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THE VALUE OF EXPERIENCE

THE EFFECT OF MANAGERIAL EXPERIENCE ON
THE RELATIONSHIP BETWEEN
AGGLOMERATION AND FIRM INNOVATIVENESS

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Abstract

This master's thesis contributes to existing literature on agglomeration and firm innovativeness. Specifically, the extent to which managerial experience effects the relations between both urbanization and localization and firm innovation is examined. This study adds value to existing literature by conducting the research in South East Asia and including the moderating effect of managerial experience, as current literature on the subject is predominantly concentrated in developed economies or offer little to no specific tools which could be applied in practice. Firm-level data gathered by the World Bank Enterprise Survey is used to construct binary logistic regression models to subsequently test the drafted hypotheses. This study finds that urbanization has a positive effect on firm innovation, except for very high levels of managerial experience at which this effect turns negative. For localization the effects are the exact opposite; the effect is negative except at high levels of managerial experience.

Contents

1.	Introduction	4
1.1	Research problem and context.....	4
1.2	Research aim and research question.....	6
1.3	Relevance.....	6
1.3.1	Theoretical relevance	6
1.3.2	Practical relevance	7
1.4	Thesis outline.....	8
2.	Theoretical background	9
2.1	Innovative output	9
2.2	Regional characteristics	11
2.2.1	Urbanization.....	12
2.2.2	Localization.....	15
2.3	Managerial experience	17
2.4	Conceptual model.....	20
3.	Methodology	21
3.1	Sample and data collection	21
3.2	Dependent variable: A firm's innovative output	22
3.3	Independent variables	23
3.3.1	Urbanization.....	23
3.3.2	Localization.....	23
3.4	Moderating variable: Managerial experience	24
3.5	Control variables.....	24
3.5.1	Firm size	24
3.5.2	Firm age.....	24
3.5.3	Formal R&D activities	25
3.5.4	Formal training.....	25
3.5.5	Informal competition	25
3.5.6	Country	26
3.6	Reliability and validity	26
3.7	Method of analysis.....	26
3.8	Research ethics	27
4.	Results.....	28
4.1	Descriptive statistics and collinearity diagnostics.....	28
4.2	Assumptions	28
4.3.1	Logistic regression models	28
4.3.2	Adjusted and refined regression models	33
4.5	Robustness checks	36
5.	Discussion	37
5.1	Conclusion	37

5.2	Theoretical implications	38
5.3	Practical implications	40
5.4	Limitations and recommendations for future research	41
	References	43
	Appendices	47
Appendix 1.	Model fit	47
Appendix 2.	Bootstrapped models.....	48

1. Introduction

1.1 Research problem and context

Innovation is considered to be a crucial factor for firm survival and continuity. Firms operate in a dynamic environment that is characterized, among other things, by constantly changing market needs (Mintzberg, Ahlstrand, & Lampel, 2005). Firms are able to respond to this continuing change by being adaptable. The display of innovative behaviour by firms is an indicator of a firm being adaptable, which leads to the firm being viable and more likely to survive in a dynamic environment (Johnson, 2001). Innovation leads to adaptability because it renews the value of a firm's assets. Through innovation, perfect competition (in which there are no specific financial benefits or rent for a firm) can be avoided (Schumpeter, 1975). To sum it all up, innovative output is considered to be a source of competitive advantage (Barney, 1991).

Despite the fact that research on innovation often focuses on high-tech industries from Western economies, innovation is (also) crucial for firms in developing countries (Zanello, Fu, Mohnen, & Ventresca, 2016). The promotion of innovation in developing countries is slowly growing in popularity, which stems from scholars recognizing the necessity of going back to basic after reaching the limit of traditional economic Western policies. Liberalization, privatization and deregulation seem to have reached their limits, similar to policies that focus on modernization (Aubert, 2005). Therefore, a tendency grows in which scholars want to gain insight in the black box that drives innovation. Research on innovation in developing countries will provide more of such insight. For example, Zanello et al. (2016) state that low-income countries and firms can greatly benefit from making use of existing (domestic) knowledge combined with know-how from foreign countries. This is one of the reasons that this thesis concentrates on the innovative output of firms in developing countries.

Even though most researchers focus on firm-internal drivers of innovation, such as investments in research & development (R&D) or employee training, a firm's innovative output can (also) be influenced by characteristics of the region a firm is located in. In literature, several indicators for innovation are distinguished, of which a considerable amount are location specific factors (Sternberg & Arndt, 2001). For example, a firm located in urban regions (as opposed to rural regions) generally invests more of their R&D capacity in the development of new products or processes and thus has a higher probability of generating successful innovative output (Brouwer, Budil-Nadvornikova, & Kleinknecht, 1999). Therefore, the location a firm is located in matters for their innovative output. This research will zoom in on the level of urbanization and/or specialization of the region a firm is located in. Cities are often considered to be the heart of manufacturing and service industries, especially in terms of innovation and economic growth. There has been a discussion going on in literature for multiple years about whether it is advantageous for firms (and their innovative output) to settle in either a specialized or diverse area (Beaudry & Schifffauerova, 2009). A specialized area means that similar firms, operating in the same industry and having similar capabilities, locate themselves in the same area (which are also called clusters). A diverse area refers to a geographical location in which a large variety of types of firms are located (also known as urbanization).

Aside from the potentially positive effects attributed to the region a firm is located in, regional characteristics can be detrimental to a firm's innovative output. Marshall (1890) argues that concentration of an industry in one region (specialization) will lead to the transfer of useful knowledge between firms (both tacit and explicit) which can encourage innovation (knowledge spillovers). Next to that, skilled workers can be easily transferred across firms and business interactions will be more simple (Saxenian, 1996). These potential benefits can be detrimental to firms that do not know how to make proper use of them. In specialized regions, a high level of regional competition exists, internal processes can easily be imitated by firms within the same region and skilled workers can be bought by competitors, leaving the firm with a lack of employees (Marshall, 1890). Jacobs (1969) considers diversity of firms in a region (urbanization) to be crucial for innovation, because variety leads to a firm picking up new (innovative) ideas from other industries. Complementary knowledge between industries can be easily shared. On top of that, she believes that knowledge spillovers mostly occur from outside of the industry (as opposed to Marshall, who believes that the most important source of knowledge spillovers occur intra-industry) (Jacobs, 1969). Both specialization and diversification have its advantages and disadvantages. It is important to note that benefits following urbanization and specialization are not mutually exclusive (Beaudry & Schiffauerova, 2009). This means that a cluster can be located within an urbanised region and draw advantages of both.

Potential benefits as a result of urbanization or specialization of a region cannot be reaped by all firms. As previously described, characteristics of a region entail the potential of making use of certain benefits. Not all firms are actually capable of taking advantage of these potential benefits. There is a high level of risk involved, since both urbanization and specialization of regions bring along definite negative effects (which are independent of the conducts of the firm). Urbanization evidently occurs in large cities and generally comes along with high living costs, costs of congestion, and sudden cost hikes (Folta, Cooper, & Baik, 2006; Pouder & St. John, 1996). Specialization on the other hand, as previously mentioned, is accompanied with a high level of competition and a high risk of imitation of internal processes by competitors. The definite negative effects might outweigh the benefits of a region being urbanized or specialized if a firm does not know how to properly take advantage of these benefits.

Literature distinguishes several firm-level moderators that affect the relationship between regional characteristics and firm innovation. Such moderators can (for example) help firms take advantage of potential benefits following regional characteristics. A firm-level moderator that influences the aforementioned region-performance relationship is a firm's absorptive capacity, referring to the processes and routines firms have and use to acquire, transform, assimilate and exploit knowledge (Zahra & George, 2002). A high level of absorptive capacity can help firms benefit from knowledge spillovers more than their competitors. Moreover, firm size and a firm's internal knowledge base are found to influence the region-performance relationship (Knoben, Arikan, van Oort, & Raspe, 2016).

A point of critique on the aforementioned studies concerning firm-level moderators of the region-performance relationship is that they offer little to no specific tools which could be applied in practice. A

firm's internal knowledge base takes years to build, firm size cannot be simply increased and increasing absorptive capacity is a concept typically used in high-tech settings and quite abstract. Another relevant moderator of the region-performance relationship is managerial experience, as it might help a firm to reap the potential benefits of regional characteristics and therefore positively affect innovative firm behaviour. Over the course of their careers, managers experience a lot of different situations, resulting in an accumulation of knowledge and skills relevant for that particular industry (Weterings & Koster, 2007). A manager's experience has an influence on the ability to understand the current situation and recognize potential (innovative) opportunities. Developing new (inter-industry) ideas usually follows a path-dependent pattern, in which a manager's knowledge about the past can guide a manager to predict an industry's future dynamics (Kor & Sundaramurthy, 2009). As previously mentioned, a region being either specialized or diverse can be beneficial or detrimental for firms. To be able to cherry-pick the advantages and avoid the potential disadvantages, managerial experience is imperative. It could help a manager to understand and realize when a firm should move to a certain (different) region. Also, a moderating effect of managerial experience is practically relevant for firms, as they can easily decide to hire a more (or less) experienced manager to successfully take advantage of regional characteristics. Firms might therefore be able to increase their innovative output by altering their hiring policy of managers. The influence of managerial experience on the relationship between characteristics of a region and a firm's innovative output has, to my knowledge, not been researched before.

1.2 Research aim and research question

This master's thesis aims to contribute to the existing theory about potential factors affecting innovation by getting insight into the influence of regional characteristics on a firm's innovative output and to research if this relationship is moderated by managerial experience. The regional characteristics that will be explored are either the specialization or diversification of firms in a certain region.

This leads to the following research question: *'What are the effects of firms in a region being specialized or diverse on a firm's innovative output, and to what extent is this relationship moderated by managerial experience?'*

1.3 Relevance

1.3.1 Theoretical relevance

This research will make a large contribution to the existing cluster literature. As mentioned before, the negative effects of either specialization or urbanization are a given fact, they exist for all firms settled in that certain region. Only a number of firms accomplish to successfully take advantage of the potential benefits that clusters can offer. The exact capabilities that a firm requires to make use of these benefits are not fully known in literature. Scholars show that a firm is able to realize potential benefits to the level of them being able to use knowledge from other (similar) firms in the same region, combined with their internal knowledge assets (McCann & Folta, 2011). This phenomenon is described by Kogut and Zander (1992) as a firm's 'combinative capabilities'. Additionally, Arikan and Knoben (2014) mention that a firm's access to actually benefiting from clusters is dependent on, for example, a firm's awareness of the knowledge assets that exist within the cluster and/or a firm's allurements as a potential knowledge partner

to other firms. No clear overview or understanding exists of the indicators that make it possible for firms to make full use of the potential benefits of clusters. This study contributes to this literature by giving more substance to relevant factors affecting a firm's ability to reap these potential benefits.

Innovation in developing countries is an under-researched and under-theorized topic, even though scholarly works on innovation overall have been increasing. Current findings on innovation in developing countries have limited explanatory power, which does not fully provide an for understanding of the predictors and effects of innovative output by firms in these developing countries (Zoo, de Vries, & Lee, 2017). The reason behind this is that the majority of literature on innovation takes place in developed economies. Drawing the focus to developing countries is relevant for a better comprehension of innovation dynamics (Harmsen, Grunert, & Declerck, 2000). This is especially true since current literature on moderators influencing the agglomeration-innovation relationship, such as the absorptive capacity of firms, is a high-tech concept and therefore less applicable to the developing economy context. The notion of developing countries is especially relevant in terms of the moderating relationship of managerial experience, since managerial capital is usually missing or of a (much) lower level compared to developed countries due to overall education of the population (Bruhn, Karlan, & Schoar, 2010). Accordingly, this master's thesis draws attention to the development of the concept of innovation in developing countries.

Finally, it is noteworthy that in recent years, discussions on urbanization versus specialization (or diversification versus localization) have been on the political agenda at multiple levels of government of Western economies (Illy, Hornych, Schwartz, & Rosenfeld, 2009). This is not the case for developing countries, even though the results of the debate are just as relevant. This study aims to contribute to closing the theoretical gap between developed and developing countries in terms of this aforementioned debate. Moreover, several scholars consider managerial experience to affect firm behaviour in general (such as (Holmes & Schmitz Jr, 1996). However, the effect of - and the conceptual link between - a manager's experience and (the moderating effect on a firm's) innovative output is barely researched (Balsmeier & Czarnitzki, 2014). A small number of researches have been conducted on the topic of managerial experience affecting firm behaviour, and the majority of literature focusses on only one specific industry. This thesis focusses on the manufacturing- as well as the services industry in developing countries.

