decrees that could have substantial impacts on their businesses in these respective branches, using a five-point Likert scale. A value of 1 indicates "*never influential*," and a value of 5 indicates "*very influential*."

We utilize the WBES-reported number of employees as our measure of firm size. *Firm size* is a trichotomous measure, coded as 1 if firms have less than 50 employees, 2 if firms have between 51 and 500 employees, and 3 if firms have more than 500 employees. We also include several firm-level controls. As older firms are more likely adept at garnering policymaking influence via experiential advantages, we utilize *Firm age* (the natural log of firm age since founding). Particular firm-level political resources and capabilities might impact firms' policymaking influence (Bonardi, 2011; Hillman *et al.*, 2004), including connections (Faccio, 2006; Fisman, 2001), capital (Siegel, 2007), and management (Oliver and Holzinger, 2008). We utilize WBES-reported data to control for these factors via two measures. *Advanced notice* is a six-point Likert scale measure of whether the government informs firms directly regarding changes in laws in advance, where 1 is "*never*" and 6 is "*always*." *Time with government officials* is a six-point Likert scale measure of the estimated percentage of time firm senior managers spend with government officials, where 1 is "*less than 1 percent*" and 6 is "*greater than 50 percent*." The more advanced notice received from government regarding potential law changes suggests that these firms are either more politically connected, better politically managed, or possess more political capital. The greater the percentage of time managers spend with government officials similarly suggests that these firms are either more politically connected or possess greater political capital. Other factors, including government revenue or policy dependency (Hillman and Hitt, 1999), issue or political saliency (Bonardi and Keim, 2005) and ownership considerations (Hansen and Mitchell, 2000), among others, arguably have similar effects on firms' policymaking influence. We again utilize WBES-reported data to control for several of these factors, using dichotomous measures for foreign ownership (*Foreign-owned firm*); government ownership (*Government-owned firm*); privatization (*Privatized firm*); multi-nationality (*Multinational firm*); and export orientation (*Exporting firm*).

We utilize the WBES-reported number of industry competitors as our measure of competition. *Competitors* is defined as the number of competitors in the major product or service line(s) of the surveyed firm. We also utilize several WBES-reported industry indicator variables (i.e., *Agriculture*, *Construction*, *Manufacturing*, *Other*, and *Services*) to control for industry sectors.[7]

We utilize Henisz's (2000a) political constraints (*POLCON*) measure to quantify country political institution structure. This measure identifies the number of independent government branches (executive, lower and upper legislative chambers, judiciary) with veto power over policy change within each country, and derives a quantitative measure of political constraints using a simple spatial model of political institution interaction that takes into account executive and legislative party composition and legislative preference heterogeneity. This measure ranges from 0 (*limited constraints*) to 1 (*substantial constraints*). Given our veto points versus entry points argument, we redefine *POLCON* as *Political structure*. We also incorporate several country-level controls that may affect firms' public policymaking influence. As national income might impact the quality of government (La Porta *et al.*, 1999), we include logged *GDP/Capita*. As economic openness might affect domestic and foreign firm investment (Rajan and Zingales, 2003), we include logged *Trade/GDP* (a standard measure of openness).[8] As country legal origin might affect government policy implementation, government ownership and regulation, or judicial system formalism and independence (La Porta, Lopez-de-Silanes, and Shleifer, 2008), we include legal origin indicator variables (*Common law*, *French civil law*, and *German civil law*).[9] We also control for the difficulties of conducting

[7] The *Services* sector serves as our omitted baseline.

[8] *GDP/Capita* and *Trade/GDP* measures are drawn from the World Bank Development Indicators (WBDI) 1999 database.

[9] These variables are drawn from the LLSV legal origin database. La Porta *et al.* (2008) indicate two main legal traditions—common law and civil law—with several civil law sub-traditions—French, German, Socialist, and Scandinavian. Transition economies have been reclassified from Socialist to either French or German civil law traditions. Relatively few countries are in the Scandinavian legal tradition (and only one—Sweden—in our dataset). Our data are thus neatly classified into the three legal traditions discussed above. *German civil law* serves as our omitted baseline.

DOI: 10.1002/smj

business using three WBES-reported measures. *Business voice* is a six-point Likert scale measure of the extent to which government takes into account the "voice" of business, where 1 is "*never*" and 6 is "*always*." The greater the voice with government, the easier it should be for firms to conduct business. *Taxes/Regulation constraint* and *Corruption constraint* are four-point Likert scale measures of whether taxes/regulation and corruption, respectively, are business constraints, where 1 indicates "*no obstacle*" and 4 indicates a "*major obstacle*." The lesser the constraint from taxes and regulation or from corruption, the easier it should be for firms to conduct business. Finally, we include country fixed effects in some estimations to control for remaining unobserved country-level heterogeneity.

Descriptive statistics

Table 2 provides summary statistics. A relatively small percentage of firms indicate that they are "frequently influential" or "very influential" regarding the content of new laws, rules, regulations, or decrees in the executive and legislative branches of government. The sample includes firms that vary in size from small (less than 50 employees) to large (more than 500 employees); industries that range from monopolistic to fragmented; and countries that range from few independent government branches with veto power and homogeneous preferences to many government branches with veto power and heterogeneous preferences.

Table 3 provides correlation statistics (without the inclusion of industry sector variables due to space constraints), highlighting in bold the pairwise correlations that are statistically significant. The public policymaking influence measures are positively correlated with *Firm size*, negatively correlated with *Competitors,* and positively correlated with *Political structure*. Pairwise correlations are moderate.

