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Firm-level Impact of Regulatory Compliance Costs on Small Business Growth

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Abstract. Using firm-level data from a survey conducted in 2019 among a representative sample of small and medium-sized enterprises (SMEs) in the Philippines, we tested whether time and monetary costs of regulatory compliance had a negative impact on the incidence of firm growth. We also examined this relationship differentiating between young firms and old firms. We found that spending more time dealing with government regulations decreased the probability of sales revenue and workforce growth among SMEs. The negative effect on the probability of growth was larger for younger firms. Each additional working day spent dealing with government regulations was associated with a 1.34 percentage point lower probability of growth for younger firms compared to a 0.53 percentage point lower probability for older firms. Incurring additional monetary costs on regulatory compliance decreased the probability of growth among younger SMEs, but not among older ones. This implies that policies aimed at improving the ease of doing business must focus especially on young firms to minimize harmful effects of regulation.

Keywords: compliance cost, growth, regulation, SMEs, small business.

1. Introduction

In an official press release during the launch of the *Doing Business 2020* Report in October 2019, World Bank President David Malpass said that "governments can foster market-oriented development and broad-based growth by creating rules that help businesses launch, hire, and expand." The conventional wisdom among development leaders, policymakers, and researchers is that while there may be good intentions behind government regulations such as protecting public interest, facilitating economic transactions, and promoting a level playing field (Natsuda et al., 2012), these regulations impose time and money costs on entrepreneurs, and are essentially a burden to business. Whether deliberate or not, regulations limit entrepreneurs' ability to freely operate their business, forcing entrepreneurs to stay in the informal sector or bring their business elsewhere (World Bank, 2020).

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Global competitiveness rankings such as the World Economic Forum's Global Competitiveness Report and the Institute for Management Development's (IMD) World Competitiveness Yearbook highlight ease of doing business indicators as key factors that determine a country's attractiveness to investors. Some studies argue that when regulators are corrupt, incompetent, or captured by the economic interests of those they are supposed to regulate, government intervention can worsen market failures (Friedman, 2002; Shleifer, 2005), weaken business competitiveness, undermine public trust in governments, and further encourage corruption in public institutions and processes (Stigler, 1971; Peltzman, 1989).

When entrepreneurs are asked whether regulation is a burden to their business, they typically answer "yes". However, perceptions may be overstated (Allinson et al., 2006), and business owner survey responses may be influenced by cognitive biases (Shapiro and Borie-Holtz, 2020). Perceptions surveys reflect what entrepreneurs think about regulations, but not how regulations produce particular adverse effects on their business (Kitching et al., 2015). Owner/managers of firms typically perceive regulation as having a negative impact on their firm's business performance and growth (Davidsson and Henrekson, 2002; Beck et al., 2005; Clover and Darroch, 2005; Schmidt et al., 2007; Dasanayaka et al., 2011; Gill and Mand, 2013), but few studies provide firm-level empirical evidence to confirm this perception (Mallett et al., 2018).

Cost of regulation studies quantify the cost of regulatory compliance (Lewis et al., 2014) and estimate inefficiencies in resource allocation (Chittenden et al., 2003) following the argument that businesses face opportunity costs in diverting their limited resources away from value-adding activities into regulatory compliance. However, how these costs actually impact business creation, growth, and performance is not clearly examined in most studies.

In their comprehensive review of the literature, Mallett et al. (2018) concluded that there has not been much work empirically investigating the relationship between regulation and growth at the firm level. Without empirical evidence to support the argument that regulation or the cost of regulatory compliance stifles business growth or performance, particularly at the firm level and among SMEs, prioritizing regulatory reform to improve the ease of doing business and create more "business-friendly" regulatory environments over other more direct forms of small business support such as facilitating access to finance or access to markets, may not be sufficiently justified.

The context of a developing country is also worth investigating given that a greater degree of market failure is said to be the distinguishing characteristic of economic underdevelopment (Arndt, 1988). Greater market failures may result from government failure especially when institutions are inappropriate or ineffective (Keech & Munger, 2015). If regulation seeks to correct market failures and yet may also be the source of market inefficiencies, then regulation may either impede or improve business growth and success. When regulatory compliance is burdensome, the net impact may be negative, and how burdensome regulatory

compliance is may depend on firm size, with smaller firms being disproportionally more burdened (Fletcher, 2001; Harris, 2002; Chittenden et al., 2003; Banks, 2006). There is also the issue of governments in developing countries having limited resources and political capital, making it important to determine whether regulation or the cost of compliance is really a hurdle to business growth.

In this paper, we test whether costly regulatory compliance has a negative effect on the growth of small and medium-sized enterprises (SMEs) in the context of a middle-income developing country. Specifically, we undertake an empirical investigation of the relationship between time and money costs of regulatory compliance and the incidence of firm growth among SMEs in the Philippines. We also examine this relationship for young firms[2] versus older firms.

The Philippines has a GNI per capita of $3,430[3], which places the country in the World Bank's lower middle-income lending group. Over 99 percent of the total number of businesses and over 60 percent of employment in the Philippines are accounted for by SMEs. Despite significant improvement in its World Bank's 2020 Doing Business Report[4] ranking (from 124th to 95th out of 190 economies), the country continues to be placed among the lowest in Southeast Asia[5]. It takes 33 days to start a business[6] in the Philippines, compared to only two days in Singapore and six days in Thailand. Such bureaucratic red tape and inefficiency continues to fuel perceptions of corruption in the country—the Philippines ranked 115 out of 180 countries in Transparency international's Corruption Perception Index in 2020.

