

Impact of formal institutional environment on innovativeness and performance of SMEs in the Philippines

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Introduction

The institutional theory of strategy suggests that the external institutional environment of a firm has significant impact on its strategic behaviour and performance (Peng, Wang & Jiang 2008; Peng 2003; Ahn & York 2009). This theory argues that the institutional environment is a major determinant of the costs of exchange and production (North 1990). The costs associated with transacting under uncertainty significantly impact a firm's ability to engage in productive economic activity such as innovation (North 1991; Peng et al 2008). Institutions or those 'humanly devised constraints that shape human interactions' have the potential to reduce uncertainty by establishing an efficient and stable structure to human exchange (North 1991). An efficient and stable institutional structure provides an effective platform for firms to engage in productive economic activities. This theory suggests that institutions can have significant implications on the nature and extent of innovative activities that a firm can pursue in order to generate superior rates of return (North 1991; Peng et al 2008). The theory is especially relevant to firms in developing or emerging economies such as the Philippines which have been shown to suffer from severe institutional voids brought by unpredictable or unstable institutional environments. (Peng et al 2008; Roxas et al 2009; Wu & Leung 2005).

While the proposition that institutions matter has almost become a cliché in the literature, there remains a need for an in-depth understanding of how various types of institutions matter in specific contexts (Liu, Yang & Zhang 2011; Bowen & De Clercq, 2008; Manolova, Eunni & Gyoshev, 2008; Peng, Wang & Jiang, 2008). North (1992; 2005) refers to institutions as the 'rules of the game' and their associated enforcement characteristics that offer incentives and set constraints to economic players. Institutions can be formal such as laws, government policies, legal or judicial systems and ordinances or informal such as norms of behaviour, unwritten rules and conventions observed by a group of people or society (North 1992). There remains sizeable research gap on how various types of institutions influence firm-level behaviour (Ahn and York 2009; Lu, Tsang & Peng 2008).

Conventional institutional analysis tends to focus on country-wide settings. A growing interest is on institutional analysis at the sub-national levels such as a state, region or city (Brouthers, 2002; Busenitz, Gomez & Spencer, 2000; Meyer & Nguyen, 2005). It is important to recognise that there may be institutional divergence between and among sub-national geo-economic and political areas within a country (Ando, 2007; Narayanan & Fahey, 2005). This is especially true in countries that are ethnically-diverse and geographically-dispersed such as the Philippines (Meyer & Nguyen 2005; Roxas et al 2009). In the Philippines, the governance system has become increasingly decentralised such that sub-national government units at the provincial, city or municipal level are given more political, administrative and economic responsibilities. This sub-national governance system is a major determinant of the local institutional environment that impacts the ability of local firms to engage in innovation and other forms of productive economic activity. However, little is known how firms strategically behave in such sub-national institutional environment.

The current study contributes to the debate on institution-firm strategy- performance linkages in three folds. First, it attempts to measure four elements of the formal institutional environment of small and medium enterprises (SMEs) in two cities in the Philippines, one of the major developing countries in Southeast Asia. The focus is on sub-national or city-level formal institutions. Second, the study will determine the impact of the four types of formal institutions on the level of innovativeness and overall

performance of SMEs in the two cities. It is argued that the level of innovativeness of SMEs partly depends on the extent to which firms consider the formal institutional environment to be conducive and supportive for innovative endeavours. Innovative SMEs are more likely to have better economic performance than those which are non-innovative. Third, the study will attempt to offer an empirically-based explanation on how the formal institutions influence firm performance by examining the mediating role of firm innovativeness. The study posits that the formal institutional environment can potentially facilitate, support or nurture the firms' innovativeness which ultimately leads to better performance.

The paper starts with a discussion of the theoretical and conceptual basis of the study. This is followed by a discussion of the conceptual model and hypotheses that will be examined. The next section will be the empirical study and structural equation model analysis. The last part will be discussion of results and their research and practical implications.

Institutional theory of strategy

This study builds on institutional theory in its contemporary form (North 1990; Peng et al 2008). The seminal work of Douglas North in the field of new institutional economics (North, 1990; 1991; 1992) broadly defines institutions as the "rules of the game" or humanly devised structures that provide incentives and constraints to economic players. The economic players are embedded in an external environment characterised by high degree of uncertainty and transaction costs (Baum & Oliver, 1992; Hollingsworth, 2002). The presence of economic uncertainty makes it costly for economic players like SMEs to engage in various forms of transactions or market exchanges. Institutions are formed to reduce this uncertainty by setting the "rules of the game" in the form of formal rules, informal norms, and their enforcement characteristics (North, 1992, 2005). For purposes of this study, formal institutions refer to the legal and political structures and processes in the city that explicitly specify and enforce the rights, duties, responsibilities and privileges of its local populace including business entities and govern the interrelationships amongst them (Aidis, 2005; Busenitz et al., 2000; Fogel et al., 2006; Nkya, 2003; Peters, 1999; Prasad, 2003).