Survey biases and limitations

The WBES utilized a standardized survey instrument, uniform stratified sampling methodology, and parallel sample parameters across the firms, industries, and countries surveyed. We examine, discuss, and test for several biases that survey data are susceptible to, as well as devote attention to the implications for statistical inference with nonrandom samples. Lack of generalizability is of limited concern, given the large number and heterogeneous composition of WBES participants. We confirm survey respondent anonymity, suggesting social desirability bias is not present, but note that predictor and criterion variables were obtained from the same rater (Podsakoff *et al.*, 2003). We confirm high survey response rates (Batra *et al.*, 2003), but cannot confirm that nonresponse bias (i.e., late versus early respondents) is not present. We suggest common method variance is not a concern for the following reasons. First, several independent variables (i.e., those at the country level) are not derived from the WBES. Second, several independent variables are interactions that are less subject to common method variance (Aiken and West, 1991).[10] Third, a *post hoc* Harman's single-factor test indicates nine factors with eigenvalues greater than one and total explained variance of about 67 percent, with no single factor representing more than 13 percent of the variance.

While the WBES offers a novel dataset to examine firms' public policymaking influence, it does present potential limitations. One concern is whether firms' perceptions accurately reflect reality, as surveys are sometimes deemed poor predictive indicators. We believe that this concern is largely mitigated for the following reasons. First, the WBES focuses on perceptions and does not predict economic agents' behavioral responses to particular stimuli. Second, the WBES protects respondent anonymity and therefore reduces evaluation apprehension. Third, the WBES offers no respondent benefits and therefore limits incentives to "game" answers. Fourth, a survey-based instrument offers at least as plausible a measure of firms' policymaking influence in comparison to the more indirect measures that have been employed in the extant literature. Firm perceptions arguably represent the best data available—outside of direct government official surveys—for measuring firms' public policymaking influence. Another concern is the error structures that arise in estimation using nonrandom sampling. Certain WBES subgroups (i.e., large firms) were oversampled, while other WBES subgroups (i.e., each particular country) had targeted sample sizes. The empirical estimations used are unweighted, and thus present statistical inference implications: first, the views of small firms carry the

[10] Aiken and West (1991) indicate respondents rarely make or consider interaction-based arguments toward survey answers that could systematically bias responses.

DOI: 10.1002/smj

Table 2. Summary statistics

	Mean	*S. D.*	Min	Max
Dependent variables				
Executive influence	0.150	0.357	0.000	1.000
Legislative influence	0.137	0.344	0.000	1.000
Independent variables				
Firm size	1.788	0.743	1.000	3.000
Competitors	2.379	0.752	0.000	9.000
Political structure	0.537	0.270	0.000	0.860
Control variables				
Firm age	2.674	0.853	1.099	6.400
Advance notice	2.738	1.490	1.000	6.000
Time with government officials	2.395	1.428	1.000	6.000
Foreign-owned firm	0.188	0.391	0.000	1.000
Government-owned firm	0.122	0.327	0.000	1.000
Privatized firm	0.125	0.331	0.000	1.000
Multinational firm	0.182	0.386	0.000	1.000
Exporting firm	0.356	0.479	0.000	1.000
Manufacturing sector	0.331	0.471	0.000	1.000
Agriculture sector	0.064	0.245	0.000	1.000
Construction sector	0.087	0.281	0.000	1.000
Other sector	0.036	0.186	0.000	1.000
Services sector	0.393	0.489	0.000	1.000
GDP/capita	7.449	1.307	4.818	10.414
Trade/GDP	4.202	0.478	3.055	5.387
Common law	0.259	0.438	0.000	1.000
French civil law	0.561	0.496	0.000	1.000
German civil law	0.170	0.376	0.000	1.000
Business voice	2.369	1.331	1.000	6.000
Taxes/regulation constraint	2.870	1.001	1.000	4.000
Corruption constraint	2.531	1.150	1.000	4.000

same weight as large firms in a given country (holding intracountry subsample size constant); and second, the views of firms in "minor" countries carry the same importance as firms in "major" countries (holding intercountry subsample size constant).

EMPIRICAL ESTIMATION

The descriptive statistics presented above are suggestive, but neither identify specific relationships nor convey statistical or economic significance. We accordingly turn to more systematic analyses of the public policymaking influence determinants across the executive and legislative branches of government.

Model specification

The WBES reports firms' perceived influence on new national laws, rules, regulations, or decrees that could have a substantial impact on their business using Likert scale measures. These measures range from 1 "*never influential*" to 5 "*very influential*," suggesting ordered logit or probit estimation is appropriate. As multiple dependent variable outcomes and ordered logit or probit estimation create interpretation and presentation difficulties related to statistical and economic significance,[11] we dichotomize these measures and implement logit estimation.[12] We present the results of two empirical approaches to demonstrate robustness

[11] Displaying economic significance and marginal effects with multiple dependent variable outcomes and ordered logit/probit estimation requires showing marginal coefficients for each dependent variable category transition (e.g., from one to two; from two to three; etc.). A dichotomous variable and discrete logit/probit estimation simplifies the presentation of economic significance via reduction to two categories and one transition. We confirm that our results are robust to ordered logit/probit estimation.

[12] Our dichotomous measures are coded 1 if firms report being "frequently influential" or "very influential," and 0 if firms report being "never influential," "somewhat influential," or "influential." We purposely chose a narrow definition of influence, but our