We conducted a survey of 590 SME business owner/managers in the three largest metropolitan areas in the Philippines[7] to specifically investigate the nature and cost of regulatory compliance to firms. We found that 57 percent of SMEs experienced delays —"long lines, too many procedures, or too many signatories"— in processing regulatory requirements. Sixty percent of those surveyed found regulatory compliance at least "moderately burdensome" for their firm. Most SME owner/managers said they began to consider regulatory compliance as a concern from the very beginning when they were starting up the business.

We also studied whether the relationship between regulatory compliance and firm growth was affected by firm age. Although numerous studies have analyzed

2. We define "young" firms as those continuously operating for less than five years, based on the definition of a start-up firm by the Philippine Government.
3. Philippine 2020 Gross National Income (GNI) per capita based on the World Bank Atlas Method.
4. The Philippines improved from 124th in 2018 to 95th in 2019.
5. Singapore (2nd); Malaysia (12th); Thailand (21st); Brunei Darussalam (66th); Vietnam (70th); Indonesia (73rd); Lao PDR (154th); Myanmar (166th); Timor-Leste (188th).
6. Defined as the number of calendar days needed to complete the procedures to legally operate a business.
7. Metro Manila, Metro Cebu, and Metro Davao.

the link between firm size and firm growth (Harris, 2002; Chittenden et al., 2003), the relationship between firm age, regulatory burden, and firm growth has yet to be explored sufficiently (Navaretti et al., 2014).

Specifically, we analyzed the effects of regulatory compliance in terms of time and money costs on the probability that an SME can grow. We identified an SME as having grown if: (i) the firm reported an increase in sales revenue of 10 percent or more; and (ii) if there was an increase in the number of employees[8]. We begin with the hypothesis that a burdensome regulatory environment hinders a firm from growing, while improvements in the regulatory environment make growth easier. Coefficient estimates from average marginal effects of probit regressions confirmed this hypothesis, although the effects were heterogeneous with firm age.

We found that additional time and monetary costs incurred in dealing with government regulations were associated with a lower probability of an SME growing. Awareness and use of recent improvements in the country's business permit and licensing system were associated with a higher probability of growth. We also found that younger firms spent more time and allocated a higher proportion of their total business costs dealing with government regulations compared to older firms.

Following Robb (2002), we define younger firms as those that have been operating for less than five years. Coefficient estimates from average marginal effects of probit regressions showed that each additional working day[9] spent dealing with government regulations was associated with 1.34 percent lower probability of growth for younger firms, and 0.53 percent lower probability of growth for older firms. Additional monetary costs spent in dealing with government regulations was also associated with a lower probability of growing. Notably, this finding was only statistically significant for younger firms where a one percentage point increase in monetary costs allotted for dealing with national and local government regulations each year was associated with a 0.6 percent lower probability of growing.

The organization of this study is as follows. Section 2 provides a literature review of the impact of regulation on entrepreneurial activity and business performance. Section 3 discusses the determinants of firm growth. The data and methodology used in this study are presented in Section 4, while estimation results and robustness checks are discussed in Section 5. Section 6 concludes and presents policy implications of the study.

8. Our definition of firm growth is based on the Onion Model framework of Reeg (2013).
9. Equivalent to 8 working hours.

2. Literature Review

It is now widely accepted by businesses and governments that entrepreneurship is enabled by an "ecosystem" of independent actors, factors, resources and institutions that are beyond the control of entrepreneurs (Feld, 2012; Stam, 2015; Acs et al., 2017; Spigel, 2017; Pocek, 2020). This concept emanates from the literature on industrial and entrepreneurial infrastructure describing the role of regional socio-economic factors in facilitating or constraining entrepreneurship (Aldrich, 1990; Van de Ven, 1993; Aldrich & Fiol, 1994; Steyaert and Katz, 2004). The entrepreneurial ecosystem in a particular geographical region impacts the economic performance of all individuals, entrepreneurs, and firms in the system (Acs et al., 2017). The specific institutional arrangements governing the regulation and standardization of technology (Van de Ven, 1993), the general quality and efficiency of formal institutions, and the level of perceived corruption within regulatory frameworks are considered critical factors affecting this entrepreneurial ecosystem (Stam & Van de Ven, 2021).

There are opposing views in the literature on the impact of government regulation on entrepreneurial activity and business performance. On the one hand, regulations may address market failure or reduce transaction costs (Pigou, 1920; Djankov et al., 2002; Shleifer, 2005). They may also benefit new businesses by promoting a more level playing field, and improving access to finance and other resources such as specialized equipment (Smallbone & Welter, 2001; Natsuda et al., 2012).

However, excessive regulations can also cause inefficiencies and market distortions (Tullock, 1967; Stigler, 1971; Friedman, 2002). Government intervention can worsen market failures when regulators are corrupt, incompetent, or captured by the economic rents and interests of the certain sectors that they are supposed to regulate (Friedman, 2002; Shleifer, 2005). Moreover, excessive regulations can be detrimental to the profitability, growth, and business development of SMEs when the monetary and time costs of compliance are high (Akinboade & Kinfack, 2012). While regulations could make it easier for governments to organize their operations and maintain authority, concerns arise, especially among firms, when regulations become burdensome. Such regulations weaken the competitiveness of businesses, undermine public trust in governments, and worse, encourage corruption in public institutions and processes (Stigler, 1971; Peltzman, 1989).