More recently, Peng et al (2008) builds on institutional theory to explain the strategic behaviour and performance of firms in emerging economies. Since his seminal work in 2002, Peng (2002; 2009; 2010) advances an institutional-view of business strategy as the third leg in the tripod of strategy research along with the more classical resource-based view of the firm (Barney 1991) and the industrial organisation (I/O) paradigm (Porter 1980). The institutional upheavals and transitions occurring in many developing and emerging countries like China, India and Russia over the last ten years highlighted the critical role played by the institutional environment in the strategic behaviour of firms.

Small and Medium Enterprises (SMEs)

The role of small and medium enterprises (SMEs) in economic development cannot be overemphasized. Comprising over 98% of total enterprises in Asia-Pacific (APEC 2002), SMEs have assumed a leading role in economic development of many countries (Benney, 2000; Lee & Peterson, 2000; OECD, 2003; 2004; 2005). In the Philippines, 99.6% of the total 810,362 business establishments as of 2003 are micro (91.75%), small (7.5%) and medium (0.35%) firms generating 67.9% of the country's total employment (DTI, 2005). However, the liability of smallness that is inherent amongst these SMEs explains that despite their potential to contribute to economic growth, they are unable to compete well due to exogenous and endogenous constraints (Kirby & Watson, 2003; Lall, 2000). Institutional analysis has been used in a variety of ways to diagnose and offer remedies to the functional, performance, and competitiveness issues associated with SMEs (Basu, 1998; Busenitz et al., 2000; Carlsson, 2002; Carney & Gedajlovic, 2002; Manolova et al., 2008).

Innovativeness and Performance of SMEs

Innovativeness refers to the firm's propensity to engage in new idea generation, experimentation, research and development activities resulting in new products and processes (Lumpkin and Dess 1996). Innovativeness is one of the primary means through which SMEs are able to compete and succeed in their business ventures and achieve competitive advantage (Radas & Bozic 2009; Hadjimanolis 2000). The firm's capability to spot an opportunity and develop or improve products and services fuel the firm's long-term success. However, becoming innovative is a resource-hungry undertaking. The multiplicity of resource requirements necessary for innovative activities to take place within a firm exerts immense pressure on under-resourced small firms like SMEs in developing

countries (Hadjimanolis 2000; Miller and Friesen 1982). Due to the liability of smallness, SMEs struggle to maintain their innovative stance as they operate in an already highly competitive business environment.

The situation can be grossly exacerbated by various forms of institutional obstacles such as lack of government assistance for business development, stringent regulatory requirements, unstable peace and order situation, infringement of property rights, and unreliable legal or judicial systems to enforce legal contracts and settle disputes (Peng et al 2008; Roxas et al 2008; Peng et al 2008). These institutional voids lead to escalation of transaction costs and uncertainty that can stifle the ability of firms to access resources in order to support or stimulate their innovativeness. Lack of innovation not only diminishes the firm's chance of generating positive rates of return but also threatens their long-term survival.

Sub-national institutional environment

The study focuses on sub-national formal institutional environment, specifically on city-level formal institutions. Political and governance systems of many developing or emerging economies such as the Philippines have undergone dramatic change towards devolution and decentralisation (Roxas et al 2008; Antipolo 2001; Brillantes 2004). North (1990) suggests that formal institutions are a function of efficient political and governance systems. In the Philippines, substantial political and administrative powers are being decentralised and delegated to local government agencies (Antipolo 2001). Many national government services have also been devolved to local authorities with the overarching goal of empowering local government agencies to shape the nature and pace of economic development and to make government services systematically accessible to the local populace (Antipolo 2001; Brillantes 2004). It can be expected that formal institutions are developed at the sub-national level that are just as critical as national or country-wide institutions (Meyer and Nguyen 2005).

However, not all local government agencies in Philippine cities are alike. Some are more effective at designing an efficient institutional environment than others. Hence, institutional environmental diversity can be expected across sub-national local government units. It is important therefore to examine how the sub-national formal institutional environment meets the needs of SMEs in order to sustain the latter's innovative stance to achieve better performance.

