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Entrepreneurship and Weak Institutions in Latin America

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Abstract
This paper seeks to explain how heterogeneity in governmental institutions across countries affects entrepreneurial activity. Drawing on insights from institutional theory and based on panel data from eighteen Latin American nations for the 2002–2014 period, the findings presented here suggest that (1) decreasing the number of days required to start a business increases the ratio of high-growth entrepreneurs; (2) corruption increases the number of newly registered corporations per 1,000 working-age people; and (3) increasing the time required to start a business decreases the growth expectation of early-stage entrepreneurial activity across nations.

JEL Codes: D73, L26, M13
Keywords: entrepreneurial activity, corruption, institutional theory, high-growth entrepreneurs

I. Introduction

This study suggests that high-growth entrepreneurial activity does not thrive in an institutional context of voids and barriers (Klapper, Laeven, and Rajan 2006; MacMullen, Bagby, and Palich 2008). The arguments presented here are consistent with those advanced by Baumol (1990), who suggested that institutional voids and barriers may encourage unproductive and destructive forms of entrepreneurship and breed negative societal attitudes toward entrepreneurs (Baumol 1990).

Identifying the institutions that support entrepreneurship may provide further insights for policy makers (Estrin, Mickiewicz, and

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Stephan 2013b). By focusing on high-growth entrepreneurs, this paper contributes to the argument that bureaucracy erodes the foundations of institutional trust that are necessary to foster entrepreneurial growth in developing economies.

Entrepreneurship is very important, as it is linked to economic growth (Baumol 1968; Kirzner 1997; Minniti 1999), innovation (Schumpeter 1934), well-defined private property rights (Williamson 2000), effective and beneficial political and economic institutions (Rodrik 2000), solid and unbiased business regulations (Parker 2007), the production and introduction of new products (Baumol 1990), and high-net foreign direct investment (FDI) as a percentage of GDP (Ovaska and Sobel 2005).

On the contrary, corruption is associated with increased consumer price inflation (Cukierman, Edwards, and Tabellini 1992), higher interest rates (Bahmani-Oskooee and Nasir 2002), wider socioeconomic inequalities (Gupta, Davoodi, and Alonso-Terme 1998), unproductive public policy choices such as less spending on education and more spending on defense (Mauro 1998), weak institutions in subnational governments (Lecuna 2012), less governmental legitimacy to the point of instigating civil wars (Klitgaard 1990), and additional costs to businesses that can be thought of as an arbitrary tax significantly inhibiting investment (Wei 1999) and economic growth (Mauro 1995).

Although a growing body of research has demonstrated a uniformly positive relationship between decreased corruption and improvement in a variety of important indicators, the specific relationship between entrepreneurial activity and corruption as measured across nations remains a topic of debate. Research to date tends to argue that corruption plays an important role in decreasing the rates of entrepreneurship across developed nations. For instance, Ovaska and Sobel (2005), Anokhin and Schulze (2008), Tonoyan et al. (2010), and Aidis, Estrin, and Mickiewicz (2012), among others, laid the foundation to bridge entrepreneurship and corruption as two relevant subdisciplines of management and political economy that have evolved in relative isolation.

Anokhin and Schulze (2008) controlled for wealth (measured as the log of per capita GDP), net inflows of foreign direct investment as a percentage of GDP, foreign trade as a percentage of GDP, and the log of population. The sample used by Tonoyan et al. (2010) included transitional and mature market economies and one measurement of entrepreneurial activity (for the year 2000). Aidis,

Estrin, and Mickiewicz (2012) focused on entrepreneurs instead of incorporated firms (using data for the 1998–2005 period) and employed the Heritage Foundation and the Wall Street Journal (HF/WSJ) to measure the institutional indicators, including "freedom from corruption" as the key variable of interest. Furthermore, whereas Ovaska and Sobel (2005) examined ten postsocialist transition economies, the two measurements of entrepreneurial activity were outdated: the number of active private enterprises per 1,000 population in 1995 and the average annual growth rates of both private enterprises and patent trademark applications per capita for 1995–2000.

This paper contributes to previous research in three ways: (1) by using seven independent measures of entrepreneurial activity as dependent variables and including a larger set of controls over a more homogenous data set and a more recent time period; (2) by introducing the moderating effect of bureaucracy, measured by the days and the procedures required to start a business; and (3) by reintroducing—in light of the weak rejection of the first hypothesis—the possibility of the "grease the wheel" effect, in which greater corruption leads to greater entrepreneurial activity. Latin America's widespread corruption may need some "grease" to get things done.

The following section reviews the literature on entrepreneurship and government institutions, particularly in relation to corruption, and frames the current state of the literature by formulating a set of hypotheses. Then, we describe the methodology, including the selection of the sample, and report a series of statistical tests and highlight, including the most significant findings. Last, we discuss the significance of the results and addresses the practical implications and main limitations of the study.