In the case of many developing countries such as the Philippines, issues are mainly centered on arduous government processes and complex regulatory compliance. Time and monetary costs incurred by firms in complying with regulations and government requirements include the costs of meeting legal requirements, compiling receipts and other data, completing tax returns, collecting, remitting and accounting for taxes on their products or profits and

employee salaries, as well as payments to related professional services and other incidental expenses (Sandford et al., 1989).

Numerous studies (Evans et al., 1997; Fletcher, 2001; Harris, 2002; Chittenden et al., 2003) suggest that these costs are disproportionally more burdensome for smaller firms. Specifically, Chittenden et al. (2003) found that the monetary cost of regulatory compliance in the United States of America (USA), Australia, New Zealand, and the United Kingdom (UK) was 35 percent higher for firms with less than 20 employees, relative to firms with more than 500 employees. In addition to the cost of compliance with current regulation, changes in the regulatory framework may also be burdensome to firms. Banks (2006) found that small firms, which already faced higher compliance costs relative to larger firms, had more difficulty dealing with and keeping up with changing government regulations.

Furthermore, when substantial discretionary powers are given to offices or officials to implement rules and regulations on matters such as business licensing and taxation, burdensome regulatory environments may thrive (Svensson, 2003; Wu, 2009; Zhou & Peng, 2011). Having more activities that fall under government regulation aggravates corruption in the government by giving public officials and employees more opportunities to ask for bribes in exchange for permits and other paperwork needed to conduct business (Shleifer & Vishny, 1993; Zhou & Peng, 2011; Ivanovic-Djukic et al., 2019). Businesses may resort to bribery in exchange for receiving better service or to ensure smoother transactions with the objective of reducing net compliance cost (Nguyen, 2019).

Regulation and, particularly, the ease and speed of establishing a business start-up has been linked to macroeconomic performance (Djankov et al., 2002), but studies have found mixed and often limited impacts of regulation and the time and money costs of compliance on nascent and young business entrepreneurship (Van Stel et al., 2007) and innovation among start-ups (Martin et al., 2019).

Unsurprisingly, regulatory compliance is often reported by firm owner/ managers themselves as a barrier to firm growth and performance, although typically not as the primary hurdle (Mallett et al., 2018). Edwards et al. (2003) observed in their study of SMEs in the UK that firm owner/managers tend to generally dislike regulation but often without linking this to any particular experience or even any specific regulation affecting their business. Nonetheless, entrepreneurs' perception of their business environment may affect real decisions and behavior that impact their business' growth and performance.

Examining World Bank data on 120 countries, Canare (2018) found that the overall ease of doing business had a positive effect on firm creation, driven strongly by the ease of start-up procedures and tax payments. Conversely, in one of the few studies that examined the relationship between regulation and growth at the firm level, De Jong & Van Witteloostuijn (2014) found that regulatory cost and bureaucratic red tape limited sales turnover growth and market competition performance among small firms in the Netherlands. De Jong & Van

Witteloostuijn (2014) also found perceived changes in regulation to significantly hamper growth and performance. They argue that the negative perceptions of SME owner/managers about regulation itself and regulatory change can create challenges to growth and performance due to the costs of obtaining information on existing or anticipated regulation, and understanding how to comply.

3. Determinants of Firm Growth

Growth is particularly essential for small businesses as it decreases the possibility of closing down (Coad et al., 2013; Rauch & Rijsdijk, 2013). However, most small firms fail to expand during their lifespan (Davidsson et al., 2010; McKelvie & Wiklund, 2010), and small businesses tend to refrain from growing (Doern, 2009). Small and new businesses face a wide range of challenges (Coad et al., 2013), including, but certainly not limited to, regulation (Mallett et al, 2018). Most new firms remain at the same stage and size of operations as when they started (Headd & Kirchhoff, 2009).

While growth may be generally understood as a growth in sales and consequently in investments in additional production factors to adapt itself to new demands (Janssen, 2006), there has been no consensus on how to measure it. Various indicators have been used by researchers to measure growth. These include: increase in sales, increase in the number of employees, increase in profit, increase in assets, increase in firm value, increase in the number of branches, inclusion of new markets and clients, increase in market share, increase in the number of products and services, mergers and acquisitions (Brush et al., 2009; Achtenhagen et al., 2010; Davidsson et al., 2010). Some researchers highlight the use of multiple indicators (Dobbs & Hamilton, 2007; Davidsson et al., 2010), but Janssen (2006) warns against combining various indicators that may reflect different types or aspects of growth.