Conceptual Model and Hypotheses

The study advances the view that the formal institutional environment at the sub-national level has significant influence on the innovativeness of SMEs. Consequently, the extent of innovativeness determines the overall performance of firms. According to the institutional theory of strategy (Peng et al 2008; North 2005), the formal institutional environment has the potential to level the playing field for economic players, reduce transaction costs, and reduce the degree of uncertainty of doing business. A business environment with highly stable and predictable institutional configurations is a fertile ground for productive activities such as innovation or entrepreneurship to take place. Not having to deal with institutional voids, rigidities and challenges, allows the firm to focus its efforts on more productive and innovative endeavours to achieve overall organisational competitiveness.

Formal institutions, such as rule of law, regulatory quality, and economic policies support the full-functioning of a market economy whereby no economic player enjoys undue privileges nor disadvantages (Meyer, 2001). Studies have shown that entrepreneurial or innovative undertakings thrive in such an institutional environment (Manolova et al., 2008; Nkya, 2003; North, 2005). For instance, the theory of opportunity exploitation (Shane, 2003) suggests that formal institutions reduce information asymmetries and encourage free exchange of information which facilitate innovation and exploitation of entrepreneurial opportunities. In effect, firms are likely to become more innovative if the formal institutions in the wider environment create and maintain a level playing field for efficient market exchanges where rights and duly-earned privileges held by firms are secured and protected (Vatn, 2005). Government programs and other forms of assistance to small business (i.e. business support) are also viewed as a critical institutional support for SMEs given their scarce resources. The identification of the four formal institutions are based on previous studies on governance and institutional quality (Chaudhry & Garner 2007; Kaufman et al 2006; Lopez-Claros et al 2007; La Porta et al 1999; Fogel 2001; Frye & Zhuravskaya 2000; Busenitz et al 2000).

Figure 1 shows the conceptual model of the study.

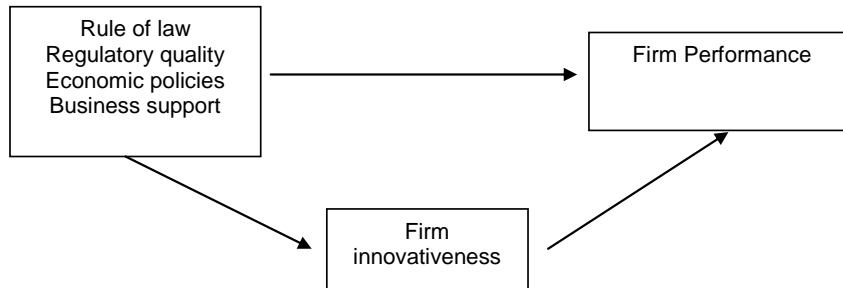


Figure 1. The conceptual model

The link between the institutional environment and firm performance rests on the argument that the characteristics of the wider external environment such as turbulence, hostility, dynamism, and munificence determine the performance outcomes and ultimately the survival of firms operating in such environment (Hannan and Freeman 1977; Ruth, 1988; Shane & Kolvereid, 1995; Lewin & Volberda, 1999; Ketchen et al., 1993). Formal institutional forces significantly influence these environmental characteristics by reducing transaction costs, information asymmetry, rent-seeking behaviour, and by nurturing a business climate of competitiveness for business (North 2005; Fogel 2001; Lewis 2010; Carney et al 2009; Bjornskov et al 2010).

Similarly, a firm's innovativeness largely depends on how supportive the external environment is to innovative endeavours. Factors such as access to both tangible and intangible resources (e.g. finance, technology, training, information, etc.) reduced transaction costs, and protection of property rights are all shaped by the formal institutional environment. These factors influence the constraints, incentives and perceptions of long-term viability of innovative endeavours. The rule of law determines the extent of protection and enforcement of legal rights of firms with respect to their innovation activities and outputs (Fogel et al 2006; Ahn & York 2009). Regulatory quality shapes the bureaucratic rigidities that firms face as they deal with government agencies such as applying for permits or licenses to conduct a specific business activity (Norton 1998). Economic policies shape the overall economic development agenda of the local government and send strong signals to the SME sector on the kind of business and innovative activities that the government is likely to support (Rodrik 2006; Gnyawali & Fogel 1994). Business support programs provide SMEs with access to resources (not otherwise accessible to them) that are needed to undertake innovative activities (Jackson 1999; McIntyre 2005). Furthermore, the conceptual model shows that the extent of innovativeness of a firm will have significant impact on its overall performance outcomes. An innovative firm is likely to gain competitive edge which is critical to its survival and growth (Damanpour, 1991; Deshpande, Farley & Webster, 1993; Hult, Hurley & Knight, 2004; Knight & Cavusgil, 2004). Innovativeness is considered an antecedent to first mover advantages which increase the firm's ability to reap superior rates of return (Lumpkin & Dess, 1996; Venkatraman 1989; Lee et al., 2001).

