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Business Group Prevalence and Impact Across Countries and Over Time: What Can We Learn from the Literature?

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Business Group Prevalence and Impact Across Countries and Over Time: What Can We Learn from the Literature?

Abstract:

The business groups (BGs) literature has previously focused on the financial performance of its affiliates, relative to non-affiliated firms in the same country. However, when we consider the main predictions of the two theoretical perspectives on BGs, the institutional voids (IV) and entrenchment/exploitation view (EE), both rely to a significant extent on propositions about BG prevalence. Yet, surprisingly, there are almost no empirical studies that explore levels, impacts and time paths of prevalence. In this study, we therefore focus on BG prevalence both across countries and over time. We build a unique database by extracting estimates of BG prevalence for multiple countries between 1978 and 2012 from the existing literature, and use this to test conflicting predictions derived from the IV and EE perspectives respectively. We find no consistent evidence that BG prevalence diminishes over time with economic development, as institutional voids diminish, which is predicted by the IV perspective. Instead, the long term persistence of BGs in many countries appears to be more consistent with the EE perspective. However, we also find no support for the view that high levels of BG prevalence are negatively associated with country-level indicators and determinants of economic development and competitiveness, as suggested by that perspective. We conclude that there is no robust support for either the IV or the EE view and highlight the need for more contextualised theorizing about the evolution of BGs.

Keywords: business group prevalence, foreign direct investment, institutional voids, entrenchment, economic development, country competitiveness.

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Introduction

Business Groups (BGs) are a set of legally independent firms linked by ownership and a variety of other formal and informal ties which act in a coordinated manner (Granovetter, 2005 ; Khanna and Rivkin, 2001). They exist in most economies but are especially common in emerging markets (Khanna and Yafeh, 2007). Because of their ubiquity and importance, an enormous amount of research has been undertaken on BGs to understand their effects on their host economies, including the consequences for internationalization and the nature of the competiton that they pose. To do this, most of the literature has focused on the question of whether group affiliation has a negative or a positive impact on the financial performance of member firms (Carney et al., 2011). In this paper, we take a different approach to understanding the nature and impact of BGs by focusing on the notion of BG prevalence. BG prevalence measures the extent of BG presence within an economy, and it is a concept that is central to the understanding of whether the influence of BGs is beneficial or harmful to growth and development of their host economies.

There are sharp theoretical differences in the literature that revolve around BG prevalence. At one end of the spectrum is a literature associated with institutional voids (IV) theory (Khanna and Rivkin, 2001; Khanna and Yafeh, 2007). This takes a second-best view in arguing that group membership has a net positive effect on various aspects of an affiliated firm's performance, with the implication that high levels of BG prevalence may contribute to positive national development outcomes (Rodrick, 2008). However, that literature also suggests that BGs will become less prevalent as development proceeds and IVs are reduced. Thus, the IV perspective suggests that BG prevalence will diminish over time as countries develop more sophisticated institutions. At the opposite end of the spectrum are exploitation/entrenchment

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(EE) theories that emphasize the negative net effect of affiliation, depicting the pyramidal structures and opaque governance of BGs as purpose built and designed for self-dealing and minority investor expropriation (Bertrand, Mehta and Mullainathan, 2002; Morck, et al, 2005; Young et al., 2008). In this view, entrenched BGs not only persist, but their continued prevalence also limits national development potential. These theories, therefore, present diametrically opposed predictions about how BG prevalence will change as an economy becomes more developed over time, as well as about the impact of BG prevalence on variables that impact national development and international competitiveness. We therefore in this paper provide evidence about the dynamic evolution of BG prevalence and on the relationship between BG prevalence and outward FDI, inward FDI, national innovation, and financial market development. The latter are variables that have been widely used as measures and determinants of national competitiveness and economic development (Porter, 1990; Dunning, 1981; Dunning and Narula, 1996; Schwab, 2014). Thus, we organize our study around two research questions. First we ask whether, over time and across countries, is there any tendency for BG prevalence to be diminished as institutional voids are closed. Second, we ask what is the impact of BG prevalence on country-level performance outcomes.

While the broad social welfare effect of BG functioning was at the very centre of the initial IV research agenda (Khanna, 2000), subsequent scholarship has not systematically addressed either of our research questions. Indeed, , there are very few studies that provide explicit cross-national comparisons of BG functioning (see Belenzon, et al, 2013; Masulis, et al, 2011), and only a small number that look at changes in BG prevalence over time, but within a single country (e.g. Khanna and Palepu, 2000; Lee, et al, 2008, Zattoni, et al, 2009). Such studies are rare primarily because of the difficulties of assembling a comprehensive set of data. We

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address this gap in a novel way by using the literature on BG affiliate performance to assemble a unique data set measuring BG prevalence across countries and over time. We combine results from multiple single-country studies into a single multi-country study by extracting data from all published articles on BGs in particular countries.

Central to our study is the notion of BG prevalence. Prevalence measures the number of firms affiliated with a BG as a proportion of publicly listed firms in an economy. Our data set covers a large number of countries and includes within-country observations over time, thus providing an opportunity to provide a relatively comprehensive overview of the world's diverse population of BGs as well as an overview of the impact of group prevalence on country-level performance measures. In some countries, BGs have been studied intensively, and several estimates of the prevalence of group affiliation taken at different points in time allow us to identify trends in the levels of group affiliation. Our results suggest that there is considerable heterogeneity in BG prevalence and in their effects on country level performance outcomes. We find considerable evidence that BG prevalence varies across countries and over time. In particular, contrary to the prediction of the IV perspective, there is no consistent evidence that BG prevalence diminishes over time when institutional voids are reduced. This observed tendency for persistence in many countries is more consistent with the EE perspective. However, contrary to the EE perspective, we also find no support for the view that BG prevalence is negatively related to various measures of country-level performance. At the same time our analysis also shows no consistent evidence for a positive impact of BG prevalence on economic outcomes, thus suggesting that countries can successfully develop with a variety of levels of BG prevalence. Thus, we provide a more nuanced view of BGs compared with that provided by much of the extant literature that focuses on firm-level, single-country analysis.

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We view our approach as exploratory and aligned with what Cantwell and his colleagues (2010) describe as appreciative theory in the context of institutional approaches to international business. An appreciative approach 'offers an analytical bridge between empirical investigation and formal models.' Accordingly, we do not develop and formally test hypotheses, but rather present opposing accounts of BG functioning and consider their association with and potential impact upon institutions and other socioeconomic outcomes associated with the international competitiveness of a nation's firms. Our contribution to the BG literature is twofold: first, we we provide comparative and temporal evidence about the impact of BGs on socioeconomic outcomes. Secondly we show theoretically and empirically that the two most widely applied theoretical approaches to BGs are limited, which highlights the need for further theoretical development taking closer account of country context. .

We begin by describing our sample and then introduce the overall trends in BG prevalence in several economies. We then provide some exploratory estimates of the relationship between measures of institutional development and BG prevalence, our first research question. We go on to explore the relationship between prevalence and outward FDI (OFDI), inward FDI (IFDI), levels of national innovation and stock market development, our second research question. We conclude by explaining the impact of the findings for future research on BGs.

Operationalizing BG Prevalence

Empirical studies typically operationalize BG affiliation in terms of a dummy variable which divides the national population of listed firms into two distinct categories. Data on affiliation are frequently provided by country-specific institutions or stock market guides.[1] While

[1] For example the classification devised by the Center for Monitoring the India Economy; Dodwell Marketing Consultants classification of Industrial Groupings in Japan; Taiwan's biennial directory Business Groups in Taiwan

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these are likely to reflect country-specific idiosyncrasies, such definitions typically produce reliable year-to-year estimates of affiliation in a specific jurisdiction (Claessens, et al, 2006). Alternatively, other studies define affiliation by ownership; for example, Masulis and his colleagues (2011) apply a 20% ownership threshold to determine whether a firm is affiliated with a group but reduce the threshold in cases where a large shareholder also has other means of control such as being the firm's founder CEO, or board chairman. Depending upon the control structure or ownership threshold selected, the estimated prevalence of group affiliation can vary considerably. Hence, assessing the prevalence of BG affiliation across countries and over time requires careful judgment and caution.