Gupta et al. (2013) describe two general views of the determinants of firm growth. The older view looks at firm growth as a predictable process that goes through stages or life cycles. A firm's growth path may be linear, deterministic, invariant, or sequential, and is ultimately determined by characteristics of the firm (i.e., size, ownership type, and age) and the entrepreneur (i.e., age, experience, education, gender) (Adizes, 1979; Kimberly, 1979; Hanks et al., 1993). The second view approaches firm growth as a dynamic, unpredictable process that involves the intervention of changing internal and external environments (Aislabie, 1992; Levie & Hay, 1998; Stubbart & Smalley, 1999; Rutherford et al., 2003; Phelps et al., 2007). External factors beyond the control of firms include the economic, political, financial, technological, and regulatory environments, market conditions, and public policy (Gupta et al., 2013; Sjögrén & Syrjä, 2015). Internal factors refer to the firm's own strategic choices (Storey, 1994; Delmar,

1997; Davidsson & Henrekson, 2002) in response to their dynamic environments impacting firm growth and success.

4. Data and Methodology

4.1. Data

4.1.1. The 2019 SME Cost of Regulatory Compliance Survey

We used data from a survey that we conducted in 2019 that had 590 SME respondents. The survey profiled small and medium enterprises (SMEs) in major metropolitan areas in the Philippines, and investigated SMEs' experience with regulatory compliance. We collected information on their time and monetary costs, including staffing costs. We measured SMEs' perceptions on the burden of regulatory compliance and its impact on their businesses, to determine critical insights that could be useful for various stakeholders, including the government. We also gathered self-reported data on basic firm and entrepreneur characteristics, and performance and growth indicators including total assets, sales, and number of employees.

Without access to a complete list of registered SMEs in the metropolitan areas identified, we had to use a location-based systematic sampling method to select survey respondents. We used a multi-stage random sampling method to identify locations within the three largest metropolitan regions of Metro Manila, Metro Cebu, and Metro Davao. These three metropolitan areas account for more than half of the country's economic output and have the largest concentration of SMEs in the country. Locations were identified by, first, randomly selecting an equal number of cities within each metropolitan area, then an equal number of districts were randomly selected within sampled cities, and, finally, an equal number of *barangays* (villages) were randomly selected within the sampled districts. Starting from a random location in each barangay, interviewers approached every fifth business establishment and invited the owner/manager to participate in the survey if the firm met our specified criteria and definition of an SME.

To identify SMEs qualified for the survey, we used the following eligibility criteria based on the Philippine government's definition:

- location: firms were systematically selected within the sample areas;
- business registration: if the firm had a valid business permit for 2019;

- asset size: the firm had a total asset size (excluding land) between PHP 3,000,001 (USD 60,000) to PHP 100,000,000 (USD 2,000,000); and

- employment: if the firm had between 10 to 199 employees.

The survey instrument included 93 items that collected information about firm and owner characteristics, performance, and their experience dealing with regulatory compliance at the national and local (provincial and municipal) levels. Survey interviews were conducted face-to-face from August to September 2019. All interviewers went through a pre-survey training workshop on the standardized interview script and techniques in reducing survey bias. We adopted standard practices to minimize common method bias from collecting all variables used in the study from the same single-respondent cross-sectional survey, including: an adequate introduction on the purpose of the study (Hair et al., 2015), and proximally separating questions on the dependent and independent variables in the survey instrument (Garg, 2019).

4.1.2. Variables and Summary Statistics

Using determinants of firm growth commonly identified in the literature, we empirically tested if the cost of regulatory compliance impeded the incidence of growth among SMEs in the Philippines. To identify the incidence of firm growth, we combined two commonly used indicators—increase in sales and increase in number of employees (Wynarczyk & Watson, 2005; Baldock et al., 2006; De Jong & Van Witteloostuijn, 2014). We identified a firm as having grown if it had experienced (i) an increase in sales revenue by at least 10%; and (ii) an increase in the number of employees in the last two years.

While there are various terms in which growth can be measured—revenue generation, value addition, volume expansion, market share, and even product quality (Gupta et al., 2013)—we selected sales revenue and workforce size growth mainly for the relative ease and simplicity of accurately obtaining this information from owner/managers of SMEs. Other possible measures of growth may be more difficult for SME owner/managers to report. Furthermore, growth in sales and in number of employees represent growth in output and resource inputs respectively.

Dependent Variable

Our dependent variable was binary and assigned a value of one (*growth*=1) if the SME grew in the last two years. In our sample, 213 out of the 590 SMEs (36.10 percent) grew within the last two years, while the remaining 377 (63.90 percent) did not.

Independent Variables

The independent variables of interest were time spent in terms of working days[10] (*timerc*) and percent share of total monetary cost spent by a firm each year in dealing with national and local government regulations (*moncostrc*). Our SME respondents reported spending an average of about eight working days to comply with national and local government regulations and spending over 20 percent of their total monetary costs.

Control Variables

We controlled for commonly identified determinants of firm growth based on the literature, including firm characteristics, owner/manager characteristics, and binary variables for proxies representing the owner/manager's familiarity with the regulatory environment. The control variables we included were firm size, firm age, type of firm ownership, business sector, owner age, owner gender, owner's self-reported level of risk aversion, a binary variable representing familiarity with a new Philippine law mandating standardizing shorter processing times for business permits and licenses, and a binary variable representing use by the firm of a new online Electronic Business Permit and Licensing System. Table 1 shows the summary statistics of the variables used in the study.