Finally, the foregoing discussion on the formal institutions – firm innovativeness – firm performance linkages suggests mediated relationships. It is argued in this study that formal institutions directly impact on the extent of innovativeness of the firm which consequently determines the level of firm performance. Analysis of these mediated relationships has the potential to offer a parsimonious explanation on how exactly formal institutions impact firm performance, that is through their influence on firm innovativeness.

Overall this study examines the following hypotheses:

H1 = The four formal institutions are positively associated with higher levels of firm performance.

H2 = The four formal institutions are positively associated with higher levels of firm innovativeness.

H3 = Firm innovativeness is positively associated with higher levels of performance.

H4 = Firm innovativeness mediates the relationships between the four formal institutions and firm performance.

Sample and Data

The data used in this study form part of a large-scale survey of SMEs conducted in 2007-2008 in two cities in the Mindanao region, southern Philippines. An estimated 750,000 SMEs form the backbone of the economy in the Philippines and account for almost 70% of the country's total employment, 30% of the country's gross domestic product (GDP) and more than 25% of the country's total export revenue (Aldaba 2008). SMEs also represent almost 60% of all exporting firms in the manufacturing sector (DTI 2005). Despite the dominant and critical role of SMEs in the Philippines, research on the behaviour and performance of SMEs engaged in export remains underdeveloped.

The data collection process involved a large scale survey of owners and/or managers of SMEs. A sample of 1600 SMEs identified from the local government's business registry was first targeted. A number of fieldworkers were used to personally deliver and collect the questionnaires to and from participants in order to ensure a high response rate. From the returned questionnaires, a total of 1056 responses were deemed fully complete. From this sample, we identified and retained 900 SMEs that constitute the sample for this study.

Of the 900 responses, 271 were manufacturing firms (267 small and 4 medium enterprises) and 629 were service firms (excluding trading firms) (627 small and 2 medium sized firms). In terms of city location, 454 firms (161 manufacturing firms and 293 service firms) were from city A and 446 (110 manufacturing firms and 336 service firms) were from city B. Whilst the average age of the sample firms was 6.33 years (SD = 5.83) with the youngest being 1 month old, whilst the oldest firm was 40 years old, 85% of the sample firms were less than 10 years old. Moreover, 107 firms reported only one employee, 224 firms reported two employees and 160 firms reported only three employees. Firms with less than four employees accounted for 55% of the total sample. The high response rate could be attributed to the use of enumerators who distributed and retrieve the questionnaires as opposed to using postal service. The size classification of firms was based on the number of full-time staff whereby small firms are those with less than 100 employees whilst medium-sized firms are those with 100 to 199 employees (DTI 2005).

Wave analysis did not reveal any non-response bias (Lankford, Buxton, Hetzler & Little, 1995; Rogelberg & Stanton, 2007). Results of the Harman's single factor test as well as partial correlation analysis using a marker variable suggested that mono-method bias was not a concern in the study (Hair, Black, Babin, Anderson & Tatham, 2006). Using SPSS v. 14, missing values analysis was performed and subsequently, mean substitution was applied due to the missing completely at random (MCAR) nature of the values. The distribution of data was considered within the normal range with respect to skewness and kurtosis indices.

Measurement

Formal institutional environment. The indicators used to measure the formal institutional environment were adapted from previous studies on institutional and governance quality (Frye & Zhuravskaya, 2000; IMD, 2006; La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1999; World Bank, 2002), business climate and national competitiveness (IFC, 2007; Lopez-Claros, Altinger, Blanke, Drzeniek & Mia, 2007), and institutional environment (Busenitz et al., 2000; Fogel et al., 2006). The items elicited the extent of agreement or disagreement (in a seven-point Likert scale) of the respondents on the items describing the four formal institutions. Rule of law was measured by eight items (e.g. In this city, the judicial system is fair and impartial). Economic policies were measured by five items (e.g. In this city, the policy direction of the local government is clear and consistent). Regulatory quality was measured by eight items (e.g. In this city, the time required to register a business is reasonable.). Business support was measured by five items (e.g. In this city, the local government sets aside government contracts for new and small businesses).