DOI: 10.1002/smj

Table 3. Correlation statistics

	(1) Executive influence	(2) Legislative influence	(3) Firm size	(4) Competitors	(5) Political structure	(6) Firm age	(7) Advance notice	(8) Time with government officials	(9) Foreign-owned firm	(10) Government-owned firm	(11) Privatized firm	(12) Multinational firm	(13) Exporting firm	(14) GDP/capita	(15) Trade/GDP	(16) Common law	(17) French civil law	(18) German civil law	(19) Business voice	(20) Taxes/regulation constraint	(21) Corruption constraint
(1)	1.00																				
(2)	**0.74**	1.00																			
(3)	**0.15**	**0.13**	1.00																		
(4)	**−0.15**	**−0.12**	**−0.15**	1.00																	
(5)	**0.03**	**0.06**	0.02	**−0.12**	1.00																
(6)	**0.11**	**0.10**	**0.37**	**−0.22**	**0.25**	1.00															
(7)	**0.19**	**0.19**	**0.14**	**−0.05**	**0.10**	**0.17**	1.00														
(8)	**0.08**	**0.08**	**0.04**	**0.19**	**−0.09**	**−0.08**	0.01	1.00													
(9)	**0.06**	**0.05**	**0.24**	**−0.10**	**0.07**	**0.07**	**0.10**	0.00	1.00												
(10)	**0.05**	0.02	**0.22**	**−0.05**	**−0.08**	**0.13**	**0.08**	**0.09**	**−0.06**	1.00											
(11)	**−0.03**	−0.02	**0.12**	**0.08**	**−0.14**	**−0.13**	**−0.06**	**0.08**	**−0.04**	**0.17**	1.00										
(12)	**0.10**	**0.11**	**0.26**	**−0.08**	**0.07**	**0.17**	**0.11**	**−0.03**	**0.38**	**−0.04**	**−0.06**	1.00									
(13)	**0.05**	**0.05**	**0.29**	**−0.04**	**0.14**	**0.18**	**0.10**	**0.03**	**0.24**	**0.05**	0.01	**0.31**	1.00								
(14)	0.01	0.01	**0.17**	**−0.07**	**0.03**	**0.08**	0.00	−0.01	**0.11**	**0.05**	**0.06**	**0.05**	**0.31**	1.00							
(15)	**−0.04**	**−0.04**	**0.05**	**0.09**	**−0.18**	**−0.05**	**−0.05**	**0.09**	**−0.07**	**0.05**	**0.14**	**−0.08**	**−0.04**	**−0.18**	1.00						
(16)	−0.01	−0.01	**−0.05**	**0.09**	−0.01	**−0.03**	−0.01	**0.06**	**−0.03**	**−0.03**	−0.02	0.01	**−0.06**	**−0.22**	**−0.08**	1.00					
(17)	−0.02	−0.02	−0.02	**0.05**	0.01	−0.02	**0.07**	**0.05**	**0.02**	**0.03**	−0.02	**0.03**	**0.04**	**−0.14**	**−0.05**	**−0.06**	1.00				
(18)	**0.03**	**0.03**	**−0.17**	0.00	**0.06**	**−0.08**	0.01	**−0.04**	**−0.05**	**−0.03**	**−0.06**	**−0.03**	**−0.22**	**−0.57**	**−0.21**	**−0.25**	**−0.16**	1.00			
(19)	0.00	**0.04**	**0.03**	**−0.26**	**0.46**	**0.32**	**0.11**	**−0.22**	**0.03**	**−0.02**	**−0.04**	**0.08**	**0.09**	−0.01	**−0.12**	**−0.04**	**−0.13**	**0.17**	1.00		
(20)	**−0.05**	−0.01	**−0.14**	**0.12**	**−0.02**	**−0.20**	−0.01	0.00	**−0.07**	**0.07**	**0.11**	**−0.09**	−0.01	−0.01	**0.06**	**−0.03**	**−0.03**	**0.03**	0.01	1.00	
(21)	**0.15**	**0.14**	**0.06**	**0.05**	**0.25**	**0.13**	**0.23**	**0.13**	**0.12**	**−0.07**	**−0.14**	**0.10**	**0.15**	0.02	**−0.07**	**0.06**	**0.12**	**−0.06**	**−0.06**	**−0.02**	1.00

Bold indicates pairwise significance at 0.05 *p*-value.

DOI: 10.1002/smj

and facilitate interpretation. Our first approach controls for unobserved country-level heterogeneity via fixed effect estimation. This model takes the general form:

$$y^*_{ij} = \beta + F'_{ij}\gamma + I'_{ij}\delta + C'_j\theta + X'_{ij}\tau + \xi_j + \varepsilon_{ij} \quad (1)$$

where y^* is an unobserved (latent) variable, F represents firm-level determinants, I represents industry-level determinants, C represents country-level determinants, X represents interaction terms, and ξ represents country fixed effects. This estimation approach facilitates graphic display of the interrelationships examined. Maximum likelihood estimation is utilized in these models. Our second approach recognizes that standard assumptions of independent firm observations might be violated due to correlation of the error terms among firms within the same country. We utilize a multilevel modeling approach that controls for dependence among firms operating within the same country via random effects estimation (Rabe-Hesketh and Skrondal, 2008). This model is akin to Equation 1 with the parameter ξ replaced by country-specific random intercept terms, which can be interpreted as the combined effect of unobserved country-level factors that make policymaking influence more likely in some countries than in others. Maximum likelihood estimation using adaptive quadrature is utilized in these models (Rabe-Hesketh and Skrondal, 2008).

Empirical results

Table 4 reports the empirical results using *Executive branch influence* and *Legislative branch influence* as dependent variables, adjusting standard errors for robustness. The results are presented in an identical format for each dependent variable: Model 1 provides a baseline using the independent and control variables; Model 2 adds the interaction terms to Model 1. The "a" models utilize fixed effects estimation, and the "b" models utilize random effects estimation with (unreported) country intercepts. Likelihood-ratio statistics reject zero slope coefficient hypotheses (0.01 *p*-values) in all models. The rho term in the "b" models indicates interclass (here intercountry) correlation is low (Rodriguez and Elo, 2003). We focus our discussion on the Model 2 results for each dependent variable. Comparisons of the Model 2a and Model 2b coefficient estimates indicate general consistency in magnitude, sign, and statistical significance. Unreported Hausman test statistics indicate fixed effects estimation is warranted over random effects estimation, however, for both dependent variables.