We used a category variable for firm size based on Philippine government SME classifications rather than a continuous variable for total assets for two reasons: ease of obtaining such information from SME owner/managers who may not be aware of the exact money value of their firms' total assets at the time of the survey or may not be willing to share exact information due to privacy or security concerns, and simplicity of interpreting results (MacCallum et al., 2002) especially since policymakers tend to use the same classification of small versus medium-sized firms when designing and implementing programs in support of SMEs. The category variable for firm size was assigned a value of one (*fsizesmall*=1) if the total asset size of the business (excluding land) during the time of the interview was between Php 3,000,000 (USD 60,000) and Php 15,000,000 (USD 300,000), based on the Philippine government's definition of a small business. The variable was assigned a value of zero if the total asset size of the business was between Php 15,000,001 (USD 300,000) up to Php 100,000,000 (USD 2,000,000), based on the Philippine government's definition of a medium-sized firm. Over three-fourths (77 percent) of SMEs in the sample were small firms, while the remaining 23 percent were medium-sized.

For firm age (*fage*) we used the number of years that the business has been in continuous operations. The mean firm age in our sample was 13 years.

We used a category variable to reflect ownership type, categorized as a sole proprietorship (base category), partnership (*owntypepart*=1), or corporation (*owntypecorp*=1). Sole proprietorships accounted for more than half (58 percent)

10. We defined 1 working day to be equivalent to 8 working hours.

of SMEs in our sample, while corporations (28 percent) and partnerships (14 percent) accounted for much lower shares.

We also used a category variable to specify whether the SME was in the services sector (*svcs*=1) or in manufacturing (base category). A large majority (78 percent) of SMEs in the sample were in services, while the remaining 22 percent were in manufacturing.

The average age of firm owners in the sample was 52 years, and 32 percent of the firms in the sample had a female owner or majority owner.[11] Around 79 percent of firm owners in the sample were "extremely risk-averse" (*extriskav*=1) in terms of running the business.

Recognizing that unfamiliarity with the regulatory environment and uncertainty about changes in it impact firm growth alongside regulation *per se* (De Jong & Van Witteloostuijn, 2014), we included a dummy variable to reflect familiarity of the SME owner/manager with the Philippines' new Ease of Doing Business (EODB) Act of 2018. This new law mandated the streamlining of current systems and procedures relating to business licensing and standardization of the number of days for government agencies to issue permits (ARTA, 2019). The new law also mandated the establishment of one-stop shops to consolidate applications of permits/licenses from both local and national government units. This dummy variable was assigned a value of one (*eodb*=1) if the respondent said he/she was familiar with the new law.

We also included a dummy variable to reflect use by the SME of the new online Electronic Business Permit and Licensing System (eBPLS) adopted by the Philippine government in 2017. The new cloud-based service allowed businesses to apply for some permits electronically through the internet. Baldock et al. (2006) found sales growth to be significantly correlated with adopting compliance related improvements. The dummy variable was assigned a value of one (*bpls*=1) if the respondent had used the new online system. Close to 40 percent of respondents reported being familiar with the EODB Act, and about 40 percent reported having used the online Electronic Business Process Licensing System (eBPLS) during business registration renewal this year.

11. The variables *Age of owner* and *Female owner* have lower numbers of observations (see Table 1) because respondents were given the option not to declare this information.

Table 1: Summary statistics of the variables

Indicator	*Variable label*	*Obs*	*Mean*	*Std. Dev.*	*Min*	*Max*
Firm growth	growth	590	0.36	0.48	0	1
Working days spent on regulatory compliance	timerc	590	7.98	10.62	0.25	75
Percent share of the firm's total monetary cost spent on regulatory compliance	moncostrc	590	22.06	15.33	1.2	80
Small firms	fsizesmall	590	0.77	0.42	0	1
Firm age	fage	590	13.42	10.06	0.167	62
Partnership	owntypepart	590	0.14	0.35	0	1
Corporation	owntypecorp	590	0.28	0.45	0	1
Services sector	svcs	590	0.78	0.41	0	1
Age of owner	ownerage	374	51.86	12.10	20	96
Female owner	ownerfem	398	0.32	0.47	0	1
Risk aversion profile of owner	extriskav	590	0.79	0.41	0	1
Owner familiarity with EODB Act	eodb	590	0.40	0.49	0	1
Owner use of e-BPLS	bpls	590	0.40	0.49	0	1

We classified firms as "young" if they had been operating for less than five years, and classified them as "old" if they had been operating for five years or more. This classification is based on the Philippine government's definition of a start-up firm. The results of our survey supported findings in the literature (Davidsson et al., 2010; McKelvie & Wiklund, 2010) suggesting that most firms fail to expand during their lifespans. The distribution of young and old firms in our sample according to asset size (Table 2) showed that small firms were not necessarily younger. We also observed that there were more small, old firms (61.5%) than small, young firms (15.4%) in our sample.

Table 2: Distribution of young and old firms in our sample by firm (asset) size

	Small	*Medium*
Younger firms	15.42%	2.03%
Older firms	61.53%	21.02%

Table 3: Average time and monetary costs of regulatory compliance and two-year average revenue and profit growth rates

	Time Spent	*Monetary cost*	*Revenue Growth*	*Profit Growth*
Younger firms	10.50 working days	22.61%	12.50%	9.10%
Older firms	7.44 working days	21.94%	20.26%	14.84%

On average[12], younger firms spent more time (10.50 working days) dealing with national and local government regulations, in comparison to older firms (7.44 working days) (Table 3). This finding suggests that the burden of regulatory compliance is particularly more onerous for younger firms. We also found that younger firms, on average, did not grow faster than older firms. In the sample,

younger firms had lower revenue and profit growth rates than older firms. Other studies found a similar relationship between age and profitability of firms. In a study that used data from over 70,000 manufacturing firms in Spain, Coad et al. (2013) found that firm performance improved with age, as older firms were more profitable than younger firms. Coad et al. (2013) suggested that older firms were more capable of translating sales or revenue growth into profit growth. Likewise, using a sample of 409 firms in Uganda, Osunsan et al. (2015) found a significant and positive relationship between firm age and performance, where performance was measured in terms of financial (pre-tax net profit) and operational indicators.