1.3.2 Practical relevance

It is important for managers to know in what way they can create and sustain competitive advantage and boost their firm performance through innovation. As stated before, innovation is crucial for firms to adapt to changing market needs and therefore survive in a dynamic market (Mintzberg et al., 2005). Innovation is an important source of competitive advantage which helps a firm to perform better than its competitors (Barney, 1991). Therefore, it is important to develop the practical understanding of how innovation can be stimulated. One of the key indicators of innovation are regional characteristics, such as the level of urbanization and/or specialization of a region. Such regional characteristics have static

disadvantages for firms located in that region. It is essential for managers to understand the full potential and possible dangers of a region to successfully take advantage of potential benefits of the region. To overcome issues of definite cons, a firm can decide to hire a more (or even less) experienced manager, or decide to move to another region if it suits the characteristics of the firm better. By doing this, managers can indirectly influence the success of their own firm's innovative behaviour.

For a manager to fully understand or predict whether their firm is located in the appropriate (best suiting) region, managerial experience is needed. A region can bring along advantages (such as knowledge spillovers) and disadvantages (e.g. competitors that imitate your processes). A manager with plenty of experience knows how to manoeuvre the firm to minimize certain disadvantages and take full use of potential advantages of a region. This can for example be done by understanding that a certain specialized region does not suit the firm because of the high level of competition, for which the firm does not have sufficient competitive advantages.

Additionally, there is a practical relevance for policy in the context of the stimulation of clusters. Groups of specialized enterprises together are called clusters. Clusters centralized in a certain location usually leads to better cooperation between these firms. It is believed that clusters are more effective and efficient than firms in a 'regular' area, but most importantly, more innovative (De Propris & Driffield, 2006). The stimulation of cluster-related policies can therefore lead to a higher level of innovation in a certain region, which improves competitive advantage and firm performance in a market. Contrarily, the stimulation of clusters could also lead to a decline of innovative output for firms that are not able to successfully take advantage and thus get stuck with the definite diseconomies of clusters.

1.4 Thesis outline

This thesis is structured as follows. Chapter two starts off by discussing the theoretical background of this research by including an overview of the used concepts drawn from literature. The chapter ends with a conceptual model. Chapter three entails the methodology of this research by incorporating an analysis of the sample and data collection, the variables used and the control variables that are taken into account. Furthermore, the fourth chapter evaluates on the data and results of this study. Eventually, the fifth and final chapter starts off with a conclusion and subsequently elaborates on the theoretical- and practical implications, the limitations to be kept in mind and mentions several recommendations for future research.

2. Theoretical background

The following chapter highlights relevant theoretical insights regarding the influence of urbanization and localization on innovation and the moderating effect of managerial experience on these relationships. First, the concept of innovation and innovative output is explicated, accompanied by an explanation of why innovation is relevant. Subsequently, two regional characteristics (being localization and urbanization) and the conceptual relationship with a firm's innovative output is described. Finally, the concept of managerial experience is characterized and the reason why managerial experience could influence the relationships between the two regional characteristics and a firm's innovative output is specified.

2.1 Innovative output

Innovation can be described as '*the generation, acceptance and implementation of new ideas, processes products or services*' (Thompson, 1965, p. 2). Most scholars portray something as being innovative as long as it is a new phenomenon to the people involved, which means that the imitation of a process from a competitor can also be considered as innovation (Van de Ven, 1986). Furthermore, innovation can be classified into a total of four main categories: product, process, marketing and organizational innovation (Boer & During, 2001; OECD/Eurostat, 2005). Product innovation is characterized as a new or significant improvement of a good or service, while process innovation depicts a new or significantly improved production- or delivery method. Marketing innovation is seen as a new or significantly improved marketing method (such as product promotion or placement), and organizational innovation entails the implementation of new business practices or workplace organizations (OECD/Eurostat, 2005). The definition for innovation used in this research encompasses all aforementioned definitions, as innovation is described as the introduction of a new or significantly improved product, service or process within a firm. Thus, imitation of a product, service or process from another firm is considered as innovative as well, as long as it is new to the firm itself. This broad definition is chosen to limit differences in what is perceived as being innovative.

The understanding of what is perceived as innovation can differ across contexts (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2011). A manager of a large multinational firm, working with a well-funded R&D department and located in a wealthy Western economy will definitely understand the concept of innovation differently than an entrepreneur running a farm in Kenya. Firms located in developing countries often have (for example) a technological lag compared to firms in developed countries. This means that in both contexts, different innovative output is generated, or similar innovative output is perceived differently. To be able to analyse differences in innovation, comparable data is crucial. Due to the differentiating interpretation of innovation, especially existent in developing countries, research is constrained because of the lack of comparable data (Cirera & Muzi, 2020).

Cirera and Muzi (2020) state that, partly due to a lack of comparable data in developing economies, studies concerning drivers of innovation are often held in developed countries. However, knowledge concerning innovation is (also) crucial for firms in developing countries for (among others) the same

reasons as stated in this paragraph. Despite the fact that research on innovation often focuses on high-tech industries from Western economies, developing countries are becoming progressively more important (Zanello et al., 2016). This popularity grows as scholars are slowly recognizing the necessity of going back to basic after reaching the limit of traditional economic Western policies. Liberalization, privatization and deregulation are seemingly reaching their limit of potential and the same applies to policies that focus on modernization (Aubert, 2005). Therefore, a tendency grows in which scholars want to gain insight in the black box that drives innovation. Research on innovation in developing countries will provide more of such insight. Also, developing countries are taking an increasingly large role in international business and politics, which attracts attention to firms in these countries (Lee & Oh, 2006). This is why several initiatives have started which are meant to support the innovative capabilities of developing countries (OECD, 2012; WHO, 2012). Innovation in developing countries is an under-researched topic. Current findings on innovation in developing countries have limited explanatory power and do not fully explain the predictors of innovative output by firms in developing countries (Zoo et al., 2017). The majority of innovation literature is performed in developed economies. Drawing the focus to developing countries is relevant for a better comprehension of innovation dynamics. Thus, this research will contribute to the development of the concept of innovation in developing countries.

Successful innovation is essential for all firms because of several reasons. First of all, a firm must (continue to) innovate in order to survive in a dynamic environment. As discussed before, innovation guides firms to successfully manoeuvre in a dynamic environment characterized by constantly changing market needs (Mintzberg et al., 2005). To keep up with the evolution of modern economy, knowledge assets are increasingly important to firms wanting to compete (Johnson, Neave, & Pazderka, 2002). Firms are required to find ways to cope with the continuing change in order to survive. A paramount way of responding to this change for a firm is being adaptable. A key indicator of being adaptable is the display of innovative behaviour, which therefore results in the firm becoming viable (Johnson, 2001). The reasoning behind innovation leading to adaptability for a firm is because innovation offers a fresh view on a firm's assets and thus leads to achieving a competitive advantage as a result of continuous innovation. A firm's ability to keep innovating their knowledge assets – as a dynamic capability – is crucial for a firm's future success (Martín-de Castro, Delgado-Verde, Navas-López, & Cruz-González, 2013).

A firm's ability to exploit certain innovative capabilities, measured by a firm's innovative output, is considered to be a crucial predictor of firm performance (Bettis & Hitt, 1995). In order to actually benefit from innovation, a firm's innovative practices must enhance their performance and thus improve their competitive position. Innovation can enhance firm performance by for example renewing and improving a firm's products and services or reducing internal processing costs. A number of studies has formerly confirmed the positive relationship between firm innovation and firm performance (Hitt, Hoskisson, & Kim, 1997; Roberts, 1999). The substantiation behind this relationship is conceptually simple to explain, for example in terms of product innovation. When innovative products get introduced to the market, they face little to no direct competition and there are high profits to be made in the early stage. However, this

quickly attracts competitors and lowers future potential profits, which may minimize the first mover advantage. Finally, studies show that innovation positively affects firm performance in both the manufacturing and the service industry (Prajogo, 2006; Salavou, 2002).

To sum it all up, innovative output is considered to be a source of competitive advantage (Barney, 1991). The resource-based view shows that the ability of a firm to innovate is intangible, valuable, rare, inimitable and non-substitutable, which can lead to a competitive advantage. The ability to innovate is therefore one of the most meaningful firm resources that can be exploited (De Gregori, 1987). Moreover, the resource-based view includes both external and internal capabilities, such as benefits coming from the region a firm is located in or a firm's managerial capabilities (Steinle & Schiele, 2008; Teece, Pisano, & Shuen, 1997).

2.2 Regional characteristics

Research shows that the ability of firms to innovate is closely related to the region a firm is located in. Innovation and innovative output can greatly differ between various regions (regardless of how innovation is measured). In some regions, the R&D budget of firms or the amount of patents requested is immense while in others there is little to no innovative output. This raises the interesting question of why these differences occur. Gössling and Rutten (2007) state that innovation can (among other factors) be affected by the characteristics of a region. The scholarly work of Gössling and Rutten (2007) builds on the foundation of the so-called 'innovative milieu approach', which acknowledges the fact that innovation is influenced by numerous factors (Moulaert & Sekia, 2003). One of these factors are location specific factors, which have a substantial influence on a firm's innovative output (Sternberg & Arndt, 2001). Location specific factors include variables such as (local) pools of highly qualified labour, the size of the economy in the region or the industry mix. Speldekamp, Knoblen, and Saka-Helmhout (2020) state that, even though current knowledge on the exact influence of external resources on clusters is limited, clusters are a locational factor that potentially enhances the innovation of firms. Moreover, Speldekamp, Saka-Helmhout, and Knoblen (2020) illustrate that potential benefits of clusters are visible in three dimensions: institutions (which influence firm strategies and capabilities), networks (through which knowledge is transmitted) and geography (geographic proximity leading to knowledge spillovers and/or gains in productivity). Therefore, the location a firm is located in matters for their innovative output.

There has been an ongoing discussion in literature for several years about whether it is advantageous for firms (in terms of innovation) to settle in either a specialized area or a diverse area (Beaudry & Schiffauerova, 2009). This discussion originates from research regarding agglomeration (also called clustering) of firms in a specific region. Agglomeration research shows that geographical concentration of economic activity results in collective resource pools, which can be shared by firms in that region. Nonetheless, not all firms in that region can access these resource pools, which leads to firms with access having a competitive advantage over their competitors who cannot access the resource pool (Appold, 1995; Knoblen et al., 2016). This means that certain firms in geographical agglomerations enjoy positive externalities just from being settled in that area. Frequently used dimensions to explain different

types of clusters are the level of diversification and urbanization of a region. In recent years, discussions on urbanization versus specialization (or diversification versus localization) have been on the political agenda of Western economies (Illy et al., 2009). This is not the case for developing countries, even though the results of the debate are just as relevant. Therefore, this research is concentrated on two specific regional characteristics, being the level of urbanization and specialization of the region a firm is located in.

2.2.1 Urbanization

Urbanization – referring to the shift of all types of firms from rural to urban areas - is described by Jacobs (1969, p. 59) as the '*sheer number and variety of division of labour within a region*'. Large cities, for instance New York or London, have a high level of urbanization. Cities are often considered to be the heart of manufacturing- and service industries, especially in terms of economic growth and innovation. This raises the important question if and why being located in an urban area positively influences firm performance? A large body of scholars has researched the effects of urbanization on firms. Positive influences of urbanization to a firm, also called 'urbanization economies' or 'positive externalities', are dependent on unique elements of individual phenomena and place-specific (urban) factors (Lorenzen & Frederiksen, 2008). Diversity of industry – meaning a large variety of types of firms located in the same area – can potentially lead to several benefits for firms located in that region. In total, five main mechanisms through which diversity positively influences innovativeness are distinguished in literature.

First, positive externalities in terms of working together with other firms exist. A range of different types of firms in the same region can lead to (occasional) collaboration between firms that usually do not collaborate with other parties (Lorenzen & Frederiksen, 2008). Such unprompted collaborations are especially useful in branches where innovativeness (and therefore the generating of new ideas or unique combinations of existing products) is crucial to gain an edge over competitors. Jacobs (1969) considers diversity of industry to be crucial for innovation, because variety leads to a firm picking up innovative ideas from other industries. Complementary knowledge between industries can be easily shared.