II. Theoretical Definitions and Hypothesis Development

Given that organizations owe their existence to the opportunities provided by the institutional framework (North 1991, p. 109), we believe that institutional theory is particularly relevant for understanding the impact of internal and external influences on entrepreneurial activity. Moreover, because the positive effects of entrepreneurship mostly depend on its institutional arrangements (Baumol 1990), an institutional approach allows research to open up the black box of formulating enterprise policy without having to add layers of complexity to explanations at an individual level (Arshed, Carter, and Mason 2014).

Lin and Nugent (1995, pp. 2306–07) broadly define institutions as "a set of humanly devised behavioural rules that govern and shape the interactions of human beings, in part by helping them to form expectations of what other people will do." North (1990) adds that institutions consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, property rights). Following Arshed, Carter, and Mason (2014), this study recognizes the government as the formal institution.

Formal institutions are defined in statistical tests using five governance dimensions from the World Bank's Worldwide Governance Indicators (WGI): (1) "regulatory quality" reflects the government's ability to formulate and implement sound policies and regulations that permit and promote private sector development; (2) "political stability and absence of violence" reflects the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically motivated violence; (3) "voice and accountability" reflects the extent to which a country's citizens are able to participate in selecting their government as well as freedom of expression and freedom of association; (4) "government effectiveness" reflects 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; and (5) "rule of law" reflects the extent to which agents have confidence in and abide by the rules of society, particularly the quality of contract enforcement, property rights, the police, and the courts. The scores range from approximately –2.5 to 2.5, with higher values corresponding to better governance.

In addition to the WGI dimensions of governance, formal institutions are controlled from two additional perspectives: the "institutions" pillar by the Global Competitiveness Index (GCI) data set from the World Economic Forum (WEF) and the "monetary freedom" index of economic freedom by the HF/WSJ. The GCI "institutions" pillar consists of twenty-one indicators, including property rights, diversion of public funds, irregular payments and bribes, judicial independence, and reliability of police services. "Monetary freedom" combines a measure of price stability with an assessment of price controls. It argues that price stability without microeconomic intervention is the ideal state for the free market.

Following Ovaska and Sobel (2005, p. 16), we specifically define corruption using the "corruption perception index" (CPI) by the anticorruption NGO Transparency International (TI) as the main institutional factor in entrepreneurship. Corruption is defined by TI as the abuse of entrusted power for private gain. The CPI relates to perceptions of the degree of corruption as seen by business people, academics and risk analysts and ranges from 10 (highly clean) to 0 (highly corrupt). The external validity of the main independent variable of interest is tested using a bivariate correlation analysis between the CPI and the "control of corruption" indicator by the World Bank, which is defined as the perception of the extent to which public power is exercised for private gain, including the extent to which the state has been "captured" by elites and private interests. As expected, the correlation value between these two variables is very high (over .81), indicating the high external validity of this study's main independent variable.

A. Definition of Entrepreneurial Activity

The effect of corruption in entrepreneurship is tested against seven dimensions of entrepreneurial activity as the dependent variables, each of which measures a different and specific aspect of entrepreneurship. We begin by measuring entrepreneurial activity using the "new entry rate," which is defined by the World Bank's annual Doing Business report as the number of newly registered firms as a percentage of an economy's working-age (15–64 years) population normalized by 1,000 (World Bank 2011). The units of measurement are private, formal-sector companies with limited liability.

The remaining dimensions of entrepreneurial activity are all defined by the Global Entrepreneurship Monitor (GEM), including "total early stage entrepreneurial activity" (TEA). TEA measures the participation rate of working-age (from 18 to 64 years old) individuals in the early stages of venture creation. This early-stage work includes the phase called "nascent entrepreneurship," which occurs before the opening of a new firm, and the phase referred to as "owning-managing a new firm," which consists of the first forty-two months after the start-up date (Bosma et al. 2012, p. 20). Estimates of the number of working-age individuals who engage in entrepreneurial behavior range from approximately 20 percent to more than 50 percent of the population (Reynolds and White 1997).

Our third dimension of entrepreneurship is "necessity-driven entrepreneurial activity," defined by the GEM as the percentage of those involved in TEA who are involved in entrepreneurship because they have no other option for work. Fourth, "improvement-driven opportunity entrepreneurial activity" reflects the percentage of those involved in TEA who claim to be driven by opportunity as opposed to finding no other option for work and who indicate that their main driver for involvement in this opportunity is being independent or increasing rather than maintaining their income. Fifth, "growth expectation early-stage entrepreneurial activity" reflects the percentage of TEA who expect to employ at least five employees five years from now. Sixth, "new product early-stage entrepreneurial activity" is the percentage of TEA who indicate that their product or service is new to at least some customers. Finally, "international orientation early-stage entrepreneurial activity" is the percentage of TEA who indicate that at least 25 percent of their customers come from other countries.