The empirical results indicate that the inclusion of several control variables is warranted. At the firm level, more *Advanced notice* (0.01 *p*-values) and more *Time with government officials* (0.01 *p*-values) have positive and significant effects on firms' perceived public policymaking influence in both government branches. These results suggest firms' political capital, connections, and/or management are focal determinants of policymaking influence.[13] Positive and significant effects on public policymaking influence are also found for *Multinational firm* (0.01 *p*-values) in both government branches and for *Government-owned firm* (0.01 *p*-values) in the executive branch. Positive and moderate significance is found for *Exporting firms* (0.10 *p*-values) in the legislative branch. No or limited significance obtains for *Firm age*, *Foreign-owned firm*, or *Privatized firm.* At the industry level, firms in the *Manufacturing sector* (0.01 *p*-values) report lower public policymaking influence, in comparison to firms in the baseline *Services sector*. At the country level, *GDP/Capita* (0.01 *p*-values) is negative and significant in some estimations in the executive branch, suggesting national income limits firms' public policymaking influence while *Trade/GDP* is not significant. Country legal origin significantly affects firms' perceived influence over public policymaking and in a consistent ordering. In comparison to firms in common law origin countries, firms report lower influence in the executive branch in *French civil law* (0.01 *p*-values) origin countries and the lowest influence in *German civil law* (0.01 *p*-values) origin countries. Firms report lower influence in the legislative branch in *German civil law* origin countries (0.01 *p*-values) and no significant differences in *French civil law* origin countries, in comparison to the common law origin country baseline. Finally, the business environment

empirical results are largely robust to different permutations. Our empirical results are similarly robust to probit estimation.

[13] We recognize that *Advanced notice* and *Time with government officials* are self-reported and may present reverse-causality concerns. We therefore estimated a model using country-level means of these variables to ameliorate the potential for reverse causality. We can confirm that the main results obtained are invariant to this approach.

DOI: 10.1002/smj

Table 4. Estimations

	Executive branch influence				Legislative branch influence			
Dependent variable	Fixed effects		Random effects		Fixed effects		Random effects	
Estimation	Model 1a	Model 2a	Model 1b	Model 2b	Model 1a	Model 2a	Model 1b	Model 2b
Firm size	0.279***	0.026	0.276***	0.010	0.270***	0.182	0.265***	0.160
	(0.070)	(0.252)	(0.074)	(0.276)	(0.073)	(0.257)	(0.079)	(0.302)
Competitors	−0.248***	−0.486***	−0.244***	−0.463**	−0.193***	−0.363***	−0.201***	−0.361**
	(0.070)	(0.177)	(0.088)	(0.189)	(0.070)	(0.180)	(0.062)	(0.183)
Political structure	0.741*	0.697	0.990	0.778	1.229***	1.626**	0.863	1.131
	(0.456)	(0.823)	(0.664)	(1.040)	(0.471)	(0.822)	(0.635)	(1.371)
Firm size × competitors		0.120		0.110		0.085		0.080
		(0.087)		(0.087)		(0.088)		(0.090)
Firm size × political structure		0.025		0.108		−0.209		−0.144
		(0.375)		(0.424)		(0.385)		(0.598)
Firm age	0.057	0.055	0.069	0.067	0.065	0.064	0.087	0.086
	(0.056)	(0.056)	(0.071)	(0.070)	(0.059)	(0.059)	(0.063)	(0.063)
Advance notice	0.149***	0.148***	0.169***	0.168***	0.177***	0.177***	0.190***	0.189***
	(0.035)	(0.035)	(0.042)	(0.042)	(0.035)	(0.034)	(0.030)	(0.030)
Time with government officials	0.195***	0.197***	0.180***	0.182***	0.206***	0.206***	0.178***	0.179***
	(0.032)	(0.032)	(0.039)	(0.039)	(0.032)	(0.032)	(0.041)	(0.041)
Foreign-owned firm	−0.042	−0.040	−0.037	−0.035	−0.175	−0.173	−0.149	−0.148
	(0.121)	(0.121)	(0.125)	(0.124)	(0.122)	(0.122)	(0.117)	(0.116)
Government-owned firm	0.450***	0.432***	0.431***	0.416***	0.047	0.027	0.013	−0.003
	(0.132)	(0.133)	(0.156)	(0.157)	(0.137)	(0.138)	(0.134)	(0.140)
Privatized firm	0.103	0.087	0.048	0.034	0.252*	0.235*	0.181	0.165
	(0.143)	(0.145)	(0.162)	(0.161)	(0.138)	(0.139)	(0.156)	(0.155)
Multinational firm	0.290**	0.285**	0.287**	0.281**	0.346***	0.345***	0.349***	0.347***
	(0.118)	(0.118)	(0.129)	(0.130)	(0.117)	(0.118)	(0.115)	(0.114)
Exporting firm	0.146	0.145	0.153	0.152	0.155	0.153***	0.176*	0.174*
	(0.104)	(0.104)	(0.096)	(0.096)	(0.106)	(0.106)	(0.100)	(0.099)
Manufacturing sector	−0.371***	−0.376***	−0.356***	−0.361***	−0.313***	−0.317***	−0.305***	−0.309***
	(0.106)	(0.106)	(0.089)	(0.089)	(0.107)	(0.107)	(0.100)	(0.099)
Agriculture sector	−0.216	−0.234	−0.264	−0.280	−0.261	−0.280	−0.321	−0.338
	(0.218)	(0.218)	(0.222)	(0.224)	(0.215)	(0.216)	(0.212)	(0.209)
Construction sector	−0.001	−0.001	0.039	0.039	−0.031	−0.035	0.009	0.006
	(0.166)	(0.166)	(0.188)	(0.187)	(0.170)	(0.170)	(0.158)	(0.157)
Other sector	−1.166	−1.136	−1.130	−1.102	−1.176	−1.159	−1.171	−1.158
	(1.032)	(1.031)	(1.069)	(1.061)	(1.014)	(1.013)	(1.037)	(1.026)
GDP/capita	0.063	0.062	−0.202**	−0.202**	0.039	0.035	−0.111	−0.112
	(0.108)	(0.107)	(0.084)	(0.084)	(0.109)	(0.108)	(0.082)	(0.082)
Trade/GDP	−0.016	−0.016	−0.279	−0.273	0.081	0.080	−0.033	−0.027
	(0.227)	(0.226)	(0.184)	(0.184)	(0.235)	(0.234)	(0.176)	(0.177)
French civil law	−0.233	−0.207	−0.730***	−0.709***	−0.233	−0.217	−0.376	−0.360
	(0.305)	(0.305)	(0.242)	(0.246)	(0.314)	(0.314)	(0.252)	(0.257)
German civil law	−1.335***	−1.302***	−1.126***	−1.094***	−1.232***	−1.204***	−0.677**	−0.653**
	(0.306)	(0.307)	(0.252)	(0.255)	(0.308)	(0.309)	(0.273)	(0.277)
Business voice	0.291***	0.292***	0.297***	0.297***	0.263***	0.264***	0.276***	0.277***
	(0.038)	(0.038)	(0.047)	(0.047)	(0.037)	(0.037)	(0.043)	(0.043)
Taxes/regulation constraint	−0.035	−0.035	−0.053	−0.053	−0.090*	−0.091	−0.107**	−0.108**
	(0.049)	(0.049)	(0.055)	(0.055)	(0.049)	(0.049)	(0.053)	(0.053)
Corruption constraint	0.161***	0.161***	0.175***	0.175***	0.095**	0.095**	0.110**	0.110**
	(0.044)	(0.044)	(0.055)	(0.055)	(0.044)	(0.044)	(0.051)	(0.052)
Constant	−4.377**	−3.858**	−0.902	−0.396	−4.642***	−4.415**	−2.771**	−2.566**
	(1.760)	(1.794)	(1.196)	(1.182)	(1.791)	(1.829)	(1.087)	(1.178)
rho			0.086	0.084			0.083	0.082
			(0.024)	(0.024)			(0.022)	(0.021)
Observations	5,362	5,362	5,362	5,362	5,362	5,362	5,362	5,362
Wald statistic/LR statistic	578.3***	575.4***	358.7***	359.5***	518.8***	517.9***	314.8***	315.4***
Omitted variables	Country – *common law origin;* Industry – *services sector*							

