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Contents

Gender and Age Differences in Choice of Holiday Destination: Case of Langkawi, Malaysia

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Abstract

While gender and age are considered as important demographic factors in tourism segmentation, lack of attention has been given by tourism researchers. Moreover, gender and age analysis within tourism studies are still limited, particularly in the context of choice of destination. The aim of this paper is to examine the role of gender and age in determining the destination choice. Langkawi has been chosen as a location for the study due to its popularity among the local and international tourist. Survey questionnaire is used as a tool for data collection. A total of 529 Langkawi holidaymakers participated in the study. T-test and ANOVA has been employed to analyse the data. The findings indicate that gender and age both influence Langkawi being chosen as a holiday destination. Male and female consumers place different emphasis on the selection of Langkawi as a destination of choice. These findings suggest that tourism advertisers and destination promoters need be aware of different needs and wants of both males and females. However, tourists of different ages evaluate Langkawi similarly, which marketers can use a variety of promotion packages for all age group. The study's practical implications and limitations are discussed.

Keywords: gender, age, destination choices, Langkawi

1. Introduction

Tourism is one of the industries that grow rapidly, and it became one of income generator to many countries (Ababneh, 2013). Malaysia becomes one of the favourite tourism destinations among the tourists due to its natural beauty. Moreover, Malaysia itself is located at a very strategic place which provides easy access to international tourist. Malaysia is also very rich in nature (Karim, 2014). A variety of tourism destination offers a lot of attraction in term of products and facilities which may attract more tourists to visit. A wide range of tourism destinations also provide opportunity for travellers to choose their destination depending on their preferences and purposes of visit. Based on WTTC (2019) report, travel and tourism have contributed approximately RM 190.3 billion (USD 47.2 billion) in 2018, charting a 2.6% growth compared to 2017.

Due to its importance in income generation to the country, Ministry of Tourism and Culture Malaysia (MOTAC) has taken a serious action in promoting Malaysia as one of the top destinations while promoting its attractiveness (Zainuddin, Radzi, & Zahari, 2016). Numbers of tourists arrival in Malaysia is keep increasing year by year as shown in table 1 and Malaysia have received 26.10 million of tourist arrival in year 2019 and earn RM82.2 billion from tourism activities (Tourism Malaysia, 2020). This tourism growth has enabled Malaysia to position herself as one of competitive countries whereby Malaysia has been ranked at 26th place out of 136 countries (New Straits Times, 2017). In addition, World Economic Forum, WEF (2017) also claimed that Malaysia has done a lot of upgrading in term of technology, facilities as well as international readiness as a preparation to receive more tourists. Due to this improvement, tourism Malaysia is continuously growing and Malaysia is also ready to receive more tourists to visit Malaysia.

Table 1. Tourist Arrivals and Receipts to Malaysia

Year	Arrivals	Receipts (RM)
2019	26.10 million	86.1 billion
2018	25.83 million	84.1 billion
2017	25.95 million	82.1 billion
2016	26.76 million	82.1 billion

2015	25.72 million	69.1 billion
2014	27.44 million	72.0 billion
2013	25.72 million	65.4 billion
2012	25.03 million	60.6 billion
2011	24.71 million	58.3 billion
2010	24.58 million	56.5 billion
2009	23.65 million	53.4 billion
2008	22.95 million	49.6 billion
2007	20.97 million	53.4 billion
2006	17.55 million	36.3 billion

(Source: Tourism Malaysia, 2020)

Langkawi is one of the beautiful places in Malaysia which is gifted with 99 stunning islands that has strong character to attract tourist to visit. Langkawi is one of the most popular destinations in Malaysia. According to Lembaga Pembangunan Langkawi, LADA (2020), Langkawi have received around 3.92 million of tourist arrival in year 2019 which reported 8% increment as compared to 2018 which is 3.62 million of tourist arrival. Tourist arrival in Langkawi is increasing since 2011 until 2019 as illustrated in Table 2. Moreover, Langkawi's progressive situation has been supported by other factors such as AirAsia provision of direct flight from Shenzen to Langkawi whereby it assist Langkawi to boost and gain more international tourists from China starting 9th August 2017 (The Star Online, 2017).

Table 2. Tourist Arrivals to Langkawi

Year	Arrivals
2019	3.92 million
2018	3.62 million
2017	3.67 million
2016	3.63 million
2015	3.62 million
2014	3.60 million
2013	3.41 million
2012	3.06 million
2011	2.81 million

(Source: LADA, 2020)

Langkawi has becomes one of the top destinations in Malaysia due to its amazing attractions such as beautiful beaches with clear crystal water, tropical weather, flora and fauna, historical places, variety outdoor activities and also duty-free shopping centre (Omar, Othman, & Mohamed, 2014). Langkawi is also very famous with their natural attributes and beautiful landscape including rainforests, mountains, beaches and its coral reefs (Aliman, Hashim, Wahid, & Harudin, 2016). Due to the diversity of attractions in term of nature, Langkawi has aura to attract tourists who love the nature. Furthermore, Langkawi also offered heritage value in terms of its uniqueness of historical places such as Makam Mahsuri, Beras Terbakar and Tasik Dayang Bunting. For those who love outdoor activities, Langkawi also presents countless activities such as underwater world, Langkawi Skycab, Langkawi Wildlife and Bird Paradise, water activities and Skytrex Langkawi.

Past studies in tourism have explored the similarities and differences in respondent profile such as gender, age, attitudes and education level with other perspective of tourism such as sustainability, information sources, tourist expectation, perception and many more. However, limited study was found to concentrate on differences of respondent profile in deciding a destination choice. Thus, this study attempts to explore if there are any differences in terms of destination choice whereby it will look to two different perspectives which is gender and age. Moreover, there is limited study that focusing in Langkawi, Malaysia even though Langkawi is popular destination among tourists. Therefore, the objective of this paper is to examine the role of gender and age in determining the destination choice of Langkawi. Hence, this research paper will provide insights into the different perspective of gender and age with regard to destination choice in Langkawi.

2. Literature Review

2.1 Destination Choice

Tourists develop a psychological choice set of comparing destinations before finally selecting a place to visit. The choice of destination is depending on two factors which is internal and external factor (Karl, Reintinger & Schmude, 2015). Internal factor is also known as individual factor which is the factor that are related to individual characteristic such as motivation to visit, taste, travel constrain, past experience and traveller personality. However, external factor is an environmental factor that will affect a choice of destination one particular traveller such as the ability of information, socio culture, influencer (family or friends) and lifestyle (Mutinda & Mayaka, 2012; Karl, Reintinger, & Schmude, 2015). In order to choose one particular destination, travellers will highly involve in decision making process. According to Karl, Muskat and Ritchie (2020), decision making process will involve several stages that need to be go through by tourists before they decide to choose one final holiday destination. In order to gather the information and evaluate them, tourists will spend more time on it (Thiumsak & Ruangkanjanases, 2016).