TEA provides advantages in that it focuses on the individual and captures both formally and informally registered businesses (Bosma et al. 2012). As with the Entrepreneurship Eurobarometer developed by the Gallup Organization, GEM studies examine the grassroots-level behavior of individuals who are starting and managing businesses, although GEM studies cover more countries over a longer period. This approach provides a more detailed picture of entrepreneurial activity than other firm-creation measures, including the Organisation for Economic Co-operation and Development (OECD)/Kauffman Entrepreneurship Indicators Program, which focuses on information found in official national registry datasets.

B. Hypothesis 1: Corruption as an institutional void in entrepreneurship

Following Baker, Gedajlovic, and Lubatkin (2005), we specifically argue that the decision to pursue an entrepreneurial opportunity depends on the portion of the value created by the venture that the entrepreneur will be able to employ for his or her own purposes. When corruption generates an institutional void, entrepreneurs' profits face a much greater risk, since corruption increase agency costs (Alchian and Woodward 1988) and risks for prospective entrepreneurs, forcing them to rely on one-sided trust (Anokhin and Schulze 2008). Capelleras and Rabetino (2008) further argue that institutional voids may not provide a sufficient foundation for the functioning of a market economy and may influence both the

potential returns from entrepreneurial activity and the variance around expected income streams. Aidis, Estrin, and Mickiewicz (2012) add that institutional voids make entrepreneurs less likely to undertake new projects and even encourage potential high-growth entrepreneurs to focus their energies on unproductive activities.

To address the first research question on the relationship between entrepreneurship and the specific institutional void of corruption across developing nations, we hypothesize a direct and negative relationship between increasing corruption and encouraging entrepreneurial activity; that is, (H1) corruption harms entrepreneurship.

C. Hypothesis 2: Bureaucracy as an institutional barrier in entrepreneurship

Following North's (1991, p. 109) argument that the "institutional matrix consists of an interdependent web of institutions and consequent political and economic organizations," the effect of institutions in entrepreneurial activity is further tested using two bureaucracy-related factors measured by the World Bank/International Finance Corporation Doing Business project: (1) the number of procedures required to start a business and (2) the time required to start a business. The first factor indicates the median time that incorporation lawyers say is necessary to complete a procedure with minimal follow-up with government agencies and no extra payments. A "procedure" is defined as any interaction between the company founders and external parties (e.g., government agencies, lawyers, auditors, or notaries). The "time required to start a business" is the straightforward number of days that are required to start a business.

The second set of hypotheses therefore addresses the relationship between entrepreneurship and bureaucracy across developing nations by testing whether bureaucracy directly hinders entrepreneurship. That is, whether entrepreneurship is harmed by (H2a) the number of procedures required to start a business hinders entrepreneurial activity, and (H2b) the number of days required to start a business.

D. Hypothesis 3: Interaction Effects between Corruption and Bureaucracy

To address the third research question related to the interaction effects between corruption and bureaucracy in entrepreneurship, the third set of hypotheses tests whether the combination of corruption and bureaucracy-related factors yields additional voids and barriers for entrepreneurship or whether entrepreneurial activity is harmed by

the following interaction effects: greater corruption in combination with (H3a) more procedures required to start a business, and (H3b) more time to start a business.

The introduction of the two bureaucracy-related factors is expected to generate significant moderating effects on entrepreneurial activity. That is, the moderating effect of the procedures and the days required to start a business is expected to amplify the benefits of decreasing corruption by increasing entrepreneurial activity. In other words, the combination of low corruption with relatively few procedures or days required to start a business should provide an additional boost to entrepreneurial activity over and above the direct effects. This issue is relevant because although corruption is an extremely complex phenomenon, decreasing the number of procedures required to start a business is a public policy change that is relatively straightforward to implement. Hence, anticorruption efforts aimed at encouraging entrepreneurial activity could be more effective if introduced in tandem with a policy that decreases bureaucratic procedures.

III. Methodology

As a novel contribution to the empirical literature, we use the following measures of entrepreneurial activity as the dependent variables: "new entry rate" (NEW), "total early-stage entrepreneurial activity" (TEA), "necessity-driven entrepreneurial activity" (necessity), "improvement-driven opportunity entrepreneurial activity" (opportunity), "growth expectation early-stage entrepreneurial activity" (growth), "new product early-stage entrepreneurial activity" (innovation), and "international orientation early-stage entrepreneurial activity" (export). The seven dependent variables measure different aspects of entrepreneurship, as demonstrated by the relatively weak pairwise correlation coefficients shown in table 1, particularly between the variables "NEW," "TEA," "necessity," and "opportunity."