*< 0.10; **< 0.05; ***< 0.01

DOI: 10.1002/smj

determines firms' public policymaking influence. *Business voice* (0.01 *p*-values) is positive and significant in the executive and legislative branches, *Taxes/Regulation constraint* (0.05 *p*-values) is negative and significant in the legislative branch, and *Corruption constraint* (0.05 *p*-values) is positive and significant in both government branches.

We briefly mention the direct effects of our variables of interest in Table 4. *Firm size* (0.01 *p*-values) has a positive and statistically significant effect on firms' public policymaking influence in both government branches, indicating that large firms perceive that they have more influence than their smaller counterparts. *Competitors* (0.01 *p*-values) has a negative and statistically significant effect on firms' public policymaking influence, indicating firms in more competitive markets perceive that they have less influence than firms in less competitive markets. Finally, there is a positive and modestly significant relationship between *POLCON* (0.01 *p*-values) and firms' public policymaking influence in some estimations.

We next examine the interrelationships between the firm-, industry-, and country-level factors using the Model 2a results of Table 4 and Figures 1–4. We report coefficients and standard errors following standard practice but caution against determining statistical or economic significance for two reasons. First, the reported coefficients do not represent marginal effects (Hoetker, 2007; Zelner, 2009), and reported standard errors do not convey direct information about the statistical significance of these effects (Ai and Norton, 2003; Huang and Shields, 2000) because of model nonlinearity. Second, the interaction terms do not represent cross-partial derivatives (Hoetker, 2007) and do not indicate the economic significance of the conditional effects of interest. It is thus not possible to determine direction, statistical significance, or economic significance by simply examining the magnitude and standard error of a single coefficient when moderating effects are included in nonlinear models. We instead determine statistical and economic significance using an approach developed in political science by King, Tomz, and Wittenberg (2000) and tailored to strategy research by Zelner (2009). We show the results of this approach graphically not only to facilitate intuition, but also to demonstrate statistical and economic significance over different variable ranges. The CLARIFY suite of Stata commands is used to generate the figures (King *et al.*, 2000; Zelner, 2009). This approach

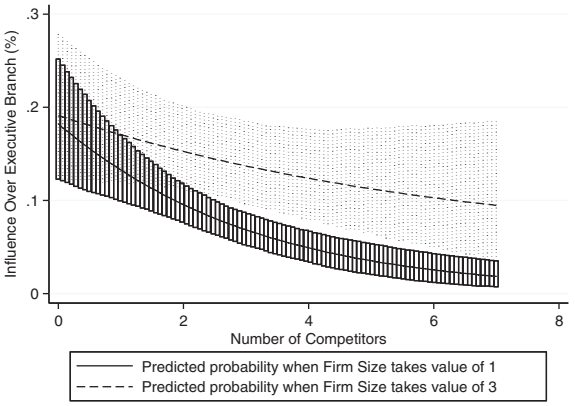

Figure 1. Executive branch influence (size × competition)

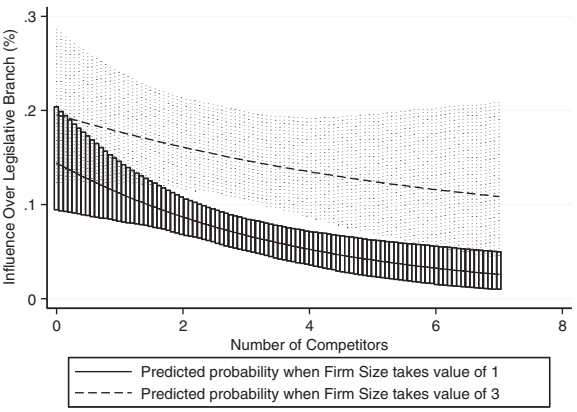

Figure 2. Legislative branch influence (size × competition)

simulates a distribution of coefficient estimates by repeatedly drawing new estimate values from a multivariate normal distribution. Each figure uses simulations of coefficient parameters, preset values for the explanatory variables, calculated expected values, and 95 percent confidence intervals to present the results. All other variables are held at their respective means.