Second, positive effects due to urbanization occur in terms of knowledge spillovers. Jacobs (1969) believes that knowledge spillovers mostly occur from outside of the industry. This means that benefits can be reaped in terms of information and/or technology spillovers. However, operating in entirely different industries might make these spillovers costly as managers are not familiar with the proceedings of firms in the same region and large cognitive distances occur. Breschi, Lissoni, and Malerba (2003) mention that spillovers in areas with a high level of urbanization might only be beneficial for high-tech firms as knowledge-related information in these branches can be codified more easily than regular know-how. Shefer and Frenkel (1998) state that some firms might be in critical need of innovation to be able to survive and are actually willing to invest the necessary sum of money. Other positive externalities of a high level of urbanization entail the possibility of cheap use of abandoned city-buildings by emerging firms and the flow of capital from booming industries to industries that are in need of more capital (Lorenzen & Frederiksen, 2008).

Third, urbanization is associated with positive externalities in the labour market, especially concerning the diversity of available labour. Jacobs (1969) denotes that cities offer a variety of industry which leads to the overlapping of labour markets. A wide range of knowledge, ideas and skills are available to stimulate innovation for both emerging and incumbent firms in the area. This not only has its economic effects in the region, but knowledge, ideas and skills are also exchanged through social life (which ultimately benefits the industry) (Lorenzen & Frederiksen, 2008; Storper & Venables, 2004).

Fourth, urbanization is accompanied with a diverse supply of skills and ideas, which arises from the unique and large diversity of institutions (Lorenzen & Frederiksen, 2008). High-level educational institutions such as universities are generally located in urban areas (Andersson, Quigley, & Wilhelmsson, 2009). Working together with a university leads to the broadening and deepening of (new) knowledge and skills for firms, which ultimately leads to the stimulation of innovation. On top of that, universities have access to an international network which can be advantageous for partnered firms.

Finally, the fifth main positive effect occurs in terms of infrastructure, because cities generally offer a well maintained and coherent infrastructure. Cities are usually easily accessible through road, water, railway and/or air transport. On top of that, the infrastructure in cities is generally well-developed (van Oort, 2015). This, combined with the previously described presence of (global) institutions, serve as 'pipelines' to forward knowledge and ideas that can be adopted by firms to boost their innovative output (Bathelt, Malmberg, & Maskell, 2004). Besides, in most cities a culture persists in which people of multiple ethnicities (and their lifestyles) are tolerated and more housing opportunities are offered to a large number of people. This means that more people would feel welcomed and attracted to a city. Cities, as opposed to rural areas, are therefore able to attract more skilful and knowledgeable people from other regions in the world (Florida, 2003).

A high level of urbanization does not exclusively procreate benefits, it also creates negative effects for firms (also called 'diseconomies of agglomeration'). Research suggests that negative effects of urbanization are fixed/static, which means that they occur independent of the conducts of firms and other actors (Knoben et al., 2016). A common diseconomy of agglomeration in large, busy cities with a high level of urbanization are congestion costs, which increase as the size of a cluster increases (Prevezer, 1997). Congestion costs include higher charges for using infrastructure in cities, for example a higher bus or taxi fare, with the goal of reducing traffic congestion. Next to that, congestion costs include flow congestion, meaning that vehicles are delayed (traffic jams) and the increase in pollution as a result of forced speed reductions (Ranaiefar & Regan, 2011). Another influential diseconomy of agglomeration is that the average cost of living increases (Pouder & St. John, 1996). These diseconomies are costs that increase the financial cost of doing business. When general financial costs increase, less budget is available to spend on, for example, R&D. Raising general costs of doing business can (negatively) influence the innovativeness of firms.

The more urbanization of a region grows, the more intense regional competition for workers, land and certain utility services becomes (Folta et al., 2006). Agglomeration creates a continuing increase in demand, even though the supply barely changes. This leads to an increase in prices and shortages as firms compete for the same local resources (which in turn has an effect on local congestion). In large cities, for example New York or Hong Kong, real estate prices go through the roof. This makes it expensive to work or live in these cities, which requires a higher wage and thus increases labour costs.

The question that rises is whether it is advantageous for firms to locate themselves in regions with high levels of urbanization. Almeida and Kogut (1997) state that it only pays off for firms with sufficient (technological) opportunities for which the benefits actually outweigh the diseconomies of agglomeration. The boundary of when it might be advantageous is different for each firm. It is a challenge for firms to ensure that the definite diseconomies of agglomeration do not outweigh the benefits of urbanization.

Benefits and diseconomies of urbanization might express differently in a developing economy context. Positive externalities in terms of working together with other firms are expected to occur in developing countries as well, even though there are less businesses active in branches where innovativeness is key. After all, innovativeness is predominantly crucial in technologically advanced markets. The level of technology in developing economies is generally lower than in developed economies (Xiao, Tylecote, & Liu, 2013), which means that this externality will occur less in developing economies. Following the argument of Breschi, Lissoni and Malberba (2003) that mention spillovers in areas with a high level of urbanization might only be beneficial for high-tech firms, the potential advantages in terms of knowledge spillovers will be less likely to occur in developing economies (as opposed to developed economies). Moreover, an important side note with positive externalities in terms of the labour market is that these potential advantages may be (partly) limited by lower levels of skilled labour available (Pavcnik, 2003). This also increases the diseconomy of shortages and firms competing for the same (human) resources. Potential advantages in terms of institutions are also less likely to occur in developing countries, as their economies are generally associated with institutional instability (Kimenyi & Mbaku, 1993). Moreover, quality levels of universities in developing countries are (on average) lower than in developed countries (Lim, 1999). These two arguments contribute to the idea that positive externalities concerning institutions will be more relevant for developed economies.

The positive effects of urbanization on a firm's innovative output are therefore fully dependent on outside forces (e.g. managerial experience), while the negative aspects are definite. The effects that the level of urbanization exert on a firm's innovative output in a developing country context leads to the following hypothesis:

H1: 'The level of urbanization of a region has a negative effect on the innovative output of firms'

2.2.2. Localization

Localization (also known as specialization) refers to the fact that a specific industry in a city represents a large fraction of the city's employment (and thus a large fraction of the total industry in that city) (Glaeser, Kallal, Scheinkman, & Shleifer, 1992). This means that similar firms, operating in the same industry and having similar capabilities, locate themselves in the same area (which is also called clustering of industrial activity). Marshall (1890) was one of the first scholars to denote the idea of clustering economic activity (as opposed to diversification) is beneficial for firms for a number of reasons. In total, four main mechanisms through which specialization positively influences innovativeness are distinguished in literature.

First, specialization in a region results in (potential) collaborations and subsequently interdependencies between firms. These interdependencies can create mutual complementary value chains. This is due to the fact that firms have similar networks and it is therefore easy to set up a (stable) alliance or projects. As a result of having complementary or similar products/services, internal knowledge of firms is similar, and thus understandable for other firms. This makes it simple for firms to work together, communicate and collaborate when necessary, such as subcontracting work when a firm is overloaded (Henderson, 1991). Along those lines, positive externalities include the coordination of related useful knowledge and thus a high level of inter-industry flexibility. Complementary activities that firms are able to perform can lead to an increase in a firm's innovative output.

Second, positive externalities as a result of localization also include spillovers, usually referred to as dynamic externalities (Glaeser et al., 1992). Dynamic externalities occur in the form of knowledge or technology spillovers that are facilitated by the related internal knowledge bases of firms. Regional specialization makes it easier for firms to study and subsequently imitate their competitors, as a result of the firms operating in similar ways. It takes less proceedings to be able to understand the internal processes of competitors. These knowledge or technology spillovers typically boost incremental innovation (Lorenzen & Frederiksen, 2008). Also, Porter (2000) describes that in a specialized area, related firms compete to reach the exact same customer. This battle for customers among firms with similar products will make firms rearrange their internal assets and thus pump up their efficiency.

Third, positive externalities in specialized areas occur along the lines of the labour market. Related firms settling in the same geographical region results in specialization of the local labour market. Marshall (1890) concludes that local specialization often leads to an overflow of certain skills. These skills can subsequently be used and - most importantly - deepened by firms in need of this labour. Deepening of skills bring about new or different ideas of approaching work-related issues and thus result in a higher level of innovation. On top of that, the abundance of supply in qualified labour (meaning the quality of the workforce, not necessarily an abundance of staff numbers-wise) ensures high quality.

Fourth, locating related firms in the same area leads to benefits in terms of institutions. These appear because of formal institutions being able to tailor their services to the exact needs of the firms in the

area, since the services these firms require are coinciding. Similarly, educational (or other knowledge-related) institutions are able to further develop or deepen skillsets required within the specialized field (Lorenzen & Frederiksen, 2008). Informal institutions, languages, norms and values within the region will grow and evolve towards one universal matter, which in the future will smoothen transactions and stimulate knowledge or technology spillovers.

Similar to urbanization, specialization in a region is not exclusively advantageous for firms. Along the lines of disadvantages (or diseconomies), the same applies for localization as for urbanization: the negative effects are definite (Knoben et al., 2016). Therefore, firms need to make sure that the pros outweigh the cons.

One of the most pressing disadvantages of localization is the high level of regional competition (Marshall, 1890). As similar firms that operate within the same industry settle in the same region, one can imagine that the level of competition in that region is high. Competition can occur in terms of output markets, especially when the market is local. As the local number of consumers is limited, firms battle to reach the same consumers. Moreover, competition will occur in terms of input markets, as firms battle over the same resources they require. As one can imagine, firms operating in the same industry having similar products, will require similar resources. Simply put, twenty car manufacturers located in the same geographical area, will all need to buy wheels, engines and windows for their vehicles. As there is not an infinite supply of resources, firms have to fight each other for it. Firms competing against each other can lead to undesirable (or even detrimental) situations in which gaining an edge over competitors becomes more important than running a lucrative business. A high level of specialization can therefore result in decreasing the performance of firms in the area (Sorensen & Sorenson, 2003). If competitors gain a competitive advantage over a firm, the firm will accordingly be forced out of the area or will become unprofitable.

Michael (1999) mentions that the transfer of (especially tacit) knowledge is difficult. In a situation where transfer of knowledge is difficult, imitation of this knowledge will be challenging as well. As firms in the region all have comparable internal know-how, the transfer (and therefore the imitation) of knowledge is made simpler. It takes less actions for a firm to be able to interpret the knowledge or processes of other firms. This ensures that imitation is a real threat in specialized areas. Next to that, the fact there is a high level of local competition also leads to the diseconomy of firms competing for qualified employees. There are only a limited number of qualified workers available, which leads to driving up the wages and a struggle between firms to employ the right people (Marshall, 1890). This might leave firms with a lack of employees, as skilled people might be bought away by competitors.

The agglomeration of related firms eventually causes saturation of the market (Sohn, 2004). The demand in that region will simply be filled, resulting in there being no more room for other competitors in the market. There is only a limited number of spots available before the market reaches its full potential. Finally, the saturation of the market will lead to smaller profits, as the fierce level of competition

forces the prices plummet. Again, firms that are not able to (fully) reap the potential benefits of localization, will struggle to keep their head above water in this competitive landscape and will not be able to cope with the lower pricing (Staber, 1998).

Benefits and diseconomies of localization might materialize differently in a developing economy context. Building on the argument by Breschi et al. (2003) that spillovers are easier for high-tech firms as knowledge-related information in these branches can be codified more easily than regular know-how, one can predict that the externality of knowledge spillovers will occur less in developing economies, as they are (generally) technologically less advanced. Advantages in terms of the abundance of qualified labour might be less extant in labour markets of developing economies, as the general level of qualified labour is lower when compared to developed economies (Pavcnik, 2003). Moreover, developing economies are associated with institutional instability and a lower level of institutional quality, which can detract value from the (potential) positive externalities in terms of institutions (Kimenyi & Mbaku, 1993). The struggle of firms competing for qualified employees is expected to be even harder in developing economies due to the lower overall supply of qualified employees. Finally, the diseconomy of market saturation would presumably take a longer time to reach than in developed countries, as their markets are generally less advanced. For example, one can imagine that every household in a developed country owns a car and a fridge (and thus these markets are saturated), but this is less true in a developing economy. The same rationale applies to (for example) the agricultural market: there is more process to be made in developing economies, so reaching saturation will take a longer time (Barrett & Mutambatsere, 2008).

