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Red Tape to Red Carpet: An analysis on the business
environment for Micro, Small, and Medium
Enterprises after Republic Act No. 11032

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The views stated in this thesis are those of the author and not necessarily those of the supervisor, second assessor, Erasmus School of Economics or Erasmus University Rotterdam.

Abstract

In this thesis, we explore the effect of Republic Act No. 11032 on the business environment for Micro, Small, and Medium Enterprises (MSMEs) in the Philippines up until 2021. The Act aims to decrease corruption and Red Tape whilst improving government efficiency. We review past relevant research, which helps us formulate three guiding hypotheses. Through linear regression, we find that a decrease in corruption is correlated with an increase in the score of starting a business. However, when conducting a robustness check, we find that political stability, rather than corruption, correlates with MSME registration numbers. We then conduct a Propensity Score Matching analysis compared to other Lower Middle-Income countries in the region, which shows us that the act positively affected the ease of doing business. When conducting robustness checks, we find a difference in the results, highlighting the need for further investigation. Finally, we conduct a regression to analyze different MSME sectors and find that only the construction sector and the other service sectors category experience an improvement after the implementation of the act. Thus, we conclude that the Act was partially successful in improving the business environment for MSMEs and highlight that improvements are to be made within the implementation of the act. Additionally, we acknowledge that the data available for the research is limited, and we suggest that in the future a more in-depth analysis is conducted with more data and new covariates.

Contents

- 1 Introduction** **4**
 - 1.1 Background 4
 - 1.2 Problem Description and Question 5
 - 1.3 Relevance of the Subject 5

- 2 Theoretical Framework** **7**
 - 2.1 Definitions 7
 - 2.2 Economic Concepts 8
 - 2.3 Literature Review 9
 - 2.3.1 Ease of Doing Business in the Department of Education 9
 - 2.3.2 The Effect of Formal Institutions on Firms' Performance 9
 - 2.3.3 Corruption 11
 - 2.3.4 Agriculture and Republic Act No. 11032 12

- 3 Data** **13**
 - 3.1 Corruption Analysis (Sub-Hypothesis A) 13
 - 3.2 Propensity Score Matching (Main Hypothesis) 15
 - 3.3 Sector Specific Analysis (Sub Hypothesis B) 17

- 4 Methodology** **18**
 - 4.1 Corruption Analysis (Sub-Hypothesis A) 18
 - 4.2 Propensity Score Matching (Main Hypothesis) 19
 - 4.3 Sector Specific Analysis (Sub Hypothesis B) 19

- 5 Results and Discussion** **21**
 - 5.1 Corruption Analysis (Sub-Hypothesis A) 21
 - 5.2 Propensity Score Matching (Main Hypothesis) 23
 - 5.3 Sector Specific Analysis (Sub Hypothesis B) 25
 - 5.4 Summary 26

- 6 Conclusion** **28**
 - 6.1 Main Findings 28
 - 6.2 Limitations 30
 - 6.3 Suggestions for Future Research 30
 - 6.4 Implications for Theory and Practice 31

- References** **32**

- A Appendix** **35**

Abbreviations

MSME	Micro, Small, and Medium Enterprises
SME	Small, and Medium Enterprises
ARTA	Anti Red Tape Authority
GDP	Gross Domestic Product
FDI	Foreign Direct Investment
CBP	Central Business Portal
PSM	Propensity Score Matching
R.A.	Republic Act
ADB	Asian Development Bank

1 Introduction

In 2020, the Filipino economy consisted of more than one million Micro, Small and Medium Enterprises (MSMEs), compared to only four thousand large enterprises (World Bank Doing Business project, 2020). Small and medium enterprises (SMEs) add significant value to the economy, which in 2020 consisted of 36 per cent of the Gross Domestic Product (GDP), around 25 per cent of overseas export sales revenues, and provided 60 per cent of jobs in the country (International Trade Centre, 2020, p. 10). Given this, the Filipino economy is highly dependent on SMEs, thus it is important to study how legislative changes affect them. This thesis explores how the Republic Act (RA) No. 11032, which aimed to increase government efficiency and decrease corruption, influences the business environment for MSMEs in the Philippines. Firstly, we explain the context of the situation and produce a research question. This is followed by an explanation of the social and scientific relevance. Consequently, we define the key terms, economic theory, and relevant literature for this thesis. From the relevant literature, we extract three hypotheses for which we explain the data and methodology used to test them. When testing the hypotheses, we find that the act was partially successful in improving the business environment for MSMEs. Finally, we use economic theory to provide recommendations for strategic decisions of firms and to help governments understand the efficiency of their policies, as well as to address limitations and opportunities for future studies.

1.1 Background

In 2007, the Philippines introduced Purpose Republic Act No. 9485, also known as the Anti-Red Tape Act of 2007. This law aimed to increase efficiency and transparency in the government to combat corruption and decrease red tape in government services (Republic of the Philippines, 2007). The government aimed to increase the transparency and simplicity of its front-line service procedures to the public in almost all government offices. A limit of five signatures was established to approve a request, and a five- to ten-day limit was established to provide services. If a permit request was not processed within this time frame, it had to be extended. In addition, denials of service had to be explained to the party of interest. A citizen's charter that explains the service steps and complaint procedures was created, and was made easily accessible to the public. Finally, offices were requested to provide access to the Citizen's Charter, have employees wear IDs, and have the Civil Service Commission evaluate government offices annually.

Twelve years later, in 2018, the Philippines introduced Republic Act No. 11032 as an amendment to Purpose Republic Act No. 9485 of 2007. It was amended to be extended to government agencies, improve government efficiency, and reduce corruption. The two most important sections of the amended Republic Act No. 11032 for this thesis are the ones that address the decrease in corruption, the improvement of the Citizen's Charter, and the introduction of the Anti-Red Tape Authority (ARTA). For detailed descriptions of the relevant amendments to the act, see Appendix A.1. The main difference between the acts is that Act No. 9485 primarily focuses on promoting transparency and simplicity of government transactions in frontline services, and Act No. 11032 not only focuses on this but also aims to increase the ease of starting businesses and increase efficiency in government services, not limited to front-line services (Republic of the

Philippines, 2018).

1.2 Problem Description and Question

As previously mentioned, the Filipino economy is highly dependent on MSMEs, thus it is important to have favorable bureaucratic and economic conditions for them. According to the World Bank (2020), in 2020, the Filipino estimate of corruption control was -0.51 on a scale of -2.5 to 2.5, which is a low score. Transparency International (2022) found that in 2018, the Philippines had a corruption perception index of 36 out of 100, showing how the public perceives the corruption of the country, which places the country in a ranking of 99th least corrupt country in the world that year. This can affect the way businesses operate, as an efficient regulatory system is needed for businesses to prosper (Roxas et al. 2013). They can also serve as a bridge for exports, increase value and employment, and increase productivity through competitiveness (Aldaba, 2008). This is important because, in the Philippines, MSMEs hold a lot of stakeholders, which includes groups of women who work in the formal sector, and informal businesses that want to become formally registered.

As SMEs are so present in the Filipino economy, especially in this increasingly global world, it is important to look if laws influence them. Specifically, it is important to analyze if laws are efficient in what they aim to do. In section 2, we explore relevant literature that highlights the importance of laws and government efficiency on MSMEs. Thus, this raises the research question of this thesis:

How has Republic Act No. 11032 influenced the business environment for micro, small, and medium enterprises in the Philippines until 2021?

The business environment in this thesis includes the ease of doing business, the score of starting a business, the sectoral concentration of business, and the number of business registrations.

1.3 Relevance of the Subject

This question is socially relevant because it serves as a potential analysis of the regulatory efforts implemented by the Filipino government. As implementing new legislation is time-consuming and costly, the government needs to understand if they are effective or else there might be a case of misallocation of resources. Additionally, not only is this important for the government and policymakers, but the study sheds light on the true efficiency of the system, and thus owners and stakeholders of MSMEs can form a deeper understanding.

Leegwater et al. (2008) examine the role of MSMEs on economic growth. In this study, various Medium Enterprises (MEs) and SMEs are analyzed to see their effect on economic growth. Although SMEs generally had a positive and significant relationship with economic growth, when the firm size cutoff was lowered, the association became negative and generally insignificant. Leegwater et al. (2008) highlight that although their study does not provide evidence for SMEs contributing to economic growth, it does not mean that they are not beneficial to the economy. SMEs are crucial in creating job opportunities specifically for vulnerable members of society -such as women, youth, and rural citizens-, as they encourage them to partake in the economy.

This is because, in many Southeast Asian countries, there is a culture of small informal businesses that allow locals and vulnerable groups to operate without being formally registered (Hatipoglu, 2021).