4.2. Estimation Method

To estimate the relationship between regulatory compliance and the probability of firm growth, we used the following equation:

$$Pr\,(growth_i) = \beta_0 + \beta_1 timerc_i + \beta_2 moncostrc_i + \boldsymbol{X_i} + \mu_i \qquad (1)$$

In equation (1), $growth_i$ is a dummy variable equal to one if firm *i* reported having grown over the last two years (according to the criteria described in Section 4.1.2). The variable $timerc_i$ measures the number of working days a firm spent each year complying with national and local government regulations, and the variable $moncostrc_i$ measures the percent share of total monetary cost each year a firm spent complying with national and local government regulations.

The indicator $\boldsymbol{X_i}$ denotes a vector of control variables, which includes a dummy to indicate whether the firm is classified as small (*fsizesmall*=1) or medium-sized (*fsizesmall*=0), the number of years the firm has been operating (*fage*), a dummy to indicate whether the firm is a sole proprietorship, partnership (*owntypepart*=1) or corporation (*owntypecorp*=1), a dummy to indicate whether the firm is in the services sector (*svcs*=1) or the manufacturing sector (*svcs*=0), the owner's age (*ownerage*), the owner's gender (*ownerfem*), the owner's level of risk aversion (*extriskav*), a dummy to indicate whether the respondent was familiar with the Ease of Doing Business Act (*eodb*=1), and a dummy to indicate whether the respondent used the electronic Business Process Licensing System (*bpls*=1) for business registration.

Probit regressions were run on equation (1) to estimate the probability of firm growth given the time and monetary costs that the firm spent complying with

12. The corresponding two-tailed p-value from the independent group t-test comparing the number of working days spent for regulatory compliance by younger vs. older firms is 0.0079; the difference in means is statistically significantly different from 0. However, the difference in means comparing monetary costs of regulatory compliance (as a percentage of total business costs) of younger vs. older firms is not statistically significant.

national and local government regulations and given various firm and owner characteristics.

5. Discussion of Results

5.1. Main Analysis

We performed three regressions. In the main regression, we used the full sample of SMEs surveyed, while the two secondary regressions used the samples of old firms and young firms, respectively. Separate regressions for young and old firms were performed to compare how compliance costs may affect young and old firms differently.

The probit average marginal effects estimates are reported in Table 4, with the estimation results for the full sample in Column 1. The estimation results in Column 2 are restricted to older[13] firms, while the sample in Column 3 is restricted to younger[14] firms.

Table 4: Probit average marginal effects for explaining the probability of firm growth

Indicator	*Variable*	*All firms (1)*	*Older firms (2)*	*Younger firms (3)*
		Firm growth	Firm growth	Firm growth
Working days spent on regulatory compliance	timerc	-0.00570**	-0.00525*	-0.0134*
		(0.00253)	(0.00307)	(0.00701)
Percent share of firm's total monetary cost spent on regulatory compliance	moncostrc	-0.000332	0.00112	-0.00596**
		(0.00153)	(0.00166)	(0.00303)
Small firms	fsizesmall	-0.166***	-0.143**	-0.0139
		(0.0595)	(0.0634)	(0.107)
Firm age	fage	0.000304	-0.00163	0.102***
		(0.00235)	(0.00265)	(0.0282)
Partnership	owntypepart	0.255***	0.246***	0.132
		(0.0774)	(0.0844)	(0.0869)
Corporation	owntypecorp	0.171***	0.165**	0.419***
		(0.0617)	(0.0648)	(0.143)
Services sector	svcs	-0.000901	0.0403	-0.147
		(0.0560)	(0.0615)	(0.0948)
Age of owner	ownerage	-0.00169	-0.00246	0.00203
		(0.00205)	(0.00220)	(0.00521)
Female owner	ownerfem	0.00487	-0.0110	0.221**
		(0.0501)	(0.0550)	(0.0876)

13. We define older firms as SMEs that have been operating for at least 5 years.
14. We define younger firms as SMEs that have been operating for less than 5 years.

Owner risk aversion	extriskav	0.0195	0.00142	0.118
		(0.0573)	(0.0640)	(0.105)
Owner familiarity with EODB Act	eodb	0.200***	0.246***	-0.0285
		(0.0562)	(0.0630)	(0.0560)
Owner use of e-BPLS	bpls	0.114**	0.115*	0.0635
		(0.0544)	(0.0593)	(0.0664)
Observations		373	318	55
Pseudo R-squared		0.2014	0.2102	0.4720

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1;
For dummy variables, the marginal effect is the discrete change from 0 to 1.

Using the full sample, we found that having to spend more time complying with national and local government regulations decreased the probability of firm growth. This finding supports the hypothesis that greater regulatory compliance cost, particularly time costs, hinders firm growth. We found the same negative relationship looking at the sample of younger firms and the sample of older firms separately.