To compile our sample, we therefore used five complementary search strategies to identify the population of studies that provide statistics on prevalence of group affiliates and nonaffiliates in each country (Heugens, et al, 2009). First, we consulted a number of review articles and meta-analysis (Carney et al., 2011; Khanna and Yafeh, 2007). Second, we searched five major electronic databases (ABI/INFORM Global, EconLit, Google Scholar, JSTOR, and SSRN) by using the following search terms: "business group," "business houses," "chaebol," "grupos economicos," "guanxiqiye," "hongs," "keiretsu," "oligarchs," "pyramids," "qiye jituan", and "zaibatsu". Third, we conducted a manual search of journals in the disciplines of economics, finance, and management that periodically publish articles related to BGs. Fourth, after collecting an initial set of studies, we used a "snowballing" technique (Von Hippel, et al, 2009) that involved backward-tracking all the references reported in the articles and tracing forward all articles that cite the original articles by using Google Scholar. Fifth, we directly contacted authors of papers relevant to this topic who had not reported information on BG prevalence.

(BGT) compiled by the China Credit Information Service; Thailand's Brooker Group publication: Thai Business Groups. In Korea, the population of BGs is usually defined by Korean Foreign Trade commission's annual determination of firms affiliated with the top 30 Chaebols.

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After conducting these five steps and removing any manuscripts that used data identical to those of other studies, we arrived at a final sample of 150 BG studies that have compared group affiliates and nonaffiliated firms between 1978 and 2012. Each study provides one or multiple country-year estimates of prevalence of BG affiliation. Collectively, these studies yield 351 prevalence/year estimates for 65 countries. For 26 countries, such as Algeria, Lebanon, Poland, Sri Lanka, and Ukraine, we have only a single estimate of prevalence. For 39 others, we have multiple estimates, and many Asian and Latin American countries have been studied intensively; for instance, we found 64 estimates for prevalence in South Korea, 36 in Japan, 28 in India, 26 in Chile and 7 in both Brazil and Colombia.

However, this dataset of the full set of prevalence estimates has several drawbacks. First it contains duplicate observations for the same year in some countries, and in addition it is statistically 'noisy' because of the variation in the definition and operationalization of group affiliation in the population of studies. In an attempt to minimize these problems for our empirical work, we created two samples for estimation on the basis of the full dataset. The first sample contains the full set of all *non-duplicated* observations including all of the estimates of prevalence in all studies. This reduces the total number of observations from the 351 above to 266 prevalence-year estimates, for example, by cuttting the number of observations from South Korea from 64 to 19. [2] We further created a second sample in which we excluded both duplicate observations and prevalence estimates using a strict pyramid definition of group affiliation., resulting in a (maximum) sample size of 238 observations.[3] Khanna and Yefeh (2007) suggest

[2] This is the maximum sample size; the actual number of observations in any equations may be lower because of other missing data.

[3] For the purposes of reliability one author collected and coded all the prevalence data. Two other authors checked the data and independently coded whether the observation should be included in second sample 'all good observation. We obtained a high inter-rater agreement of .98 (Cohen's kappa coefficient).

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pyramidal equity ties are atypical of group ties in many countries and are therefore likely to underestimate the prevalence of groups. As it turns out, the results were for the most part the same regardless of sample which allow us to report most results using only one sample and we choose the first which is larger and excludes only duplicate observations. When the two samples generate different results, we report them both.

Our empirical analysis concerns the relationship between BG prevalence and various indicators of national economic performances across countries and over time. Our sources for the latter variables are secondary; thus all of the performance, institutional, and control variables employed below are from widely used and available sources. These are summarized in Table 1.

Country-Specific Trends in BG Prevalence

The IV and EE hypotheses represent two prominent theories of the life cycle of BGs, but they offer competing views about expected group longevity and impact. The IV theory has two components: the first one suggests that BGs materialize to fill voids in market supporting infrastructure (Khanna and Yafeh, 2007). The group structure enables affiliates to acquire resources that would be otherwise unavailable via arms-length contracting. The second one suggests that with the development of market supporting infrastructure, arms-length contracting will become feasible and the value of affiliation will erode (Khanna and Yafeh, 2007). As their functional advantages erode, BGs are expected to focus, restructure, and loosen their ties. Ultimately, groups should unravel and disappear, as it becomes more profitable for firms to be unaffiliated because markets are able to provide the resources and capabilities more efficiently and cheaply than from within the BG. Under this scenario, group affiliation should become progressively less prevalent following institutional and economic development (Hoskisson et al.,

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2005; Lee et al., 2008). Based upon their confidence in the IV hypothesis, Khanna and Palepu (1999) build their policy advice on the expectation that BGs will fade away when they advocate "governments in developing countries must focus on building up those market institutions in the long term. The dismantling of business groups will, we believe, follow naturally once these institutions are in place" (1999: 126). Thus, as a functional economic response to underdevelopment, *IV theory predicts that business groups are a transitional phenomenon*.

The EE hypothesis is based on the assumption that concentrated economic (monopoly) power in the hands of rent seeking BG owners will have negative consequences for a country as a whole (Morck et al., 2005). It also has two components: Morck et al (2005) propose that BGs are often initially formed by states to orchestrate a' big push' toward industrial modernization. However, with few exceptions, dominant BGs use their monopoly power to entrench themselves by capturing the commanding heights of the economy. Subsequently, these incumbents seek to defend their sources of rents by retaining the conditions that favor their economic and social prominence. Given their important role in the economy and the political powers that it entails, BG owners and elite politicians can attain a stable equilibrium (Schneider, 2009). As entrenched actors, both economic and political, they are able successfully to resist entry from outsiders and to extract surplus from minority shareholders and other potential stakeholders. In this view, *BGs persist and remain prevalent among the economy's leading firms*.

Which of these contending hypotheses is best supported by our prevalence data? We depict overall trends in prevalence in each of 18 countries for which we had multiple but not duplicating prevalence observations by calculating linear least squares estimates of prevalence over time (reproduced in Figure 1). Overall, the sample shows slight upward trends in prevalence in Belgium, Brazil, China, India, Indonesia, Israel, Japan, Malaysia, Peru, Singapore, Taiwan,

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and Thailand and downward trends in Chile, Hong Kong, Philippines, Russia, and Turkey. What appears to be the case in Figure 1 is that, while BG prevalence may have declined in some countries, there is certainly no overall trend in that direction across countries and over time.

To gain a finer grained picture we separately plot the least-squares line for several intensively studied countries, where there are sufficient observations. Figure 2 depicts individual trends in 8 countries, divided by countries in which BG prevalence increased, and countries in which it declines. Each point in Figure 2 represents a study's estimate of prevalence for a particular year and country. The line is the best fitting regression for those estimates. For example, between 1998 and 2010 BG affiliation in China grew from 20% to 50%. In India, since the early 1990s, BG affiliation had a slight upward trend in a band between 40% and 55%. Taiwan and Japan show similar slight upward trends. Only in South Korea and Turkey is there a steep decline in affiliation but declines are also observed in Chile and Russia. Once again, there is no systematic evidence that BG prevalence is declining across a sample of countries or within many countries over time.

Because economic development is highly correlated with many indicators of institutional development, we also plot prevalence against GDP per capita in Figure 3. In this case, the best fitting regression line is curvilinear. Most of the observations in our sample are in the less than $10,000 GDP per capita band since many of the observations are taken from countries at the early stages of economic development. Figure 3 suggests that BGs remain prevalent at relatively high levels of income and show no clear downward trend over time, as predicted by IV theory. Indeed, the overall picture reveals that BGs tend to persist across the world, albeit not in every country. The data in Figure 3 show no particular decline in BG prevalence at higher levels of

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income per capita. A regression of BG prevalence on per capita GDP (unreported) indicates that there is no statistically significant relationship between these two variables.