Figures 1 and 2 plot firms' public policymaking influence over the executive branch and legislative branch, respectively, across the range of *Competitors*. Three findings are noteworthy and common. First, small and large firms' perceive that their public policymaking influence falls as the number of competitors increases. Second, large firms perceive that they have more public policymaking influence than their smaller counterparts—across nearly the entire range of *Competitors*. In the least competitive

DOI: 10.1002/smj

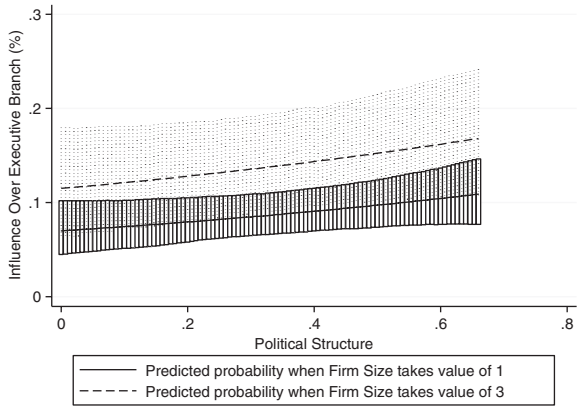

Figure 3. Executive branch influence (size × political structure)

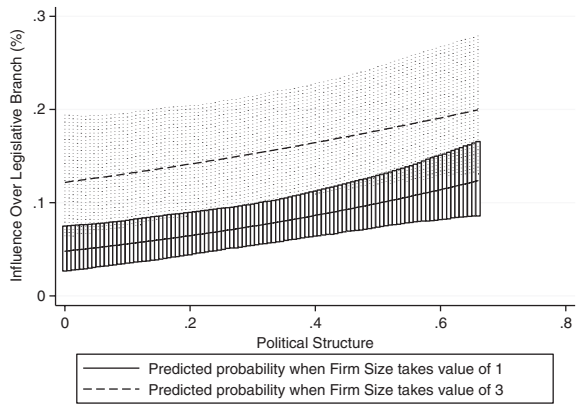

Figure 4. Legislative branch influence (size × political structure)

markets (i.e., monopolies), small and large firms have indistinguishable levels of perceived public policymaking influence. But as the number of competitors increases (i.e., at least two rivals in the same product or service line), large firms report statistically and economically significant higher levels of policymaking influence in comparison. Third, firms achieve largely comparable levels of public policymaking influence in these government branches across the range of *Competitors*.

Figures 3 and 4 plot firms' public policymaking influence over the executive branch and legislative branch, respectively, across the range of *Political structure*. Two findings are noteworthy and common. First, small and large firms' perceive that their public policymaking influence increases as country political institution structure increases (i.e., more formal veto points and partisan fractionalization). Second, large firms perceive that they have more influence over public policymaking than their smaller counterparts—across the entire range of *Political structure*. Large firms report slightly greater public policymaking influence levels than small firms in the least politically structured countries, and this difference increases in the executive branch and maintains in the legislative branch moving to more politically structured countries. Across the majority of country political institution environments, large firms achieve statistically and economically significant higher policymaking influence levels in comparison to small firms in the legislative branch. One slight but notable difference is that firms perceive they obtain more public policymaking influence in the legislative branch than in the executive branch as *Political structure* increases. In short, the public policymaking influence slopes are slightly steeper in the legislative branch in comparison to the executive branch.

DISCUSSION

Our empirical setting provides a comprehensive and geographically diverse analysis of the determinants of firms' public policymaking influence. Our empirical results offer several implications that are important to nonmarket strategy research and managerial practice. For strategy researchers, our results suggest that public policymaking influence is determined not only by firm-, industry-, and country-level factors, but also by the interrelationships between these factors. These interrelationships, moreover, appear to both hinder and facilitate firms' policymaking influence. More competitive industries impede firms' policymaking influence, whereas more structured political institution environments enable firms' policymaking influence. Our results suggest that large firms possess superior scale, resources, and relationships vis-à-vis small firms in policymaking influence that provide advantages in different industry and political institution environments. We therefore surmise that the somewhat contrary findings from existing research might be explained through disaggregation of and interactions between particular variables and constructs. Finally, our empirical inquiry into the role of firm-, industry-, and country-level determinants and firms' policymaking influence yields nuanced differences across industries, across countries, and across government branches. While

DOI: 10.1002/smj

detailed treatment of these differences is beyond the scope of this paper, the results do suggest such analyses are important areas of future inquiry. For instance, an examination of how and why firms operating in particular industries or particular countries target certain government branches as offering superior returns to public policymaking influence in comparison to other government branches is an important question for nonmarket strategy research.

For industry practitioners, our results arguably provide a more refined and comprehensive picture of how firm size, industry competition, and country political institution structure interact and shape nonmarket strategy in general and public policymaking influence in particular. Our results suggest that small firms lag large firms in terms of their public policymaking influence—an admittedly unsurprising result. But our results also suggest that small firms obtain nearly equivalent levels of public policymaking influence in less competitive industries and in less-structured political institution environments—arguably more nuanced results. Small firms might therefore consider operating in industries with fewer competitors and in countries with less-structured political environments—not necessarily because they are made better off in terms of policymaking influence, but because their larger counterparts are made relatively worse off. At the same time, our results suggest that large firms possess particular advantages operating in varied industry structures and political institution environments. Across the predominant ranges of industry competition and country political institution structure, large firms perceive that they have more policymaking influence than small firms. Large firms' perceived policymaking influence falls with more competitors, but small firms' perceived influence falls more acutely. Large firms' perceived policymaking influence increases in more politically structured countries, but small firms' perceived influence increases less sharply. At the very least, our results suggest industry practitioners seeking public policymaking favors recognize and consider divergent nonmarket strategy approaches based on firm size, industry competition, and country political institution structure. We suggest that these factors and their interrelationships are strongly correlated with success and failure related to firms' nonmarket strategies.