Table 1. Pairwise correlations of dependent variables (entrepreneurial activity)

	NEW	TEA	Necessity	Opportunity	Growth	Innovation	Export
NEW	1						
TEA	−0.04	1					
Necessity	−0.15	−0.03	1				
Opportunity	0.25*	0.05	−0.13	1			
Growth	−0.08	−0.12	−0.01	−0.01	1		
Innovation	0.02	0.19	−0.18	0.04	0.56*	1	
Export	0.33*	−0.02	−0.26*	0.03	0.44*	0.42*	1

Note: * Significant at the 5% level or better.

Table 1 also reports that the correlations among "growth," "innovation," and "export" imply that these dimensions of entrepreneurship could assess similar activities, aspirations, and attitudes. The coefficients are positive and statistically significant, and range from .56 between "innovation" and "growth" to .42 between "export" and "innovation." "Growth," "innovation," and "export" are particularly important because they can represent the quality of entrepreneurship. On average, an innovation-driven start-up could also be expected to grow and hire more people by means of internationalization.

Similarly, the negative pairwise correlation coefficients between "necessity" and the other measures of entrepreneurial activity are in line with the evidence that identifies opportunity, as opposed to necessity, as a driver of the beneficial spillover effects derived from entrepreneurship (Williams 2009; Block and Wagner 2010). Necessity-driven entrepreneurship is common in poor countries, whereas opportunity-driven entrepreneurship is common in wealthy countries. High rates of necessity-driven entrepreneurship partially explain the high rates of total entrepreneurial activity observed in some poor countries (Acs and Amorós 2008).

However, the relatively weak and insignificant pairwise correlation coefficients of "opportunity" and the other measures of entrepreneurial activity are contrary to classical theory but not to the less-conventional (controversial) theory. In contrast with the general consensus, a handful of authors have argued that the distinction between opportunity-driven and necessity-driven entrepreneurship is blurred—mainly because, according to Shane (2009, p. 142), people can build high-growth, job-creating, wealth-generating companies even if their motivation for starting a business is sheer necessity.

Moreover, the majority of "opportunity" entrepreneurs have founded businesses that have more in common with self-employment than with the creation of high-growth companies.

A. Independent and Control Variables

In the strictest sense, pairwise correlations among variables are frequently unreliable and misleading because "pairwise correlations can be low (suggesting no serious collinearity problems) yet collinearity is suspected because very few *t* ratios are statistically significant" (Gujarati and Porter 2010, pp. 254–55). As an alternative to simple pairwise correlations, a few indicators signal the existence of multicollinearity in concrete applications. We formally tested the variance inflation factor (VIF) as an indicator of multicollinearity (or collinearity in short) using a cutoff value of ten for the VIF scores. The cutoff of ten for the VIF was originally suggested by Marquardt (1970, p. 610). Marquardt (1987), O'Brien (2007), and Mason and Perreault (1991) later validated this cutoff score.

As expected, the variables that measure government institutions exhibit the highest degree of multicollinearity (refer to table 2). High multicollinearity among the variables related to government institutions is not surprising because of the abundance of closely related indicators (Aidis, Estrin, and Mickiewicz 2012). Theory provides a guide to the relative importance of different institutional dimensions but is of limited assistance when considering the choice of alternative measures for related institutional features.

Table 2 particularly indicates that "rule of law" and "government effectiveness" exhibited very high and therefore problematic VIF values of more than fifty. After dropping these highly correlated variables, the mean VIF for the entire data set decreased to approximately 11. Similarly, dropping the "institutions" variable (first competitiveness pillar of the GCI) dramatically decreased the VIF value of the "corruption" variable from 22 to 13, which implies that the two variables are highly correlated. This makes sense because high corruption is equivalent to a weak institutional framework. Also in line with logic, dropping government expenditure as a percentage of GDP dramatically improved collinearity concerns regarding government revenue. Surprisingly, however, the two independent variables that measure bureaucracy did not report problematic VIFs, which reinforces the validity of these variables to measure different aspects of bureaucracy.

Table 2. Collinearity diagnostics (VIF values, explanatory variables)