Comparing the magnitudes of the estimated marginal effects for the sample of younger firms versus the sample of older firms, we found that time spent complying with government regulations had a larger effect on younger firms compared to older firms, suggesting that time costs were more burdensome for younger firms. Each additional working day (equal to eight hours) spent dealing with government regulations was associated with a 1.34 percentage point lower probability of growth for younger firms compared to a 0.53 percentage point lower probability for older firms.

Using the full sample, we found that having to spend a greater share of monetary costs on regulatory compliance did not have a statistically significant impact on the probability of firm growth. However, when we analyzed younger firms and older firms separately, the effect on younger firms became apparent. Among younger firms, having to spend a higher proportion of total monetary business costs on regulatory compliance decreased the probability of growth. This result supports the hypothesis that greater regulatory compliance cost, particularly monetary costs, hinders firm growth, but only for younger firms. A 1.0 percentage point increase in the share of total expenses (*moncostrc*) that younger firms spend on regulatory compliance each year was associated with a 0.6 percentage point lower probability of them growing.

We found that younger firms were especially challenged not only because the probability of growth among them was more negatively affected by time and money costs of regulatory compliance compared to older firms, but also because they had reported spending longer time on average (3.06 days more) on compliance compared to older firms. Older firms may have the advantage of having managers or staff with more experience or knowledge in dealing with government regulations and compliance requirements, resulting in lower time spent on compliance compared to younger firms. They may also have better

access to technological resources and business networks that facilitate regulatory compliance.

Notable differences in the impact of other control variables on the probability of growth among young and old firms were also observed. We found that firm age had a statistically significant effect on the probability of growth among younger firms, where an additional year of operations was associated with a 10.2 percentage point higher probability of growth, but found no significant effect among older firms. This finding suggests that making it through the early years of the business increases the likelihood of growth during those years (reflecting the well-known "up-or-out" dynamic typically found among young firms; Haltiwanger et al., 2013), but additional years of operation do not affect the likelihood of growth among relatively older firms. When we looked at firm size based on assets using our full sample, we found that small firms were less likely to grow compared to medium-sized firms. However, when we separated younger firms from older firms, we found that being small decreased the probability of growth among older firms, but not among younger firms. This implies that older firms that have remained small in terms of asset size were less likely to grow.

Ownership type or legal structure of the organization was also found to have significant effects on growth. Using the full sample, we found that firms that were structured as partnerships or corporations had a higher probability of growth (25.5 percentage point higher probability for partnerships and 17.1 percentage point for corporations) relative to firms that were sole proprietorships. Among older firms, being structured as a partnership or a corporation was associated with a higher probability of growth, while among younger firms, being a corporation was associated with a 41.9 percentage point higher probability.

We also found that SMEs whose owner/manager was familiar with the Ease of Doing Business (EODB) Act and used the Electronic Business Process Licensing System (e-BPLS) during business registration or renewal in the past year were more likely to have grown than those whose owner/managers were not. We interpret awareness of the recently passed EODB Law as an indicator of firm owner/manager's familiarity with changes in the regulatory environment, and the use of the e-BPLS as an indicator of a firm's ability to take advantage of recent technological improvements in regulatory procedures. Our findings suggest that firms that are more familiar and up-to-date with changes in the regulatory environment and that are able to adopt compliance-related process improvements are more likely to grow.

Lastly, we found that having a female majority owner increased the probability of firm growth, but only for younger firms. Sector of business, the age of the owner, and the owner's risk aversion profile were not found to have statistically significant effects on the probability of growth in any of the models we tested.

5.2. Robustness Tests

Some of the respondents among the 590 SMEs interviewed opted not to answer questions ("prefer not to say") about the owner's age (*ownerage)* and/or the owner's gender (*ownerfem*), resulting in a smaller sample size used to obtain estimates in Table 4 (373 observations out of 590). We checked the robustness of the estimates in Table 4 by running the same regressions excluding *ownerage* and *ownerfem*, enabling us to use the full sample of 590 observations, and present the results in Appendix Table A1 (Probit average marginal effects for explaining the probability of firm growth excluding owner's age and owner's gender). Also when using the full sample of observations, the estimates in Appendix Table A1 are generally consistent in terms of significant variables, direction, and magnitude, validating the results in Table 4.

Furthermore, to address potential endogeneity (omitted variable bias) from excluding *ownerfem* (which had been significant in Table 4), and considering the low number of observations relative to the number of independent variables in Model 3 of Table 4, we re-estimated the probability of firm growth for younger firms using only the significant variables in Model 3 of Table 4, and present the results in Appendix Table A2. Again, the estimates are consistent in terms of significant variables, direction, and magnitude, validating the robustness of our estimates.

6. Conclusion and Implications

In this study, we tested whether regulatory compliance costs in terms of time and money have a negative effect on the incidence of growth among small and medium-sized enterprises (SMEs) in the context of a middle-income developing country, i.e., the Philippines. We also examined this relationship for young versus older firms. We conducted primary data collection to build a unique firm-level data base that facilitated our empirical analysis. Our paper contributes to the entrepreneurship literature by adding to the relatively short list of studies that empirically investigate the relationship between regulatory compliance costs and firm performance using firm-level data.