To explore this issue more thoroughly and to fully address our first research question, we analyze the relationship between BG prevalence and six of the most commonly used measures of institutional development, while controlling for the study from which the data was taken. Specifically, we estimate equations of the following form:

(1) $BGPt,j = \alpha 1 + \beta 1INSTt,j + \gamma 1CONTROLSt,j + \epsilon 1t,j$

BGP is a measure of BG prevalence, INST is a measure of institutional development, CONTROLS is a set of control variables, t = time period, j = country. The coefficient of interest for our research question is $\beta 1$. A negative sign would provide support for the IV perspective. Any other finding would provide evidence consistent with the entrenchment perspective.

It is important to control for heteregeity in the underlying sample, and in particular the heterogeneity arising from differences in BG prevalence measurement across studies. In all the models which follow, we therefore include a variable indicating the paper from which the data were taken (remember that several papers provided measures for more than one country or multiple year observations). In addition, we control for the size of the firm population over which prevalence is measured. We do so because it is generally the case that firms affiliated with BGs are larger than the average population of unaffiliated firms. Therefore, when the prevalence of BGs is measured on a smaller population (usually the largest firms), as opposed to a larger population (all firms), the percentage of BGs will be higher in the former case. In addition, we

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estimate all equations with and without country fixed effects. This rarely affects the results; we report the more stringent specifoifcation, namely the regressions with country fixed effects.

As shown in Table 1, the first five measures of INST are taken from the Worldwide Governance Indicators (World Bank), and the last one from the Combined Polity Index (Polity2). The five governance measures account for different aspects of institutional development (Globerman and Shapiro, 2003), while the Polity Index is a summary measure of the degree of democracy in a country (Knack, 2004). These estimates of equation (1), for six measures of INST, one reported for both samples, are reproduced in Table 2. Institutional quality typically improves as countries become more developed, so, from the IV perspective, we expect an inverse relationship between BG prevalence and each indicator of institutional development.

However, the results in Table 2 provide no strong evidence that, BG prevalence is systematically related to institutional strength, across either countries or over time. This finding is robust to a variety of specifications: the inclusion of country fixed effects; how institutional strength is measured across our six specifications; and, with one exception, for both of our estimating samples. The columns (1), (2) and (4) – (7) report results from the first (larger) sample, while column (3) reports the only case for which the results differ between the two samples, containing the regression results of BG against political stability with the smaller sample. The relevant coefficients are not statistically significant in columns (1) and (3) – (7). However, consistent with the IV perspective, the Political Stability coefficient is negative and statistically significant in our larger sample (Column 2). However, the same variable is not statistically significant in the smaller sample (Column 3).

Thus, we see virtually no support for the IV view that BGs will not persist over time as institutions develop; in fact, in many countries BG prevalence rises over time. Moreover, group

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affiliation remains prevalent at high levels of GDP per capita (a variable closely associated with institutional development), implying that factors other than the filling institutional voids must explain the persistent prevalence of group affiliation. At the same time, our data provide some limited, but not unambiguous support for the EE perspective and Granovetter's conclusion that "BGs have typically defied predictions of their imminent demise surviving the conscious attempts by politicians to break them up and the impact of financial crises" (2005: 445).

Figure 1: BG prevalence trends in 18 countries

Figure 2: BG prevalence trends in 7 countries

Figure 3: BG prevalence and gross domestic product

Table 1: Data and Sources

Table 2: BG Prevalence and Institutions

Prevalence and Country-level Economic Performance

While performance effects of BG affiliation have attracted the lion's share of the empirical attention (Claessens, et al, 2006; Estrin, et al, 2009; Khanna and Rivkin, 2001; Morck, et al, 2005), the impact of BG prevalence on national economic performance is subject to heated debate. Unfortunately, the evidence on this important question remains sparse. According to the advocates of a positive view, there are at least two ways that the prevalence of group affiliation can benefit country-level economic performance. The first is through simple aggregation logic: affiliation has positive effects on firm performance, so the greater the number of firms associated within BGs, the greater these positive effects. Specifically, in the context of institutional voids, BG's member firms enjoy superior allocative efficiency compared with unaffiliated firms, since affiliation gives the firm access to group mediated resources, such as investment capital and

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managerial know-how[4]. Thus, the IV perspective suggests that BG member firms, being more efficient by virtue of their access to group resources including capital and knowledge (Gerlach, 1992; Keister, 1998), may create conditions supportive of innovation and international competitiveness.

Second, there may be spillover benefits of BG prevalence. As powerful actors, BGs inevitably come into contact with multinational enterprises (MNEs), which facilitates acquisition of new capabilities and identification of foreign opportunities. These effects spill over into the wider economy as unaffiliated firms begin to emulate the behaviour of affiliated firms. BGs may also generate additional spillover effects that accelerate economic development. For example, they may create a pool of trained managers with company credentials, foster creation of competent stock analysts, facilitate building of industrial capacity, as well as communications and transportation infrastructure. In this way, BGs lower the costs of doing business for all firms, including those unaffiliated with a BG. Taken together these arguments suggest that from the IV perspective: *BG prevalence will be positively associated with various measures of national economic performance*.

In contrast, the EE perspective suggests two ways in which BG prevalence can harm country-level economic welfare. While conceding that BGs might provide positive welfare effects in the early stages of economic development, the suggestion is that at later stages of economic development, BGs subsequently actively suppress or passively inhibit sustained growth and competitiveness. The EE perspective provides an elite capture theory that considers BG prevalence as facilitating the concentration and coordination of economic power in the hands

[4] But this scenario provides only a partial equilibrium (Kali, 1999). Full equilibrium requires every firm in the economy to join a group. However, there are increasing coordination costs with group scale and scope (Hoskisson et al., 2005), where the addition of new firms outweigh the available benefits, therefore some proportion of firms fail to join groups producing a partial equilibrium outcome at some level of prevalence.

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of a few families. In this view, institutional development becomes endogenous (Morck et al., 2005): concentrated economic power is wielded to entrench the status and positions of elite actors and to reduce positive spillovers by actively inhibiting the entry of business rivals and preventing the emergence of institutions favoring market competition. Thus, EE theory argues that rent seeking behavior by BGs can produce negative country level outcomes, including restricting international capital flows (Morck et al., 2005), inhibiting innovation (Mahmood and Mitchell, 2004), and retarding the emergence of external capital markets (Almeida and Wolfenzon, 2006). Thus, the EE perspective suggests that: *BG prevalence will be negatively associated with the measures of national economic performance.*

We note that a similar view to the EE perspective is provided by the Varieties of Capitalism (VOC) approach (Hall and Soskice, 2001). The VoC perspective views BG prevalence as an outcome of complementarities between the state, labor, and corporate elites. These groups are constructed at the early stages of economic development to address national coordination problems, such as wage setting. However subsequently these relationships become locked in and thus foreclose the emergence of new complementarities, such as flexible labor markets, which will be necessary as the economy becomes more developed (Schneider, 2009). BG prevalence will therefore be associated with negative performance effects through a 'crowding out' mechanism, in which the dominance of a single organizational form limits the evolution of diversity and economic specialization in the economy. In this view, the BGs may hamper the emergence of alternative corporate forms by depriving them of niches in which to specialize, and these negative effects will be amplified when BGs are highly prevalent.

To address this issue empirically, we estimate a series of equations of the form:

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(2) $OUTt,j = \alpha 2 + \beta 2BGPt,j + \gamma 2CONTROLSt,j + \epsilon 2t,j$

OUT is an outcome performance measure; we focus upon OFDI, IFDI, patents, or stock market development. As in the estimation of equation (1) above, each regression contains a number of variables that control for factors that might affect the relevant outcome variable (discussed below for each equation) as well as the previously discussed set of variables about the study from which the data were taken, as used in the estimates of equation (1).