Mean VIF	16.8	13.8	11.4	10.1	9	7.9	6.9	5.7	5
Independent variables									
Corruption	24	24	23	22	13	8	6	6	6
Procedures required	6	6	6	5	5	5	4	4	4
Time required	7	7	5	5	5	5	5	4	4
Control variables									
Unemployment rate	3	2	2	2	2	2	2	2	2
Health and primary education	3	3	3	2	2	2	2	2	2
Government gross debt	5	4	4	4	4	4	3	3	3
Net foreign direct investments	4	4	3	3	3	3	3	3	3
Total government revenue	16	15	15	14	14	14	13	3	3
Price inflation rates	4	4	4	4	4	4	4	4	3
Gross national savings	4	4	3	3	3	3	3	3	3
Macroeconomic environment	5	5	4	4	4	4	4	4	4
Monetary freedom	5	5	5	5	5	5	4	4	4
Political stability	10	8	8	8	8	8	7	7	5
Financial market development	11	11	10	10	9	9	5	5	5
Market size	9	9	8	6	6	5	5	5	5
Labor market efficiency	7	7	7	7	7	7	7	7	6
Infrastructure	13	13	9	9	9	9	9	8	7
Innovation	21	17	16	10	9	9	7	7	7
GDP per capita, PPP (2011 $)	13	12	12	12	12	12	11	11	10
Technological readiness	13	13	11	11	11	11	10	10	10
Higher education training	14	12	11	11	11	11	10	10	10
Voice and accountability	30	26	16	15	14	14	14	12	
Total government spending	21	21	21	21	19	19	19		
Goods market efficiency	30	28	28	22	22	21			
Regulatory quality	45	31	24	24	24				
Institutions	27	24	24	23					
Business sophistication	27	25	24						
Government effectiveness	51	49							
Rule of law	59								

Note: Number of observations = 136.

Finally, we dropped "voice and accountability" as the last institutional variable with a potentially high degree of multicollinearity. This last elimination decreased all VIF values below 10, and the mean VIF for the entire data set decreased from 16.77 to 5. This change is remarkable given the size and the explanatory power of some variables, which include GDP per capita. For the specific purpose of this study, the final VIF values for the three independent variables of interest ranged from a low of 3.83 for the "number of procedures required to start a business" to a manageable 5.64 for the "corruption

perception index" (the "number of days required to start a business" scored 4.42).

The step-by-step VIF elimination process resulted in the following mix of control variables: nine competitiveness-related pillars measured by the GCI; seven macroeconomic variables, six of them measured by the IMF World Economic Outlook (WEO) database and one (ratio of net FDI to GDP) measured by the United Nations Economic Commission for Latin America and the Caribbean databases (ECLAC); and two governance indicators, one by the World Bank and the other by the HF/WSJ. Thus, of the twelve GCI pillars that were originally considered as potential factors in entrepreneurial activity, three were omitted due to high VIFs ("business sophistication," "institutions," and "goods market efficiency"). Of the five WGI dimensions of governance, only one made the final cut ("political stability and absence of violence"). The final selection of control variables is not surprising since estimating individual joint relationships between entrepreneurial activity and the government institution indicators, including "corruption," results in a considerable degree of multicollinearity (table 3 describes all statistical variables).

The rates of unemployment (number of unemployed persons as a percentage of the labor force), debt (all liabilities that require payments of interest and/or principal by the debtor to the creditor at a date in the future), FDI (net balance of foreign direct investment as a percentage of GDP), government revenue (taxes, social contributions, grants receivable, and other revenue), inflation (percentage change in average consumer prices), savings (gross disposable income less final consumption expenditures after accounting for an adjustment in pension funds), and output (GDP per capita expressed in constant 2011 international dollars) are included to reflect the soundness of a country's monetary policy. Unemployment, debt, and inflation rates are expected (if anything) to be negatively related to entrepreneurial activity, whereas the opposite results are expected for FDI, government revenue, savings rates, and output.

Table 3. Description of the variables

Variable	Name	Mean	SD	Obs	Source
Dependent					
NEW	New entry rate	2.66	4.07	145	WB
TEA	Total early-stage entrepreneurial activity	19.15	8.56	107	GEM
Necessity	Necessity-driven entrepreneurial activity	28.59	9.23	107	GEM
Opportunity	Opportunity-driven entrepreneurial activity	45.53	10.72	95	GEM
Growth	Growth expectation entrepreneurial activity	23.76	12.57	107	GEM
Innovation	New product entrepreneurial activity	48.90	22.34	103	GEM
Export	International orientation entrepreneurial activity	8.25	5.42	99	GEM
Independent					
Corruption	Corruption perception index	3.56	1.39	234	TI
Procedures	Number of procedures required to start a business	10.65	3.57	161	WB
Days	Time required to start a business	46.11	37.45	161	WB
Controls					
Unemp	Unemployment rate (% of total labor force)	7.59	3.07	221	WEO
Basic	Health and primary education pillar	5.47	0.34	161	GCI
Debt	General government gross debt (% of GDP)	41.71	22.15	234	WEO
FDI	Net foreign direct investments (% of GDP)	3.19	2.47	216	ECLAC
Revenue	General government total revenue (% of GDP)	23.63	7.08	234	WEO
Inflation	Percent change of consumer price inflation rates	7.36	7.46	233	WEO
Savings	Gross national savings (% of GDP)	19.43	5.46	234	WEO
Macro	Macroeconomic environment pillar	4.72	0.60	161	GCI
Money	Monetary freedom index	73.88	9.08	234	HF/WSJ
Stability	Political stability and absence of violence	-0.36	0.67	216	WGI
Finance	Financial market development pillar	3.95	0.53	161	GCI
Market	Market size pillar	3.89	0.84	161	GCI
Labor	Labor market efficiency pillar	3.95	0.46	161	GCI
Infra	Infrastructure pillar	3.40	0.70	161	GCI
Innov	Innovation pillar	2.94	0.41	161	GCI
Output	GDP per capita, PPP (constant 2011 $)	5,485	3,698	234	WEO
Tech	Technological readiness pillar	3.35	0.58	161	GCI
Education	Higher education training pillar	3.84	0.53	161	GCI