This thesis is scientifically relevant because there is only one paper in the research world that thoroughly analyses the effectiveness of this act. Not only that, but that paper focuses solely on the education sector, and it is not published in an economic journal. Thus, there is a lot of opportunity for additional research and analysis with economic theory to be conducted (such theory is discussed in Section 2). From a strategy economics perspective, this thesis focuses on MSMEs in low and middle-income countries, which adds to the additional literature on this topic and helps understand how different acts affect MSMEs. For example, MSMEs, specifically in developing countries such as the Philippines, form a large part of the Bottom of the Pyramid (BoP) businesses (Zhang et al., 2022). Bottom of the Pyramid is a market designed for lower-income consumers (Von Carlowitz, 2020). There is no strict definition of what lower-income consumers are, but it is important to highlight that BoP products are not only present in developing countries, rather they are for lower-income consumers. These products are extremely important because they help build social benefits, create a new market for producers, give small firms opportunities to capitalize, and have important effects on global sustainability (Von Carlowitz, 2020). Thus, the thesis is not only relevant socially but also adds to the literature on businesses that partake in the BoP market.

Additionally, the methodology that is used in this thesis is scientifically important, as we use economic models to analyze the research question. Such models include: Linear regressions, Propensity Score Matching, and Robustness Checks.

2 Theoretical Framework

To answer the research question "How has Republic Act No. 11032 influenced the business environment for micro, small, and medium enterprises in the Philippines until 2021?" it is important to understand relevant concepts. In this section, we establish the relevant definitions and economic concepts for the study, followed by a literature review. This is key for the study to be conducted efficiently, as a theoretical framework provides a context on Republic Act No. 11032 and allows us to extract hypotheses to answer the research question.

2.1 Definitions

The *Business Environment* in this thesis consists of several parameters that include the ease of doing business, the score of starting a business, the sectoral concentration of business, and the number of business registrations. This is because these parameters affect the way businesses operate and organize themselves.

The term *Government Service* is widely used in Republic Act No. 11032, as it focuses on improving Government Services. This term refers to the process by which requesting parties make a request for a certain act, including but not limited to licenses, renewals, and permits to a government authority or related agency (Republic of the Philippines, 2018). The act aims to reduce *Red Tape* in government services, which is defined as any administrative system that creates an inefficiency or disruption in achieving its purpose (Republic of the Philippines, 2018). This can hinder the processing time and quality of work done or create social consequences.

Republic Act No. 11032 focuses on two very important components to increase in government efficiency (Republic of the Philippines, 2018). First, the *Anti-Red Tape Authority (ARTA)* is introduced, which aims to work with all government offices to review existing laws and provide a regulatory assessment of the proposed regulations. Furthermore, the *Citizen's Charter* was introduced in the previous Purpose Republic Act No. 9485. The Citizen's Charter is a guide for citizens that specifies the services provided by government agencies and a step-by-step guide on how to utilize those services. Republic Act No. 11032 amends this Citizen's Charter to introduce district units to the act, create web versions of the charter, and include a uniform checklist of requirements for each type of application. The ARTA and the Citizen's Charter are two of the main ways that the Republic Act No. 11032 improves government services.

Table 1: SME definition (Tamangan et al., 2004)

Enterprise Size	Total assets excluding land* (Philippine Peso)	Number of Employees**
Micro Enterprises	<3,000,000	1 to 9
Small Enterprises	3,000,000-15,000,000	10 to 99
Medium Enterprises	15,000,000-100,000,000	100 to 199

Notes: This table shows the definitions used for Micro, Small, and Medium Enterprises in this thesis.

*Legislative definition of MSMEs by the Philippine Congress (1991)

** Definition used by the Philippine Statistics Authority (2022)

Defining Micro, small, and medium enterprises (MSMEs) is crucial. MSMEs are defined as any business activity or enterprise involved in an industry, agricultural business, or service

(Tamangan et al., 2004). These enterprises must have assets (inclusive of loans, but exclude land and equipment) that fall within the categories in Table 1.

2.2 Economic Concepts

As we have established the main definitions for this study, we now introduce relevant economic concepts. These economic concepts not only show the relevance of this thesis but also aid in analyzing the results of the study.

Institutional theory explores how institutions such as norms, governments, laws, etc. affect behavior and economic theory (Berthod, 2018). In the case of this thesis, the institution is the government, which amends Republic Act No. 11032 to improve government efficiency. The thesis explores how the Act changes MSME behaviour, such as how many are registered or their concentration in sectors. This relates to institutional theory because it examines how the government institution affects the organisational behaviour of MSMEs in the Philippines. The economic development theory, which explores how policies can improve the economic and regulatory environment of a country, is also relevant (Chang, 2010). This is because Republic Act No. 11032 aims to increase government efficiency and provide a better regulatory environment for the nation. Additionally, it aims to decrease corruption, which would in return provide a better economic and regulatory environment for the Philippines.

MSMEs' productivity is affected by several factors. Productivity is the total output that a firm produces with its given inputs. According to Owalla et al. (2021), firms have two constraints on their productivity. Firstly, internal, which consists of the organizational environment, investments, and innovation. This is the one that is relevant to this thesis as whether a firm is formally registered or if they need government assistance affects their organizational structure. The second one is external knowledge and commercialisation. Moreover, there are other factors that affect firm performance. Firstly, limited access to knowledge can affect the performance of a firm, specifically of SMEs (Hernández-Linares et al., 2023). In this case, Republic Act No. 11032 aims to decrease the information asymmetry between firms and the government through the Citizen's Charter and by digitalising information. Secondly, corruption can have direct and indirect effects on firm performance. According to Mendoza et al. (2015), corruption can either "grease the wheels", where firms can speed up procedures, and thus increase firm performance, or "sand the wheels" where corruption increases costs and decreases firm performance. When corruption "sands the wheels", organizationally, there is an inefficient use of resources as the increased costs lead to lower profits and decreased labour productivity. Republic Act No. 11032 aims to tackle the issue of corruption through several methods, such as the ARTA.

As we have established the main definitions and concepts, a literature review now proceeds to understand what research has been done and extract hypotheses that help in answering the research question.

2.3 Literature Review

2.3.1 Ease of Doing Business in the Department of Education

Although a lot of research has been done on the effectiveness of different laws in the Philippines, only one paper researches the Republic Act No. 11032. Romero et al. (2019) studies the effect of Republic Act No. 11032 on the department of education in Nueva Ecija. The paper focuses on components of the ARTA with the use of one hundred participants who were selected based on random sampling from each of the four Congressional Districts of Nueva Ecija. The individuals were asked to partake in four surveys with a Likert Scale, which consisted of analysing the Citizen's Charter, Government Service efficiency, the client's perception of the services provided, and the zero contact policy implementation. The results for each survey are analysed using an ANOVA test.

The results of the survey show that the components of the Republic Act No. 11032 can be observed in the Department of Education Division of Nueva Ecija. They find that the department maximises the use of technology to increase transparency and improve the citizen's charter. However, the results show that there are still hidden costs, long queuing times, and fixers observable in the system. Fixers are a term that the act uses to refer to individuals who have a connection to an individual in a government office, which can help them speed up and facilitate the process of their transaction for their benefit (Republic of the Philippines, 2018). The study suggests that there needs to be a change within the system in leadership roles to implement strict punishments for those who do not follow the act and/or commit corruption.

Although this paper extensively studies the effect of the Act on the education department, the focus is on a very specific sector, and might not apply to MSMEs.

2.3.2 The Effect of Formal Institutions on Firms' Performance

Roxas et al. (2013) conduct a study on the effect of formal institutions on business performance in the Philippines. They find it important to conduct this study as although there are an extensive number of studies on the effect of formal institutions on businesses, there are not many that focus on developing countries with weaker institutions and less advanced economies. Additionally, developing countries mainly consist of small or family-owned businesses. This paper looks at three aspects of formal institutions that are correlated with business development:

1. Access to finance
2. Regulatory quality
3. Rule of law

They use a Partial Least Squares (PLS) regression to analyse the effect through sales growth as the dependent variable, the three aspects of formal institutions based on a Likert Scale as the independent variables, and four control variables that include age, location, sector, and variation in business performance due to size.

Their results show that weak and unreliable institutions can have an adverse effect on the de-

velopment and growth of enterprises. More specifically, since the Philippines is dominated by MSMEs, access to finance has a significant effect on business performance as they are more vulnerable to a lack of finance. Additionally, they find that the rule of law also plays a significant effect as it can create a stable and valid environment for businesses. This paper not only shows that formal institutions are significant towards business performance in MSMEs but also confirms the relevance of this thesis. This is because it shows that a more stable government process can have a favourable effect on business performance, specifically of MSMEs in developing countries like the Philippines.