We are interested in the sign and significance of $\beta 2$. A negative sign indicates that high levels of BG prevalence are associated with lower levels of IFDI, OFDI, patents and stock market development, broadly consistent with the entrenchment view. A positive sign suggests the opposite, although we note that both perspectives are in agreement that BG prevalence should be negatively associated with stock market development because the IV perspective partially views BGs as a substitute for missing domestic capital markets (Khanna and Palepu, 2000). .

BG Prevalence and Outward FDI (OFDI)

We first consider the effects of group affiliation on OFDI. As discussed above, the IV perspective suggests that, in the absence of market supporting. institutions, affiliation with a BG can provide superior access to a range of resources including capital, skilled human resources, technological and organizational know-how that are unavailable to unaffiliated firms. Other things equal, this perspective implies that affiliates have competitive advantages relative to unaffiliated firms. Thus, group affiliation is credited with boosting national industrial capacity by organizing export-oriented firms and helping firms acquire advanced technology (Guillen, 2000),

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as well as providing project management skills to help firms enter new markets (Amsden and Hikino, 1994). Over the past decade, scholars have documented the pioneering effects of group affiliates in engaging in FDI and becoming emerging-market multinationals (Matthews, 2006). Since many emerging market multinational enterprises invest overseas to acquire strategic assets rather than to exploit firm specific capabilities, BG affiliation may provide a springboard to foreign markets (Luo and Tung, 2007; Yiu, et al., 2005).

More recently, research has emphasized BG affiliation as a mechanism for competing in globally deregulated industries by developing advanced capabilities consistent with international standards of competitiveness. In this view, multiple ties among affiliates, including buyer supplier equity and director ties, facilitate individual and complementary combination effects with respect to the development of the R&D capabilities required to be internationally competitive (Mahmood, et al, 2011). Relatedly, group affiliation allows firms to access and leverage market knowledge and international connections in their sister affiliates (Lamin, 2013). In a longitudinal study of Indian firms, Chari (2013) found that group affiliates were more likely to engage in FDI than were unaffiliated firms. The consensus arising from this stream of research is that BG affiliates are in the vanguard of economic development and represent the country's most competitive firms.

These perspectives and findings suggest that unaffiliated firms will be less able to access the resources needed to internationalize their activities in globally competitive industries. Collectively, this literature points out that there is greater likelihood that firms affiliated with groups will have access to the resources and capabilities needed to support OFDI. Therefore, by the logic of aggregation discussed above, this reasoning suggests that: *the greater the degree of BG affiliation in an economy, the greater the level of OFDI.*

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In contrast, we noted that the EE perspective highlights potentially negative attributes of group affiliation, and how these might suppress incentives and capacities to internationalize activity. First, controlling shareholders may undermine the competitive potential of their affiliates by extracting or tunneling resources from them (Bertrand, et al , 2002). Others emphasize the BGs' potential to exploit linkages with political elites for personal gain in countries where a relatively small number of business families control significant shares of the economy (Claessens, et al, 2000). Oligarchic family BGs can use their economic power to extract resources from government (Faccio, 2006) through corporate bailouts (Faccio, et al, 2006), rent seeking (Fisman, 2001), or inhibiting competition from domestic and international rivals (Fogel, 2006). Receiving an assured stream of rents, these business owners have limited incentive to seek investment opportunities beyond their borders where the possibilities for rent extraction are less auspicious and the likely returns much lower. Indeed, successful rent seeking strategies may displace emphasis on developing alternative sources of competitive advantage.

More recently, studies that are not explicitly in the EE tradition have identified several factors that inhibit BG affiliates' OFDI. Specifically, due to the dense multiplex linkages with other businesses in their domestic environments, group affiliates can become overly embedded in a set of country-specific institutions (Pedersen and Stucchi, 2015). A related argument suggests that family BGs engage in domestic product diversification on the basis of the reputation of a family/reputable entrepreneur. However, reputations are highly localized phenomena, not easily transferable across borders. Indeed, product diversification and international expansion may present firms with an inherent trade-off (Kumar, et al, 2012), and locally diversified firms may be required to refocus their business portfolio before they engage in international expansion (Meyer, 2006). Tan and Meyer (2010) find that extensive political and business ties with local

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actors drive domestic growth and inhibit international expansion. In particular, they conclude that government ownership in any group discourages internationalization of group-affiliated firms. Implicit in these perspectives is the idea that unaffiliated firms are not exposed to the negative impact of group membership on internationalization. Thus, contrary to the IV perspective the prevalence of BG affiliated firms is expected to be associated with lower levels of OFDI.

A variety of estimates of equation (2) using the larger sample are reported in Table 3 to illustrate the robust nature of our findings. We report various specifications noting that the number of observations varies according to the inclusion of further control variables, as defined in Table 1. The dependent variable, OFDI is measured in logarithms because of the non-normality of the distribution. We also note that the sample size is reduced from the one reported above because of missing values. The basic specification in column (1) controls only for cross-study differences in the underlying dataset by including a variable indicating the paper from which the data was taken and the size of the firm over population in which prevalence is measured. This is extended in column (2) to include a direct measure of government policy, in this case the OFDI restrictions index compiled by the IMF. Column (3) further includes GDP per capita (lagged one period) to control for a variety of country effects including macro-economic policy and institutional development. Finally in column (4) we also include a direct measure of institutional development, the Freedom House Index, a summary measure compiled by the Heritage Foundation (defined in Table 1).

We show in Table 3 that in all these specifications the coefficient on the BG prevalence term is positive and statistically significant in all specifications. This implies that, consistent with the arguments from the IV perspective, BGs are capable of generating internationally

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competitive firm capabilities. We find no evidence supporting the view, from the EE perspective, that higher levels of BG presence are associated with reduced OFDI flows from a country.

It is important to note that these positive results are obtained while controlling for GDP per capita, which has a consistently positive and statistically significant effect on OFDI flows, as well as controlling for institutional quality. In this sense, our results are robust to heterogeneity across countries[5]. At the very least, BG prevalence on average has a positive association with a country's OFDI position at any point in time. Our evidence therefore does not favor the EE perspective.

Table 3: BG Prevalence and OFDI

BG Prevalence and Inward FDI (IFDI)

There is very little literature that directly connects BG prevalence with IFDI. However, there is an extensive literature linking IFDI to variables that reflect national competitiveness (Bevan and Estrin, 2004; Globerman and Shapiro, 2002). Moreover, there is evidence that such inflows benefit the home economy through knowledge spillovers, resource transfers, and enhanced competition (Li, et al, 2012). In addition, inward FDI can be particularly effective in encouraging industrial restructuring (Dunning and Narula, 1996), which is an important antecedent of OFDI by BGs (Meyer, 2006). That is, IFDI can encourage domestic firms to be more competitive. How does BG prevalence affect these processes? The IV perspective primarily considers the firm-level advantages generated by internal markets, which can provide affiliates with superior access to knowledge, capital, and labour. However, this perspective views BGs as an efficient market organisation within the context of institutional voids, and therefore, probably one keen to exploit the learning possibilities and technologies brought to the domestic

[5] However, we cannot claim causality for these results, which do not derive from a formal model linking the development process, institutional development, and BG evolution.

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economy by IFDI. As such, the IV perspective provides no suggestion that BGs will actively oppose inward FDI, and may even be inclined to cooperate with foreign entrants to gain access to knowledge (Nolte and Vliegenthart, 2009; Schneider, 2009). Thus, from the IV perspective: *IFDI is likely to be either unaffected or even mildly encouraged by higher levels of BG prevalence*.