Destination choice has been tested in numerous studies. Pan, Rasouli and Timmermans (2021) has examined the choice of destination among tourist which focusing on how destination images of tourists' social network can encourage the tourist choice behaviour. The finding indicates that destination image of tourists' social network help to enhance the tourists knowledge about holiday destination which it has influence the choice of destination. On other hand, study by Mussalam and Tajeddini (2016) revealed that, travel attraction, infrastructure and facilities influenced the traveller in choosing Switzerland as their destination holidays. Research by Lim and Hector (2021) was explored on what are the factors that been considered by family when choosing a destination during evacuation period during Typhoon Haiyan. There are two destination that categorized by Lim and Hector (2021) study which is public shelter and family or friends' house. The finding reveals that gender, income, material status and number of family members are factors that influence the choice of destination.

A study by Mutinda and Mayaka (2012) found that Nairobi residents motivated to choose local tourism destination because of familiarity, economic situation, the availability of information, travel arrangement services, personal safety, for leisure and relaxation as well as cultural consideration. Tomic, Konacevic, Berber and Milic (2014) claimed that there are seven factors that influence young travellers which is student from Esbjerg to choose Europe as their destination holiday. Among the factors are having fun, the availability to information, meet new people, exploring something new, variety of shopping place, easy and reasonable price for travel package and variety of outdoor activities.

2.2 Gender Influence

Research on the demographic profile is widely discussed in previous study. The profiles that are frequently used are gender, age, level of income, occupation and marital status. However, gender is one of the common factors that has been examined as one of the factors that give effect to certain study such as behavioural intention (Kim, Cho, & Kim, 2019), tourists' expectation (Wang, Qu, & Hsu, 2016) and young tourists' perception (Carr, 2011). According to World Health Organization (WHO), gender refer to the two group of social constructed personalities which is male and female, and these two groups have a significant different in term of norms and behaviour which can be seen through communication, decision making, relative power as well as relationship.

Kim, Cho and Kim (2019) examined how gender of customer influence the relationship between wine promotion (promotion menu, based information about wine, customer service, human sale) and customer satisfaction. The finding reveals that there are significant different between male and female towards wine promotion and customer satisfaction. Based on the finding it appears that gender was positively influence by promotion menu. Kim, Lehto and Morrison (2007) examined the gender difference in search the travel information via online. This study was examining the differences between male and female in term of online travel website functionality, content preferences and search behaviour. The study found that gender has a significant different whereby females tent to use variety of online and offline sources of information about destination and become the one who decide the travel destinations.

Study by Wang, Qu and Hsu (2016) has examined the differences between male and female tourists from China in term of their expectation towards Macao as a travel destination. The study was conducted based on cognitive image which is advertising and word of mouth. The result shows that there are significant difference between gender and cognitive image. Male are more likely to be influenced by destination advertising whereas female thought word of mouth is more valid and trusted. Research by Carr (2011) has discovered gender differences in young traveller perception of danger in London whereby danger are assessed by considering the safety, relaxed, risk, susceptible and threatened while the tourists in London city. The result indicates that there are different idea

and perception between male and female in term of the level of dangerous in London city. Female claims that London is dangerous as compared to male. Male feel less dangerous when they at public spaces. The result also shows that there is no significant difference between daytime and night by male whereas female claims that night-time are more dangerous as compared to daytime. Considering the lack of research on the effect of gender on the destination choice, therefore the following hypothesis is suggested:

H1: There is significant difference in gender on destination choice of Langkawi

2.3 Age Influence

Age also play an important role when the study would like to measure the differences between groups in one particular scenario. In this case, the current study would like to explore the differences of various age groups in choosing holiday destination. According to Oxford Dictionary, age is referred to the length of period that an individual has lived, or a thing has lasted. Age become quite popular topic in tourism research such as Bojanic (2011) studied the shopping expenditures and a study by Jonsson and Devonish (2008) focused on travel motivation. On other hand, study by Basaric et al., (2016) explored on travel behaviour.

A study by Jonsson and Devonish (2008) investigated whether there are any differences in term of travel motivation with nationality, gender and age among traveller who visit Caribbean Island of Barbados. There are four main travel motivations that been focused in this study which is culture, pleasure-seeking, relaxation and physical motivation. The result shows that, there are significant difference between nationality and age. However, gender did not significantly impact travel motivation to visit Barbados. Similarly, Basaric et al., (2016) have identified the travel characteristics in Novi Sad with regards to gender and age. Through its finding, it shows that there are significant different between eight age group. Each age group have different travel characteristics. As an example, age group range from 19 to 25 years old make a longest journey in travel compare to other groups. On the other hand, Bojanic (2011) examined the key target market for shopping mall in United State related to age and family situation which is marital status and number of children. The result found that, there are no significant difference between age and marital status towards shopping expenditure. However, having children does affect the shopping expenditures. Due to the argument of the age-significant difference, the current research proposes the following hypothesis:

H2: There is a significant difference in age on destination choice of Langkawi

3. Methodology

The aims of this study is to explore the role of gender and age in determining Langkawi as the destination choice. This paper uses quantitative approach and using non-probability sampling technique. The target population are tourists visiting Langkawi as their choice of holidays destination. A set of questionnaires are filled up by tourists whereby it took approximately 5 to 10 minutes to complete.

3.1 Measurement

This questionnaire was divided into two sections which is respondent profiles and destination choice. There are 18 questions on the destination choice part which all the question is related to Langkawi. The dimension of each construct is adapted from several past studies such as Seddighi and Theocharous (2001); Kozak (2000); Seyidov and Adomaitiene (2016); and Phau, Quintal & Shanka (2014) and all the items was measured using likert scale which is from 1 (strongly disagree) to 5 (strongly agree).

Lastly, there are 6 questions for respondent's profile in order to understand the demographic characteristics of respondents. The questions are covering items such as gender, age, nationality that divided into two group which is Malaysian and non-Malaysian, time visited Langkawi, sources of information about Langkawi. The descriptive summary of these finding is reported in table 3 and 4. This study consisted of 529 respondents which includes local and international tourists. The questionnaire asked about the factors that influenced them to choose Langkawi as their holiday destination.

3.2 Data Analysis

After all data has been collected, data analysis is analysed using Statistical Package Social Science (SPSS) software. Firstly, the data was analysed using the descriptive analysis in order to disclose the respondent profile. Then, t-test was run for gender and ANOVA test was employed for age to compare means between groups.

4. Result and Discussion

4.1 Profile of Respondents

The demographic profile is shown in Table 3. About 61.2% of the participant are female while male participant is

38.8%. For age, 21.4% are aged between 18 to 24 years, 24.4% are 25 to 30 years, 19.1% are 31 to 34 years, 20.8% are 35 to 40 years while for 41 years and above are 14.4%. For nationality, there are inbound and outbound tourists that involve in this study. 407 respondents are from Malaysia which comprise of 167 Malay, 153 Chinese, 85 Indian and 2 are others. On other hand, 122 respondents are international tourists which are come from 15 countries which is Poland (7), Denmark (6), United Kingdom (6), France (6), Netherlands (7), Russian (6), Australia (9), Canada (11), Egypt (11), China (17), Qatar (10), United Arab Emirates (6), Brunei (7), Singapore (6) and Indonesia (7).