Main Hypothesis

As there is a gap in the scientific literature on Republic Act No. 11032 and its effects on the MSMEs, it is important to research this topic. Roxas et al. (2013) show how formal institutions in the Philippines have a significant effect on business performance, more specifically on MSMEs. However, it does not consider how changes in formal institutions like the Republic Act No. 11032 can influence such MSMEs. This study suggests that improvements in government services through RA No. 11032 can improve the ease of doing business for MSMEs. Romero et al. (2019) provide an analysis of the effects of Republic Act No. 11032 in the Department of Education of the Nueva Ecija municipality. They find that the implementation of the act shows an improvement in the Department of Education, but it still needs further improvement and stricter implementation. Although relevant, their study lacks the extended application to other sectors like MSMEs. Due to their study, we can predict that the Republic Act No. 11032 did have a favourable effect on the bureaucratic process for businesses. Based on these two studies we can extract the following hypothesis:

H₀: *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is not associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

H_a: *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

This hypothesis is also supported by Le (2011) who studies the relationship between SMEs in Vietnam and government credit assistance. Based on several surveys conducted in Vietnam, they find that there was no effect or an adverse one. More specifically, they find that credit government assistance for manufacturing SMEs does not affect their performance. They hypothesize that the complicated procedure to receive credit assistance is the likely reason for this effect. This suggests that an improvement in complicated government procedures will aid SMEs in their performance. Although this research is centred around Vietnamese SMEs, it is still relevant as the Philippines is in a similar geographic and cultural area.

This hypothesis helps guide the research as it focuses on the relationship between the Republic Act No. 11032 and the ease of doing business for MSMEs. The alternative hypothesis also

guides the research to analyse why the act might not have been efficient in helping MSMEs. Additionally, the hypothesis guides in choosing the correct data and methods for the analysis. To answer this question, several guiding sub-questions need to be answered.

2.3.3 Corruption

Fisman et al. (2021) study 141 economies over 14 years to analyse how corruption affects firm growth. Their research provides evidence that corruption increases costs and uncertainty, while creating unfair competition. They find that firms that do not conduct informal payments grow slower than firms that do, especially in countries where corruption is high. However, firms that make an extensive number of informal payments also experience slow growth. Additionally, the opportunity cost of not partaking in informal payments in low-corruption countries is lower than in those with high corruption. They argue that corruption affects MSMEs more prominently as they do not have the assets to partake in corruption. This shows that corruption can influence business, and more strongly affects MSMEs. Similarly, Chen et al. (2023) study the effect of bribery on firm performance in 78 developing countries. They find that corruption does have an adverse effect on firm performance. They confirm that in the countries they study, the “sand the wheels” theory is held. Thus, these two studies can be related to Republic Act No. 11032’s efforts to decrease corruption and highlights the importance of this for MSMEs.

Ezebilo et al. (2019) study the effect of public sector corruption on employment in MSMEs. Based on a survey conducted by Papua New Guinea, they find that MSME owners associate corruption with an increase in employment in their firms. However, this is split, as they find that medium-sized enterprises benefit from this, whereas small enterprises do not. Although corruption can create a loss of revenue, inefficient government practices can also affect the lack of innovation and efficiency in MSMEs. Additionally, similarly to Fisman et al. (2021), they highlight that information asymmetry between government institutions and informal businesses can be improved to increase MSME efficiency and the ease of doing business. This supports Republic Act No.11032’s efforts to increase government efficiency as it can affect the efficiency of SMEs.

The paper by Fisman et al. (2021) explores the importance of the corruption environment in business performance, and Ezebilo et al. (2019) emphasize the importance of Republic Act No.11032’s efforts to increase government efficiency on MSME business performance, which leads to the sub-question: *Is decreased corruption in the Philippines associated with an improvement in business performance?* This is an important question to answer because if a decrease in corruption is not associated with improved business performance, then the changes in business performance can only be attributed to the increased government efficiency implemented by the act. To answer this, a sub-hypothesis can be tested:

H_{0a} : *A decrease in corruption is not associated with an increase in the ease of starting a business in the Philippines.*

H_{aa} : *A decrease in corruption is associated with an increase in the ease of starting a business in the Philippines.*

This hypothesis helps us understand whether a decrease in corruption through Republic Act No. 11032 is also correlated with helping MSMEs rather than solely improving government services.

2.3.4 Agriculture and Republic Act No. 11032

Briones (2019) published “A Policy Brief on the Philippine Agribusiness Sector”. This policy brief predicts the implementation of Republic Act No. 11032 to be increasingly beneficial for SMEs in the food sector due to increased efficiency in the product registration process. Additionally, it acknowledges that the act will also be beneficial to the agriculture sector, as it could lower transaction costs and increase efficiency. However, Briones (2019) also states that there is urgency in the need to implement the act efficiently. The act affects these sectors positively, but in different ways, thus raising the sub-question: *does Republic Act No. 11032 affect MSMEs in different sectors equally?* To answer this, the following hypothesis is tested:

H_{0b} : *The implementation of Republic Act No.11032 which reduced corruption and government inefficiencies affects all sectors equally.*

H_{ab} : *The implementation of Republic Act No.11032 which reduced corruption and government inefficiencies affects all sectors differently.*

This hypothesis directs our study to specific sectors and helps us conduct a more in-depth analysis of the act.

Summary

The literature review provides an understanding of the contextual background for the study, while providing guiding questions and hypotheses. In general, the literature agrees that corruption can hinder business performance, and government efficiency can improve it. These studies highlight the importance of Republic Act No. 11032 and its effects on MSMEs.

3 Data

In this section, we explain the data used to analyse the three hypotheses, with explanations for each variable. The literature review has shown us that there is a correlation between government effectiveness, corruption, and business efficiency in MSMEs, thus, the data we collect is related to this. We also present the summary statistics for the data and conduct a short analysis of it.

3.1 Corruption Analysis (Sub-Hypothesis A)

To conduct a regression analysis, we use data from the World Bank's Ease of Doing Business Report for 2020 (World Bank Doing Business project, 2020). This report includes data on business parameters that were gathered through questionnaires answered by over 13,800 locals consisting of government officials, lawyers, experts, etc. in 190 countries. From this report, we extract all the data available for the Philippines, which is from 2005 to 2020, to capture long-term trends and will increase our validity (King et al., 2000).

The regression includes the *Score of Starting Business* for the Philippines as the dependent variable, because it tracks critical aspects of starting a business and allows us to assess whether corruption is related to starting a business as hypothesized. The score of starting a business is an average of several indicators for each country, which include:

- Procedures
- Time and cost for an entrepreneur to start and operate
- Paid-in minimal capital

For the independent variable, we introduce a dummy variable for the existence of Republic Act No. 11032 (this variable holds a value of 0 before the introduction of the Act and a value of 1 for the years following 2018, when the Act was introduced), which isolates the effect of the Act and helps us test its effect on starting a business. Additionally, we add *GDP growth* as a control variable for the economy because, in general, a better economic environment can be more attractive for entrepreneurs, and thus affects the score of starting a business (Audretsch & Fiedler, 2021). The GDP growth rate is the annual percentage growth of GDP based on constant local currency in US dollars. Controlling for GDP growth allows us to make sure the changes in the score of starting a business are specifically related to the act and no other economic instances. The next control variable we use is *Net Trade in Goods and Services* (G&S) because it indicates a country's state of globalisation and competitiveness, which allows us to control the effects SMEs might experience through access to resources and competition. This is calculated as imports of goods and services minus exports of goods and services expressed in billion US dollars. Next, we introduce the *Net Foreign Direct Investment* (FDI) in billions as it reflects the confidence of investors in the economic and business climate of the country and can facilitate the start of a business (Alfaro & Chauvin, 2020). FDI consists of net investment inflows where the investor owns at least 10 per cent of the voting rights of a foreign business. Next, we use *Government Effectiveness* on a score of -2.5 to 2.5. This estimate shows the community's perception of the services provided by the government, the quality of policy creation, and the

credibility of the government to fulfil their policies and promises. It is crucial to account for this as the Act directly aims to increase government effectiveness. For a similar reason, we introduce the estimate of *Control of Corruption*, which also presents the public’s perception of how much public power is used for personal interests on a scale of -2.5 to 2.5. The lower the score, the lower the level of corruption perceived by the public. Finally, *Political Stability* and the absence of violence and terrorism are used on a scale of -2.5 to 2.5. This estimates the public’s opinion on how likely there is to be political instability or politically induced violence in the country.

To see if the results translate to the number of SMEs, another regression is conducted with the same independent and control variables, but with the *Number of SMEs* in ten thousand as a dependent variable. It is important to note that the data used for this regression -which also serves as a robustness check- uses data from 2006 to 2020 due to the limited availability of data. This data is obtained from the Asian Development Bank (2022) Asia SME Monitor.

Descriptive statistics

Table 2: Summary Statistics for Regression (1)

Variable	N	Min	Max	Mean	Std Deviation
Score of Starting a Business	16	62.300	69.300	65.019	2.126
Net Trade in Goods and Services (Billions)	16	-39.364	-6.982	-17.823	10.422
Foreign Direct Investment (Billions)	16	-6.952	2.454	-1.442	3.025
GDP Growth	16	-9.518	7.336	4.820	4.116
Government Effectiveness	16	-0.134	0.318	0.085	0.111
Corruption	16	-0.889	-0.380	-0.622	0.149
Political Stability	16	-1.779	-0.714	-1.262	0.348

Notes: This table shows the summary statistics for the variables used in the corruption analysis. The data has been obtained from the World Bank Doing Business report of 2020 for the years 2005 to 2020.