Innovativeness. Firm innovativeness was measured by three items adapted from Covin and Slevin (1989). The three items ask respondents to indicate in a continuum from 1 to 7 the extent of their innovativeness (e.g. My firm places great emphasis on marketing tried and tested products versus research and development (R&D) and innovation).

Firm performance. The overall performance of the firm was measured by four items as used in previous studies involving SMEs or small firms (Baker & Sinkula, 2005; Rowe & Morrow, 1999; Venkatraman & Ramanujam, 1986; Westhead & Howorth, 2006). Respondents were asked to rate the level of importance they attached to each of the performance indicators namely sales, sales growth,

net income and net income growth. They were subsequently asked to express their perception on their level of performance on these indicators relative to their competitors in the last three years. The importance scores were multiplied by the perceived performance scores to generate the weighted performance scores for each of the four performance indicators. This approach was consistent with previous studies that dealt with firm performance (Delaney & Huselid, 1996; Naman & Slevin, 1993). Perceptual measures of performance have been shown to be valid, reliable and therefore have acceptable level of utility for empirical research (Dess & Robinson, 1984).

Control variables. The size of the firm, measured by number of employees and industry sector (i.e. whether service or manufacturing sector) were included as control variables.

Data Analysis

Structural equation modelling (SEM) was used to test hypotheses H1 to H4 aided by the software called EQS 6.1 (Bentler, 1995) using Anderson's and Gerbing's (1988) two step approach. Confirmatory factor analysis (CFA) was performed on all of the constructs using maximum likelihood technique (Brown, 2006). Details of the CFA shown in Table 1 show that all of the items measuring each of the six constructs loaded highly on the pre-determined factors (Brown, 2006). All constructs showed acceptable level of reliability (i.e. Cronbach α and the Joreskog rho), convergent validity (i.e. significant item loadings), and discriminant validity (i.e. average variance extracted) (Bagozzi, Yi & Phillips 1991; Fornell & Larcker, 1981).

Constructs	Standardised factor loadings
Rule of Law (ave = .79)	
$\alpha = .91$ rho = .90	
occurrence of crime does not impose business costs	.92
efficient legal framework to challenge government actions	.86
fair and impartial judicial system	.89
effectiveness in enforcing commercial contracts.	.88
legal means rather than force to settle disputes	.89
people comply with court rulings	.91
prosecution of violations of property rights	.87
protection of intellectual property rights	.91
Economic Policies (ave = .84)	
$\alpha = .96$ rho = .95	
taxation laws and policies	.86
effective implementation of government decisions	.97
economic policies adapt to changes in the economy.	.92
clear and consistent policy direction	.97
Laws and regulations conducive for business.	.86
Regulatory Quality (ave = .81)	
$\alpha = .97$ rho = .98	
information about laws and regulations	.96
business regulations	.86
procedures in city government transactions	.95
number of government offices to deal with	.93
number of permits required	.88
time required to register a business	.90
interpretations of the laws and regulations	.91
number of city government inspections required	.81
Business Support (ave = .59)	
$\alpha = .88$ rho = .89	
sponsorship of new businesses	.76
special support to start a new business.	.71
assistance to start own business.	.80
after failing in an earlier business, assistance in starting again.	.84
government contracts for new and small businesses.	.74
Goodness-of-Fit: $\chi^2 = 8574.48$, 299 degrees of freedom, $p < .00$ CFI = .92 NFI = .91 RMSEA = .06	
Innovativeness (ave = .86)	
$\alpha = .89$ rho = .90	
emphasis on marketing tried and tested products vs. R&D and innovation	.84
very few vs. many new lines of products marketed over past few years	.84
minor vs. dramatic changes in product lines	.90
Goodness-of-Fit: $\chi^2 = 2635.48$, 3 degrees of freedom, $p < .00$ CFI = .96 NFI = .95 RMSEA = .05	
Firm Performance (ave = .82)	
$\alpha = .83$ rho = .84	
Sales	.79
sales growth	.83
net income	.83
net income growth	.81
Goodness-of-Fit: $\chi^2 = 10.57$, 2 degrees of freedom $p < .00$ CFI = .98 NFI = .98 RMSEA = .04	

Table 1. The measurement model

The overall goodness of fit statistics indicate that the measurement model fit the data well as evidenced by acceptable levels of NFI, CFI and RMSEA (Please refer to Hair et al 2006 for further details on the statistical meaning of these goodness of fit indicators.). The results of the ROBUST Method offered by EQS to examine the measurement model in case of slight departures from the normality assumption of data distribution, confirmed the results generated by the maximum likelihood technique. Overall, the results of the test of the measurement model-data fit suggested that the constructs used in this study have satisfactory level of construct validity, internal consistency (i.e. reliability), convergent as well as discriminant validity. Table 2 shows the means, standard deviation and correlations of the six constructs used in the succeeding analysis of the structural model-data fit.