The pressing question is (again) whether it is advantageous for firms to locate themselves in regions with high levels of specialization. It is a challenge for firms to ensure that the definite diseconomies do not outweigh the benefits of urbanization. Positive effects of specialization on a firm's innovative output are dependent on outside forces (e.g. managerial experience), while negative aspects are definite. The previously described rationale leads to the formulation of the following hypothesis:

H2: 'The level of specialization of a region has a negative effect on the innovative output of firms'

2.3 Managerial experience

Potential benefits as a result of urbanization or specialization of a region cannot be reaped by all firms. The definite negative effects might outweigh the benefits of a region if a firm does not know how to successfully take advantage of these potential benefits. One of the factors that could help a firm to enforce potential benefits is managerial experience. The concept of managerial experience can best be described as follows. Over the course of their careers, managers experience a substantial amount of particular situations. The experience on how to handle certain situations results in the accumulation of knowledge and skills that are relevant to deal with certain bearings in their particular industry (Weterings & Koster, 2007). A manager's experience has a compelling influence on the ability to understand the current situation of a firm and, more importantly, recognize potential (innovative) opportunities.

Developing innovative ideas usually follows a path-dependent pattern, in which a manager's knowledge about the past can help a manager to predict an industry's future dynamics (Kor & Sundaramurthy, 2009).

Managerial experience can help firms move towards a situation in which they recognize potential advantages and successfully reap regional benefits. The accumulated experience of managers build a knowledge base which can be consulted to anticipate and act on given situations. Former research confirms that experienced managers have better insights into threats and opportunities (Shane, 2000), but also into new markets, technologies or products (Helfat & Lieberman, 2002). To be able to reap potential benefits, managerial experience is imperative as it helps a manager to understand and realize if certain advantages are achievable for their firm, how to enforce these benefits and/or when it is wise to move and settle in another region if the region is not (and will never be) advantageous to the firm. It is noteworthy that the effect of managerial experience is especially interesting in a developing country context, since managerial capital is usually missing or of a (much) lower level compared to developed countries due to overall education of the population (Bruhn et al., 2010).

Managerial experience can contribute to a firm being able to actually take advantage of potential benefits of urbanization and/or specialization. The following paragraphs will illustrate in what ways managerial experience can help firms reap potential advantages.

First, to start off with urbanization, one of the key (potential) positive externalities is the collaboration between firms that usually do not collaborate with each other, which subsequently stimulates generating new ideas (Lorenzen & Frederiksen, 2008). A high level of managerial experience can help a firm recognize opportunities concerning partnering up with a company that, upon first glance, does not seem like the obvious candidate (Min et al., 2005). This is because of the built up knowledge base, as previously described. Experienced managers are more likely to recognize such opportunities, as they have more experience from similar situations and know what a viable partner looks like. A qualified manager can subsequently leverage and exploit these opportunities as they have been in comparable situations before, and learned how to act on them. Similarly, the knowledge base and network of an experienced manager can simplify setting up a partnership with a university, which leads to the broadening and deepening of (new) knowledge.

Second, Jacobs (1969) argues that knowledge spillovers mostly occur from outside of the industry. However, operating in different industries might make these spillovers costly (as managers are not familiar with the proceedings of other firms). A manager having a large amount of experience within the area, knows its surroundings (and corresponding industries) better, which reduces transaction costs when attempting to make use of knowledge or technology spillovers. Moreover, a result of urbanization is there being a wide range of knowledge, ideas and skills available to stimulate innovation for both emerging and incumbent firms in the area. Managerial experience helps to employ the perfect person

for the job, as research has shown that experienced managers are less biased (in terms of gender and/or attractiveness) during the hiring process (Marlowe, Schneider, & Nelson, 1996).

Now, when looking at specialization, a large advantage is firms having similar internal knowledge, which stimulates the creation of complementary value chains and collaboration (Henderson, 1991). As previously described, experienced managers recognize the potential to be able to fully benefit from certain partnerships, and even know which to avoid. Positive externalities as a result of localization also include dynamic externalities. Dynamic externalities occur in the form of knowledge or technology spillovers that are facilitated by the related internal knowledge bases of firms (Glaeser et al., 1992). Managerial expertise smoothens the exchange of knowledge or technology between firms, and even makes it easier for firms to study and subsequently imitate their competitors

Second, one of the most pressing disadvantages of specialization is the high level of regional competition (Marshall, 1890). Nonetheless, managerial expertise can help gain a competitive advantage over other firms in the area, which will force others to move or become unprofitable (Sorensen & Sorenson, 2003). Another diseconomy of specialization is the threat of imitation by competitors. Research has shown that managerial expertise can restrict (knowledge or technology) spillovers and therefore enhance a firm's competitiveness (Kleynhans, 2016).

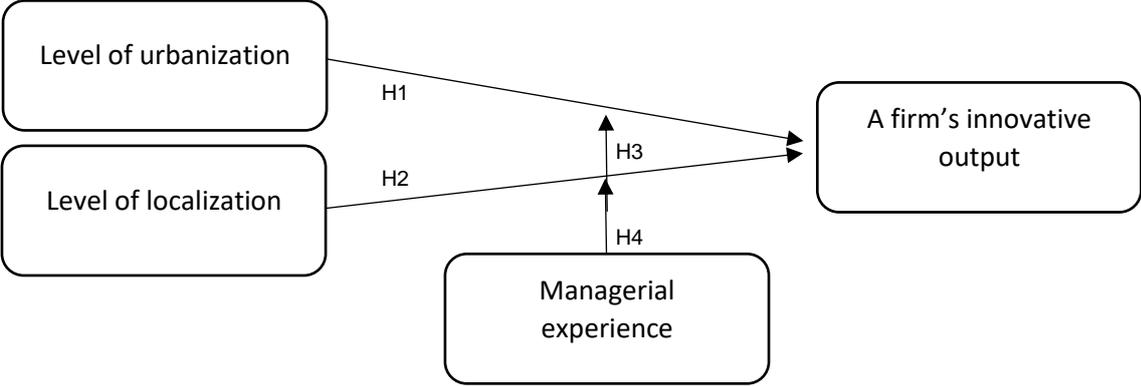
Finally, it is important to note that managerial experience is especially relevant in developing countries, as these countries regularly have a less developed institutional environment (when compared to developed economies). Scholars suggest that managerial experience increases available knowledge in terms of institutions, which subsequently reduces uncertainty the firm endures. In turn, this leads to anticipations performed by the manager (and therefore the firm) being more realistic and accurate (Chetty, Eriksson, & Lindbergh, 2006; Penrose, 2009).

Following the narrative that managerial experience can help a manager to identify and enforce potential benefits that exist in the region as a result of urbanization and/or localization, the following hypotheses are formulated:

H3: 'The relationship between the level of urbanization and a firm's innovative output is positively moderated by a high level of managerial experience'.

H4: 'The relationship between the level of specialization and a firm's innovative output is positively moderated by a high level of managerial experience'.

2.4 Conceptual model



3. Methodology

The following chapter presents the sample criteria, method of data collection and the contents of the data. Furthermore, derived variables from the dataset are explicated (including control variables that are taken into account as co-variates), followed by an estimation of the reliability and validity of this research. Finally, an elaboration of the exact method of analysis follows, concluding with a statement about research ethics.

3.1 Sample and data collection

In line with the aforementioned, this research uses samples from developing countries.

As previously discussed, the understanding of what is perceived as innovation can differ across contexts (Ayyagari et al., 2011). Due to the differentiating interpretation of innovation, especially existent in developing countries, previous research is constrained because of the lack of comparable data (Cirera & Muzi, 2020). To prevent interpretation issues of the concept of innovation, the need exists to select a group of similar countries. Culture and economies in neighbouring countries are more likely to be similar as opposed to countries halfway across the world. This is especially true in modern Asia. Asian countries used to be distant from their close neighbours in terms of culture, as these countries focused on their historical connection with colonial empires or Western countries instead. This is now changing in most of Asia, since large (metropolitan) cities are accepting the 'Made in Asia' culture (Becker, Egger, & Seidel, 2009). This means that inhabitants are starting to accept products, films, music and other cultural aspects from their own (and neighbouring) countries. The distance gap between Asian countries and their neighbours is closing, while the gap with Western countries might increase. Therefore, this study minimizes potential differences in interpretation of the concept of innovation by narrowing the scope of this research down to culturally adjacent countries. This limits potential mismeasurement issues.

This master's thesis will focus especially on South-East Asia. The economy of South-East Asia has miraculously grown over the last decade, even compared to the rest of Asia, and is expected to grow even further (Booth, 1999). The massive economic growth attracts scholarly attention to explain the rationale behind this growth. The potential of countries in South-East Asia can (among others) be noted in the amount of foreign direct investments (FDI's) being made by large firms in these countries. According to the United Nations Conference on Trade and Development (UNCTD, 2019), developing countries in South-East Asia received a total of over \$500 billion in FDI's. The annual growth in gross domestic product (GDP) is another indicator of economic growth. The two top South-Asian countries in terms of GDP growth in 2017-2018 were Cambodia and Vietnam. This thesis will therefore focus on these two fastest growing countries to subsequently try and explain the drivers in terms of regional characteristics behind innovation (and therefore firm performance) in these countries. To possibly explain the distinction between the differences in recent growth of South-East Asian countries, this thesis will also focus on Timor-Leste and Thailand, being the two least growing countries (included in the ES) in terms of recent GDP growth (World Bank, 2018). By increasing the scope of this research to both the most and least growing countries (in terms of GDP) in the same region, it is ensured that the potential

effects of a region being specialized or diverse are not merely relevant for fast (or slow) growing countries. Thus, a distinction can be made if the results are similar in fast- and slowly growing economies.

As previously noted, it is important to narrow the scope of the research down to culturally adjacent countries to limit mismeasurement issues. The aforementioned countries have similar backgrounds in being subjected to dictatorial regimes and/or having a colonial past. Vietnam was colonised by France in the late 18th century, which led to the country being a protectorate of the French until 1945. After the country was declared independent, it has fought wars with Cambodia, China and the United States. Cambodia was also colonised and became a protectorate of the French in the 19th century, until the country was declared independent in 1953. After independence, Cambodia got involved in the Vietnam-war. Timor-Leste was colonised by Portugal in the early 18th century and declared independent in 1975. After this declaration of independence, the country waged a war (and lost) against Indonesia, making the country subjected to a dictatorial regime of Indonesian general Soeharto until 2002. Thailand is the only South-Asian country that has never been colonised by a European country. However, after a Siamese coup in 1932, the country struggled under military rule until 1973. To sum it all up, these four countries are only recently (fully) independent and out-of-war, after which large economic growth has followed.

To be able to test the previously described hypotheses and finally answer the central research question, data from the World Bank's Enterprise Survey (ES) is used. The Enterprise Survey is a firm-level survey which covers a large range of topics concerning business environments (e.g. corruption, finance, crime, competition, performance and infrastructure). The scope of the ES (and also this research) involves the manufacturing, retail and service sector. The World Bank is experienced in conducting surveys, as different units started surveys back in the 1990's, but since 2005 data collections take place in a centralized unit. Their surveys are conducted by making use of stratified random sampling with a large number of respondents, which ensures that the population is properly represented. The ES is answered by top managers and business owners through face-to-face interviews across nearly all countries in the world. Surveys are collected through private contractors hired by the World Bank. This safeguards that firms provide honest answers (to for example sensitive subjects such as bribery and corruption), which they would not give to governmental institutions. Relevant for this research, the ES contains top managers and business owners from 373 firms in Cambodia, 996 firms in Vietnam, 126 firms in Timor-Leste and 1,000 firms in Thailand. This geographical unbalance occurs due to the World Bank interviewing typically 1200 respondents in larger economies, around 360 in medium-sized economies and about 150 in small economies.