This paper is not without limitations or beyond critique. While the WBES is global and comprehensive, the use of survey-based data has particular limitations and presents potential biases. We address several of these concerns and biases directly, but our dependent variables are still based on perceptions of public policymaking influence as opposed to actual policymaking outcomes. We examine public policymaking influence based on firms' individual efforts as opposed to the collective efforts that might accrue via business or trade association participation. The benefits and costs related to individual firm efforts versus business or trade association policymaking influence efforts is an important question, but we table it for future research. We understand that different types of firms pursue different public policy strategies that depend in part on their market and nonmarket positions, as well as their own political resources and capabilities. While we control for several factors, we recognize that other factors that we do not consider also affect firms' policymaking influence. We assume that intraindustry market competition drives intraindustry political competition, but the permeability of industry boundaries and firms' own interactions across multiple political and industrial dimensions suggest interindustry political competition might play an important role. Given data limitations, we cannot control for this competitive dimension. We assume that our political structure measure is internationally comparable, but recognize the potential for "informal policymaking" (e.g., via political connections or corruption) in some countries and do our best to control for this. Given limited WBES data disaggregation, we treat countries as homogeneous and ignore differences that might exist across federal systems (e.g., India) or regions (e.g., China). We cannot eliminate the potential that developed relationships between firms and government branches improve firms' public policymaking influence, rather than the firm- and industry-level factors that we suggest. It might be the case that politically powerful firms become larger and subsequently alter industry structure—thereby increasing their policymaking influence—over time. Finally, our use of panel data with cross-sectional variation at the country level might be susceptible to inferential errors from unobserved confounding influences. Our empirical estimations using country random-intercept and country fixed effects methods help to address the unobserved country-level heterogeneity present, but potentially not entirely.

DOI: 10.1002/smj

CONCLUSION

The propensity of firms to seek influence over public policymaking in the establishment of laws, rules, regulations, or decrees is well documented. The degree to which firms are successful in these efforts—and the determinants of that success—is relatively less well understood. This paper reviews the literature that examines firms' influence over public policymaking. Based on this review, it undertakes empirical analyses to demonstrate how firm-, industry-, and country-level determinants—and interrelationships among these determinants—affect firms' public policymaking influence in the executive and legislative branches of government using a large and global dataset of firms.

The empirical results indicate that large firms perceive they have more influence over public policymaking than their smaller counterparts. Beyond this rather unsurprising finding, the empirical results also indicate that industry competition and country political institution structure affect firms' public policymaking influence. Small and large firms perceive that they have less public policymaking influence in industries with more competitors and more public policymaking influence in countries with more political structure (i.e., formal veto points and partisan fractionalization). These findings provide insights important to academic research and to industry practitioners related to nonmarket strategy in general and public policymaking in particular.

ACKNOWLEDGEMENTS

We thank Witold Henisz, J. Bradford Jensen, Catherine Tinsley, Dennis Quinn, and Rick Vanden Bergh for discussions and comments that helped shape the paper. We also thank seminar participants at Georgetown University, HEC Lausanne, and the University of Texas for useful comments and suggestions. We gratefully acknowledge the research support provided to us by the McDonough School of Business and the Georgetown Center for Business and Public Policy (CBPP). All errors and omissions are our own.

REFERENCES

Ai CR, Norton EC. 2003. Interaction terms in logit and probit models. *Economic Letters* **90**(1): 123–129.

Aiken LS, West SG. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Sage Publications: Thousand Oaks, CA.

Baron DP. 1995. Integrated strategy: market and nonmarket components. *California Management Review* **37**(2): 47–65.

Batra G, Kaufmann D, Stone AHW. 2003. *Investment Climate Around the World: Voices of the Firms from the and Governance Findings of the World Business Environment Survey*. World Bank Institute: Washington, DC.

Bhagwati NJ. 1982. Directly unproductive, profit seeking (DUP) activities. *Journal of Political Economy* **90**(5): 988–1002.

Boddewyn JJ, Brewer TL. 1994. International-business political behavior: new theoretical directions. *Academy of Management Review* **19**(1): 119–144.

Bonardi JP. 2011. Corporate political resources and the resource-based view of the firm. *Strategic Organization* **9**(3): 247–255.

Bonardi JP, Hillman AJ, Keim GD. 2005. The attractiveness of political markets: implications for firm strategy. *Academy of Management Review* **30**(2): 397–413.

Bonardi JP, Holburn GLF, Vanden Bergh RG. 2006. Nonmarket strategy performance: evidence from US electric utilities. *Academy of Management Journal* **49**(6): 1209–1228.

Bonardi JP, Keim GD. 2005. Corporate political strategies for widely salient issues. *Academy of Management Review* **30**(3): 555–576.

Borner S, Brunetti A, Weder B. 1995. *Politcal Credibility and Economic Development*. St. Martin's Press: New York.

Buchanan J, Tullock G. 1962. *The Calculus of Consent: Logical Foundations of Constitutional Democracy*. University of Michigan Press: Ann Arbor, MI.

Chong A, Gradstein M. 2010. Firm-level determinants of political influence. *Economics & Politics* **22**(3): 233–256.

Faccio M. 2006. Politically connected firms. *American Economic Review* **96**(1): 369–386.

Fisman R. 2001. Estimating the value of political connections. *American Economic Review* **91**(4): 1095–1102.

Getz K. 1997. Research in corporate political action: integration and assessment. *Business & Society* **36**: 32–77.

Grier KB, Munger MC, Roberts BE. 1994. The determinants of industry political activity, 1978–1986. *American Political Science Review* **88**(4): 911–926.

Hansen W, Mitchell N. 2000. Disaggregating and explaining corporate political activity: domestic and foreign corporations in national politics. *American Political Science Review* **94**: 891–903.

Henisz WJ. 2000a. The institutional environment for economic growth. *Economics and Politics* **12**(1): 1–31.

Henisz WJ. 2000b. The institutional environment for multinational investment. *Journal of Law, Economics, and Organization* **16**(2): 334–364.

Henisz WJ, Macher JT. 2004. Firm- and country-level trade-offs and contingencies in the evaluation of foreign investment: the semiconductor industry, 1994–2002. *Organization Science* **15**(5): 537–554.

Henisz WJ, Zelner BA. 2003. The strategic organization of political risks and opportunities. *Strategic Organization* **1**(4): 451–460.

Henisz WJ, Zelner BA. 2006. Interest groups, veto points, and electricity infrastructure deployment. *International Organization* **60**(1): 263–286.