Table 2 presents the summary statistics for all the variables that we use in the linear regression. We do not omit any data points as there are no significant outliers. We do not present summary statistics for the year. The Score of Starting a Business has a low standard deviation and ranges from 62.3 to 69.3, which shows us that there is a change in the score. Depending on when this change is situated, this could support sub-hypothesis A which states that corruption is associated with an increased score of starting a business. Net Trade in G&S and FDI are presented in billions and show a significant change which could be attributed to different factors, including the COVID-19 pandemic. GDP growth presents high volatility. Government Efficiency and Corruption show a range of distinct values. If these values are higher in the years after Republic Act No. 11032, then this would support sub-hypothesis A. The values of Political Stability have a moderate standard deviation, however, they are negative, which shows that despite legislative reforms, there is still a struggle with Political Stability in the Philippines, which is in line with the statistics by World Bank (2020) and Transparency International (2022).

Table 3: Summary Statistics for Robustness Check Regression (1)

Variable	N	Min	Max	Mean	Std Deviation
Total Number of SMEs (10 thousand)	15	75.844	99.834	87.910	8.730
Net Trade in Goods and Services (Billions)	15	-39.364	-6.982	-18.344	10.570
Foreign Direct Investment (Billions)	15	-6.952	2.454	-0.148	3.127
GDP Growth	15	-9.518	7.335	4.812	4.261
Government Effectiveness	15	-0.134	0.318	0.091	0.111
Corruption	15	-0.889	-0.380	-0.619	0.153
Political Stability	15	-1.779	-0.714	-1.267	0.359

Notes: This table shows the summary statistics for the variables used in the corruption analysis. The data has been obtained from the World Bank Doing Business report of 2020 for the years 2006 to 2020. Data for the total number of SMEs is from 2006 to 2020 and is obtained from the Asian Development Bank (2022) Asia SME Monitor.

The summary statistics for the robustness check are presented in Table 3 for the years 2006 to 2020. The total number of SMEs shows a high standard deviation, which shows us that there are a lot of variance in the number of SMEs throughout the years. The rest of the variables present no significant changes to that of Table 2.

3.2 Propensity Score Matching (Main Hypothesis)

Just like for the previous hypothesis, we use data from the World Bank Doing Business Report of 2020 to conduct Propensity Score Matching (PSM). The *Ease of Doing Business* score is used from the available years of 2016 to 2020. It is calculated based on an average of several indicators from the survey results, which include:

1. Starting a business
2. Dealing with permits such as construction
3. Access to electricity
4. Registering property
5. Receiving credit
6. Protection of minority investors
7. Tax payments
8. Cross-border trade
9. Contract enforcement
10. Insolvency resolution

As the World Bank categorises the Philippines as a Lower Middle-Income country in East Asia and the Pacific, we use all the countries in that category to provide a comparison group for the Philippines. This category includes Bangladesh, Bhutan, Cambodia, India, Indonesia, Kiribati, Laos, Micronesia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Solomon Islands, Sri Lanka, Timor-Leste, Vanuatu, and Vietnam, which totals to 95 data points.

We also conduct a robustness check, for which we include *GDP* (in billion US dollars) and *Total Population* in millions from the World Bank Doing Business Report of 2020. We use GDP because it can influence the total economic environment and thus the ease of starting a business. We use population because it affects the labour market and the number of consumers.

Descriptive statistics

Table 4 presents the summary statistics of the ease of starting a business by country. India and Pakistan have the largest standard deviation, whereas the Micronesia Fed. Sts. has no standard deviation. Mongolia has the largest score of ease of starting a business, and Timor Leste presents the smallest one. The Philippines has a mid-range score, which emphasizes the importance of Republic Act No. 11032 to be effective and create benefits for the country.

Table 4: Summary Statistics Main Hypothesis PSM

Variable	N	Min	Max	Mean	Std Deviation
Bangladesh	5	41	45.400	42.480	1.771
Bhutan	5	64	65.200	64.680	0.545
Cambodia	5	52.900	53.800	53.320	0.327
India	5	54.500	71.100	62	7.185
Indonesia	5	62.100	69.700	66.320	2.989
Kiribati	5	45.400	46.900	46.400	0.620
Lao PDR	5	48.200	50.900	49.600	1.101
Micronesia Fed. Sts.	5	48.100	48.100	48.100	0
Mongolia	5	65.400	67.800	66.820	0.996
Myanmar	5	42.500	47.900	44.160	2.151
Nepal	5	58	63.200	60.120	1.894
Pakistan	5	50.400	61.100	54.500	4.112
Papua New Guinea	5	56	59.500	58.780	1.554
Philippines	5	58.400	63.100	60.280	1.829
Solomon Islands	5	54.700	55.300	55.040	0.241
Sri Lanka	5	59	61.700	60.340	1.270
Timor Leste	5	38.500	40.200	39.420	0.766
Vanuatu	5	59.300	60.900	60.480	0.672
Vietnam	5	62.600	69.700	66.640	2.804

Notes: This table shows the summary statistics for the ease of starting a business for Lower Middle-Income countries in East Asia and the Pacific from 2016 to 2020. The data is obtained from the World Bank Doing Business Report of 2020.

In the Appendix, Table A.2 presents the summary GDP statistics in USD billions by country. India has the largest GDP, and the Philippines has one of the largest GDPs along with Pakistan. The smallest GDP is from Kiribati. Table A.3 presents the summary statistics of the total population in millions by country. India has the largest population, while the Philippines has a population comparable to Vietnam. The smallest population is from Kiribati.

3.3 Sector Specific Analysis (Sub Hypothesis B)

Consequently, we conduct a sector-specific regression analysis to analyse the effects of Republic Act No.11032. This tests our sub-hypothesis B which allows us to analyse if there are differences in the effects of the Act in different sectors. For this sectoral analysis, we use the full data available for the Philippines from the years 2006-2021 from the Asian Development Bank (2022) Asia SME Monitor. The data provides the MSME concentrations across sectors in percentage shares. Preferably, data on how many MSMEs are present in each sector would be used, however, this data is only available from 2018 onwards. This lack of data does not allow us to conduct an analysis, thus the percentage share is the next best alternative. The sectors included are agriculture, forestry & fisheries, manufacturing, transportation & communication, construction, wholesale & retail trade, other services, and others. The sector “others” consists of construction, electricity, gas & water supply, and mining.

Descriptive statistics

Table 5 presents sector-specific summary statistics for the percentage share in the sectors of MSMEs. MSMEs are most present in the wholesale and retail trade sectors. Additionally, the wholesale and retail trade also has the largest standard deviation over the years. MSMEs hold the smallest percentage share in other sectors, and the construction sector with less than 1 per cent density. The agriculture and forestry sector has the smallest standard deviation, meaning there is low volatility in the percentage of MSMEs in the sector over the years.

Table 5: Summary Statistics Sub Hypothesis B

Variable	N	Min	Max	Mean	Std Deviation
Manufacturing	16	11.588	14.929	13.091	1.203
Transportation and communication	16	1.125	4.854	3.287	1.501
Construction	16	0.279	0.425	0.349	0.439
Wholesale and retail trade	16	46.014	50.126	47.624	1.658
Agriculture, forestry, and fishery	16	0.609	0.992	0.810	0.125
Other services	16	32.722	36.552	34.682	1.170
Other	16	0.039	0.222	0.157	0.730

Notes: This table shows the summary statistics for the variables used in sector-specific analysis. The data is obtained from the Asian Development Bank (ADB) Asia SME Monitor for the years 2006 to 2021. The values represent the percentage concentration of SMEs in the specific sector.

4 Methodology

In this section, we explore the methods to answer the research question and test the hypothesis. We test sub-hypothesis A using a regression, the main hypothesis using Propensity Score Matching, and sub-hypothesis B using several regressions. We design the research in a way that maximises internal and external validity and reliability with the data that is available.

4.1 Corruption Analysis (Sub-Hypothesis A)

For Hypothesis A which tests corruption on the score of starting a business, we conduct a regression analysis which follows the structure:

$$Y_i = \alpha + \beta_1 GDP_i + \beta_2 TradeG\&S_i + \beta_3 FDI_i + \beta_4 GovEff_i + \beta_5 Corruption_i + \beta_6 PolStab_i + \epsilon_i \quad (1)$$

Where Y_i represents the dependent variable Score of Starting a Business, α is the intercept, and ϵ_i is the error term of that year. The independent and control variables are GDP growth, Net Trade in Goods and Services, Foreign Direct Investments, Government Efficiency, Corruption, and Political Stability. A detailed description of the variables can be found in the Appendix Table A.4.