3.2 Dependent variable: A firm's innovative output

In this research, a firm's innovative output is measured in terms of product/service innovation as well as process innovation. The ES asks respondents if the firm has introduced new or significantly improved products or services during the last three years (indicated as question h1 in the survey). Moreover, the survey questions if the firm, over the course of the last three years, has introduced any new or

significantly improved process (including methods of manufacturing, logistics, delivery or supporting activities, indicated as question h3). A combination of the answers to these two variables is used in measuring the existence of innovative output. The two dimensions together construct the compound variable of innovative output of firms in this research. A dummy variable will be used to reflect this compound construct of innovative output, in which a value of '1' means the firm has introduced a new or significantly improved product, service or process, and a value of '0' meaning the firm has not. Creating a measurement of innovation by dummifying the collected answers to the Enterprise Survey is a theoretically grounded way to measure innovative output (e.g. (Ayyagari et al., 2011; Barasa, Knoben, Vermeulen, Kimuyu, & Kinyanjui, 2017). Missing values, for this variable and all other included variables, are omitted from the database to prevent bias in the model. Throughout the entire dataset, a total of 372 respondents have been deleted from the dataset as a result of missing values.

3.3 Independent variables

3.3.1 Urbanization

The concept of urbanization consists of several general measures, such as the availability of (hard and soft) infrastructure and the access to (local) markets. Making use of such general measures can lead to (also) capturing '*offsetting congestion diseconomies*' (e.g. traffic or pollution) in the data used, which could disrupt the quality of the results (Renski, 2011, p. 481). To avoid such issues, a proxy is used to be able to correctly reflect the concept of urbanization. Since urbanization can be described as the '*sheer number and variety of division of labour within a region*' (Jacobs, 1969, p. 59), a variable included in the ES (indicated as a3) measuring the size of the locality is used to indicate the level of urbanization. This variable is divided into four categories: cities with a population of over 1 million, between 250.000 and 1 million, between 50.000 and 250.000 and the final category of less than 50.000 inhabitants. This measure gives an indication if a firm is indeed located in an urbanized area (large cities). This variable has been recoded with the original values mirrored, meaning that a value of 1 refers to a population of less than 50.000 inhabitants, a value of two entails a population between 50.000 and 250.000, three meaning a population between 250.000 and 1 million and the fourth and final value referring to cities with a population of over 1 million.

3.3.2 Localization

Localization, referring to the fact that an industry in a city represents a large fraction of the city's employment (Glaeser et al., 1992), will be measured by looking at the location quotient of the region the respondent is located in. A location quotient, representing '*the fraction of industry employment in a region relative to the national share*' is the most frequently used measure for the level of localization in a region (Beaudry & Schiffauerova, 2009, p. 12). Due to the fact that Timor Leste only has one actual region, this research will use a combined average of the included country's national shares. To measure industry activity, the industry sampling sector variable from the ES is used (indicated as a4a). This variable groups the respondents in a certain sector, over a total of about 25 sectors. The survey clarifies in what industry the respondent firms are operating (question a4a), in what region they are located (question a3a), how many firms are located in that region and how many employees these firms have

(question I1). Using this data, a multiplication can be made, which leads to constructing a regional-specialization measure specified per industry in a certain region. This is subsequently used to indicate the fraction of industry employment in a region, relative to the combined average of the national shares.

3.4 Moderating variable: Managerial experience

Managerial experience is, in accordance with Ayyagari et al. (2011) and Barasa et al. (2017), measured by looking at the number of years the top manager is working in the firm's sector. The Enterprise Survey asks respondents to state the number of years they have experience of working in the sector of the firm (indicated as question b7). This measure of managerial experience will be taken into account as a continuous variable. A limitation to be kept in mind regarding this measure is that it is sector-specific, which makes it more relevant for localization (and less for urbanization). The ES does not ask for overall experience of the manager, which would be relevant for urbanization. As this variable in the dataset was skewed to the right, it has been log-transformed to (approximately) conform to normality.

3.5 Control variables

3.5.1 Firm size

Studies have shown that a positive effect exists between firm size and innovation (Jiménez-Jiménez & Sanz-Valle, 2011). This effect also holds up in the context of developing economies (Kumar & Saqib, 1996). Medium-sized or larger firms (indicated, in accordance with the ES, as firms with between 20 and 99 respectively 100 or more employees) tend to have a higher innovative output when compared to smaller firms (therefore firms that have less than 20 employees) (Ayyagari et al., 2011). This is explained due to larger firms usually possessing more resources, which enable them to scale their innovation practices (along with their production and sales). To prevent data from being dominated by exclusively small or larger firms, the data will be controlled for firm size. Moreover, including firm size as a control variable will ensure that the effects of the dependent variables on the independent variable are not disturbed by the relationship between firm size and innovation. Firm size will be measured by using the number of permanent full time workers in the firm (question I1 in the ES). This method of measuring firm size has been previously used in research by (among others) Barasa et al. (2017). This variable has been log-transformed to (approximately) conform to normality, as the data concerning this variable in the Enterprise Survey was right-skewed.

3.5.2 Firm age

This study controls for firm age of the respondent firms. Huergo and Jaumandreu (2004) show that younger or entrant firms present the highest level of innovative output while older firms show a low level of innovative output. Previous research also shows that younger firms are also more likely to take risk and introduce new processes or products to the market (Ayyagari et al., 2011). Older firms are less flexible and more inert than younger firms. To prevent the results of innovative output being (predominantly) determined or influenced by the age of the respondent firms, firm age is taken into account as a control variable. The ES asks respondents in which year their firm was established (question b5). The control variable of firm age is constructed by subtracting the year of establishment

from the current year (2020). The data of this constructed variable were right-skewed and therefore the variable is log-transformed to conform to normality.

3.5.3 Formal R&D activities

Research indicates that investments in formal R&D activities are a driver of innovative performance and growth (Pessoa, 2007). Additionally, formal R&D activities are important in sustaining competitiveness and future upgrades in (for example) technology (Wignaraja, 2012). Investments in formal R&D typically have positive effects on a firm's ability to generate (and process) knowledge, which has a substantial impact on their innovation output (Cohen & Levinthal, 1989). To control for the innovative output of firms generated by their investments in formal R&D activities, this is taken into account as a control variable. The ES asks respondents if, during the last three years, the establishment has spent on formal R&D activities (question h7). A dummy variable of this question is created, with a value of '1' meaning that the firm has invested in formal R&D activities, and a value of '0' referring to firms that have not.

3.5.4 Formal training

Formal training of employees can play a crucial role in terms of the development of knowledge and skill among employees (Blundell, Dearden, Meghir, & Sianesi, 1999). The skills learned from formal training lead to the promotion of inter- and intra-organisation learning and enhanced innovative performance (Leiponen, 2005). Moreover, formal training programmes that are introduced to smoothen the introduction of a new product or process have extensive positive effects on the eventual innovative capabilities of this new product or process (Michaelis & Markham, 2017). To prevent the main- and moderating effects of this study being influenced by a firm's investments in formal training, this is taken into account as a control variable. De ES asks respondents whether the firm has invested in formal training programmes for permanent, full-time employees in the last fiscal year (question l10). A dummy variable for this question has been created, with a value of '1' referring to the fact that a firm has indeed made use of formal training programmes, and a value of '0' when a firm has not.

3.5.5 Informal competition

A higher level of competitiveness within a market leads to a higher the level of efficiency between firms (Nickell, 1996). Efficiency leads to firms being able to enhance their innovative performance. Informal competition or unregistered competitors hinder efficiency, as it might drive firms to engage in inefficient situations. For example, firms might feel forced to lower their prices to match their informal competitor's. These inefficient practices lead to firms being less able to improve their innovative performance. To prevent the results of the effects on innovative output included in this research being influenced by informal competition of the respondents, informal competition is taken into account as a control variable. The Enterprise Survey asks respondents whether the establishments competes against unregistered or informal firms (question e11). A dummy variable of this question is created, with a value of '1' referring to firms that have to deal with informal or unregistered competition, and a value of '0' meaning these firms have not.

3.5.6 Country

There are a large number of ways that the four countries in the database can differ. Differences between countries entail a large number of possibilities, such as history, culture, religion, quality of institutions or corruption. It is important to control for these country differences, so the results remain unaltered when dealing with differences between countries as the results are not determined by country differences. As this research only incorporates the data of four countries, this study is limited in being able to control for deeper diversity between countries and thus incorporates a control variable for all country differences. To be able to do this, a dummy variable for the corresponding countries is created. Vietnam is used as the reference category, meaning that firms that are located in Cambodia, Timor-Leste or Thailand will be marked with a value of '1', and firms in Vietnam will receive a value of '0'.

3.6 Reliability and validity

The reliability of this research (indirectly) leans on the reliability safeguards included in the World Bank's Enterprise Survey. The World Bank uses several quality control measures that are undertaken when conducting the surveys. These measures include the extensive recruitment programme and training of the survey personnel, pre-testing and piloting the survey and incorporating internally developed fieldwork- and interview manuals for conducting the survey. The World Bank contracts researchers and local bureaus to conduct the surveys for them, to ensure reliable and honest answers. Moreover, IT-specialists and statisticians ensure that the data entry confirms to certain validation checks.

To ensure internal validity, this research uses, as previously explained, similar methods of measurement as other scholars (e.g. Ayyagari et al. (2011), Barasa et al. (2017)). This ensures the fact that content- and criterion validity is preserved. Also, this research founds constructs in accordance with founded measurement methods from the Enterprise Survey, which monitors the construct validity.

External validity indicates if the results are generalizable from the sample to the population. Data from the Enterprise Survey is generally considered to be generalizable for a couple of reasons. It uses stratified sampling (which gives all members of the population an equal chance of being selected), which includes small, medium and large firms. Also, the survey interviews managers across all sectors and geographic regions within a country. Finally, the survey interviews the same firms over a timespan of multiple years. A limitation of this study is that the sample is directed at South-East Asia, which means that the results will not be generalizable outside of this area. Another limitation is the fact that the survey in each country is deducted in a different year (2016 for Cambodia, 2014-2016 for Vietnam, 2015-2016 for Timor-Leste and 2015-2016 for Thailand). As the timespans are very close to each other, this limitation is expected to have little impact.

3.7 Method of analysis

This research aims to determine and/or explain a total of four relationships. In the data, there are two metric independent variables (urbanization and localization) and one metric independent variable (being firm's innovative output after dummification) which are all chosen from a theoretical standpoint. This

means that the (previously described) hypotheses can be tested by making use of logistic regression analysis (Hair, Black, Babin, Anderson, & Tatham, 1998). Logistic regression analysis is a technique that indicates the linear dependency between variables, after which the impact of (a) certain variable(s) can be forecasted. The (potentially) moderating effect of managerial experience will subsequently be incorporated into the formula, which leads to the following logistic regression equation:

$$Y = \beta_0 + \beta_1 \text{URB}_i + \beta_2 \text{LOC}_i + \beta_3 \text{MAN}_i + \beta_4 \text{XURB}_i \text{MAN}_i + \beta_5 \text{XLOC}_i \text{MAN}_i + \beta_6 \text{SIZE}_i + \beta_7 \text{AGE}_i + \beta_8 \text{RD}_i + \beta_9 \text{I_COMP}_i + \beta_{10} \text{TRAIN}_i + \beta_{11} \text{COUN}_i + \varepsilon_i$$

The Y represents value of the dependent variable (a firm's innovative output). β_0 refers to the intercept of the equation and β_1 to β_{11} represent the coefficients. The variables adopted in this research are shortened in the equation. This means that URB stands for urbanization, LOC means localization, MAN refers to managerial experience, SIZE meaning firm size, AGE stands for firm age, RD referring to formal R&D practices, I_COMP meaning informal competition, TRAIN referring to formal training and finally COUN refers to country differences. As can be derived from the equation, the control variables are taken into account as co-variables for the logistic regression analysis (to minimize potential bias). Last but not least, the ε is the random error component and the i refers to a specific observation of the variable.

3.8 Research ethics

First of all, I would like to state that I apprehend and respect the intellectual property rights of scholars and therefore strictly follow the American Psychological Association (APA) Ethics Code. This means (among other things) that I will not commit plagiarism of any kind and always correctly refer to used sources. For this research, data from the World Bank's Enterprise Survey is used. The used data has been legally downloaded and received from the database of the World Bank, and is not (unethically) altered or manipulated afterwards. The ethical conceptions made by the World Bank when conducting their surveys are therefore (also) applicable to this research. As a researcher I have a transparent attitude and every step I take is founded by theoretical reasoning. Moreover, I am open to criticism and gained knowledge is shared within the relevant research field.