Results of our study show that the time cost of regulatory compliance has a negative impact on the probability of sales and workforce growth among SMEs. This supports the argument for improving the ease of doing business by reducing bureaucratic red tape—i.e., minimizing the number of steps and procedures involved, decreasing the number of approvals and documents required, and reducing waiting time. This result supports the argument that businesses face opportunity costs in diverting their limited resources away from value-adding activities into regulatory compliance. Given that SMEs have fewer employees

than larger firms, the impact of having to divert employee time to compliance activities may be significant.

When we separated younger firms, defined as having been in continuous operations for less than five years, and older firms in our analysis, we found that younger firms were more negatively affected by the time costs of compliance compared to older firms, implying that time costs were more burdensome for younger firms. Each additional working day (equal to eight hours) spent dealing with government regulations was associated with a 1.34 percentage point lower probability of growth for younger firms compared to only 0.53 percentage point lower probability for older firms. Younger firms also spent longer time complying with regulations. This may be a result of their relative lack of experience in dealing with regulation or their relatively limited access to resources and networks that help older firms cope. Furthermore, when we studied the effects of firm age on firm growth, we found that each additional year of operations increased the likelihood of growth, particularly for younger firms. These findings suggest that making it through the early years of the business is particularly important for the chances of growth among younger firms to increase. For these reasons, we recommend that governments prioritize the regulatory concerns of younger firms whose potential as engines of economic growth and job creation is significantly undermined by the cost of regulatory compliance.

While time costs were found to have a statistically significant impact on the probability of firm growth, money costs did not have a significant effect except for younger firms. Additional monetary costs in proportion to total business costs spent on regulatory compliance decrease the probability of growth among young firms. As young SMEs tend to face significant time and monetary costs from regulatory compliance both of which negatively impact their probability of growth, policies aimed at improving the ease of doing business must focus especially on young firms and start-ups to minimize harmful effects of regulation on entrepreneurial success.

We also found that familiarity with the regulatory environment and the adoption of compliance-related process improvements among SMEs increased their probability of experiencing growth. This finding supports policies aimed at increasing transparency and awareness of regulatory procedures and requirements, and policies that support adoption by SMEs of internal process improvements that make use of digital compliance tools, which enable them to comply at lower cost.

Few studies have used firm-level data to analyze the relationship between firm growth and regulatory compliance costs among SMEs. This allowed us to investigate relationships and firm-specific variables that are beyond the scope of more aggregate data. However, compared to studies that use macro data our sample size would be considered small. A larger sample size may increase reliability of estimates. Interpretation of our results may also be limited by our specific definition of firm growth—i.e., increase in sales revenue and increase in

number of employees. Other indicators of business success such as market share and profit growth may also be undermined by regulatory compliance costs. We recommend for future research to investigate the relationship between firm growth and regulatory compliance costs across political/regulatory frameworks, entrepreneurial/business ecosystems, and levels of macroeconomic development by using multi-country firm-level data.

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Appendix

Appendix Table A1: Probit average marginal effects for explaining the probability of firm growth (excluding *owner age* and *owner gender*)

Indicator	*Variable*	*All firms (1) Firm growth*	*Older firms (2) Firm growth*	*Younger firms (3) Firm growth*
Working days spent on regulatory compliance	timerc	-0.00617***	-0.00560**	-0.0128**
		(0.00200)	(0.00236)	(0.00519)
Percent share of firm's total monetary cost spent on regulatory compliance	moncostrc	0.00103	0.00180	-0.00271
		(0.00121)	(0.00134)	(0.00245)
Small firms	fsizesmall	-0.162***	-0.151***	-0.0679
		(0.0518)	(0.0565)	(0.105)
Firm age	fage	0.000586	-0.00165	0.107***
		(0.00184)	(0.00216)	(0.0263)
Partnership	owntypepart	0.197***	0.214***	0.145*
		(0.0584)	(0.0669)	(0.0858)
Corporation	owntypecorp	0.123**	0.126**	0.167
		(0.0513)	(0.0548)	(0.131)
Services sector	svcs	-0.00902	0.00991	-0.0206
		(0.0435)	(0.0491)	(0.0754)
Owner risk aversion	extriskav	0.0225	-0.0126	0.139*
		(0.0472)	(0.0527)	(0.0801)
Owner familiarity with EODB Act	eodb	0.154***	0.221***	-0.0862
		(0.0444)	(0.0521)	(0.0678)
Owner use of e-BPLS	bpls	0.128***	0.110**	0.176**
		(0.0466)	(0.0518)	(0.0814)
Observations		590	487	103
Pseudo R-squared		0.1676	0.1771	0.3013

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table A2: Probit average marginal effects for explaining the probability of firm growth (using only the significant variables in Table 4 - Column 3)

Indicator	*Variable*	*Younger firms (3)*
		Firm growth
Working days spent on regulatory compliance	timerc	-0.0135**
		(0.00547)
Percent share of firm's total monetary cost spent on regulatory compliance	moncostrc	-0.00618*
		(0.00327)
Firm age	fage	0.134***
		(0.0313)
Partnership	owntypepart	0.0846
		(0.0985)
Corporation	owntypecorp	0.461***
		(0.151)
Female owner	ownerfem	0.199**
		(0.0899)
Observations		60
Pseudo R-squared		0.3586

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1