We use this method for this hypothesis because the regression allows us to simply isolate the effect of corruption on the score of starting business, and control for other variables. When analyzing the results, we focus on the relationship between corruption and the score of starting a business, rather than trying to quantify this relationship as the results will not indicate causality.

As regression (1) gives us the relationship between the score of starting a business for all businesses, we also want to know if the ease of starting a business improvement translates into the number of SMEs. To do so, we run regression (1) again, but this time, Y_i represents the dependent variable of Number of SMEs in 10,000.

Assumptions

According to Starbuck (2023), a regression should be independent, and display the homoscedasticity, normality, and linearity assumptions. To meet the independence assumption, we use data points from 2005 to 2020, which reduces the likelihood that the data points will depend on each other. Additionally, we conduct a Durbin-Watson Test (Table A.5), which presents a value of around 2.3, meaning there is low autocorrelation. Homoscedasticity shows that the variance of the residuals is constant for all values. To test this, we use a Breusch Pagan Test (Table A.6), which gives us a P-value of 0.412, which proves that we meet the assumption of homoscedasticity. Normality refers to residuals being normally distributed, and to confirm this we use a Shapiro-Wilk test which gave us a P-value of 0.158 (Table A.7). Finally, we assume a linear relation between the dependent variables and the other variables.

4.2 Propensity Score Matching (Main Hypothesis)

To analyse the effects of Republic Act No.11032 on the ease of starting a business, controlling for other factors, we conduct Propensity Score Matching. Propensity Score Matching (PSM) is a statistical method that compares a treatment and a control group. PSM weighs all the observations by the probability of receiving the treatment (implementation of the law), and presents the Average Treatment Effect on Treated (ATET), which shows the impact of Republic Act No. 11032 on the ease of doing business in the Philippines. This method is useful in policy analysis as it can show how effective a policy is on the intended group. PSM ultimately aims to find a comparable country without treatment to match to the Philippines, and then provide the probability of being treated given the covariates (Stuart, 2010):

$$e^i(X_i) = P(T_i = 1|X_i) \quad (2)$$

Where $e^i(X_i)$ is the propensity score, T_i is the binary treatment variable (it holds a value of 1 when the year is 2018 or later, and a value of 0 otherwise), and X_i is the other covariates that are introduced in the robustness check.

We conduct a robustness check by introducing GDP, population, and GDP and population to the PSM model. This helps us control for multicollinearity and allows us to assess how these additional covariates affect the ATET.

Assumptions

According to Rosenbaum and Rubin (1983), PSM should have strong ignorability and follow common support. Ignorability states that the outcome should be independent of other covariates; to follow this, we introduce a robustness check. Introducing GDP and Population assures that the effect is due to the treatment itself, and other confounders are not intervening. The common support states that there needs to be enough overlap between the treatment and the control group. To ensure this, we provide enough observations with similar propensity scores.

4.3 Sector Specific Analysis (Sub Hypothesis B)

In Hypothesis B, we aim to conduct a sector-specific analysis. To do this analysis, we use a simple linear regression which follows:

$$Y_{it} = \alpha + \beta_1 PostTreatment_{it} + \epsilon_{it} \quad (3)$$

Where Y_{it} is the dependent variable and represents the percentage of MSMEs in sector i at time t . α is the intercept, and ϵ_i is the error term of that year. $PostTreatment_{it}$ is a dummy variable that indicates the post-treatment variable, holding value 1 if the year is 2018 or later. The results from this regression show whether the impact of Republic Act No.11032 on MSMEs was significant and positive or negative.

Assumptions

As previously mentioned, a regression should be independent, and meet homoscedasticity, normality, and linearity. To test homoscedasticity, we conduct a Breusch Pagan Test (Table A.8) for each of the sectors. As the P-value for all tests is greater than 0.05, we reject the null hypothesis of heteroscedasticity, and thus the assumption of homoscedasticity is met for all the models. To test normality, we use the Shapiro-Wilk tests (Table A.9), which give us a P-value of 0.064 and confirm that the residuals are normally distributed. We assume that linearity is satisfied. Finally, a Durbin-Watson test is conducted to test for autocorrelation. In Table A.10, we see that there is autocorrelation present as values are not close to two. The basic linear regression would not be applicable due to autocorrelation; thus, we use Newey-West standard errors when conducting the regression to adjust for it.

5 Results and Discussion

In this section, we discuss the results of the three hypotheses. First, we test sub-hypothesis A using a linear regression, then we test the main hypothesis using PSM, and finally, we test sub-hypothesis B using a regression analysis. Each of the analyses is followed by a discussion, and the section ends with a discussion combining the results of the three hypotheses.

5.1 Corruption Analysis (Sub-Hypothesis A)

To answer the main research question, a sub-hypothesis was created:

H_{0a} : *A decrease in corruption is not associated with an increase in the ease of starting a business in the Philippines.*

If the hypothesis holds, our regression results should show a positive correlation between the corruption variable, and the score of starting a business. This is a comprehensive model with several control variables which allows for a rounded analysis.

Table 6: Linear Regression Statistics Regression (1) 2005-2020

Independent Variable	(1)
Trade in G and S	-0.112 (0.093)
FDI	0.227 (-.466)
GDP Growth	-0.207** (0.090)
Government efficiency	-6.594 (8.573)
Corruption	14.730** (5.952)
Political Stability	-1.782 (1.865)
Constant	71.826*** (3.604)
Observations	16
Correlation Coefficient (R)	0.644

Notes: This table shows the regression analysis for the score of starting a business in the Philippines from 2005 to 2020. Data is extracted from the World Bank's Ease of Doing Business report in 2020. Column (1) displays the results of the regressions where the score of starting a business is the dependent variable. The independent and control variables are GDP growth, Net Trade in Goods and Services, Foreign Direct Investments, Government Efficiency, Corruption, and Political Stability. The correlation coefficient R is presented. The number of observations is 16.

Standard errors are presented in parentheses.

***Significant at a 1 per cent level

**Significant at a 5 per cent level

*Significant at a 10 per cent level

Table 6 presents the regression analysis for the score of starting a business. The correlation coefficient of 0.644 show that the relationship between the independent variables and the score of starting a business is moderately strong and positive (Ratner, 2009). This implies that as the values of the independent variables increase, the score of starting a business will also increase. However, it is important to analyse the rest of the coefficients for a detailed understanding of

the relationship between the variables.

The coefficients for trade in goods and services, government efficiency, and political stability are negative, which suggests that an increase in these variables is associated with a decrease in the score of starting a business. However, the effect is not statistically significant. An increase in foreign direct investment is associated with an increase in the score of starting a business; however, this is once again insignificant at a statistical level. GDP growth shows that with a 1 per cent increase, the score of starting a business decreases by 0.207, thus they are negatively associated. As corruption decreases (the score for control of corruption increases), the score of starting a business increases by 14.730, which is significant at a 5 per cent level.

This supports the idea that the Philippines has a "sand the wheels" relationship with corruption. Thus, the results from this regression reject the sub-hypothesis A, and accepts the alternate hypothesis which states:

H_{aa}: *A decrease in corruption is associated with an increase in the ease of starting a business in the Philippines.*

This conclusion is in line with previous research which stated that corruption and business are negatively associated, which shows that our results have external validity.

Although our results show support for our alternate sub-hypothesis, we highlight that 16 observations is a limited data set. Additionally, the negative correlation between GDP growth and the score of starting a business is something that should be investigated further, as previous research shows that the correlation is generally positive (Audretsch & Fiedler, 2021). Additionally, there might be omitted variables that affect the ease of starting business that were not controlled for.

Robustness Check

As a robustness check to and an additional analysis, we change the dependent variable to the number of SMEs in 10 thousand. This allows us to relate the results to our research question by testing if the results from the regression translate into MSMEs. Additionally, it serves as a robustness check to assess the generalizability of our results for different conditions and variables, and ensures internal validity.

Table 7 presents the regression analysis. The correlation coefficient of 0.909 is strong and positive (Ratner, 2009). This implies that as the values of the independent variables increase, the number of SMEs will also increase. This result has a significantly stronger correlation than regression (1). The main difference between the results in Table 6 and the results in Table 7 is that GDP growth and corruption are no longer significant, whereas political stability is significant and has a positive association with the number of SMEs.

The robustness check shows us that although corruption can be correlated with the ease of doing business, this does not translate directly into a correlation with the number of SMEs. This could mean that the decrease in corruption might be associated with an increased score of starting a business for non-SMEs, but not for SMEs. Despite this limitation, the robustness check does show support for our alternate hypothesis:

H_a : *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

Table 7: Linear Regression Statistics Alternate Eqn.1 2006-2020

Independent Variable	(1)
Trade in G and S in billion	-0.080 (0.256)
FDI in billion	-1.340 (1.315)
GDP Growth	0.120 (0.254)
Government efficiency	21.909 (26.009)
Corruption	1.665 (16.522)
Political Stability	12.941** (5.615)
Constant	99.679*** (11.270)
Observations	16
Correlation Coefficient (R)	0.909

Notes: This table shows the regression analysis for the number of SMEs in 10 thousand in the Philippines. Data for the number of SMEs is extracted from the Asian Development Bank (2022) Asia SME Monitor. Data for the independent variables is extracted from the World Bank's Ease of Doing Business report in 2020 for the years 2006 to 2020. Column (1) displays the results of the regressions where the number of SMEs in 10 thousand is the dependent variable. The independent and control variables are GDP growth, Net Trade in Goods and Services, Foreign Direct Investments, Government Efficiency, Corruption, and Political Stability. The correlation coefficient R is presented. The number of observations is 16.