Variables	mean	SD	ROL	RQ	EP	BS	INN	FP	FS
Rule of Law (ROL)	4.82	1.25	.89						
Regulatory quality (RQ)	4.30	1.77	.87*	.90					
Economic policies (EP)	4.30	1.53	.88*	.80*	.92				
Business support (BS)	2.28	0.88	.25*	.21*	.24*	.77			
Innovativeness (INN)	3.85	1.52	.80*	.74*	.65*	.58*	.93		
Firm Performance (FP)	14.53	5.25	.51*	.45*	.40*	.13*	.59*	.91	
Firm size (FS)	5.39	10.36	.10*	.09	.12*	.25*	.34*	.12*	1

*significant at $p < .05$

Square root of average variance extracted in bold, uppermost diagonal figures

Table 2. Descriptive statistics

Hypothesis Testing with Mediation Models

The second step of Andersen and Gerbing's (1988) approach to structural equation modelling requires the development and testing of the structural models in order to test the hypotheses. Using EQS's maximum likelihood technique with robust function for error correction, three nested structural models were developed and tested following the procedures suggested by Kelloway (1998) and James & Brett (1984) on mediation analysis using structural equation modelling. The various path coefficients are summarised in Figure 2. The first model (model A) shows partial mediation such that innovativeness partially mediates the relationships between formal institutions and firm performance. This model suggests that there are other direct effects which cannot be accounted for by innovativeness. The second model (model B) is a fully-mediated model whereby innovativeness fully mediates the relationships between formal institutions and firm performance. The last nested model (model C) indicates that there is no mediation in any of the relationships tested in the model.

Structural models A and B show acceptable levels of goodness-of-fit as indicated by the NFI, CFI, and RMSEA values which were all above the minimum acceptable threshold. However, of the two models, the fully-mediated model (model B) provided a better fit to the data as shown by the very high values of NFI and CFI, the lowest value of RMSEA and non-significant χ^2 value. A χ^2 difference test performed as suggested by Kelloway (1998) showed that the fully-mediated model (B) has a significantly better fit than the partially-mediated model (A), its closest alternative model (χ^2 diff = 56.66, $p < 0.00$). The results suggest that firm innovativeness fully mediates the relationships between the four formal institutions and firm performance, thereby supporting H4. In the fully-mediated model, all variables had variances (i.e. v) that were statistically different from zero which indicate that each variable was highly distinguishable (i.e. distinctive) from one another (Bentler, 1995). In this model, the four formal institutions explained 70% of the variations in the firms' level of innovativeness. Innovativeness on the other hand explained 18% of the variations in the firms' overall firm performance. The path coefficients were all significant at 0.05 level of confidence. The empirical evidence as shown in Model B suggested that the four formal institutions are positively associated with higher levels of firm innovativeness.