Respondents also have been asked on how many time they have visited Langkawi and surprisingly, all of them have visited Langkawi before. Around 27.8% of respondents have visited Langkawi for 4 times, followed by 25.3% (3 times) and 23.4% have visited Langkawi 2 times. 124 respondents also declared that they have visited Langkawi more than 5 times.

New platform which is digital platform became an important source when traveller want to choose their travel destination. 457 respondents claimed that, they obtain the information about Langkawi via social media (20.9%) which is Facebook, Instagram as well as Twitter; Word of mouth (17.9%), website (15.7%), travel agency (13.7%), blog (13.7%) and recommendation from family and friends (12%) also become a platform to traveller in finding the information about Langkawi. A traditional platform such as magazine (0.4%), newspaper (1.3%), television (1.8%) and billboard (1.6%) appear to have less impact in providing the information about Langkawi.

Table 3. Profile of respondents

Variable	Study	Percent
Gender		
Male	205	38.8
Female	324	61.2
Age		
18-24	113	21.4
25-30	129	24.4
31-34	101	19.1
35-40	110	20.8
41 years and above	76	14.4
Nationality		
Malaysian		
Malay	167	31.6
Chinese	153	28.9
Indian	85	16.1
Non-Malaysian		
Poland	7	1.3
Denmark	6	1.1
UK	6	1.1
France	6	1.1
Netherlands	7	1.3
Russian	6	1.1
Australia	9	1.7
Canada	11	2.1
Egypt	11	2.1
China	17	3.2
Qatar	10	1.9
UAE	6	1.1
Brunei	7	1.3
Singapore	6	1.1
Indonesia	7	1.3

How many times did you travel to Langkawi?		
2 times	124	23.4
3 times	134	25.3
4 times	147	27.8
More than 5 times	124	23.4
How did you get information about Langkawi?		
Social Media	457	20.9
Magazine	8	0.4
Newspaper	29	1.3
Television	40	1.8
Word of Mouth	391	17.9
Billboard	36	1.6
Blog	300	13.7
Travel Agency	318	14.6
Website	342	15.7
Family or Friends	263	12.0

Respondent are also asked to rank which sources of information are important to them before they decide to choose Langkawi as their holiday destination. Based on the finding, there are slightly different view between new and old platform. As shown in table 4, most of the respondents rate new digital platform as more important to them in order to gather the information about Langkawi. The social media, word of mouth and travel agency become very important sources where by each of the get 50.9%, 45.0% and 52.7% respectively. Respondent also rate travel blog (51.6%), website (52.7%) and recommendation from family and friends (45.6%) are important sources to them. Magazine and newspaper are not important at all to the traveller and television and billboard also not important.

From here, it can be concluded that the traditional platform of advertising is less relevant to the travellers and marketers should choose the latest technology and new marketing technique in order to advertise the holiday destination to potential traveller. Due to the advance in technology, most of the travellers choose a very easy, less effort and less costly platform such as online digital based to find the information that they needed and make a decision according to their preferences.

Table 4. Sources of Information

Source of Information	1	2	3	4	5
Social Media	-	-	-	49.1%	50.9%
Magazine	57.3%	34.8%	7.9%	-	-
Newspaper	56.0%	40.8%	3.2%	-	-
Television	45.9%	54.1%	-	-	-
Word of Mouth	-	1.5%	2.3%	51.2%	45.0%
Billboard	40.8%	59.2%	-	-	-
Travel Blog	-	-	-	51.6%	48.8%
Travel Agency	-	-	-	47.3%	52.7%
Website	-		-	52.7%	47.3%
Family / Friends	-	-	3.0%	45.6%	51.4%

Note: 1: Not important at all; 2: Not important; 3: Neutral; 4: Important; 5: Very Important

4.2 T-test Result of Significant Difference of Gender on Destination Choice

The current study uses T-test analysis to examine the significant differences between gender on the destination choice of Langkawi. According to Fisher (1973), the acceptable value of T-test is the cut-off value (t-value) are more than 1.96 and the significant value (p-value) should be less than 0.05. As shown in table 5, the result from T-test analysis indicates that, there are significant difference between male and female in factor of choosing destination choice (t = 4.811, p = 0.000). Based on the mean value, it indicates that male (mean = 83.75) was found to be more concerned when selecting the destination of choice as compared to female (mean = 82.04).

Table 5. Analysis of T-test

Variable	Gender	N	Mean	t	df	Sig. (2 tailed)	Hypothesis	Results
Destination Choice	Male	205	83.75	4.811	527	.000	H1	Supported
	Female	324	82.04					

4.3 ANOVA Result of Significant Difference of Age on Destination Choice

For the current study, there are 5 different age group that has been examined towards the factor in choosing Langkawi as destination choice. ANOVA analysis has been used to see if there any significant difference between age on the destination choice. The results indicate that, there is no significant difference between age group on factor choosing Langkawi as travel destination. The value form ANOVA test are t-value is 1.747 ($\leq$ 1.96) and p-value is 0.138 ($\leq$ 0.05). The result is shown in table 6.

Table 6. Analysis of ANOVA

Variable	Age	N	Mean	Std. Deviation	F	Sig.	Hypothesis	Results
Destination Choice	18-24	113	82.35	4.08	1.747	.138	H2	Not Supported
	25-30	129	82.81	4.15				
	31-34	101	83.06	3.87				
	35-40	110	82.09	4.30				
	41 years and above	76	83.47	3.71				

5. Discussion, Implications, Limitations and Future Research

Based on data analysis and result obtained, the findings are aligned with past researches. Firstly, it is verified that there is a significant different between gender and destination choice. This finding is parallel with the study held by Kim, Cho and Kim (2019); Wang, Qu and Hsu (2016); and Carr (2011) where past research also found that, there are significant different between male and female. As mention by Kim, Lehto and Morrison (2007), females tent to use variety of sources of information about destination before they make decision. Thus, due to this finding, the propose hypothesis (H1) is accepted.

Second objective was to investigate if there is any significant different between age and destination choice. This objective contains some mixed findings where some studies found there are significant different, and some studies claimed that there are no significant different. The current study shows that opposite result with the study held by Jonsson and Devonish (2008); and Basaric et al., (2016). The current result show that there are no significant different between age and factor in choosing destination choice and this can be supported by the study from Bojanic (2011) which they also found that there are no significant different between age and family situation. Thus, the second hypothesis is rejected.

5.1 Implications

The finding obtained in this study have an implication to researcher as well as to marketers. For researcher, this study provides a better understanding in term of the differences respondent behaviour towards the choice of destination. Gender was found to be different in term selecting the destination. Male was found to be more concerned when selecting the destination of choice as compared to female. Thus, this has signal to us that, specific marketing strategies can be developed to further entice the male in assisting them during decision making process. On the other hand, more focus need to be placed to understand further needs and want by female tourists. This study also contributes some knowledge to the marketers who involve in tourism field. Marketers should wisely choose the medium of advertising in order to make sure that the advertising can reach to the right people. Marketers also need to identify the target market that might be their potential customers. Marketers should also plan to offer variety of attractions at the destination so that it can attract any gender from different age group.