In contrast, the EE perspective would suggest that entrenched BGs use their political power to limit foreign competition and restrict IFDI (Estrin, et al, 2016; Morck et al., 2005; Rajan and Zingales, 2003). Perhaps the most salient argument here is elite capture, an argument that emphasizes the suppressing effects of oligarchic BGs dominating the economy. The argument is a direct corollary of the EE hypothesis (Morck et al., 2005). In this view, politically connected BGs gain access to national monopolies through *quid-pro-quo* agreements with political actors. The dependence on domestic markets is exacerbated and provides BGs with a strong incentive to resist encroachment on their domestic terrain. BGs are keen to minimize competition, and they will be particularly concerned with erecting barriers to the entry of foreign rivals. BGs will oppose institutional and regulatory developments that threaten their dominant positions and this will lead to a reduced presence of foreign multinational enterprises (Rajan and Zingales, 2003). Hence, from the EE perspective, *higher levels of BG prevalence should be associated with lower levels of IFDI*.

It is important to recognize that many emerging market countries seek to accelerate their economic development by encouraging IFDI to stimulate the transfer of technology and managerial expertise. The international economics literature finds that such investment can contribute to growth relatively more than domestic investment (Sabirianova, et al, 2005). IFDI may be particularly effective in encouraging industrial restructuring (Dunning and Narula, 1996,

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which is an important antecedent of OFDI by BGs (Meyer, 2006). However, several East Asian economies, such as Japan and Korea, actively discouraged IFDI in the early stages of development as a means of developing domestic capabilities (Amsden, 1989; Gerlach, 1992). Therefore, the relationship between levels of BG prevalence and IFDI must consider the role of IFDI policy.

We report the results of estimating equation (2) with IFDI as the dependent variable in Table 4. The chosen specifications take the same structure as in Table 3, with one exception. The discussion above suggests that government policy with respect to IFDI can be important and so in Table 4 we include a direct measure of government policy, in this case the IFDI restrictions index compiled by the IMF.

The results with respect to the control variables conforms with expectations. Inward FDI is positively associated with the level of development (GDP per capita) and the controls for sample quality. Inward FDI is deterred by lower levels of freedom; the Freedom House variable is measured from low (high levels of freedom) to high (low levels of freedom). Our theoretical concern is with the coefficient on the BG variable, which is found not to be statistically significant in any specification. Thus there is no statistically significant relationship between BG prevalence and inward FDI, regardless of the controls employed. These results are certainly not supportive of the EE perspective, but are broadly consistent with the IV argument.

Table 4: BG Prevalence and IFDI

BG Group Prevalence and Innovation

The literature relevant to the question of the relation between BG prevalence and innovation raises issues similar to those already discussed with respect to FDI. Several studies in

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the IV tradition propose that BGs protect member property rights and so facilitate market-oriented innovation among affiliates (Chang and Hong, 2000; White, et al, 2008), suggesting that high-performing BGs will support innovative activities that strengthen their competitiveness. Similarly, at low levels of BG prevalence, affiliates will face stronger competition from unaffiliated firms and have a greater incentive to invest in innovation (Mahmood and Mitchell, 2004). One reason for this is that profitable BG's may function as venture capitalists, a market often absent in emerging economies, by using their free cash flow to fund new innovative startups (Masulis et al., 2011). Belenzon and Berkovitz (2010) find that affiliates of business groups are more innovative than standalones, and attribute this result to internal capital markets.

At the same time, it is recognized that if BGs facilitate innovation by filling a void in venture capital markets, this may occur only at low levels of BG prevalence (Mahmood and Mitchell, 2004). When BG's account for a large share of the economy's activities, they may instead hinder innovation by erecting barriers to entry for new firms which experiment with new business models (Gerlach,1992). Facing less competition from unaffiliated firms also allows BG to become entrenched as suggested by the EE perspective. Under these circumstances BG's may seek to protect existing sources of rent which will inhibit their incentives for innovation (Chang, Chung, and Mahmood, 2006). BGs will have little incentive to fund R&D expenditures and other activities such as patenting new technologies because, at high levels of prevalence, there is an increased probability that one affiliate's innovation will cannibalize another affiliate's products (Mahmood and Mitchell, 2004). This argument suggests that high levels of prevalence will reinforce the selection environment for BGs generic capabilities and weaken selection for firm specific advanced product and process innovations (Kock and Guillen, 2001). In addition, to the extent that BGs access technology through joint ventures with foreign companies, they may have

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limited interest in supporting the development of intellectual property rights that incentivize local scientific endeavor (Schneider, 2009).

Thus, an IV perspective suggests that: *the prevalence of BGs can enhance innovation at the country level by filling missing venture capital markets*. The contrary EE view suggests that: *high levels of BG prevalence are likely to hamper national innovation efforts*.

In Table 5 we provide estimates of equation (2) using patents granted (in logs), a commonly used indicator of national innovation, as the outcome performance variable. We report four specifications paralleling those in Tables 3 and 4, except that in this case we include a control variable for innovation inputs, the ratio of R&D expenditures to GDP. All other control variables have been presented above.

The results in Table 5 provide no evidence that BG prevalence is related to innovative activity. The coefficient on BG prevalence is not statistically significant in any regression in Table 5, nor in numerous other unreported regressions. Otherwise the results conform with expectations; patents increase with GDP per capita and with innovation inputs. While the IV perspective is somewhat ambiguous in its prediction about the predicted relationship between innovation and BG prevalence, our evidence is once again not consistent with the EE perspective on this issue.

Table 5: BG Prevalence and Innovation

BG Prevalence and the Development of Stock Markets

Finally, we consider the effect of BG prevalence on the development of external capital markets. Both the EE and IV perspectives tend to imply that BGs and their associated internal capital markets will form when external capital markets are underdeveloped. However, they

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diverge in their predictions about the dynamic relationship between the two. The IV perspective suggests that as the economy develops, larger and more efficient external capital markets will gradually replace the internal capital markets represent by the BG structure. Hence, the development of the external capital market will act to reduce the prevalence of BGs. However, the EE perspective suggests that BGs will prevent the emergence of a competitive capital market, and capital market development will thus not occur. Consequently, the prediction is the same; high levels of capital market development will be associated with low levels of BG prevalence and vice versa, but, in this case, the relationship will not be generated by the same dynamic considerations.

Some of the finance literature points to potential negative economic consequences associated with extensive group affiliation and their reliance on internal capital markets. Early research associated BG internal capital markets with inefficient investment outcomes as groups were argued to support weak underperforming firms at the expense of better external opportunities (Scharfstein and Stein, 2000). Almeida and Wolfenzon (2006) develop a theoretical model suggesting that substantial group affiliation in an economy hampers the allocative efficiency of external capital markets thereby contributing to their under-development. In this view high levels of affiliation produce strong feedback effects because when new firms expect others to join BGs, they are more likely to do so as well since there are few alternative sources of capital to fund new ventures. Thus BG prevalence limits the emergence of efficient external capital markets.

However, other research affirms the beneficial effects of BGs in the context of weak capital markets. Under these circumstances BGs offer their affiliates preferential access to group mediated resources that are unavailable through arms-length transactions in external capital

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markets. Thus, where capital markets are illiquid and underdeveloped, BGs' internal capital markets provide venture capital to startups (Masulis et al., 2011) and extend credit to distressed firms (Jia, et al, 2013). BGs internal markets are found to be especially valuable for capital intensive firms, with a high need for external finance, in countries where equity markets are poorly developed (Belenzon et al., 2013). These arguments support the view that BGs may be associated with less developed capital markets, not because they are inefficient, but because they are efficient, both in funding startups and in extending credit to high risk firms. Similar views are expressed by Schneider (2009) who suggests that developing economies dominated by BGs become reliant on their internal capital markets.

Thus, whether one accepts a positive or negative interpretation of BG functioning, there seems to be a consensus between the perspectives that: *the prevalence of BGs will be associated with less developed external equity markets*.