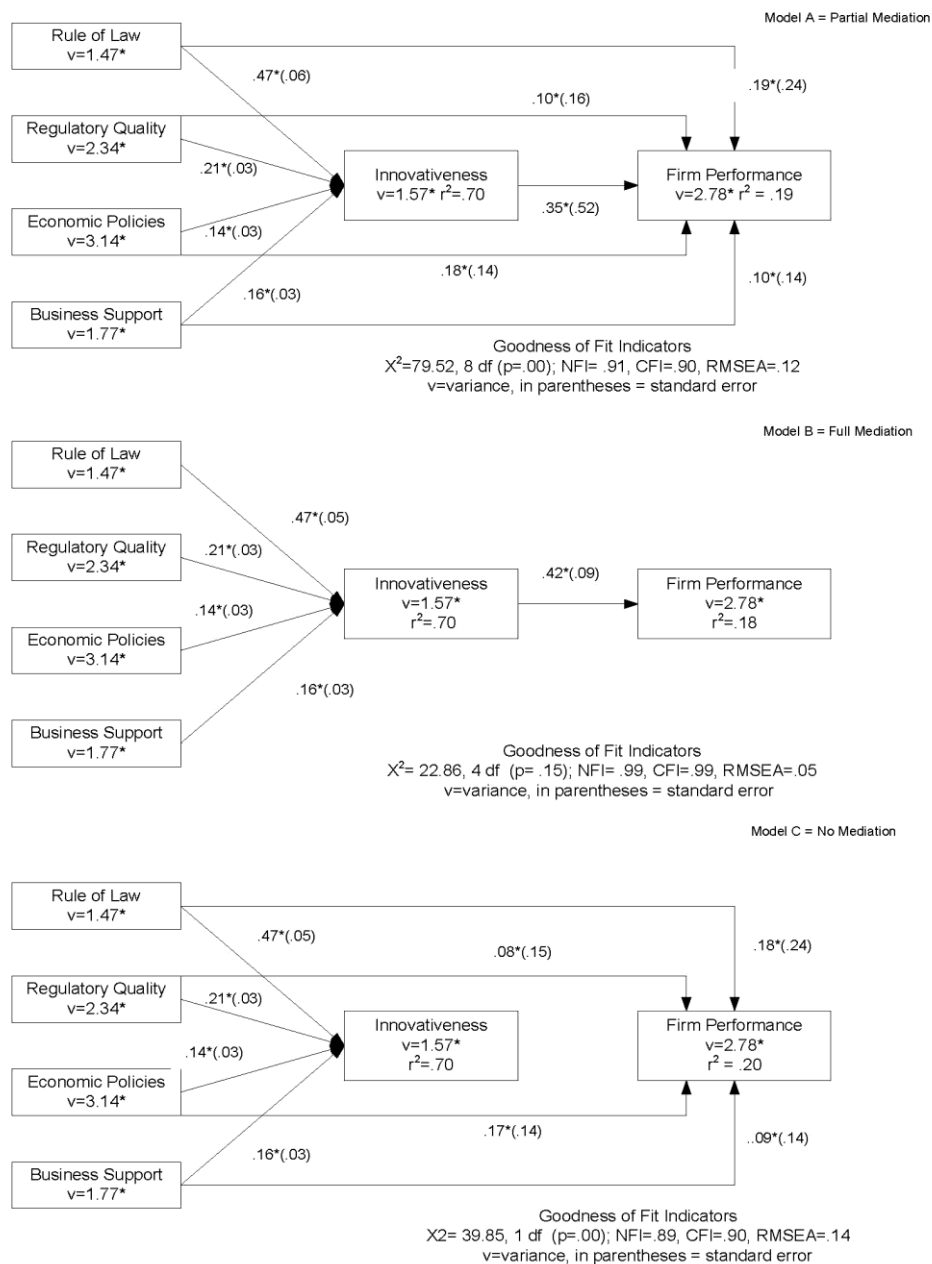


Figure 2. The structural models

On the other hand, the innovativeness of the firm is positively associated with high levels of firm performance. The empirical evidence support H1, H2, and H3. Given the r^2 values of .18 to .70, the indicators of effect size suggest that despite having relatively small yet significant path coefficients, the results could be considered practically significant and meaningful from which inferences could be drawn (Cohen, 1992; Field, 2005; Pedhazur, 1982).

To account for possible variations due to the size of the firm (i.e. micro vs. small and medium) and sector classification (i.e. manufacturing vs. service firms), a 'multi-sample path analysis' was performed using the fully-mediated model (Model B in Figure 2) as the generic basis for structural modelling. The generic model was applied to micro firms and then to small and medium firms to determine if the model fits the two sets of data. Due to their relatively small number, medium size firms were combined with the small firms to form one group against that of the micro-firms. The same generic structural model was also applied to manufacturing and service firms. The results are shown in Table 3. The results show that the generic structural model tends to fit the data well across the two groups based on firm size. On the other hand, the generic structural model tends to fit well the data from the manufacturing group although the path coefficients do not differ significantly. The empirical evidence suggests that the impact of the formal institutions on firm innovativeness and that of firm innovativeness on firm performance is more pronounced in the manufacturing sector regardless of size.