Standard errors are presented in parentheses.

***Significant at a 1 percent level

**Significant at a 5 percent level

*Significant at a 10 per cent level

The difference in results might be because the act aims to increase government efficiency and decrease corruption, which could translate into increased political stability. However, this would mean that political stability and corruption are correlated, which would violate the assumption of multicollinearity. This creates an opportunity to further our research as Republic Act No. 11032.

5.2 Propensity Score Matching (Main Hypothesis)

To answer the main research question, we use PSM to test the hypothesis:

H_0 : *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is not associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

The PSM allows us to create a comparison group and effectively analyse the policy, while testing the validity of our results through a robustness check. Based on previous literature we can expect a positive effect of the act on the ease of doing business.

Table 8 presents the ATET on the treated subject when matched to non-treated countries.

In this case, it is a positive value, which shows us that being treated (the implementation of Republic Act No. 11032) results in a score increase of around 4.77 in the ease of starting a business. This is statistically significant and has a very low standard error, which suggests that there is a high level of accuracy in the estimated coefficient and internal validity. This highlights the reliability of the policy’s positive effect on the ease of starting business.

Table 8: Propensity Score Matching

Variable	(1)
Treatment	4.769 (0.056)***
Observations	95

Notes: This table shows the Propensity Score. Data is extracted from the World Bank Doing Business Report of 2020 for the years 2016 to 2020 for Lower Middle-income countries in East Asia and the Pacific. The independent variable is the ease of starting business score, and the treatment variable is a dummy that represents the Philippines in the years following the implementation of Republic Act No. 11032. Column (1) displays the average treatment effect on treated (ATET). The number of observations is 95.

Standard errors are presented in parentheses.

***Significant at a 1 per cent level

**Significant at a 5 per cent level

*Significant at a 10 per cent level

These results do not support our hypothesis and suggest that we can accept our alternate hypothesis. However, this is not fully accepted yet, as this looks at all businesses. To further investigate this, we conduct a sector-specific analysis in Section 5.3.

A limitation of this method is that PSM only accounts for observed covariates, which means that matching may still be biased if there are unobserved cofounders, which could lead to endogeneity bias. To increase the reliability of this method, we conduct a robustness check where GDP and Population are included in the model.

Robustness Check

In column one of Table 9, the ATET is 12.880 and is statistically significant. This means that when accounting for GDP, the Philippines experienced an increase in the ease of starting business after being treated. However, the standard deviation is significantly larger than in the PSM of Table 8, which could mean that there is an effect from other unaccounted covariates. In column 2, the ATET is -2.320 and is insignificant, which shows that population alone did not affect the impact of Republic Act No. 11032. The last column presents the ATET when accounting for both the GDP and the population, which presents a significant decrease in the score of starting business by 7.580. However, the standard deviation is significantly larger than in the PSM of Table 8. Overall, the results present a positive significant effect when accounting for GDP, a negative insignificant effect when accounting for population, and a negative significant effect when accounting for both. This robustness check creates implications for the thesis as we are presented with mixed results that suggest the impact of Republic Act No. 11032 differs based on different covariates, thus interpretations should be made with caution. The negative results that were provided when accounting for both GDP and population suggest that there should

be further investigation into the policy’s effects, as there might be issues with how effectively the policy has been implemented, or other factors that could have affected the ease of doing business.

Table 9: Propensity Score Matching Robustness Check

Variable	(1)	(2)	(3)
Treatment	12.880 (3.347)***	-2.320 (1.964)	-7.580 (1.016)***
Observations	95	95	95

Notes: This table shows the Propensity Score Matching Robustness Check. Data is extracted from the World Bank Doing Business report of 2020 for the years 2016 to 2020 for Lower Middle-Income countries in East Asia and the Pacific. The independent variable is the ease of starting business score, and the treatment variable is a dummy that represents the Philippines in the years following the implementation of Republic Act No. 11032. Column (1) displays the average treatment effect on treated (ATET) accounting for the GDP. Column (2) displays the ATET accounting for population. Column (3) displays the ATET accounting for GDP and population. The number of observations is 95.

Standard errors are presented in parentheses.

***Significant at a 1 percent level

**Significant at a 5 percent level

*Significant at a 10 per cent level

5.3 Sector Specific Analysis (Sub Hypothesis B)

To further investigate the research question in more detail and have the opportunity to accept the main hypothesis, we test the last sub-hypothesis:

H_{0b} : *The implementation of Republic Act No.11032 which reduced corruption and government inefficiencies affects all sectors equally.*

Based on the literature review, we can expect the agriculture sector to see an increase in the percentage share. This method allows us to do an in-depth analysis of how effective the act was across different sectors and thus allows business owners and policymakers to understand the business environment more effectively.

Table 10 presents the regression results for the impact of Republic Act No. 11032 on different MSME sectors in the Philippines. For the manufacturing sector, we present a negative coefficient significant at a 1 per cent level, which indicates that the percentage share of manufacturing MSMEs decreased after the implementation of Republic Act No. 11032. On the other hand, MSMEs in the construction sector, and other service sectors increased their percentage share. Interestingly, in the summary statistics of Table 5, we show that the construction sector is one of the smallest sectors, whereas the other services sector has the second largest concentration. The R squared value is not presented as we conduct a regression with Newey West standard errors; however, we do present the P value, which is significant for MSMEs in construction, other services, and manufacturing.

Transportation and communication, wholesale and retail trade, agriculture, forestry, fishery, and other sectors are all statistically insignificant. This shows that these sectors were not affected

by the implementation of Republic Act No. 11032. Briones (2019) states that for SMEs in the agriculture sector to benefit from the act, it had to be implemented effectively. Thus, the lack of an increase in the concentration of SMEs in certain sectors could be because the act was not implemented efficiently. This is also in line with the research by Romero et al. (2019), which found improvements in the department of education, but found there needed to be harsher punishments and more reinforcement of the act for it to be more efficient.

Table 10: Sector Specific Regression Analysis 2021

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Post Treatment	-1.784*** (0.429)	0.357 (0.767)	0.073*** (0.014)	-0.327 (1.056)	0.049 (0.055)	1.580** (0.630)	0.053 (0.032)
Constant	13.537*** (0.414)	3.198*** (0.670)	0.331*** (0.012)	47.706*** (0.681)	0.798*** (0.055)	34.287*** (0.354)	0.143*** (0.032)
Observations	16	16	16	16	16	16	16
P value	0.0009	0.649	0.001	0.762	0.393	0.025	0.120

Notes: This table shows the sectoral regression analysis for the percentage share of the sector in the total MSME in the Philippines from the years 2006 to 2021. Data is extracted from the Asian Development Bank (ADB) Asia SME Monitor. The independent variable is a dummy variable of the Post Treatment, which holds a value of 1 if the year is 2018 or later. Column (1) displays the results for the percentage share of MSMEs in the manufacturing sector. Column (2) displays the results for the percentage share of MSMEs in the transportation and communication sector. Column (3) displays the results for the percentage share of SMEs in the construction sector. Column (4) displays the results for the percentage share of SMEs in the wholesale and retail trade sector. Column (5) displays the results for the percentage share of SMEs in the agriculture, forestry, and fishery sector. Column (6) displays the results for the percentage share of SMEs in other service sectors. Column (7) displays the results for the percentage share of SMEs in other sectors not accounted for in the previous columns. The P value is presented. The number of observations is 16.

Newey West standard errors are presented in parentheses.

***Significant at a 1 per cent level

**Significant at a 5 per cent level

*Significant at a 10 per cent level

Overall, the results show us that the act effectively helped MSMEs in construction and other services expand, whereas it had no impact on MSMEs in transportation and communication, wholesale and retail trade, agriculture, forestry, fishery, and other sectors; and a negative impact on ones in manufacturing. However, it is important to note that there are only 16 observations per sector, which can limit the statistical significance and the power of the analysis. Regardless, we can reject the null hypothesis B and thus accept the alternate hypothesis:

H_{ab} : *The implementation of Republic Act No.11032 which reduced corruption and government inefficiencies affects all sectors differently.*

5.4 Summary

To conclude the results, the analysis shows that there is a correlation between decreased corruption and an increase in the score of starting a business. The PSM shows us that the ease of doing business did improve after the implementation of Republic Act No. 11032. The sector-

specific analysis finds that Republic Act No. 11032 was successful in helping MSMEs increase their percentage density in the market for the construction sector and other services. Overall, we reject our main null hypothesis, and partially accept our main alternate hypothesis which states:

***H_a:** The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

Overall, our results confirm that the business environment for MSMEs improved after the implementation of Republic Act No. 11032. This is because the ease of doing business and the score for starting a business improved for MSMEs in some sectors, and did not in others.