4. Results

This chapter starts off by giving an overview of the descriptive statistics of the variables included in this research. Furthermore, the first regression models are portrayed which are subsequently used to provide answers to the hypotheses. These regression models are then refined/adjusted to ensure the reliability of the estimates. Finally, several robustness checks are performed to safeguard that the provided answers are not sensitive to minor changes made to the variables included in the models.

4.1 Descriptive statistics and collinearity diagnostics

In the table below, the descriptive statistics of the variables incorporated in the logistic regression models are portrayed (table 1). As previously noted, several variables have been log-transformed as they were right-skewed. The pairwise (bivariate) correlations shown in this table do not raise concern in terms of collinearity issues since the correlations among the independent variables are relatively low and do not exceed the threshold of .7.

Table 1. Descriptive statistics and collinearity diagnostics

Variable	Mean	SD	Minimum	Maximum	1	2	3	4	5	6	7	8
1. Urbanization	3.42	0.95	1.00	4.00	1							
2. Localization	2.24	4.37	0.01	79.03	-0.03	1						
3. Managerial experience*	2.75	0.62	0.00	4.25	.173**	-.111**	1					
4. Firm size*	1.52	0.63	0.48	4.23	-0.01	-0.01	.177**	1				
5. Firm age*	2.90	0.44	1.79	4.77	.071**	-.050*	.550**	.199**	1			
6. Formal R&D activities	0.13	0.34	0.00	1.00	.056*	-0.02	0.029	.189**	-0.01	1		
7. Informal competition	0.42	0.49	0.00	1.00	.054*	.078**	-.178**	-.101**	-.132**	.093**	1	
8. Formal training	0.28	0.45	0.00	1.00	.101**	-0.02	.084**	.363**	.149**	.184**	0.029	1

*this variable has been log-transformed

*p<.05, **p<0.01.

4.2 Assumptions

To be able to run a binary logistic regression, several assumptions have to be met. First, the dependent variable (being a firm's innovative output) is binary, which makes a logistic regression suitable. Second, observations in the dataset are independent and therefore not a product of (for example) repeated measurement methods. Third, logistic regression can only be used when little multicollinearity exists among the independent variables. The VIF values of the variables included in the dataset are below the threshold of 10, meaning this assumption has been met. Fourth, the continuous variables are tested to check whether a linear relationship with the log of a firm's innovative output exists. This is tested by including the interactions between the predictor and the log of this predictor into the model. The interaction terms between the log of the predictors and the predictors themselves show no significant effect, meaning all required assumptions for a binary logistic regression have been met.

4.3.1 Logistic regression models

A total of three models are included in the logistic regression. The first model includes the control variables and the interaction variable that are taken into account (firm size, firm age, formal R&D, informal competition, formal training, country differences and managerial experience). The second

model incorporates the main effects of urbanization and localization while the third and final model adds the interaction effects of localization and urbanization with managerial experience as a moderator.

Each of the three constructed models are statistically significant ($p < .01$), indicating an excellent model fit (as shown in appendix 1). The chi-square, and more importantly the difference in chi-square value between the three models, portray if it makes sense to include the main- and/or the interaction effects in the model. The 'block' of increase in chi-square from model one to model two is significant ($p < 0.01$), meaning it is useful to incorporate the main effects of localization and urbanization into the model. Moreover, the increase in chi-square for model three is also significant ($p < 0.01$), indicating that the interaction effects with managerial experience should be incorporated into the model as well. Overall, the third and final model explains the most amount of variance in a firm's innovative output and therefore this is the most appropriate model to estimate the value of a firm's innovative output.

In this research, a significant effect exists with an alpha of 10%. This level of significance is used because for urbanization, all firms within the same region are assigned the same score. For localization, all firms within a certain region are awarded the same score. Strictly speaking, this results in the observations being not fully independent of each other. Correcting for this dependence would lead to a higher significance of the (interaction-) effects measured and therefore¹, instead of correcting, an alpha of .1 is used.

Table 2. Binary logistic regression models of a firm's innovative output

Variable	Model 1		Model 2		Model 3	
Control variables						
Firm size	0.11	(0.09)	0.175*	(0.10)	0.16	(0.10)
Firm age	-0.04	(0.15)	-0.03	(0.16)	-0.03	(0.16)
Formal R&D activities	2.13***	(0.17)	2.13***	(0.17)	2.12***	(0.17)
Informal competition	0.64***	(0.12)	0.58***	(0.12)	0.58***	(0.12)
Formal training	0.62***	(0.13)	0.58***	(0.13)	0.58***	(0.14)
Country (Dummy Cambodia)	-0.08	(0.16)	0.14	(0.17)	0.22	(0.17)
Country (Dummy Timor-Leste)	0.17	(0.28)	0.77**	(0.31)	0.79**	(0.33)
Country (Dummy Thailand)	-1.47***	(0.15)	-1.44***	(0.15)	-1.41***	(0.15)
Managerial experience	0.17	(0.11)	0.11	(0.11)	2.04***	(0.46)
Main effects						
Urbanization			0.26***	(0.06)	1.81***	(0.34)
Localization			-0.07***	(0.02)	-0.19**	(0.08)
Interaction effects						
Urbanization x Managerial experience					-0.57***	(0.12)
Localization x Managerial experience					0.05*	(0.03)

¹ The fact that correcting for dependence issues within the variables of localization and urbanization would lead to a higher significance of these effects is based on more advanced statistical analyses performed by the first supervisor.

Observations	2123	2123	2123
Constant	-1.77	-2.52	-7.69
Log likelihood	2019.61	1985.99	1954.79

Standard errors in parentheses.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The results of the first binary logistic regression are included in Table 2. As previously described, the focus of this research will mainly be on the third model. This model reveals that the majority of the control variables have a significant effect on the dependent variable within the model. The main effects, being urbanization and localization, both have a significant effect ($p < 0.01$ respectively $p < 0.05$) on a firm's innovative output. Moreover, the interaction effect with urbanization and managerial experience is also (highly) significant and the other interaction effect between localization and managerial experience is (also) found to be significant ($p < 0.1$). The produced data from the binary logistic regression makes it possible to assess the formulated hypotheses.

H1: 'The level of urbanization of a region has a negative effect on the innovative output of firms'

The first hypothesis predicts a significant effect between the level of urbanization within a region and a firm's innovative output. Contrary to the first hypothesis, the results show a relatively large positive significant effect of urbanization ($p < 0.01$ with a beta value of 1.81). The positive main effect of urbanization means that differentiation of industry within a certain region with a high population has a beneficial effect on firm innovation. There are no empirical findings to support the first hypothesis.

H2: 'The level of specialization of a region has a negative effect on the innovative output of firms'

The second hypothesis suggests a negative significant relationship between the level of specialization (or localization) within a region and a firm's innovative output exists. In accordance with this hypothesis, the results show a significant relationship ($p < 0.05$) with a negative beta value of -0.19 , meaning empirical support for the second hypothesis is found. This indicates that clustering of firms that operate within the same industry in one geographical location does negatively influences firm innovation.

H3: 'The relationship between the level of urbanization and a firm's innovative output is positively moderated by a high level of managerial experience'

The third hypothesis claims a positive moderation effect of the interaction between the level of urbanization and managerial experience exists. However, the results show that a negative moderation effect exists ($p < 0.01$) with a beta value of -0.57 . No empirical support is found for this hypothesis and therefore it is rejected.

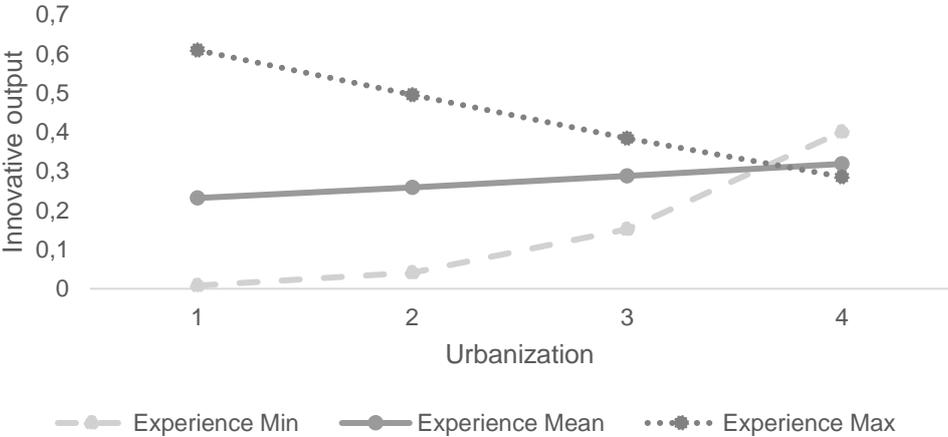
The results can be interpreted as follows. Urbanization has a positive main effect (which means differentiation of industry within a certain region has a beneficial effect on firm innovation) while the interaction term with managerial experience is negative. As previously stated, the measurement of managerial experience is the amount of years the top manager works in that particular sector. Especially in large (urbanized) cities, a manager could greatly benefit of having knowledge of different sectors as this helps in foreseeing certain collaborations or opportunities outside of their own industry. Managers

working in the exact same sector for a longer period of time could result in them becoming blind to opportunities that occur outside of that given sector and therefore become unable to make optimal use of a promising urbanized environment. Such tunnel vision of managers might be detrimental to a firm’s innovative output.

An interesting question rises along these lines: at what point does the effect of urbanization transition from a positive to a negative effect? Firms might be interested in how many years of experience it would potentially take for their manager to become ‘too specialized’, meaning he or she creates some kind of tunnel vision and does not recognize opportunities from outside the sector anymore.

The graph below shows three levels of managerial experience plotted against the four levels of urbanization (with a value of one referring to a small city in terms of population and a value of 4 referring to a large city) and the likelihood of a firm being innovative.² This figure shows that a firm located in a rural, less populated area with low managerial experience has a likelihood of being innovative near zero. On the contrary, a high level of managerial experience in such an area leads to a likelihood of innovation of above .6. This shows that in less urbanized areas, managerial experience has a huge influence on firm innovation.

Graph 1. The interaction effect of urbanization and managerial experience



However, in larger cities (and therefore highly urbanized areas), the level of managerial experience is (almost) irrelevant. The likelihood of innovative output is similar for minimal and maximal managerial experience. This means that when a firm hires a completely inexperienced manager, their location (being either highly urbanized or not) is of great importance. Firms located in urbanized areas can hire an inexperienced manager with minimal impact on innovation, while hiring an inexperienced manager can be detrimental for firms located in rural (less urbanized) areas. Moreover, the data shows that a total of 28% of all observations are above the point of transition. This point of transition occurs at

² As explained in paragraph 4.3.2., several refinements have been made to the models to safeguard the quality of the results. It is noteworthy that the refined models are used as input for Graph 1 (and Graph 2).

approximately 22 years of managerial experience. This indicates that the positive effect of urbanization shifts to being negative after 22 years of managerial experience. This is quite an experienced manager.

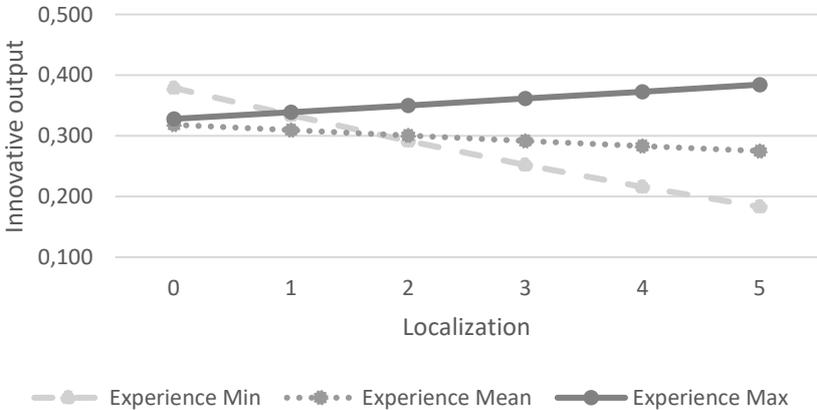
H4: ‘The relationship between the level of specialization and a firm’s innovative output is positively moderated by a high level of managerial experience’

The fourth hypothesis expects the relationship between the level of specialization and a firm’s innovative output to be positively moderated by managerial experience. In accordance with this hypothesis, a significant positive moderation effect is found ($p < 0.1$), with a beta value of 0.05. This means that empirical support is found to support the fourth hypothesis.