5.2 Limitation and Future Research

There are some limitations in this study. This study only focusses on one particular destination which is Langkawi. The attraction in Langkawi might be different in another place thus may influence on the selection factors on the destination choice. Thus, future research can be expanded by investigating the role of gender and age at another place and so that comparison can be provided. From that, it will give deeper understanding of traveller behaviour according to two or more different holiday destinations. This study also focusses only two

demographic factors which is gender and age as main focus thus, did not take into considerations on other demographic factors such as education level, income level, occupation and family size as consideration. Education level, income level, occupation and family size also could play an important role when deciding the destination choice because it will reflect to tourist's behaviour. Thus, future research is recommended to include other demographic factor and perhaps it will gain accurate findings. Finally, the research design only focusses on quantitative and did not take into consideration on the qualitative part. Qualitative research can assist researcher to find out specific need by the traveller when deciding a holiday destination. Thus, it is suggested for future research to consider qualitative method to gain more insight into this.

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Macro Determinants of Foreign Direct Investment in Lebanon

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Abstract

This paper is concerned with identifying and analysing the impact of selected macroeconomic variables on foreign direct investment (FDI) in Lebanon. Toward this purpose, the analysis will be based on secondary data collected for the period standing between 1990 and 2018 to implement the Vector Auto Regression (VAR) and Error correction model (ECM) techniques. The results reveal that Gross Domestic Product (GDP), deposit interest rate and debt are correlated with FDI. While trade was found statistically an insignificant variable for FDI inflow. The findings of the study recommend that establishing and maintaining economic stability and growth will spurs foreign investments in Lebanon.

Keywords: Debt, Error Correction Model (ECM), Foreign Direct Investment (FDI), Gross Domestic Product (GDP), Interest rate, Trade.

1. Introduction

Globalization had faced and still facing a huge expansion worldwide. Emerging economies in the search of growth and macroeconomic stability are taking part of this globalization and more precisely in the economic field in the form of Foreign Direct Investment (FDI) (Siddiqui & Aumeboonsuke, 2014). Foreign direct investment is defined as an investment made by an entity in one country into the interest of another entity located in another country such as business mergers and acquisitions (Atal et al., 2016). FDI goes beyond capital investment to include the provision of management and technology. According to Erdal and Tatoglu (2002), due to the high rate of liberalization movements, developing economies have seen a remarkable increase in FDI inflow in the 1990s so that it reached around 40 per cent of the global FDI nowadays.

The Middle East and North Africa (MENA) region includes countries with heterogeneous economic structures. These countries are known for their share of common characteristics that may discourage investors from taking a step toward FDI. Some of these features include political and macroeconomic instability that led to investment risk from the investor's perspective, slow tempo of privatisation, the weak economic base due to high dependency on oil and gas, and underdeveloped financial and capital markets (Shirazi et al., 2008; Atal et al., 2016; Caccia et al., 2018). Although the ongoing constraints, MENA countries are aware of the need to shape its economic structure to a more investor-friendly economy by making some business restructuring. And the result was noted in the increased volume of FDI inflows to MENA countries during the last 10 years.

Lebanon as any other developing country located in the MENA region has experienced the FDI trend. Lebanon is said to have free economy with around 15 listed companies according to Beirut Stock Exchange. According to Central Bank of Lebanon, the story of FDI in Lebanon had started in early 1970s and as shown in Figure 1, the first rising levels were spotted in the late 1990s to reach its highest record of $4.4 billion in 2009 and close at $ 2.88 billion in 2018.

The aim of this paper is focused on identifying and analysing the effect of selected economic variables on FDI in Lebanon. This paper is organised as follows: Section 2 reflects some underlying theories and empirical studies consisting of the relationship between FDI and its main determinants throughout the world. Section 3 provides an empirical analysis detailing the used data, applied econometric methodology, estimated equations and results

in order to explain the impact of the selected determinants on FDI inflow in Lebanon. The final section will provide overall conclusions and recommendations.
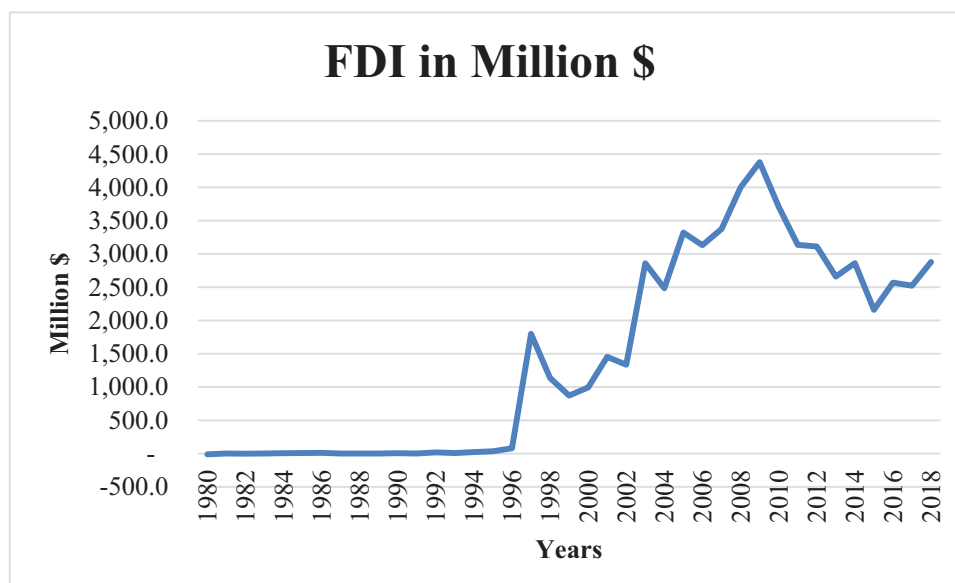
Source: The author

Figure 1. FDI inflows to Lebanon, 1980-2018

2. Theoretical Background

Several studies and theories have explained the level and patterns of FDI emphasizing different causal variables (Borensztein et al., 1998; Hermes & Lensink, 2003).

Siddiqui and Aumeboonsuke (2014) have summarized number of determinants and their relationship with FDI differentiated below between positively and negatively proportional:

- Independent variables that have a positive effect on FDI are GDP growth rate, stable inflation rate, real interest rate, openness of economy, international reserves, political stability, infrastructure as roads and airports, natural resource availability, market size, stable exchange rate, trade surplus and money growth.

- Independent variables that are inversely proportional to FDI are labor cost trade barriers, external debt, taxes, and trade deficit.

The study done by Siddiqui and Aumenboonsuke (2014) on Thailand, Philippine and Indonesia for the years between 1986 and 2012 using Vector Auto Regression (VAR) technique have concluded that low real interest rates attract FDI inflow only in the case of Thailand, while GDP did not show any positive role in all countries. In addition, it was concluded that increase in FDI inflow will decrease both interest rates and inflation which implies price stability.

From their side, Hansen and Rand (2006) have analysed the causal relationship between FDI and GDP using a sample of 31 developing countries selected from Asia, Latin America and Africa. The results indicated a strong causal link from FDI to GDP.