6 Conclusion

6.1 Main Findings

This thesis aims to answer the question:

How has Republic Act No. 11032 influenced the business environment for micro, small and medium enterprises in the Philippines until 2021?

We can conclude, that the Republic Act No. 11032 has influenced the business environment positively for MSMEs.

Firstly, in the theoretical framework, we provide definitions for crucial terms and relevant economic theory. Additionally, we find that past scientific research looking into the Republic Act No. 11032 states that although the act helped increase transparency with citizens through the digitalisation of their resources, there needs to be an implementation of stricter punishments for those who do not follow the act and commit corruption (Romero et al., 2019). Roxas et al. (2013) looks at how weak and unreliable institutions hinder the growth of enterprises. This led to the extraction of the main hypothesis:

H₀: *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is not associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

As past scientific research on the Philippines and Republic Act No. 11032 is limited, the theoretical framework explores other research of a similar nature. The research leads to several sub-questions that help answer our research question. Firstly, past research shows a correlation between government corruption and business performance, which led to the sub-question: Is a decrease in corruption in the Philippines associated with an improvement in business performance? Secondly, a policy report by Briones (2019) predicts that the Republic Act No. 11032 was beneficial to the agriculture and food sector, which led to the second sub-question: is there a difference in the effects of Republic Act No. 11032 on MSMEs in different sectors?

To answer the first question, we derived the following hypothesis:

H_{0_a}: *A decrease in corruption is not associated with an increase in the ease of starting a business in the Philippines.*

The linear regression on the ease of starting business found that the Philippines has a significant positive correlation between the score of starting a business and corruption, which means the null hypothesis B is rejected. We also find that GDP growth is correlated positively with starting a business. This led to a robustness check and another question: does the positive correlation between corruption and the score of starting a business translate to a correlation between corruption and the number of SMEs? Another linear regression is conducted with the number of SMEs as the dependent variable, and does not show a correlation between the two, but does present a correlation between the number of SMEs and political stability. This does not mean that MSMEs are not affected by Republic Act No. 11032 as the act also looks at increasing

government efficiency, which could increase political stability. Overall, these statistical tests lead us to reject our first sub-hypothesis, and accept the alternate:

H_{αa}: *A decrease in corruption is associated with an increase in the ease of starting a business in the Philippines.*

Consequently, to test the main hypothesis, we conducted Propensity Score Matching. The results find that the Philippines did experience a positive ATET after the introduction of Republic Act No. 11032. However, a robustness check which introduced GDP and Population as covariates is conducted. The test, which includes both GDP and Population, finds a negative ATET, which calls for further analysis and opportunities for further research.

Finally, to test the second sub-question, a sector-specific analysis is conducted to test the hypothesis:

H_{0b}: *The implementation of Republic Act No.11032 which reduced corruption and government inefficiencies affects all sectors equally.*

The summary statistics do not show any proof for our hypothesis; as they show variation in the concentration of MSMEs in different sectors. After conducting a sector specific regression analysis, we find that after the implementation of Republic Act No. 11032, the percentage share of MSMEs in the manufacturing sector experienced a decrease. On the other hand, the construction sector and other service sectors experienced a statistically significant increase in the percentage share of MSMEs. This is not in line with the prediction by Briones (2019), who predicted that the food and agriculture SMEs would benefit in their sector due to the implementation of Republic Act No. 11032.

Therefore, to answer our research question we conclude that the implementation of Republic Act No. 11032 partially influenced the ease of doing business for micro, small, and medium enterprises in the Philippines. And thus, reject our null hypothesis, partially accept our alternate hypothesis:

H_α: *The implementation of Republic Act No. 11032, which reduced corruption and government inefficiencies, is associated with an increase in the ease of doing business for MSMEs in the Philippines after 2018.*

The influence of the act is more prominent in certain sectors. This could be because the data comes from major cities where the act was probably enforced more, and SMEs in certain sectors are more present.

The results of this thesis are useful to policymakers in the Philippines. The research allows them to see whether Republic Act No. 11032 had benefits for MSMEs. Although this was not the aim of the act, the effect on MSMEs can reflect how efficiently it has been implemented. The results show that MSMEs in manufacturing experienced a decrease in the percentage share of the sector market. Regulators need to look at this decrease as it could have a significant impact on the economy. Additionally, this research helps fix the misallocation of resources as it helps understand where to move the resources to improve the act and government efficiency.

Secondly, from a strategic economic perspective, MSMEs can use the results of this study to make informed decisions. For example, new entrepreneurs can see that there was a decrease in manufacturing MSMEs after the Republic Act No. 11032. They can then investigate whether this means that there is decreased competition and an opportunity to enter the market, or if large enterprises are taking over, and should not enter the market. Additionally, this study shows that after the implementation of Republic Act No. 11032, the ease of doing business generally improved, which means that entrepreneurs can use this information to understand that the environment for starting a business or conducting a business is beneficial, and thus choose to enter a market.

6.2 Limitations

In December 2019, the Coronavirus pandemic started, which led to a global disruption in economies. In the PSM we saw that when GDP was introduced, the value changed. The ADB Asia SME Monitor explains the changes in values and does not mention any COVID-19 policies in their explanation. This does not mean that the data and results are clear from omitted variable bias. It could be argued that such changes can be attributed to other Covid-19 interruptions such as lockdowns, reduced demands, and digitalisation of businesses. This was not accounted for, as there was not enough data to do so. This creates an opportunity to recreate this research in the future when more data is available to account for changes due to the pandemic.

Another implication for internal validity is the small sample size. As data on the Philippines is extremely limited, this research used all the data that was available, which was still a relatively small sample size. This means that the statistical reliability of the study might be lower. However, this does not mean that the study is not significant because it creates a basis for future research once more data is available. Additionally, it allows policymakers to understand how the policy might be affecting MSMEs to guide future changes to the act.

Finally, there is a lack of generalizability which affects external validity. Although this research shows the effect of Republic Act No. 11032 on MSMEs, and other countries could learn what can be done, there are still some limitations. The ease of doing business data by the World Bank refers to business conducted in the largest city; thus, it may not be representative of the whole country. This is specifically crucial in the context of this thesis as SMEs are largely present in rural areas. The results may be biased, as government effectiveness, corruption perception, and political stability are likely to be viewed more confidently as the main bureaucratic institutions tend to be situated in these areas. Additionally, the results of this study apply to MSMEs, thus recommendations should not be taken by large enterprises as they might not be general.

6.3 Suggestions for Future Research

The introduction of additional covariates in our PSM model show that they also affected the dependent variable, thus it is important to analyse this to form an accurate conclusion. The main suggestion for future research is to introduce additional covariates and find reasons for changes when introducing them.

The data we use for the sector-specific analysis was the percentage share of MSMEs participation in different sectors. However, a more in-depth analysis would include the number of MSMEs in each sector, and introducing regional results. As previously mentioned, the data used refers to business in the largest city. However, MSMEs, especially in Asia, are generally located in more rural areas. Thus, it is important to research whether there are differences in the results for different sectors, and regions. Especially since more rural areas tend to have more bureaucratic problems and increased corruption. This would help in forming the Filipino government more concretely and which changes need to be made. Additionally, understanding how the act affects women-ran and male-ran MSMEs would show if there are gender barriers that the Philippines could improve on. None of this research was conducted as such data is not available to us.

6.4 Implications for Theory and Practice

Our analyses showed that there are complex relationships between GDP, government efficiency, political stability, corruption, and the business environment for MSMEs. This shows us that our models may be over-simplified, and thus do not allow for an accurate interpretation.

As our study shows that the act was partially effective in improving the business environment for MSMEs, policymakers must not assume that changes do not need to be made. Our findings show that this was not effective in all sectors of MSMEs, and thus policymakers should investigate further changes. According to Romero et al., (2019), stricter implementation of the act is needed. As our research is quantitative; policymakers might want to conduct qualitative research to further understand the lacking qualities of the act. For example, surveying local MSMEs would be useful in understanding what they need the most help with and what support they think is lacking from the government. Based on the results of the qualitative survey research, combined with our quantitative research, policymakers could make informed decisions. Another implication is that although the act needs further implementation, this might not apply if the analysis was conducted for large enterprises. Thus, policymakers should analyse the effects of the act on all enterprises too rather than only MSMEs.