Localization has a negative main effect on firm innovation and a positive interaction term with managerial experience. This indicates that clustering of firms within the same industry in one geographical location does not positively influence firm innovation by itself. However, having an experienced manager (within that sector) on board could shift this effect from being negative to positive. An experienced manager presumably has learned the ability to see opportunity in an environment that is based around their expertise and is therefore able to gain competitive advantage more easily. Moreover, firms in highly specialized areas cope with a high level of competition and the risk of imitation by competitors. More experienced managers might be knowledgeable in terms of how to deal with these threats. A high level of managerial experience smoothens the exchange of knowledge or technology between firms, and even makes it easier for firms to study and subsequently imitate their competitors. Also, managerial experience makes it easier to recognize potential partnerships and know which to avoid.

Again, it is interesting to (approximately) know how many years of experience a manager requires within a sector to benefit off of their firm being located in a highly specialized area. Graph 2 shows the interaction effect of managerial experience on the relationship between localization and firm innovation. The measure of localization in this graph is limited to 5 (instead of the actual value of 10) because 95% of all observations take place within these bounds.³

Graph 2. The interaction effect of localization and managerial experience



³ Again, the refined models from paragraph 4.3.2. are used as input for Graph 2.

The graph above portrays the fact that for an area with a low level of localization (and therefore diversity of industry), the level of managerial experience does not make a large difference. The values of firm innovation for the three incorporated levels of managerial experience are very similar. However, the more specialized a region becomes, the higher the effect of managerial experience. A high level of managerial experience increases the effect of localization, while a low level of experience decreases the effect of localization. Additionally, the results show that (only) 10% of the observations are measured above the point of transition. This point occurs at the high level of approximately 29 years of managerial experience. When a manager generally reaches the level of 29 years of managerial experience, the negative effect of localization shifts to being positive.

4.3.2 Adjusted and refined regression models

Two large refinements could be made to the previously used regression models. First of all, the variable of urbanization was taken into account as a 'regular' variable with four possible values (1 to 4). Doing this assumes that distance between the values of urbanization have meaning and a hierarchical ranking exists: an increase of the value of urbanization of 1 actually means an increase of the effect of urbanization by 1. In the adjusted and refined regression models (as portrayed in Table 3), urbanization is incorporated as a categorical variable with four levels. Each level is then compared to a reference category and the interaction terms are taken into account three separate times. By incorporating urbanization as a categorical variable, more in-depth interpretations of the effect of urbanization (and the interaction effects) can be made. A specification of the effects of the control variables is not incorporated in this table (and therefore Model 1 is excluded) since the numbers have barely changed when compared to the previous results.

Table 4. First refined logistic regression models of a firm's innovative output

Variable	Model 2		Model 3	
Main effects				
Urbanization				
Urbanization (1)	0.85***	(0.32)	0.86	(1.77)
Urbanization (2)	1.29***	(0.29)	3.67**	(1.58)
Urbanization (3)	1.07***	(0.22)	5.13***	(1.46)
Localization	-0.08***	(0.46)	-0.18**	(0.09)
Interaction effects				
Urbanization x Managerial experience				
Urbanization (1) x Managerial experience			0.11	(0.64)
Urbanization (2) x Managerial experience			-0.89	(0.56)
Urbanization (3) x Managerial experience			-1.49***	(0.52)
Localization x Managerial experience			0.04	(0.03)
Observations	2123		2123	
Constant	-2.52		-5.55	
Log likelihood	1976.99		1942.56	

Standard errors in parentheses.

*p<.1, **p<0.05, ***p<0.01.

Second, it is important to note that the variable of localization is based on the fraction of industry employment in a region relative to the combined average of the four included country's national shares. This leads to the variable being asymmetrical. A value of one would mean that the industry employment in a region is exactly equal to the combined national share. Any values that are less than average are between 0 and 1, but every value above average (and therefore above a value of 1) increase exponentially (with outliers in the dataset up to values of 79). Such outliers might have a major negative effect on the estimates and the outcome of the logistic regression. Due to these reasons, all values of localization above 10 has been computed to be equal to 10 in order to stabilize the variable. The logistic regression will therefore have a better understanding of how an increase of localization actually works out.

The results of the binary logistic regression are shown in Table 5. The overall structure of the models has not changed. Again, a specification of the effects of the control variables is not incorporated in this table (and therefore Model 1 is excluded) since the numbers have barely changed when compared to the previous results.

Table 5. Second refined logistic regression models of a firm's innovative output

Variable	Model 2		Model 3	
Main effects				
Urbanization				
Urbanization (1)	0.87***	(0.32)	0.93	(1.77)
Urbanization (2)	1.29***	(0.29)	3.81**	(1.58)
Urbanization (3)	1.07***	(0.22)	5.18***	(1.46)
Localization	-0.10***	(0.03)	-0.30**	(0.12)
Interaction effects				
Urbanization x Managerial experience				
Urbanization (1) x Managerial experience			0.09	(0.64)
Urbanization (2) x Managerial experience			-0.93*	(0.56)
Urbanization (3) x Managerial experience			-1.51***	(0.52)
Localization x Managerial experience			0.08*	(0.05)
Observations	2123		2123	
Constant	-2.52		-5.43	
Log likelihood	1982.64		1946.78	

Standard errors in parentheses.

*p<.1, **p<0.05, ***p<0.01.

The adjusted models bring (slight) changes to the quality of the model. The new models with the refinements included provide small differences to the answers of the hypotheses.

The first hypothesis, expecting a direct and negative significant effect on the innovative output of firms, remains (largely) untrue. Most levels of urbanization show a positive effect with relatively high beta values (and therefore effect strength). Only the second level of urbanization, referring to cities with a population between 50.000 and 250.000, does not show a significant effect. Empirical support can (still)

be found for the second hypothesis, suggesting a negative effect of localization on a firm’s innovative output. The results show a positive and significant effect ($p < 0.05$ and a beta value of -0.296). It is important to note that the beta value of this effect has largely increased when compared to the previous regression models due to the localization data being recoded.

The third hypothesis, assuming the relationship between urbanization and firm innovation to be positively moderated by managerial experience, differs per category/level of urbanization. The second level of urbanization, referring to cities with a population between 50.000 and 250.000, shows a positive interaction effect (with a beta of 0.09). The other two levels, referring to cities with a population of over 250.000, indicate a negative interaction effect with managerial experience (with beta values of -0.93 and -1.51). Moreover, it is important to note that only the third level of urbanization actually shows a significant effect ($p < 0.01$). The fourth hypothesis was supported in the previous models and is also supported in the refined models. The interaction effect between localization and managerial experience is found to be positive ($p < 0.1$ with a beta of 0.08).

The interpretation of the results remains similar. The effect of urbanization on firm innovation still has a positive effect. The interaction effect of urbanization with managerial experience is still negative for two levels and positive for the second level (referring to a population of 50.000 to 250.000). This can be interpreted that for regions with less population density, the moderating effect of managerial experience results is positive. In areas with a higher population, the results remain unchanged when compared to the previous models. In the previous models, localization had a negative main effect on firm innovation and a positive interaction term with managerial experience. This remains unaltered after the refinements made to the model.

Finally, taking everything together, the quality of the used models can be assessed. As portrayed in table 6 below, the final refined model predicts and assigns data correctly nearly 80% of the time.

Table 6. Classification table of model predictions and observations

		Predicted		
		No innovative output	Innovative output	Correct
Observed	No innovative output	1420	84	94.40%
	Innovative output	357	262	42.30%
	Overall percentage			79.20%

The table portrayed above indicates that the model tends to underestimate a firm’s innovative output. The model incorrectly predicted there to be no innovative output in 357 cases. Mistakes in terms of underestimation (predicting there to be no innovative output while there actually is) are more likely made by this model than overestimation errors (predicting there to be innovative output while there is none). The dissonance in terms of predicted and observed values as shown above is interesting. Since most of the used literature in this research has a Western origin, this might indicate that different indicators of firm innovation exist in non-Western context.

4.5 Robustness checks

Several robustness checks have already been taken into account, such as the inclusion of multiple control variables, the incorporation of urbanization as a categorical variable and the transformation of the localization variable for high outliers. To rule out any (extra) uncertainty concerning the robustness of the estimates, bootstrapping methods can be used. The same regression models as before have been run again, except now with bootstrapping methods included. The purpose of bootstrap sampling is to estimate the standard error (and confidence intervals) more accurately. Bootstrapping does this by randomly selected subsets from the database to emulate completely random sampling from this population. The results of the bootstrapped logistic regression (as shown in appendix 2) give nearly the exact same results as before. Therefore, the conclusion can be drawn that the results of the logistic regression are not sensitive to small changes made to the data and/or the variables.

5. Discussion

This final chapter aims to explore and reflect on the research question formulated in the introduction of this research. Possible explanations for the found results deducted from literature are given in order to correctly provide an answer to the research question at hand. Moreover, this section will review the theoretical and managerial implications of this study. Finally, several limitations are discussed and suggestions for future research are portrayed.

5.1 Conclusion

As discussed extensively already, innovation is a crucial factor for firm continuity as it is considered to be a source of competitive advantage (Barney, 1991). A firm's innovative output can be influenced by characteristics of the region a firm is located in (Sternberg & Arndt, 2001). This research focuses on the level of urbanization and/or specialization of the region a firm is located in. There has been a discussion going on in literature for multiple years about whether it is advantageous for firms (and their innovative output) to settle in either a specialized area or a diverse area. There are several firm-level moderators that might influence the region-performance relationship. One that is a specific tool relevant to practice is managerial experience, as it might help a firm to reap the potential benefits of regional characteristics and therefore positively affect innovative firm behaviour. These reasons constitute the inducement for this research.

The goal of this research is to contribute to existing theory about potential factors affecting firm innovative output by getting insight into the influence of urbanization and localization on a firm's innovative output and to research if this relationship is moderated by managerial experience. To pursue this goal, the following research question was formulated: *'What are the effects of firms in a region being specialized or diverse on a firm's innovative output, and to what extent is this relationship moderated by managerial experience?'* As has been done by the hypotheses mentioned before, the research question can be divided into four sub questions.

The first (sub)question to be answered is whether a relationship exists between urbanization in a region and the innovative output of firms. Contrary to the first hypothesis, the results (of both the initial and the refined models) show a positive effect of urbanization on firm innovation. This positive effect indicates that differentiation of industry within a certain region has a beneficial effect on firm innovation. It shows that benefits and diseconomies of urbanization do not express that differently in a developing country context. Positive externalities of urbanization, such as collaboration with other firms, knowledge spillovers and labour market benefits (also) occur in developing economies. Moreover, the diseconomies of urbanization in developing countries, such as potential shortages and firms competing for the same (human) resources within an area, are not magnified or much larger in scale than in developed countries.

The second relevant (sub)question is if a relationship exists between localization in a region and firm innovation. In accordance with the second hypothesis, the results show a negative relationship. This indicates that clustering of firms that operate within the same industry in one geographical location

generally influences firm innovation negatively. What this actually means is that (in accordance with the hypothesis) the benefits of localization, such as knowledge spillovers, abundance of qualified labour and quality of institutions, occur less in developing economies. Moreover, fixed diseconomies of localization, like market saturation and the struggle for qualified employees, appear larger in developing countries.

Third, the question rises whether the relationship between urbanization and innovative output is moderated by managerial experience. Contrary to the third hypothesis, the results show a negative moderation effect and therefore the hypothesis is rejected. It is important to note that the level of managerial experience is especially interesting in non-urbanized areas and is almost irrelevant in cities with a large population. Firms located in urbanized areas can hire an inexperienced manager and it would have minimal impact on innovation, however this would be detrimental to firms located in less urbanized regions. This negative moderation effect occurs because apparently the expected positive effects of managerial experience, such as the recognition and leveraging of collaboration opportunities, having a large network and the reduction of transaction cost, do not occur as expected or do not outweigh the disadvantages. This is a result of the measurement of managerial experience being the total of years the top manager works in that particular sector. The potential benefits of managerial experience do not occur because working in the exact same sector for a longer period of time results in the manager becoming blind to opportunities that occur outside of that given sector and therefore become unable to make optimal use of a promising urbanized environment. Such tunnel vision of managers is apparently detrimental to a firm's innovative output.