We estimate this final version of equation (2) using stock market capitalization as our outcome performance variable and following the same broad specification structure as in Tables 3 to 5, with the Freedom House financial freedom index replacing the broader freedom index as the additional institutional variable. Contrary to the predcitons from the EE perspective, we find no evidence in any of the specifications of a negative relationship between stock market capitalization and BG prevalence. Indeed, the relevant coefficient is always positive, and when we do not control for per capita GDP, it is statistically significant. The significant control variables conform with expectations. Thus, in our regressions we find no evidence to support the idea that the internal capital markets, typically associated with BGs, are also linked with under-capitalized external financial markets.

Table 6: BG Prevalence and Stock Market Development

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Discussion and Conclusions

BGs are a prominent feature of the business landscape in developing countries, where they have been accorded more attention, but also in more mature economies. Nevertheless, both the degree of their persistence and their impact upon country economic performance remain unsettled areas of research. As such, there has been no consistent evidence to support either side of the competing narratives that we have described in this paper.

To take the discussion further we have gathered data from 150 existing studies regarding the level and persistence of BG prevalence across countries over the last 30 years, and use these data to explore two major questions that have not been fully addressed in the literature. First, over time and across countries, is there any tendency for BG prevalence to be diminished as institutional voids are closed? Second, does BG prevalence have an impact on country-level outcomes associated with national competitiveness and economic development?

We situate these questions in the context of the differing views of BGs provided by the IV and EE perspectives. In brief, the IV perspective suggests that BGs will tend to dissolve as national institutions develop, but their prevalence may contribute positively to country level outcomes. In contrast, the EE perspective suggests that BGs persist, and this persistence is linked to behaviors that do not result in positive national outcomes. In addition, neither perspective is fully comfortable with the international investments of BGs. Our results offer an original contribution to the debate on the nature and impact of BGs.

We find that, while levels of prevalence do vary significantly around the world, in many cases BGs also persist over long periods of time. Our analysis provides little evidence that BGs disappear on average, and only in a few cases do we find that group affiliation tends to decrease in importance for the national economy, even though income levels have increased considerably

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over the period and majority of institutions have strengthened. This appears to support the EE over the IV perspective.

At the same time, we find no evidence that high levels of prevalence have negative effects on the country-level indicators we examine, which tends to supports the IV over the EE perspective. Indeed, there is some evidence that prevalence has a positive effect on outward FDI, and perhaps on the development of capital markets. Thus, we conclude that the prevalence of BGs seems on balance to facilitate their economies' participation in the global economy and little evidence that BG prevalence locks them into autarkic isolation. Put otherwise, we find no evidence that BG prevalence impedes national competitiveness or the factors that might contribute to it.

Therefore, the evidence we provide does not show unambiguous support for either the positive or negative narratives surrounding group prevalence. The positive IV narrative holds that BGs materialize to fill institutional voids with consequent positive effects on economic development but, subsequently, groups should unbundle and disappear once market supporting institutions emerge to support the effective functioning of freestanding firms. Since our data show nonnegative or positive associations between group prevalence and capital flows as well as capital market development, the evidence is consistent with the positive IV narrative. However, our finding that BGs do not unbundle and disappear, but persist over time is inconsistent with the same narrative. Indeed, evidence of persistence would seem to support the negative narrative articulated by EE perspective. However, the fact that high levels of group prevalence are also found in mature economies contradicts the negative narrative that groups are associated with ensnaring the economy into a middle-income trap. Similarly, the positive association of BG prevalence with various country performance indicators also speaks against the negative

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narrative, and suggests that BG persistence is not on average the consequence of behaviors that support entrenchment. Our results are exploratory. The use of data extracted from other published articles is a different, and we hope promising way, to survey the literature, but we recognize that it raises concerns about the quality of the data. We therefore encourage future research that futher explores this method of obtaining data.

With this caveat in mind, our results do suggest that a polarized characterization of BGs with respect to their host countries' economic development and integration with the global economy is too coarse. Indeed, our main conclusion is that the two apparently competing narratives that we have explored should perhaps be seen as potential outcomes of a broader theory that is as yet elusive. Although the evidence presented in this paper suggests that BGs are in general development-friendly, or at least are not development unfriendly, we recognize that there is considerable cross-country variation in both BG prevalence and its effects on country performance. Thus, we suggest that theoretical approach to BGs should be developed that implies no necessary convergence to a "standard" global model (Hansmann and Kraakman, 2004), but rather one that allows for a variety of institutions and corporate forms to co-exist in various proportions. Thus research focused on understanding how "varieties of ownership forms" co-exist and evolve in different countries seems a fruitful area of future research. At the same time, our results suggest that the relationship among firm- and country-specific advantages (Porter, 1990; Rugman, 1981; Rugman, et al, 2012) also remains a fertile area for future research. As a prevalent economic and social institution, BGs are likely bear a complex and multifaceted relationship with their host economies, and we suspect the identification of their merits and failings will occupy corporate governance and international business scholars for some time to come.

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Table 1: Data and Sources

Variable	Source
GDP per Capita	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. World Bank, various years: http://data.worldbank.org/indicator/NY.GDP.PCAP.CD
Control of Corruption	Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grant forms of corruption, as well as capture of the state by elites and private interest. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. World Bank, Worldwide Governance Indicators, various years: http://info.worldbank.org/governance/wgi/index.aspx - home
Political Stability	Political stability capturing perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. World Bank, Worldwide Governance Indicators, various years: http://info.worldbank.org/governance/wgi/index.aspx - home
Government Effectiveness	Government effectiveness capturing perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. World Bank, Worldwide Governance Indicators, various years: http://info.worldbank.org/governance/wgi/index.aspx - home
Regulatory Quality	Regulatory Quality capturing perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. World Bank, Worldwide Governance Indicators, various years: (http://info.worldbank.org/governance/wgi/index.aspx - home
Rule of Law	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a

	standard normal distribution, i.e. ranging from approximately -2.5 to 2.5. World Bank, Worldwide Governance Indicators, various years: (http://info.worldbank.org/governance/wgi/index.aspx - home
Polity Combined Index	Polity IV, contains coded annual information on the level of democracy for all independent states with greater than 500,000 total population and covers the years 1800–2013. Polity's conclusions about a state's level of democracy are based on an evaluation of that state's elections for competitiveness and openness, the nature of political participation in general, and the extent of checks on executive authority. For each year and country, a "Polity Score" is determined which ranges from -10 to +10, with -10 to -6 corresponding to autocracies, -5 to 5 corresponding to anocracies, and 6 to 10 to democracies. Centre for Systematic Peace, Polity IV Project, various years: http://www.systemicpeace.org/
Inward and outward FDI (log millions US dollars)	Data on FDI flows are on a net basis (capital transactions´ credits less debits between direct investors and their foreign affiliates). Net decreases in assets (FDI outward) or net increases in liabilities (FDI inward) are recorded as credits (recorded with a positive sign in the balance of payments), while net increases in assets or net decreases in liabilities are recorded as debits (recorded with a negative sign in the balance of payments). United Nations Conference on Trade and Development, various years: http://unctad.org/en/Pages/DIAE/Investment%20and%20Enterprise/FDI_Flows.aspx
Patents granted (log of patent activity)	International applications by origin via the PCT, Madrid and Hague Systems World intellectual property organization, various years: www.wipo.int
Stock market capitalization	Market capitalization (also known as market value) is the share price times the number of shares outstanding. Listed domestic companies are the domestically incorporated companies listed on the country's stock exchanges at the end of the year. Listed companies does not include investment companies, mutual funds, or other collective investment vehicles. Data are in current U.S. dollars. World Bank, various years: http://data.worldbank.org/indicator/CM.MKT.LCAP.GD.ZS/countries
FDI restrictions index (inflows)	This dataset reports the presence or absence of capital controls, on an annual basis, for 100 countries over the period 1995 to 2013. The information on capital controls is disaggregated both by whether the controls are on inflows or outflows, and by 10 different categories of assets. We use *dii* Direct Investment Controls on Inflows Capital Control Measures: A New Dataset (FKRSU), A. Fernandez, M. Klein, A. Rebucci, M. Schindler, M. Uribe, IMF, April 2015 (kai) http://www.imf.org/external/pubs/ft/wp/2015/wp1580.pdf
FDI restrictions index (outflows)	This dataset reports the presence or absence of capital controls, on an annual basis, for 100 countries over the period 1995 to 2013. The information on capital controls is disaggregated both by whether the controls are on inflows or outflows, and by 10 different categories of assets. We use ***dio*** Direct Investment Controls on Outflows Capital Control Measures: A New Dataset (FKRSU), A. Fernandez, M. Klein, A. Rebucci, M. Schindler, M. Uribe, IMF, April 2015 (kao)