Possibly the most important macroeconomic explanatory variable is output. The association between entrepreneurship and output is a relevant issue that several previous studies have tested. Entrepreneurship has been identified as a catalyst for growth (Minniti 1999) and as vital to markets' effectiveness (Kirzner 1997) because entrepreneurship improves the allocation of scarce resources (McMillan and Woodruff 2002) and is a necessary stimulus for a healthy market economy (Baumol 1968). GDP per capita is expected

to be positively correlated with entrepreneurial activity (Baumol 1968; Romer 1994).

In addition to the macroeconomic factors, the OECD (1998) suggests several other factors that are significant for entrepreneurial activity, including competitiveness-related factors such as the capacity for innovation (Schumpeter 1934). These factors are measured using the following pillars by the GCI from the WEO: health and primary education (basic needs), macroeconomic environment, financial market development, market size, labor market efficiency, infrastructure, "innovation," technological readiness, and higher education and training. GCI scores are expressed on a scale of one to seven, with seven being the most desirable outcome. Each of these variables is expected to have a strong positive coefficient, indicating that better competitiveness scores lead to increased entrepreneurial activity.

C. Selection of the Sample

We specifically chose Latin America as our geographic focus because of our interest in understanding the institutional role in explaining disparities in entrepreneurial activity in a relatively homogenous developing region context. Entrepreneurs were surveyed as part of the GEM project in the following eighteen available countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela. GEM data are corroborated with official records of firm creation compiled by the World Bank. In this study, we expand Acs and Amorós's (2008) selection of five Latin American economies used to explain regional entrepreneurial dynamics.

Following Lecuna, Cohen, and Chavez (2016) and Amorós, Fernández, and Tapia (2012), we believe that the GEM's database fits our study well because it is a comprehensive source of information that enables us to analyze and understand the relationship between entrepreneurship and institutional voids and barriers in Latin America. Kantis (2005) and Amorós, Fernández, and Tapia (2012) maintain that Latin American countries have great potential to generate competitiveness and well-being through the creation of new firms; however, they have generally been unable to consolidate entrepreneurial dynamics. In this sense, Latin American governments not only need to emphasize the institutional framework and the macroeconomic environment; they also need to begin prioritizing

their development by accounting for entrepreneurship in their countries (Amorós, Fernández, and Tapia 2012).

IV. Statistical Tests and Results

The *p*-values (prob > chi2) of the Hausman tests report the following mixed results using the seven measures of entrepreneurial activity as dependent variables: NEW = .00; TEA = .02; necessity = .07; opportunity = .60; growth = .03; innovation = .02; and export = .01. In the strictest sense, only opportunity-driven entrepreneurship (and, plausibly, necessity-driven entrepreneurship) could be better explained using a random effect model. On the contrary, new business entry rates, total entrepreneurial activity, growth expectation entrepreneurial activity, new product entrepreneurial activity, and international orientation entrepreneurial activity report highly significant Hausman tests. This finding clearly signals the use of the default fixed effects estimation, which tends to be better suited for multivariate panel data cross-country regressions.

The main issue with random effects is the highly constraining assumption that the error term has to be uncorrelated with the covariates. The random-effects assumption is also extremely vulnerable to the omitted variable bias issue. Despite the statistical limitation of random-effects estimations, we decided to report the baseline results side by side with traditional fixed effects (tables 4 and 5).

Table 4. Fixed effects (within) regressions baseline results

	Corruption		Procedures		Days			
Dependent Var.	*P-value*	*Coef.*	*P-value*	*Coef.*	*P-value*	*Coef.*	*R-sq*	*Obs*
NEW	0.006	−1.42	0.572	−0.08	0.612	−0.01	56%	90
TEA	0.983	−0.08	0.573	−0.62	0.262	0.13	64%	78
Necessity	0.556	2.21	0.952	−0.06	0.860	0.02	49%	78
Opportunity	0.282	6.53	0.351	1.63	0.703	−0.07	53%	78
Growth	0.231	−4.17	0.329	0.98	0.010	−0.27	64%	78
Innovation	0.612	−5.87	0.322	3.41	0.167	−0.53	34%	74
Export	0.157	−3.62	0.857	−0.13	0.590	0.04	45%	74

Note: All explanatory variables. including the main independent variables. were lagged one period to alleviate (but not eliminate) endogeneity issues.