As previously mentioned, our research adds to scientific research on SMEs and lower-income countries. We show the different effects that regulatory changes can have on MSMEs and provide suggestions on how more research can be conducted in the future. In Section 2.2, we explore different economic concepts related to this thesis. From the perspective of institutional theory, we show the effect of government institutions on MSME behaviour. We find that the concentration of MSME participation in different sectors, the score of starting a business, and the number of registrations change due to this institutional change. Regarding economic development theory, this research shows us how the increase in government efficiency has provided a better economic and business environment. Finally, although we don't directly explore the productivity of firms, we can assume that productivity has improved as the ease of doing business has improved. Additionally, as corruption has decreased, we can assume that productivity has also increased, as the Philippines has a "sand the wheels" corruption relationship. Overall, we can apply this economic theory to our thesis; however, due to a lack of observations and possible missing covariates, this should be interpreted with caution.

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A Appendix

Table A.1: Relevant Amendments in Republic Act No. 11032

Section	Description
2. Declaration of Policy	Amended to include “efficient turnaround of the delivery of government services” and not only include simplified procedures, but also requirements, along with expediting business and non-business transactions in the government. The remainder of the section remains unchanged to state that effective practices should be established to prevent government red tape and corruption, and public officials should maintain honesty and transparency.
3. Coverage	Extended to apply to government-owned operations abroad and to cover business-related transactions.
5. Reengineering of Systems and Procedures	Extended to apply to government services rather than limited to frontline services and to regularly undertake cost compliance analyses. They introduce the Anti-Red Tape Authority (ARTA) which is mandated to review existing laws and provide regulatory assessments of the proposed regulations.
6. Citizen’s Charter	Introduces district units to the act, and web versions of the Citizen’s Charter. The Citizen’s charter is also updated to include a uniform checklist of requirements for each type of application.
7. Zero Contact Policy	Indicates that there is only to be contact preliminarily, and web-based once introduced.
9. Accessing Government Services	Is updated to define the time frame in which each request needs to be processed.
10. Automatic Approval	Defines the procedures if a government office fails to approve an application in time.
13. CBP	Introduces the Central Business Portal’s (CBP) role in increasing transparency through awareness campaigns.
14. Philippines Data Bank	Focuses on providing more data on businesses for government offices.
15. Inter connectivity Infrastructure Development	Focuses on increasing communication infrastructure and streamlining the process of non-processed licenses.
16 and 17. ARTA	Focuses on Anti Red Tape Units and Authorities.

Note: This table describes the relevant amendments and additions to Republic Act No. 11032 for this Thesis.
Source: Republic of the Philippines (2018)

Table A.2: GDP by Country Summary Statistics Main Hypothesis

Variable	N	Min	Max	Mean	Std Deviation
Bangladesh	5	265.225	373.979	321.106	43.518
Bhutan	5	2.323	2.736	2.538	0.156
Cambodia	5	20.017	27.089	23.946	2.853
India	5	2294.797	2835.606	2631.932	201.499
Indonesia	5	931.877	1119.100	1033.584	68.382
Kiribati	5	0.207	0.234	0.221	0.010
Lao PDR	5	15.913	19.982	17.770	1.274
Micronesia Fed. Sts.	5	0.325	0.394	0.368	0.028
Mongolia	5	11.181	14.206	12.672	1.291
Myanmar	5	63.298	79.006	70.257	6.548
Nepal	5	24.524	34.186	30.845	4.076
Pakistan	5	300.426	356.128	326.060	21.881
Papua New Guinea	5	20.759	24.751	23.242	1.566
Philippines	5	318.627	376.823	346.505	23.737
Solomon Islands	5	1.379	1.619	1.524	0.102
Sri Lanka	5	84.304	94.494	90.040	4.379
Timor Leste	5	1.566	2.163	1.801	0.274
Vanuatu	5	0.781	0.937	0.884	0.061
Vietnam	5	257.096	346.616	305.907	36.980

Notes: This table shows the summary statistics for GDP in billions for Lower Middle-Income countries in East Asia and the Pacific from 2016 to 2020. The data is obtained from the World Bank Doing Business Report of 2020.

Table A.3: Population by Country Summary Statistics Main Hypothesis

Variable	N	Min	Max	Mean	Std Deviation
Bangladesh	5	159.785	167.421	163.640	3.004
Bhutan	5	0.750	0.773	0.762	0.009
Cambodia	5	15.625	16.397	16.017	0.304
India	5	1338.636	1396.387	1368.267	22.845
Indonesia	5	261.850	271.858	266.971	3.970
Kiribati	5	0.119	0.126	0.122	0.003
Lao PDR	5	6.891	7.319	7.105	0.169
Micronesia Fed. Sts.	5	0.110	0.112	0.111	0.001
Mongolia	5	3.030	3.294	3.163	0.105
Myanmar	5	51.892	53.423	52.662	0.603
Nepal	5	27.861	29.349	28.546	0.576
Pakistan	5	213.525	227.197	220.025	5.425
Papua New Guinea	5	8.899	9.750	9.327	0.337
Philippines	5	104.875	112.191	108.551	2.889
Solomon Islands	5	0.628	0.691	0.659	0.025
Sri Lanka	5	21.425	21.919	21.665	0.204
Timor Leste	5	1.225	1.300	1.262	0.030
Vanuatu	5	0.283	0.312	0.297	0.011
Vietnam	5	93.127	96.649	94.900	1.390

Notes: This table shows the summary statistics for the total population in millions for Lower Middle-Income countries in East Asia and the Pacific from 2016 to 2020. The data is obtained from the World Bank Doing Business Report of 2020.

Table A.4: Description of Variables Sub-Hypothesis A

Variable	Type	Form	Description
Score of Starting Business	Dependent	Continuous	Composite score on a scale of 0 to 100
GDP Growth	Control	Continuous	Percentage growth of GDP
Net Trade in Goods and Services	Control	Continuous	Presented in billion US dollars
Foreign Direct Investment	Control	Continuous	Presented in billion US dollars
Government Effectiveness	Control	Continuous	Score ranging from -2.5 to 2.5
Control of Corruption	Control	Continuous	Score ranging from -2.5 to 2.5
Political Stability	Control	Continuous	Score ranging from -2.5 to 2.5
Total Number of SMEs	Dependent	Continuous	Total number of SMEs in 10 thousand

Note: Description of Variables Sub-Hypothesis A which includes the type of variable, the form, and the description of the variable values.

Table A.5: Durbin Watson Test Sub-Hypothesis A

Value
Durbin Watson Statistic 2.302

Note: Table presents the Durbin Watson Test Statistic for the regression in Sub-Hypothesis A

Table A.6: Breusch Pagan Test Sub-Hypothesis A

Value	
Chi Squared	0.670
P value	0.412

Note: Table presents the Breusch Pagan Statistic for the regression in Sub-Hypothesis A

Table A.7: Shapiro Wilk Test Sub-Hypothesis A

	Obs	Z	V	z	P value
Residuals	16	0.918	1.657	1.003	0.158

Note: Table presents the Shapiro Wilk Test Statistic for the regression in Sub-Hypothesis A

Table A.8: Breusch Pagan Test Sub-Hypothesis B

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chi Squared	2.340	1.410	1.290	0.010	2.510	0.130	2.630
P value	0.126	0.235	0.256	0.909	0.113	0.721	0.105

Notes: The table presents the Breusch Pagan Statistic for the regression in Sub-Hypothesis B. Column (1) displays the results for the percentage share of MSMEs in the manufacturing sector. Column (2) displays the results for the percentage share of MSMEs in the transportation and communication sector. Column (3) displays the results for the percentage share of MSMEs in the construction sector. Column (4) displays the results for the percentage share of MSMEs in the wholesale and retail trade sector. Column (5) displays the results for the percentage share of MSMEs in the agriculture, forestry, and fishery sector. Column (6) displays the results for the percentage share of MSMEs in other service sectors. Column (7) displays the results for the percentage share of MSMEs in other sectors not accounted for in the previous columns. The P value is presented. The number of observations is 16 for each column.

Table A.9: Shapiro Wilk Test Sub-Hypothesis B

	Obs	Z	V	z	P value
Residuals	16	0.893	2.164	1.533	0.063

Notes: Table presents the Shapiro Wilk Test Statistic for the regression in Sub-Hypothesis B.

Table A.10: Durbin Watson Test Sub-Hypothesis A

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Durbin Watson Statistic	0.243	0.264	1.082	0.376	0.623	0.480	0.220

Notes: Table presents the Durbin Watson Test Statistic for the regression in Sub-Hypothesis B. Column (1) displays the results for the percentage share of MSMEs in the manufacturing sector. Column (2) displays the results for the percentage share of MSMEs in the transportation and communication sector. Column (3) displays the results for the percentage share of MSMEs in the construction sector. Column (4) displays the results for the percentage share of MSMEs in the wholesale and retail trade sector. Column (5) displays the results for the percentage share of MSMEs in the agriculture, forestry, and fishery sector. Column (6) displays the results for the percentage share of MSMEs in other service sectors. Column (7) displays the results for the percentage share of MSMEs in other sectors not accounted for in the previous columns. The number of observations is 16 for each column.