Independent variables	Micro Firms		Small and Medium Firms	
	Dependent variables		Dependent variables	
	Innovativeness $r^2 = .69$	Firm Performance $r^2 = .18$	Innovativeness $r^2 = .78$	Firm Performance $r^2 = .22$
Rule of law	.47*(.05)		.46*(.16)	
Regulatory quality	.14*(.03)		.19*(.10)	
Economic policies	.22*(.03)		.12*(.11)	
Business support	.16*(.03)		.27*(.08)	
Innovativeness		.42*(.09)		.47*(.30)
Goodness of Fit	$\chi^2=10.85, 4 \text{ df}, p=.23; \text{CFI}=.99, \text{NFI}=.99, \text{RMSEA}=.06$		$\chi^2=10.85, 1 \text{ df}, p=.10; \text{CFI}=.98, \text{NFI}=.98, \text{RMSEA}=.12$	
Independent variables	Manufacturing firms		Service firms	
	Dependent variables		Dependent variables	
	Innovativeness $r^2 = .69$	Firm Performance $r^2 = .13$	Innovativeness $r^2 = .69$	Firm Performance $r^2 = .12$
Rule of law	.36*(.09)		.28*(.06)	
Regulatory quality	.15*(.06)		.10*(.04)	
Economic policies	.21*(.06)		.17*(.03)	
Business support	.26*(.04)		.18*(.06)	
Innovativeness		.55*(.18)		.44*(.10)
Goodness of Fit	$\chi^2=14.77, 4 \text{ df}, p=.58; \text{CFI}=.99, \text{NFI}=.99, \text{RMSEA}=.02$		$\chi^2=21.96, 1 \text{ df}, p=.00; \text{CFI}=.99, \text{NFI}=.99, \text{RMSEA}=.08$	

Table . Multi-sample analysis

Discussion, Conclusion and Implications for further research

The study's attempt at operationalising sub-national formal institutions and empirically relating them to firm innovativeness and performance contributes to understanding the nature and extent of impact of formal institutions at the city-level in an emerging economy context. This is the distinctive value of the study relative to previous studies focusing on either relationships between country-wide formal institutions and macro-economic variables or theoretical/conceptual discussions of formal institutions. It is imperative therefore that institutional-analytical studies in developing economies like the Philippines should take the sub-national institutional factors into account.

The findings show that innovativeness at the firm level is likely to thrive in an environment characterised by the presence of rule of law, economic policies perceived as supportive of SMEs, regulatory quality that does not impose unreasonable burden on SMEs, and business support programs that are available and accessible to SMEs. As expected, rule of law has the highest impact on innovativeness. The presence of a well-functioning legal and judicial system at the local level, effective enforcement of contracts, public safety and security, and protection of property rights are considered basic components of an institutional landscape that promotes that reduces transactions

costs and facilitate more efficient market exchange at the sub-national level. Firms are more likely to pursue innovative activities when they perceive the local institutional environment as supportive of such activities. The mediation analysis provides a different perspective in interpreting the overall results of the study such that all of the formal institutions have been shown to be associated with higher levels of innovativeness, which in turn, has been shown to be associated with firm performance. In effect, the results of mediation analysis made clear that the institutional environment has the greatest impact on SMEs, through the former's influence in the latter's extent of innovativeness.

SMEs operating in an emerging economy like the Philippines have to deal with the pressures of the institutional environment in addition to market- and industry-related forces. In effect, SMEs have to face a set of formidable and complex environmental hurdles as they strive for greater performance. These external pressures have significant impact on the ultimate growth and survival of SMEs doing business in these institutionally- diverse economies. Therefore, institutional reforms to promote innovation at the firm-level should not only focus on national institutional frameworks in the form of legislations nation-wide programs and but also on sub-national institutional development at the provincial or city levels where applicable. Proximity between the firms and that of the local institutional environment suggests the relatively higher impact of the latter on the firm's business activities and overall performance. Innovative firms thrive in a local environment where the formal institutional elements facilitate free market exchanges with minimal transaction costs, increased predictability or reduced uncertainty.

However, the current study's focus on two cities in a single country limits the generalisability of the findings. It is envisaged that a cross-country study of formal institutions at the sub-national level has a potential to shed more light on the stability of the measurement and structural models that were identified and examined in this study. Research in the near future should also consider a longitudinal research design to uncover variations in formal institutions, innovativeness and firm performance over time. Future studies may also be undertaken using triangulated data gathering methodology to supplement and enrich the results of current research. Studies may be designed using objective representations or proxy for formal institutions, innovativeness and performance. Studies exploring those much more firm-specific formal institutions in the context of North's view on institutions (1990) are interesting research worth the effort. An investigation of firm- or industry-specific formal institutions may shed more light on the role of institutions in entrepreneurial development in particular, and economic performance in general.

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