According to Erdal and Tatoglu (2002), although Turkey offers various advantages to foreign investors, it was found out that the lack of both exchange rate and economic stability has slowed down the FDI pace. Using Johansen time series analysis, the FDI equation model was estimated to find out the influence of selected independent variables on FDI measured by actual inflows to Turkey. The effect of the causal variables on FDI found are as below:

- Size of domestic market was found to have a positive impact,

- Openness of the economy to foreign trade was found to have a positive impact,

- Infrastructure of the host country was found to have a positive impact,

- Attractiveness of the domestic market was found to have a positive effect,

- Exchange rate instability of domestic currency was found to have negative effect on FDI,

- Economic instability was found to have insignificant negative effect.

Moving to Shirazi et al. (2008), a panel data analysis was done on fifteen MENA countries differentiating between Gulf Cooperation Council (GCC) and non-GCC countries. Applying the fixed effects model, the random effects models and the Hausman test, the study tried to explain the relationship between the dependent variable FDI and the explanatory variables that are manufacturing as a percentage of GDP, openness index, inflation and the share of service. The results were representative for the differed economic structures of MENA countries where some are rich in oil, others have abundant supply of labor and the rest is endowed in both natural resources and labor. From one side, service was found to be the only significant variable in GCC countries. On another side, both openness and manufacturing were found to be significant for non-GCC countries.

In the same context, Mohamed and Sidiropoulos (2010) have conducted fixed effects and random effects regression panel models in order to analyse the main determinants of foreign direct investment in twelve MENA countries. The study included internal factors such as GDP, macroeconomic policies as well as external factors for instance global liquidity and trade. The results revealed that the key determinants of FDI in the countries under study were size of the host economy, government size, natural resources and institutional variables.

Kral (2004) have conducted an empirical analysis based on quantitative data in order to describe the determinants of FDI in the case of the Czech economy. The paper examined the impact of different variables including GDP, current account deficit and government expenditure on FDI through cointegration analysis and Error-correction model. The results implied that macroeconomic stability and external equilibrium are critical for the attraction and growth of investments in the country. Using the same statistical tools, Tang et al. (2008) have applied a multivariate VAR system with error correction model in order to test the correlation existing between FDI, domestic investment and economic growth in China. It was found out that domestic investment and economic growth had a bi-directional causality while single-directional causality exist moving from FDI toward domestic investment and economic growth. In other words, FDI aroused not only capital shortage but also economic growth in China.

3. Methodology

This section is allocated for the presentation of the empirical results drawn from econometric estimations based on secondary data in order to determine the impact of four selected variables on FDI inflows in the case of Lebanon. The data related to Deposit Interest rate is retrieved from WorldBank data official website (World Development Indicators), while all other used variables are extracted from UNCTAD statistics.

3.1 Description of the Data
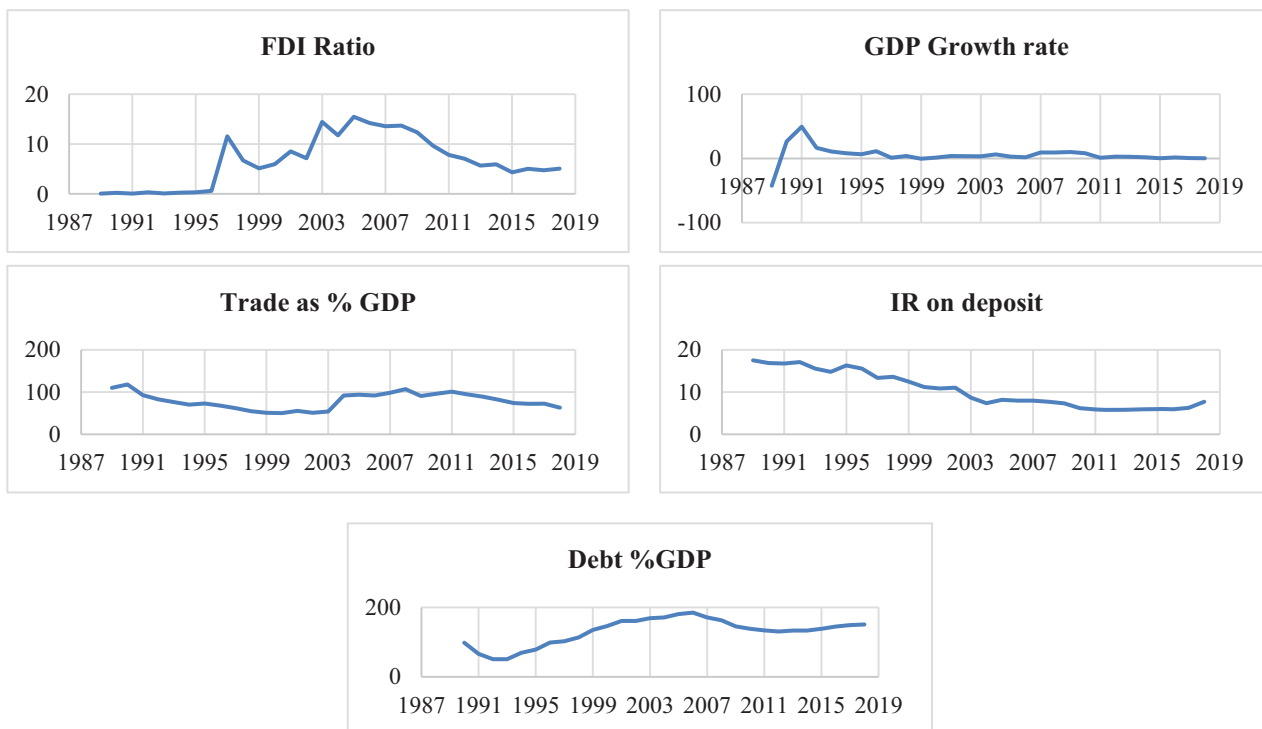
Source: The author

Figure 2. The Development of the FDI ratio and other Related Variable

The annual development of FDI inflows will be the dependent variable. As previously mentioned in the theoretical background, there exists multiple factors affecting the movement of FDI. In our case, the impact on FDI will be examined depending on four variables. The observation period starts in 1989 and ends in 2018. Both years 2019 and 2020 were dropped from the study due to the special economic situation of the country and the impact of the COVID-19 pandemic. Figure 2 illustrates the movement of the FDI as percentage of GDP and other independent variables chosen in this study.

The independent variables employed in this study are as below:

- Attractiveness of the domestic market is represented by the growth rate of Gross Domestic Product (GDP) in percentage,

- Trade as a percentage of GDP is the measure of the openness of Lebanon to foreign trade,

- Debt as percentage of GDP and Interest rate on deposits reflects the overall economic instability.

3.2 Augmented Dickey-Fuller (ADF) Unit Root Test

The plotted figures above show that the series seem to be non-stationary in the level form. Time series is said to be stationary in the case when it repetitively returns to its mean and does not tend to drift (Asmy et al., 2009). The econometric methodology applied to analyse the conditions of stationary is the Augmented Dickey-Fuller test (ADF) at both level form and first difference with neither trend nor constant and lag length of six. The ADF test has developed the following null and alternative hypotheses (Tang et al., 2008).