Table 5. Random effects (GLS) regressions baseline results

	Corruption		Procedures		Days			
Dependent Var.	*P-value*	*Coef.*	*P-value*	*Coef.*	*P-value*	*Coef.*	*R-sq*	*Obs*
NEW	0.000	−2.18	0.655	−0.07	0.038	−0.03	89%	90
TEA	0.381	1.17	0.252	−0.82	0.023	0.11	55%	78
Necessity	0.265	−1.35	0.119	1.02	0.172	−0.06	58%	78
Opportunity	0.596	−1.04	0.625	0.52	0.053	0.14	42%	78
Growth	0.007	4.21	0.386	0.73	0.000	−0.21	73%	78
Innovation	0.011	7.87	0.621	0.84	0.011	−0.33	70%	74
Export	0.244	0.89	0.067	−0.77	0.840	0.01	69%	74

Note: Endogeneity is alleviated by lagging all explanatory variables by one year.

The results for growth are in line with hypothesis H2b. That is, a decrease in the number of days required to start a business should increase the percentage of entrepreneurs who are expected to employ at least five employees five years from now. Simply put, a decrease of one day of bureaucracy is equivalent to an increase of .27 percentage points of high-growth entrepreneurs (endogeneity is alleviated by lagging all explanatory variables by one year). This finding is consistent in both the fixed effects as well as the random-effects regressions. The phenomenon can be explained by the argument that extensive networks of regulations lead to increased bureaucratic costs (Estrin, Korosteleva, and Mickiewicz 2013a). This increased bureaucratic complexity affects not only the government's internal organization but also those who must contend with the government, including businesses.

The first column of table 4 also reports relatively high *p*-values, which strongly rejects hypothesis H1. Only the NEW specification reports significance at the 1 percent level. However, contrary to logic and theory, the sign is negative. This finding reintroduces the possibility of the counterintuitive "grease the wheel" phenomenon. Similarly, the random-effects estimations shown in table 5 suggest that increasing the number of days required to start a business benefits opportunity entrepreneurship (table 6 reports full-blown regression results for growth, NEW, and opportunity).

The "grease the wheel" effect has a long history in the academic literature. The debate may have started with Leff (1964), who argued that corrupt public employees could be more efficient if they were to charge directly for their remunerations because by independently charging their supposed salary, the incentive to work should increase.

Table 6. Cross-country results, selected entrepreneurial activity, panel data 2002–14

	Growth (Fixed effects)	*NEW* (Fixed effects)	*Opportunity* (Random effects)
Corruption	−4.171	−1.420	−1.039
	(1.21)	(2.85)**	(0.53)
Procedures	0.977	−0.076	0.517
	(0.99)	(0.57)	(0.49)
Days	−0.270	−0.008	0.142
	(2.70)**	(0.51)	(1.94)
Unemp	−1.516	−0.122	−0.286
	(1.44)	(1.03)	(0.32)
Basic	−6.448	−0.226	−5.420
	(1.48)	(0.38)	(0.85)
Debt	−0.212	0.043	0.006
	(1.11)	(1.44)	(0.04)
FDI	0.005	0.153	2.021
	(0.01)	(1.74)	(2.38)*
Revenue	−0.187	−0.023	−0.359
	(0.54)	(0.28)	(1.02)
Inflation	0.474	−0.084	−0.028
	(1.34)	(1.48)	(0.06)
Savings	0.470	−0.088	−0.500
	(1.20)	(1.41)	(1.01)
Macro	−3.621	0.120	7.741
	(1.47)	(0.31)	(1.91)
Money	0.541	0.019	0.690
	(2.39)*	(0.49)	(2.34)*
Stability	9.530	0.110	−1.468
	(1.97)	(0.14)	(0.33)
Finance	3.192	0.769	−10.180
	(0.63)	(1.11)	(1.74)
Market	−21.791	1.059	1.397
	(3.19)**	(1.04)	(0.46)
Labor	−6.497	0.948	5.931
	(1.35)	(1.35)	(0.82)
Infra	−8.528	−1.612	9.845
	(1.71)	(2.31)*	(1.65)
Innov	4.611	−0.124	−2.577
	(0.82)	(0.14)	(0.32)
Output	−0.001	0.000	0.001
	(1.61)	(1.43)	(1.21)
Tech	4.431	−1.782	−14.825
	(1.07)	(2.49)*	(2.18)*
Education	15.566	4.365	6.202
	(2.25)*	(3.11)**	(0.81)
R^2	0.64	0.56	0.42
N	78	90	78

Notes: * $p < 0.05$; ** $p < 0.01$. Endogeneity is alleviated by lagging the predictor variables by one year. Heteroskedasticity-consistent *t* ratios in parentheses (White 1980).