Fourth and final, an answer should be formulated to the question whether the relationship between specialization and innovative output is moderated by managerial experience. In accordance with the fourth hypothesis, a significant positive moderation effect is found which means that it is empirically supported. Managerial experience can shift the initial negative relationship between localization and firm innovation to a positive relationship. This is a result of several factors, among which the stimulation of complementary value chains and collaboration and the smoothening knowledge spillovers (Glaeser et al., 1992; Henderson, 1991). An experienced manager obtained the ability to recognize and enforce opportunities in their environment to gain competitive advantage. Additionally, firms in highly specialized areas cope with a high level of competition and the risk of imitation by competitors. Experienced managers are knowledgeable in terms of how to deal with these threats and might even make it easier to imitate their competitors.

5.2 Theoretical implications

The small amount of existing literature on innovation in developing economies predominantly have limited explanatory power and do not grasp the full range of potential predictors and effects of firm innovation relevant for their economies (Zoo et al., 2017). This paper draws the focus to a South-East Asian (and therefore non-Western) perspective in order to provide a better comprehension of the dynamics behind firm innovation. Moreover, this shift in perspective is crucial as some developing countries, especially those in South-East Asia, have experienced tremendous growth and are becoming

more relevant in the international market (Lee & Oh, 2006). Moreover, it helps to gain insight into the supposed black box that drives innovation (Aubert, 2005). This research also offers insight whether previously confirmed drivers of firm innovation in developed economy context are similar in developing economies. The results indicate that urbanization and localization are (also) drivers of innovation that exist in developing countries. However, as mentioned in paragraph 4.3.1, the underestimation errors of the used models indicate that different indicators of firm innovation might exist in this context that were not included in the model. For example, recent literature states that the quality of formal- and informal institutions is important when considering innovativeness of clusters (Speldekamp, Knobens, et al., 2020). The aforementioned study was held in Europe and therefore in a developed economy context, which makes it interesting to see whether this is also the case in developing economies. Besides, Van Uden, Knobens, and Vermeulen (2014) note that employee schooling and employee slack time might be relevant indicators of firm innovation in developing countries.

Along the same lines, literature on the moderating effects of managerial experience on the agglomeration-innovation relationship is slim, especially in the context of developing countries. By drawing attention to the concept of managerial experience, the development of the full concept of firm innovation in developing economy context is broadened. Furthermore, specific knowledge about the moderating effect on drivers of innovative output is barely researched (Balsmeier & Czarnitzki, 2014). The existing research on this topic generally focuses on one specific industry. This topic contributes by literature by concentrating on the manufacturing- as well as the services industry in developing countries.

Another theoretical contribution is made in terms of closing the theoretical gap between developed and developing countries. In recent years, discussions on either urbanization or specialization have solely been on the political agenda of developed countries, even though the results of such debates would be just as relevant for developing countries (Illy et al., 2009). This research shows that certain effects of urbanization and specialization that have been established in literature for developed countries, and therefore the benefits and drawbacks that they carry, partly hold up in developing economy context. The results of this study indicate that the effects of localization are almost always negative and shift from being negative to positive at quite a really high level of managerial experience (about 29 years). On the other hand, urbanization mostly entails a positive effect and shifts to negative after approximately 22 years of managerial experience. This does not seem to be consistent with the scholarly belief and practical results in Western economics. For example, the movie production industry in Hollywood, computer software- and chip production in Silicon Valley and London's financial sector are all cases of successfully implemented specialized clusters in Western economies. The results of this research indicate that the positive and successful effects of localization on firm innovativeness that are proven to work in Western context, do not fully hold up in developing economies. Thus, in developing countries, diversity of industry generally produces positive effects for firm innovation more often than specialization.

As cluster literature indicates that negative effects of agglomeration are a given, only selected firms are able to successfully take advantage of benefits agglomeration can offer. This research shows that managerial experience is a capability relevant for firms to realize potential benefits of localization. Sufficient managerial experience (about 29 years' worth) can make the negative effect of localization shift to being positive. Also, a large amount of managerial experience (22 years) shifts the positive main effect of urbanization to being negative. This builds on the knowledge by McCann and Folta (2011) who show that a firm is able to realize potential benefits to the level of them being able to use knowledge from other (similar) firms in the same region, combined with their internal knowledge assets. Managerial experience aids in the ability to transfer knowledge and therefore use knowledge from other firms in the region. Additionally, Arian and Knoblenz (2014) mention that a firm's access to benefiting from clusters is dependent on a firm's awareness of the knowledge assets that exist within the cluster and/or a firm's allurements as a potential knowledge partner to other firms. Managerial experience is a tool that helps to recognize such assets or potential partners. Thus, this research builds on this existing knowledge and provides a better understanding of the indicators that make it possible for firms to make full use of the potential benefits of clusters. Theoretical implications include that managerial experience is a tool for firms to successfully smoothen knowledge transitions or recognize potential partners. However, for urbanization, this level of managerial experience can become too high and thus managers become too specialized, leading to tunnel vision and blindness for opportunity.

5.3 Practical implications

Innovation is a crucial source of competitive advantage which helps a firm to perform better than its competitors (Barney, 1991). For firms, it is important to have a full understanding of how firm innovation can be stimulated through, for example, characteristics of the region a firm is located in. This research shows that urbanization has a positive effect on firm innovation and localization entails a negative effect. As moving to another region might be costly for firms, a more practical way of affecting the agglomeration-innovation relationship is managerial experience. Firms can easily hire a more (or less) experienced manager in order to (indirectly) influence the success of their innovative output.

This research clearly shows that having an experienced manager on board shifts the negative effect of localization to a positive effect. On the other hand, managerial experience can change the positive effect of urbanization into a negative effect, especially in areas with less population density. This gives companies guidance in what they could or should do in order to improve their innovative performance. A firm can decide to hire a more experienced manager when they are situated in a rural area to be able to improve firm innovation, or even decide to cut costs and fire an experienced manager when located in a highly urbanized area which therefore has minimal impact on innovation. For localization, firms now realize that when located in a largely specialized area, investing in experienced managers is very effective.

Finally, practical relevance of this study entails a contribution to cluster policies. As previously discussed, it is believed that clusters are more effective and efficient than firms in a 'regular' area, but most

importantly, more innovative (De Propris & Driffield, 2006). This research definitely shows that, within a developing country context, the stimulation of clusters by itself does not lead to a higher level of innovation in a certain region, and therefore will not improve competitive advantage and firm performance in a market. Instead, diversity of industry improves innovative output. However, this could (again) be influenced by the level of managerial experience. Young managers with a lack of experience are recommended to start a firm in urbanized areas. In such areas, the level of managerial experience has minimal impact on firm innovation. Contrarily, managers with a high amount of experience should establish their firm in specialized areas. In specialized regions, the level of managerial experience has a huge influence on firm innovation. Firms that are struggling with their innovative capabilities and wish to change this through hiring a manager, now know that they should adapt their hiring policy dependent on their location. If the firm is located in a highly urbanized area, managerial experience does not have a large effect. If the firm is located in a highly specialized area, they should look for a well experienced manager.

5.4 Limitations and recommendations for future research

The results of this research should be interpreted with several limitations kept in mind. First of all, the models used in this research show underestimation of firm innovation. This underestimation shows that there are factors influencing firm innovation that are not currently included in this research design. As previously discussed, different indicators of firm innovation could exist in developing economy contexts. It is important to note that this research was reliant on data of the World Bank Enterprise Survey and therefore this research is limited to constructs included in that survey. Moreover, the measurement of managerial experience in the ES is sector specific as it asks for the amount of years a manager works in a particular sector. The ES does not question overall experience of a manager. This makes the measure of managerial experience more relevant for localization (and thus less for urbanization). As the results show, overall experience is more relevant for urbanization as this might help a manager to recognize opportunities from other sectors. A second limitation arises concerning the measurement of localization. The most frequently used measure for localization within a region is '*the fraction of industry employment in a region relative to the national share*' (Beaudry & Schiffauerova, 2009, p. 12). As this research relies on data from the World Bank, in which Timor Leste has only one region, this measurement is not possible. Instead, a combined average of the included country's national shares is used.

Furthermore, this study has a sample of (only) four countries located in South-East Asia which should be taken into account in terms of generalizability. Generalizability does not necessarily stretch much further beyond the borders of South-East Asia, as specifically this region was chosen because of cultural proximity and large recent economic growth. The results of this research might differ in developing countries from other continents or parts of Asia. Moreover, due to a lack of available data, this study does not include all countries located in South-East Asia. Another limitation is the fact that the survey in each country is deducted in a different year (2016 for Cambodia, 2014-2016 for Vietnam, 2015-2016 for Timor-Leste and 2015-2016 for Thailand). As the timespans are very close to each other, the impact of

this limitation is expected to be little. Finally, a relatively high alpha of 10% is used to determine whether a significant effect exists. This higher level is chosen since for the measurement of urbanization, all firms located within a certain region are assigned the exact same score. Also, for localization, firms within a certain region are awarded the same score. This results in the observations not being fully independent of each other. The output of the logistic regression has not been corrected for this dependence. However, correcting it would lead to a higher significance output of the (interaction-)effects measured. To correct for dependence issues, a higher alpha level is chosen.

In addition to the previously mentioned limitations, several recommendations for future research are left to be discussed. As this master's thesis only focusses on South-East Asia and most current literature is concentrated in developed economies, future researchers should expand their scope to other parts of Asia or developing economies in other continents. By doing this, it could be established whether similar effects of agglomeration on firm innovation exist throughout different countries and cultures. This also counts for the concept of managerial experience. As previously mentioned, the level of managerial experience in developing countries is generally (much) lower than in developed countries. The effects of managerial experience should be tested in developing countries under different contexts. Most importantly, the models used in this research tend to incorrectly underestimate firm innovation. This indicates that different indicators or moderators might exist in this context. Future researchers should explore the possibility of the existence of other factors influencing firm innovation in developing economies. This research was limited to the contents of the ES and therefore such currently unknown factors are not checked. Future researchers could conduct follow-up surveys and/or interviews with managers from the same firms or regions to check whether other factors play a role in determining firm innovation.

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Appendices

Appendix 1. Model fit

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	543.060	9	.000
	Block	543.060	9	.000
	Model	543.060	9	.000

Model 1

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 2	Step	33.622	2	.000
	Block	33.622	2	.000
	Model	576.682	11	.000

Model 2

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 3	Step	31.196	2	.000
	Block	31.196	2	.000
	Model	607.879	13	.000

Model 3

Appendix 2. Bootstrapped models

Variables in the Equation

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a						
SIZE_LG	.177	.097	3.316	1	.069	1.193
Firm age log transform	-.013	.158	.006	1	.937	.988
Dummy of formal R&D investment	2.066	.173	142.863	1	.000	7.892
Dummy of informal competition	.566	.121	22.079	1	.000	1.762
Dummy of formal training	.575	.135	18.094	1	.000	1.777
Managerial Experience	1.177	.510	5.330	1	.021	3.245
Dummy van Cambodia	-.032	.191	.028	1	.866	.968
Dummy van Timor Leste	.572	.348	2.706	1	.100	1.771
Dummy van Thailand	-1.648	.173	90.464	1	.000	.192
Level of urbanization			28.060	3	.000	
Level of urbanization(1)	.931	1.768	.277	1	.598	2.537
Level of urbanization(2)	3.807	1.583	5.779	1	.016	45.003
Level of urbanization(3)	5.184	1.460	12.612	1	.000	178.414
Localization transformed assymetric	-.296	.124	5.663	1	.017	.744
Managerial Experience * Level of urbanization			25.170	3	.000	
Managerial Experience by Level of urbanization(1)	.085	.640	.018	1	.894	1.089
Managerial Experience by Level of urbanization(2)	-.930	.561	2.754	1	.097	.394
Managerial Experience by Level of urbanization(3)	-1.510	.517	8.539	1	.003	.221
Localization transformed assymetric by Managerial Experience	.080	.046	3.021	1	.082	1.083
Constant	-5.434	1.463	13.808	1	.000	.004

a. Variable(s) entered on step 1: SIZE_LG, Firm age log transform, Dummy of formal R&D investment, Dummy of informal competition, Dummy of formal training, Managerial Experience, Dummy van Cambodia, Dummy van Timor Leste, Dummy van Thailand, Level of urbanization, Localization transformed assymmetric, Managerial Experience * Level of urbanization , Localization transformed assymmetric * Managerial Experience .

Table 1