Hillman A. 2003. Determinants of political strategies in US multinationals. *Business & Society* **42**: 455–484.

Hillman A, Hitt M. 1999. Corporate political strategy formulation: a model of approach, participation and strategy decisions. *Academy of Management Review* **24**: 825–842.

Hillman AJ, Keim GD, Schuler D. 2004. Corporate political activity: a review and research agenda. *Journal of Management* **30**(6): 837–857.

Hillman A, Zardkoohi A, Bierman L. 1999. Corporate political strategies and firm performance: indications of firm-specific benefits from personal service in the U.S. Government. *Strategic Management Journal* **20**: 67–81.

Hoetker G. 2007. The use of logit and probit models in strategic management research: critical issues. *Strategic Management Journal* **28**(4): 331–343.

Holburn GLF, Vanden Bergh RG. 2008. Making friends in hostile environments: political strategy in regulated industries. *Academy of Management Review* **33**(2): 521–540.

Holburn GLF, Zelner BA. 2010. Political capabilities, policy risk, and international investment strategy: evidence from the global electric power generation industry. *Strategic Management Journal* **31**(12): 1290–1315.

Huang C, Shields TG. 2000. Interpretation of interaction effects in logit and probit analyses: reconsidering the relationship between registration laws, education and voter turnout. *American Politics Quarterly* **28**(1): 80–95.

Keefer P, Knack S. 1997. Why don't poor countries catch up? A cross-national test of an institutional explanation. *Economic Inquiry* **35**: 590–602.

King G, Tomz M, Wittenberg J. 2000. Making the most of statistical analyses: improving interpretation and presentation. *American Journal of Political Science* **44**(2): 347–361.

La Porta R, Lopez-de-Silanes F, Shleifer A. 2008. The economic consequences of legal origins. *Journal of Economic Literature* **46**(2): 285–332.

La Porta R, Lopez-de-Silanes F, Shleifer A, Vishny R. 1999. The quality of government. *Journal of Law Economics & Organization* **15**(1): 222–279.

Lenway SA, Rehbein K. 1991. Leaders, followers, and free riders – an empirical-test of variation in corporate political involvement. *Academy of Management Journal* **34**(4): 893–905.

Macher JT, Mayo JW. 2012. The world of regulatory influence. *Journal of Regulatory Economics* **41**(1): 59–79.

Macher JT, Mayo JW, Schiffer M. 2011. The influence of firms on governments. *The B.E. Journal of Economic Analysis & Policy* **11**. (1)Article 1.

Masters M, Keim G. 1985. Determinants of PAC participation among large corporations. *Journal of Politics* **47**: 1158–1173.

McNutt PA. 2002. *The Economics of Public Choice* (2nd edn). Edward Elgar: Chltenham, UK and Northampton, MA.

Meznar M, Nigh D. 1995. Buffer or bridge? Environmental and organizational determinants of public affairs activities in American firms. *Academy of Management Journal* **38**: 975–966.

North DC. 1990. *Institutions, Institutional Change, and Economic Performance*. Cambridge University Press: New York.

Okhmatovskiy I. 2010. Performance implications of ties to the government and SOEs: a political embeddedness perspective. *Journal of Management Studies* **47**(6): 1020–1047.

Oliver C, Holzinger I. 2008. The effectiveness of strategic political management: a dynamic capabilities framework. *Academy of Management Review* **33**(2): 496–520.

Olson M. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*. Harvard University Press: Cambridge, MA.

Olson M. 1996. Big bills left on the sidewalk: why some nations are rich and others poor. *Journal of Economic Perspectives* **10**: 3–24.

Peltzman S. 1976. Toward a more general theory of regulation. *Journal of Law and Economics* **19**: 211–248.

Pittman R. 1976. The effects of industry concentration and regulation on contributions in three 1972 U.S. Senate Campaigns. *Public Choice* **21**: 71–80.

Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP. 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology* **88**(5): 879–903.

Potters J, Sloof R. 1996. Interest groups: a survey of empirical models that try to assess their influence. *European Journal of Political Economy* **12**(3): 403–442.

Rabe-Hesketh S, Skrondal A. 2008. *Multilevel and Longitudinal Modeling Using Stata*. Stata Press: College Station, TX.

Rajan RG, Zingales L. 2003. The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics* **69**(1): 5–50.

Rodriguez G, Elo I. 2003. Intra-class correlation in random-effects models for binary data. *The Stata Journal* **3**(1): 32–46.

Salamon LM, Siegfried JJ. 1977. Economic power and political influence – Impact of industry structure on public-policy. *American Political Science Review* **71**(3): 1026–1043.

Schuler D. 1996. Corporate political strategy and foreign competition: the case of the steel industry. *Academy of Management Journal* **39**: 720–737.

Schuler D, Rehbein K. 1997. The filtering role of the firm in corporate political involvement. *Business & Society* **36**: 116–139.

Schuler DA, Rehbein K, Cramer RD. 2002. Pursuing strategic advantage through political means: a multivariate approach. *Academy of Management Journal* **45**(4): 659–672.

Shaffer B, Quasney T, Grimm C. 2000. Firm-level performance implications of nomarket actions. *Business & Society* **39**(2): 126–143.

Siegel J. 2007. Contingent political capital and international alliances: evidence from South Korea. *Administrative Science Quarterly* **52**: 621–666.

Stigler GJ. 1971. The theory of economic regulation. *Bell Journal of Economics and Management Science* **2**: 3–21.

Tsebelis G. 1995. Decision making in political systems: veto players in presidentialism, parliamentarism, multicameralism and multipartyism. *British Journal of Political Science* **25**: 289–325.

Weymouth S. 2012. Firm lobbying and influence in developing countries: a multilevel approach. *Business and Politics* **14**(4): 1–26.

Zelner BA. 2009. Using simulation to interpret results from logit, probit, and other nonlinear models. *Strategic Management Journal* **30**(12): 1335–1348.

DOI: 10.1002/smj