Huntington (1968) obtained similar results by arguing that corruption should reduce the governmental interference that deteriorates economic decisions favorable for growth. Lui (1985) extended this idea by proposing that corruption should accelerate slow and rigid bureaucratic processes.

Because corruption is a complex phenomenon, we also tested the interaction effects between corruption and the two bureaucracy-related factors, with no significant results to report. Therefore, the H1 and H3 hypotheses are rejected due to insignificant *p*-values and/or incorrect signs. Following Aidis, Estrin, and Mickiewicz (2012), one argument that could explain this phenomenon is that corruption facilitates the development of entrepreneurs who are willing and able to engage in corrupt practices, whereas the number of days required to start a business acts as a barrier that discourages potential high-growth entrepreneurs from starting a business.

V. Conclusion and Policy Implications

Following Arshed, Carter, and Mason (2014), this study contributes to the increasing interest in exploring the relationships between entrepreneurship and institutional phenomena. Specifically, the paper draws on available panel data from eighteen Latin American economies for the 2002–14 period to advance the proposition that stronger government institutions—namely, better control over corruption and less bureaucracy—are associated with increased entrepreneurial activity across nations. The first finding that is clear from the statistical tests is that high-growth entrepreneurs tend to perform better in countries with less bureaucracy (i.e., fewer number of days required to start a business). The rest of the findings contradict theory and logic. For example, based on the fixed-effect regressions, the "other" significant association between the seven dependent dimensions of entrepreneurial activity and the three institutional factors of interest, corruption and two bureaucracy-related variables, is the link between newly registered firms and corruption. (Random effects also suggest an association between opportunity-driven entrepreneurship and bureaucracy.)

The relatively weak and contradictory result reintroduce the "grease the wheel" effect, which basically argues that in developing regions with high corruption, (sometimes) more corruption is necessary to get things done. This phenomenon poses an interesting dilemma because corruption should never be considered a solution to government inflexibility, mainly because government inflexibility was

deliberately instituted to generate opportunities to commit acts of corruption, such as extortions and bribes. Moreover, corruption should never be considered an element of efficiency; the acceleration of the bureaucratic process by corrupting public management decisions will eventually decelerate average times because corrupt public employees and elected politicians will benefit from this deceleration.

Only one hypothesis, H2b, was supported. Despite the relatively weak and contradictory result of newly registered firms and corruption, the findings presented here are relevant. The "good" news is that high-growth entrepreneurs may be the best measure of the quality of entrepreneurship because high-growth entrepreneurs are based on a measurement of job creation. This is different from the World Bank's new business entry rate or the total early stage entrepreneurial activity measurement by the GEM. The former could be overbooked with tax-avoiding startups of self-employment with no intention of growing, whereas the latter includes informality and necessity-driven entrepreneurship, which appears to differ little from opportunity-driven entrepreneurial activity, as Shane (2009) notes. The remaining "good" dimensions of entrepreneurial activity, both innovation driven and internationally oriented, are also not based on job creation.

An important limitation of this study is that a relationship can never establish a causal connection. Causality must be shown or inferred from the theory underlying the phenomenon that is tested empirically (Kendal and Stuart 1961). Although all macroeconomic factors, government institution factors, and competitiveness-related variables are lagged one year to alleviate (but not eliminate) potential endogeneity between these variables and the seven measures of entrepreneurial activity, the aim of this study is to test the link between entrepreneurial activity and the institutional void and barriers of corruption and bureaucracy rather than to determine causation. Therefore, future work should determine the direction of causality while drawing on different sources of qualitative data. As Tonoyan et al. (2010) note, although there is good justification for using multicountry samples to determine institutional factors that are similar across different countries and the effects of such institutional factors on entrepreneurial activity, there is also a need for more case studies of individual countries.

The case of Chile is an interesting place to understand the positive effects of decreasing bureaucratic procedures: both better

control over corruption and the encouragement of entrepreneurial activity. Prior to 2013, in order to establish a legal business in Chile, an entrepreneur had to hire a lawyer to write a legal document and then go to a notary to have it certified. Subsequently, the business constitution had to be announced in an official newspaper and registered in the real estate commerce office to finally obtain a tax-paying number. Currently, following a de-bureaucratization program that has been implemented with great success in New Zealand, Australia, Canada, and Singapore, among others, an entrepreneur in Chile is able to complete the entire process required to start a business with only one procedure in one day at zero cost. This is accomplished through an online platform called "your business in one day" (www.tuempresaenundia.cl). Parallel to the de-bureaucratization program, Chile has also introduced a series of entrepreneurship-related initiatives, including the flagship program Start-Up Chile. It is not surprising that, according to Transparency International, Chile ranked the twenty-fourth least corrupt nation out of 176 countries in 2016 and it is often referred to as an example of transparency in a relatively corrupt region.

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