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	http://www.imf.org/external/pubs/ft/wp/2015/wp1580.pdf
R&D as % of GDP	Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development. World Bank, various years http://data.worldbank.org/indicator/GB.XPD.RSDV.GD.ZS
Heritage Foundation, Index of Investment Freedom	The *Index* evaluates a variety of restrictions that are typically imposed on investment. It is not necessary for a government to impose all of the listed restrictions at the maximum level to effectively eliminate investment freedom. Those few governments that impose so many restrictions that they total more than 100 points in deductions have had their scores set at zero. Heritage Foundation, various years: (http://www.heritage.org/index/explore)
Freedom House Index	The survey measures freedom—the opportunity to act spontaneously in a variety of fields outside the control of the government and other centers of potential domination—according to two broad categories: political rights and civil liberties. Political rights enable people to participate freely in the political process, including the right to vote freely for distinct alternatives in legitimate elections, compete for public office, join political parties and organizations, and elect representatives who have a decisive impact on public policies and are accountable to the electorate. Civil liberties allow for the freedoms of expression and belief, associational and organizational rights, rule of law, and personal autonomy without interference from the state. Freedom House , various years: (https://freedomhouse.org/report/freedom-world/freedom-world-2015)

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Table 2: BG Prevalence and Institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
VARIABLES	Control Corruption	Political Stability	Political Stability	Government Effectiveness	Regulatory Quality	Rule of Law	Polity Index
Paper number	-0.001***	-0.001***	-0.001**	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Firm (year) observations	-0.000	-0.000	-0.000***	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Institutional Variable	-0.082	-0.219*	-0.053	-0.008	-0.028	-0.064	0.003
	(0.059)	(0.111)	(0.065)	(0.059)	(0.057)	(0.052)	(0.006)
Observations	163	146	118	163	163	166	266
R-squared	0.599	0.645	0.662	0.592	0.593	0.594	0.459
Country FE	YES	YES	YES	YES	YES	YES	YES

Dependent Variable is Percentage of BG Firms
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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Table 3: BG Prevalence and OFDI

Dependent Variable is Log of Outward FDI	(1)	(2)	(3)	(4)
Percentage BG firms	1.932***	2.073***	1.268**	1.498***
	(0.580)	(0.635)	(0.594)	(0.531)
Paper number	0.008***	0.006**	0.003	0.003**
	(0.002)	(0.003)	(0.002)	(0.002)
Firm (year) observations	0.000	-0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Overall outflow restrictions index		-0.041	0.545	
		(0.706)	(0.672)	
GDP per capita (t-1)			0.000***	0.000***
			(0.000)	(0.000)
Freedom_index_t				-0.020
				(0.043)
Observations	266	147	147	175
R-squared	0.807	0.863	0.877	0.887

Robust standard errors in parentheses. All regressions include country fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

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Table 4: BG Prevalence and IFDI

Dependent Variable is Log of FDI Inflows ($US)	(1)	(2)	(3)	(4)
Percentage BG firms	0.337	0.260	-0.470	0.017
	(0.498)	(0.615)	(0.645)	(0.437)
Paper number	0.007***	0.003*	0.000	0.002
	(0.001)	(0.002)	(0.002)	(0.001)
Firm (year) observations	0.000**	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Overall inflow restrictions index		-0.471	-0.031	
		(0.374)	(0.349)	
GDP per capita (t-1)			0.000***	0.000***
			(0.000)	(0.000)
Freedom_index_t				-0.067*
				(0.039)
Observations	270	151	151	179
R-squared	0.715	0.817	0.848	0.860

Robust standard errors in parentheses. All regressions include country fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

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Table 5: BG Prevalence and Innovation

Dependent Variable is Log of Patent Grants	(1)	(2)	(3)	(4)
Percentage BG firms	-0.296	0.462	0.473	0.051
	(0.334)	(0.327)	(0.352)	(0.458)
Paper number	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Firm (year) observations	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
R&D expenditure (% of GDP)		0.973*	0.987*	
		(0.511)	(0.545)	
GDP per capita (t-1)			-0.000	0.000***
			(0.000)	(0.000)
Freedom_index_t				0.015
				(0.026)
Observations	213	133	133	171
R-squared	0.904	0.948	0.948	0.935

Robust standard errors in parentheses. All regressions include country fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

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Table 6: BG Prevalence and Stock Market Development

Dependent Variable is Log of Stock Market Capitalization ($US)	(1)	(2)	(3)	(4)
Percentage BG firms	0.931**	1.103**	0.750	0.742
	(0.438)	(0.492)	(0.494)	(0.538)
Paper number	0.003***	0.003***	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Firm (year) observations	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Freedon House financialfreedom_t		-0.008	-0.009	
		(0.010)	(0.009)	
GDP per capita (t-1)			0.000***	0.000***
			(0.000)	(0.000)
Freedom_index_t				-0.001
				(0.027)
Observations	216	180	180	180
R-squared	0.874	0.888	0.906	0.905

Robust standard errors in parentheses. All regressions include country fixed effects.
*** p<0.01, ** p<0.05, * p<0.1

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Figure 1: BG: prevalence trends in 18 countries