- Null hypothesis: H0:   The series is non-stationary.

- Alternative Hypothesis: H1:   The series is stationary.

The results of the ADF test are reported in Table 1 below. The null hypothesis of a unit root is rejected at level form I(0) for only IR and GDP Growth. Applying the first difference, the results indicate that all series are found to be stationary at order one.

Table 1. ADF test - Unit Root Summary

Series Variable	Level Form		1st Difference	
	ADF Test Statistics	5% Critical Value	ADF Test Statistics	5% Critical Value
FDI Inflow	-0.07	-1.95	-6.46	-1.95
IR	-2.43	-1.95	-4.10	-1.95
GDP Growth	-2.71	-1.95	-8.69	-1.95
Debt to GDP	0.48	-1.95	-2.00	-1.95
Trade	-1.46	-1.95	-4.76	-1.95

3.3 Johansen Cointegration Test

Having concluded that each of the time series is stationary at I(1), the existence of a long-run equilibrium relationship shall be tested. This will be done using the Johansen Cointegration test that is applied where the null hypothesis of no cointegration is either accepted or rejected. The data used is as below:

➢   DFDI - the first difference of FDI inflow.

➢   IR - Deposit Interest rate at level form.

➢   GDP_growth – GDP growth rate at level form.

➢   DDebt - First difference of debt to GDP ratio.

➢   DTrade - First difference of trade.

Table 2. Results of the Johansen Cointegration Test

Series tested: DFDI, IR, GDP-GROWTH, DDEBT, DTRADE				
Sample (adjusted) 1993 - 2018				
Eigenvalue	Likelihood Ratio	5% Critical Value	1% Critical Value	Hypothesized No. of CE(s)
0.838491	105.9918	69.81889	77.81884	None (*) (**)
0.679574	60.41196	47.85613	54.68150	At most 1(*) (**)
0.477042	31.95934	29.79707	35.45817	At most 2(*)
0.327176	15.75298	15.49471	19.93711	At most 3(*)
0.208518	5.846194	3.841466	6.634897	At most 4(*)

Note: (*) and (**) denotes rejection of the hypothesis at 5% and 1% significance level respectively.

Table 2 presents the results of the Johansen Cointegration test showing the Eigenvalues, likelihood ratios and critical values while Table 3 presents the Normalized Cointegration Vector.

The Johansen test results designate the existence of five statistically significant cointegrating vectors among the tested variables at the 5% significance level while only two were identified at the 1% significance level. Consequently, we report the cointegrating coefficients in long-run equation form normalized on Foreign Direct Investment inflow (DFDI) as follows:

Table 3. The Normalized Cointegration Vector

Variable	DFDI	IR	GDP_ Growth	Debt	Trade
Normalized cointegrating coef.	1	-258.5775	169.0817	66.90903	-69.71080
Standard Error		54.8472	47.1230	22.0925	9.84827

The results presented in Table 3 of the normalized cointegration vector indicates that all variables are statistically significant. In addition, both the deposit interest rate (IR) and the Trade have negative signs while GDP growth and debt presents positive signs.

3.4 The Error Correction Model

Having more than one cointegrating vector implies us to use the error correction model in order to analyse the causal relationship between FDI and each of the independent variables. The ECM is a restricted Vector Autoregression (VAR) mainly designed for cointegrated nonstationary time series.

3.4.1 The Error-Correction Model

Table 4. The Error Correction Model

Dependent Variable: DFDI				
Sample adjusted: 1994 2018				
Variable	Coefficient	Standard Error	T-Statistic	P-Value
C	332.5561	124.9922	2.660614	0.0196
IR(-2)	636.5142	140.0869	4.543711	0.0006
GDP Growth (-1)	130.8167	39.88231	3.280069	0.006
Debt(-2)	29.38785	13.36039	2.199626	0.0465
Trade	-19.21920	15.23543	-1.261481	0.2293
R-Squared	0.873936		F-Statistic	8.192927
Adjusted R-squared	0.767266		Prob(F-statistic)	0.000346

Figure 3. The In-Sample Fit of the Estimated Model

From the results drawn in Table 4, the below can be noted:

i.   C is a constant.

ii.   The dependent variable is the first difference of FDI inflow.

iii.   The error correction-term from the ECM model was found to be both negative and significant, then a long-run causality exists in the whole model moving from GDP growth, trade, debt, and interest rate on one

side to FDI on another side.

iv.   Lebanese GDP growth is positively correlated with FDI which means great economic growth spurs larger investments.

v.   Interest rate was found to be positively related to FDI; higher deposit interest rates will encourage investments.

vi.   Trade was not found to have significant impact on foreign direct investments in the long run.

vii.   The R-squared of 87% and the probability of the F-statistic were found significant which means that the data is well prepared.

The in-sample fit of the above estimated model is shown in Figure 3.

3.4.2 Wald Test- Coefficient Restrictions

The Wald test or also called the Wald-Chi Squared test is used to test the significance of the explanatory variables used in a model. In our case, the Wald test is applied on each variable coefficient to reject or accept the null hypothesis of insignificance of the variable. Based on table 5 below, all variables used in the model are found to be significant, moreover, it can be concluded that there exists a short run causality running from each independent variable to FDI.

Table 5. Wald Test

Coefficient Variable	Test Statistic	Value	df	Probability
IR-deposit	Chi-Square	20.73003	2	0.0000
GDP Growth	Chi-Square	13.12177	2	0.0014
DDebt	Chi-Square	6.783825	2	0.0336
Trade	Chi-Square	9.532212	2	0.0085

Rejection of null hypothesis at the 5% significance level.

3.4.3 Residual Diagnostics

3.4.3.1 LM Test

The Lagrange multiplier (LM) test statistic is used to detect any serial correlation among the variables. Table 6 shows that the null hypothesis cannot be rejected as the probability of Chi-Square exceeds the significance level of 5%, then it can be concluded that no serial correlation exists among the variables.

Table 6. LM Test

Breusch-Godfrey Serial Correlation LM Test:			
Null hypothesis: No serial correlation at up to 2 lags			
F-statistic	0.633077	Prob. F(2,11)	0.5492
Obs*R-squared	2.580585	Prob. Chi-Square(2)	0.2752

3.4.3.2 Heteroskedasticity Test

This test is designed to detect any linear forms of heteroskedasticity which means that the standard errors of the variables are not monitored and non-constant over time. Table 7 accepts the null hypothesis of Homoskedasticity as the probability of Chi-Square is almost 99.97%.

Table 7. Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	1.009406	Prob. F(15,9)	0.5139
Obs*R-squared	15.67979	Prob. Chi-Square(15)	0.4036
Scaled explained SS	2.818208	Prob. Chi-Square(15)	0.9997

3.4.3.3 Normality Test

The normality graph plotted in Figure 4 shows that the residuals are normally distributed with a Jarque-Bera probability of 74.8%.
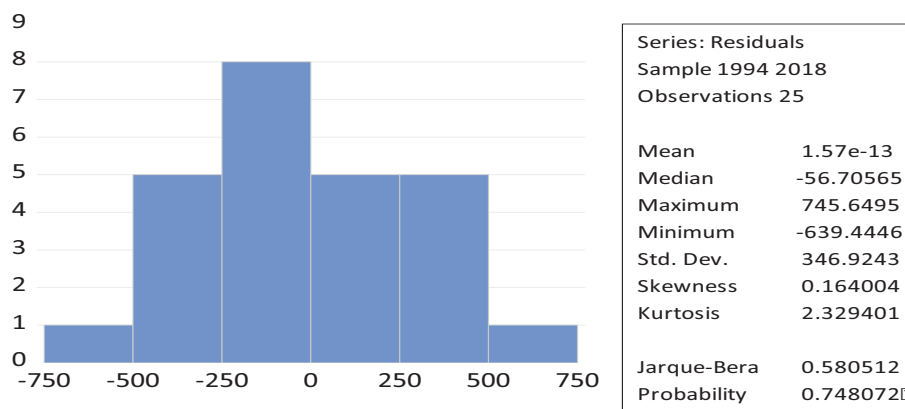
Figure 4. Normality test graph

3.2 Summary and Interpretation of the Empirical Results

In summary, we conclude that we have successfully proven statistically that long-run and short-run cointegrating relationship exist between FDI inflow from one side and the below macroeconomic factors from another side:

- Deposit interest rate, which is used as a measure of the country's openness,
- GDP growth rate as a measure of the attractiveness of the domestic market,
- Debt as a percentage of GDP reflecting the overall economic instability.

On another note, the results indicate that trade as a measure of the country's openness did not show significant causal link with FDI. The results drawn from applying different statistical tools on both coefficient and residuals implies that the data is well prepared, and all variables are significant. Based on the results of the error correction model, the government is suggested to stimulates the economic stability and the openness of its economy in order to accelerate the FDI pace.

4. Conclusion

The main goal of this paper is to acquire quantitative evidence in order to identify and analyse the causal relationship between foreign direct investment and different macroeconomic variables in Lebanon. By applying the Vector Auto Regression model and error correction model, the empirical results indicate that the growth rate of the Lebanese GDP, the deposit interest rate and the debt are all correlated with FDI inflow in Lebanon. Trade was found statistically uncorrelated with FDI. Hence, the results presented in this study can serve as a starting point for some policy recommendations.

Recently, Lebanon is facing a critical economic instability due to different socio-political factors such as corruption, outdated legislative regime and complex civilization measures. The government is recommended to operate some business restructuring in order to boost its financial and economic stability and by result attracting the foreign investors to have long-term interest in Lebanese enterprises.

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Indonesian National Security Policy in Fighting Terrorism Among the Youth Generation

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Abstract

At the beginning of the 21st century, Indonesia was marked by terrorist attacks that caused victims, such as the Bali Bombings in 2002. The threat and violence of terrorism cannot be separated from the influence of international terrorist organizations that attack Indonesia through targeted attacks on vulnerable individuals or groups, more specifically the youth generation. The perpetrators of terrorism have taken advantage of the technological network of the online radicalization era. The Industrial Revolution 4.0 has inspired many patterns of human interaction from domestic interactions to global interactions. This study explains various ideas about implementing national security policies in countering terrorism among the youth generation with qualitative methods using literature analysis so that several tactical steps are found to counter terrorism through critical and open education, exemplary, eradicating injustice, transcendence, and international cooperation. An important finding in this study is the importance of the joint commitment of elements of society to implement Indonesia's national security policy through actions that have small dimensions in the school and household environment and large dimensions at the national level.

Keywords: national security, terrorism, youth generation

1. Introduction

Indonesia's national resilience is a dynamic condition that contains tenacity and resilience that contains the ability to develop national strength to face and overcome all challenges, threats, obstacles, and disturbances that come from within and outside the country in direct and indirect ways, endangering integrity, identity, and survival of the nation and state as well as the struggle to achieve national goals (Tim Pokja Lemhannas, 2020). Conditions that always develop in situations that are influenced by a dynamic strategic environment of volatility, uncertainty, complexity, and ambiguity, which are abbreviated as VUCA, due to the dynamic influence of the strategic environment. National security includes the concept of regulating ideological, political, economic, social, cultural, defense, and security aspects (Maharani, 2019).

At the beginning of the 21st century, Indonesia has been the target of several terrorist attacks. The ones that claimed the most victims were the first and second Bali bombings. The first Bali bombing occurred on October 12th, 2002 in Kuta, Bali. The bomb killed 202 people, including 88 Australians and 38 Indonesians (Arnani, 2019). The latest ideological aberrations were found in East Kalimantan during the attack on the Daha Selatan Police Headquarters in June 2020 (Wismabrata, 2020). The perpetrators of the bombings were young people and were thought to have been exposed to Jemaah Islamiyah, a hardline Islamic group. They were eventually caught, and sentenced to death. Indonesia faces a complex and growing threat and violence of terrorism which is also influenced by international terrorist organizations, such as the Islamic State of Iraq and Syria (ISIS), Al-Qaeda, Moro National Liberation Front (MNLF) and the Abu Sayyaf Group (ASG), have entered and intends to attack Indonesia through targeted attacks and affect vulnerable individuals or groups in the country, namely the youth generation.

Indonesia is considered to have great potential for the threat of terrorism because of the many acts of terror that have occurred, also because one of the terrorist groups Jemaah Islamiyah (JI), which is most often suspected of being responsible for terror acts, is based in Indonesia. After the Bali Bombings in 2002 and the arrests of Amrozy, Imam Samudra, and Muklas, these events showed a strong relationship with the international terrorist network Al-Qaeda. Linking to international networks is an argument that the international community believes in.