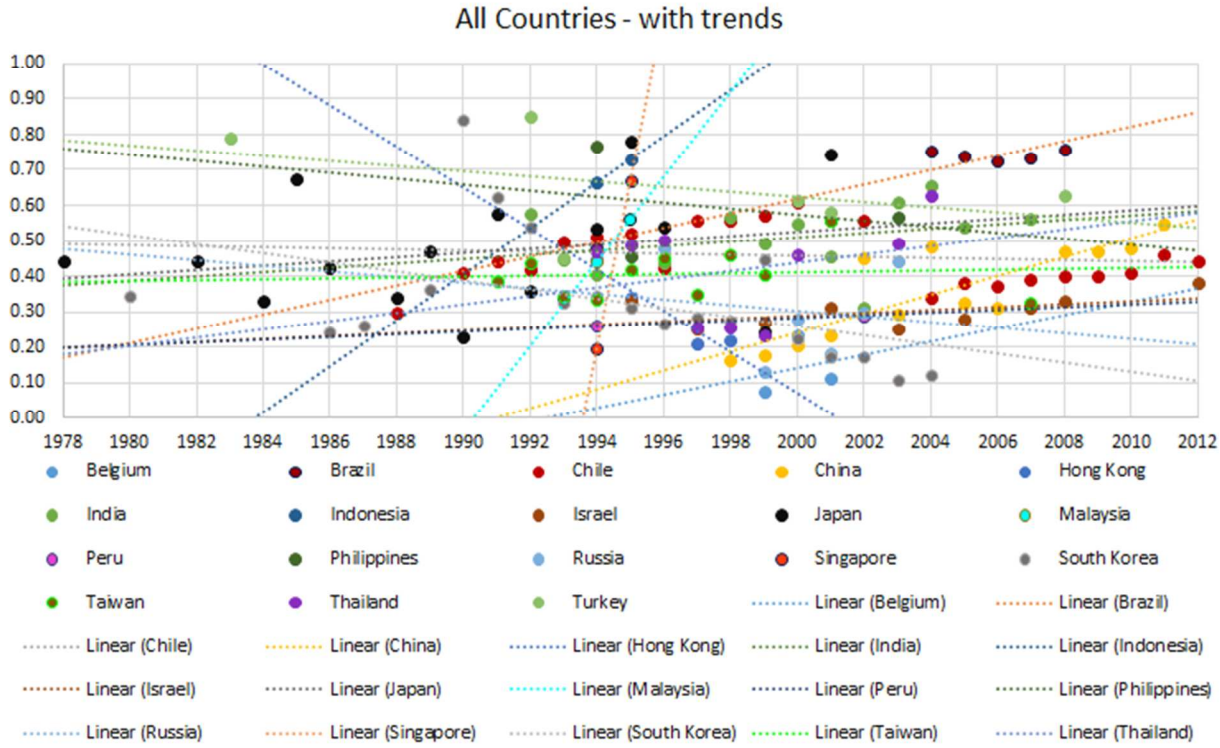

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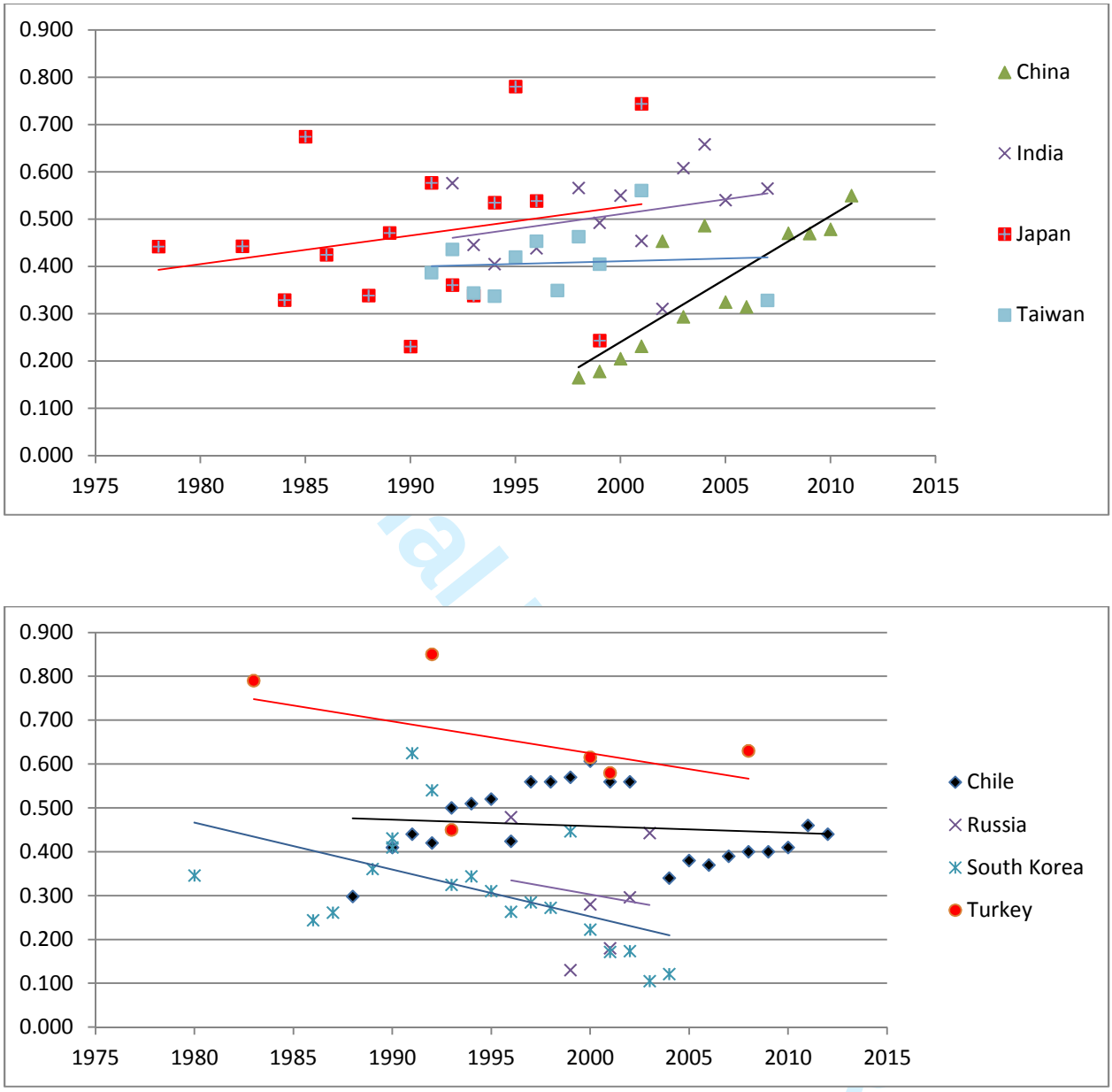
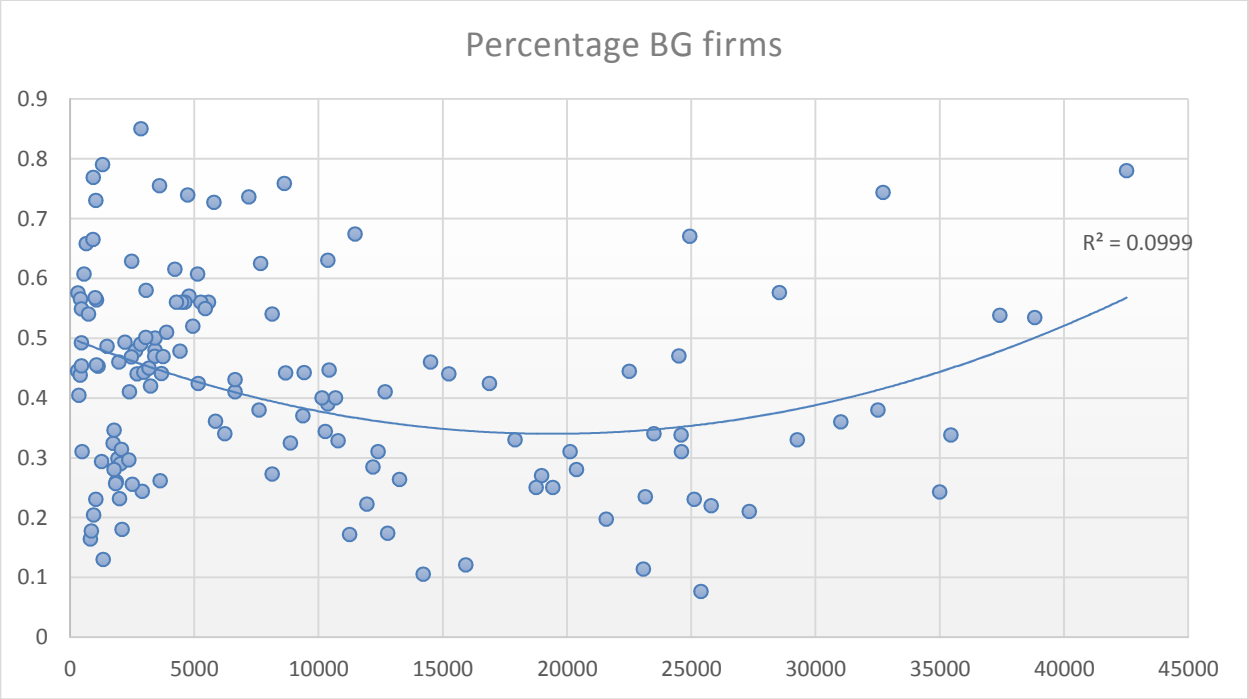
Figure 2: Prevalence trends in eight countries*



*** Upper Figure shows increasing BG prevalence in China, India, Japan and Taiwan. Lower Figure show decreasing BG prevalence in Chile, Russia, South Korea and Turkey.**

BG prevalence also increases in Belgium, Brazil, Indonesia, Israel, Malaysia, Peru, Singapore, and Thailand. BG prevalence also decreases in Hong Kong and Philippines

Figure 3: business group prevalence and per capita GDP



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