The United States government believes in the existence of the Al Qaeda network in Indonesia. Al-Qaeda is present in the Southeast Asian region through Jamaah Islamiah (JI). Most JI leaders are Indonesian people (Windiani, 2017). The case of terrorism in Indonesia even ranks fourth in the Asia Pacific region based on data released by the Global Terrorism Database in 2020. (Global Terrorism Database, 2021).
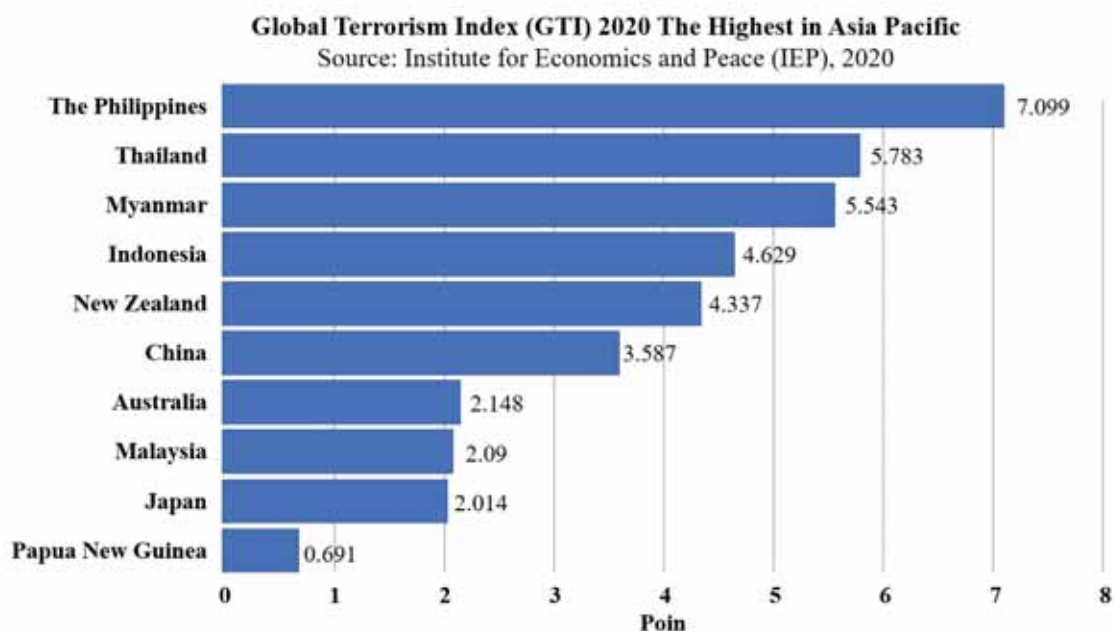
Figure 1. Global Terrorism Index (GTI) 2020 The Highest in Asia Pacific

(Source: Institute for Economics and Peace, 2020)

The perpetrators of terrorism have taken advantage of the era of online radicalization through information technology networks to encourage the youth generation to attack the diversity and dynamism of Indonesia's unity and integrity. The influence of the development of science and technology has brought fundamental changes. The phenomenon that arises is the leap in science and information technology that has been applied in various aspects of life. Advances in science and information technology based on the Industrial Revolution 4.0 have inspired many patterns of interaction between humans from local interaction patterns to global interactions, from between countries to people around the world in a short time. The pattern of global interactions affects the patterns of thinking and acting in daily life, thus bringing Indonesian youth to experience a civilizational setback (Armawi, 2007).

The definition of the crime of terrorism is considered an extraordinary act starting after the terror of the United States WTC Building in 2001. The international world is increasingly aggressive in fighting terrorism. The United Nations Forum in Vienna, Austria in 2000 even specifically chose the theme "The Prevention of Crime and The Treatment of Offenders" (Ardili Johan Kusuma, 2019).

The Indonesian government has an obligation and must strive to thwart the growth and development of terrorism among the youth generation by stopping infiltration from outside and integrating information and intelligence capabilities from various domestic stakeholders, such as the Indonesia Armed Forces (TNI), Indonesian National Police (Polri), local governments, and the private sector, as well as international partners, through critical and open education, exemplary in society, eradicating structural injustice, and transcendence.

2. Method

The role of every stakeholder from all levels will determine the success of a country and the international community in minimizing and limiting the development of terrorism. Based on the basis and discussion of the previous section, several comprehensive steps will be needed to tackle the problem of terrorism.

3. Results and Discussion

Behavior that is identified as terrorism is not new in the history of human civilization. The term terrorism appeared in history during the French Revolution on the occasion of the Committee on Public Health

(Robespierre dan Saint Just), from 1791 to 1794 and was first used in a scientific work by Gunzburg in Brussels, 1930. Although it may seem archaic, the term is not at all silent. Terrorism has succeeded in creating debate at the global level and at the same time terrorism has changed the way how young people face life.

Any debate about the concept and phenomenon of terrorism gives rise to controversy, emotion, inaccuracies and confusion, to the extent that, as Louise Richardson puts it, the only certainty about terrorism is an act of intent to injure accompanied by an act of imposing its will to frighten as many people as possible around the world. Since September 11, 2001, the importance of the term terrorism has gained. (Morales & Gabriela, 2012).

Terrorism is defined as a sequence of violent, premeditated and highly mediated acts, which deliberately target non-military targets to create fear and insecurity, impress the population and influence politicians with the intent to modify the decision process (to generate, to negotiate, to pay, to suppress) and fulfill predetermined stated objectives (political, economic or criminal).

The most central role in countering terrorism is in the policies and steps made by the government. The government is usually also the main target of acts of terrorism, either directly or indirectly.

Here are some tactical steps that need to be taken to counter terrorism, such as critical and open education, exemplary in society, eradicating injustice, transcendence, and international cooperation.
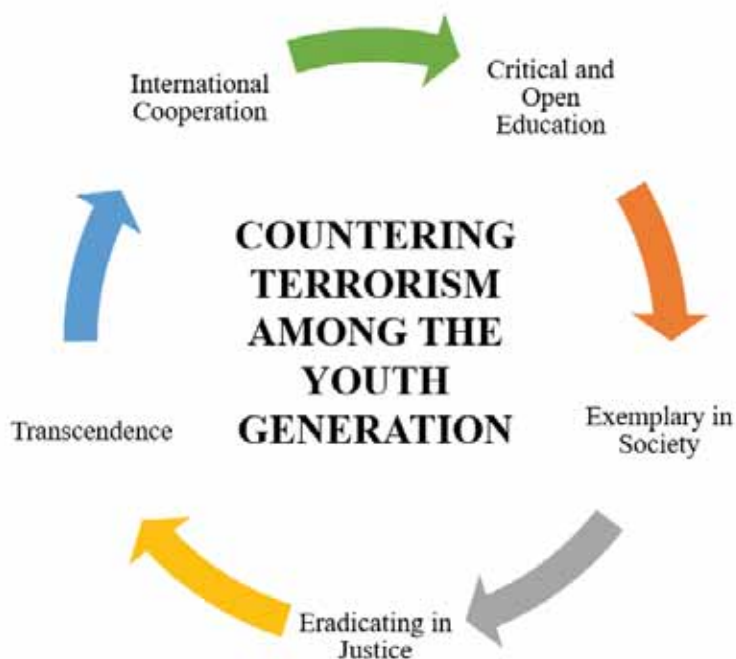
Figure 2. Counter-terrorism schemes among the youth generation
(Source: Researchers, 2021)

3.1 Critical and Open Education

Critical and open formal education has an important role in the fight against the emergence of radical roots in the youth generation. Efforts in this direction can be detected because they are in line with the search for identity and the formation of social groups. The ideology of terrorism has taken away the happiness of the youth generation.

Therefore, formal educational institutions are responsible for the real conditions of the tendency of radicalism and acts of terror that grow in educational institutions. Ease of access to information is one of the entrances for propaganda of war, jihad, and the growth of extremism that fosters intolerance in thoughts, words and actions, as well as the potential for terrorism. The young age and the search for identity make it easier for the notion and ideas of terrorism to strengthen and take root among the youth.

Educational institutions that are at risk of fostering radicalism construct a single identity and reject other identities. Single identities and rejection of other identities tend to lead to an attitude of resistance so that group exclusivity emerges.

Benjamin Samuel Bloom has a taxonomy concept of education which includes three domains, namely cognitive, affective, and psychomotor. Cognitive are matters relating to intelligence or intellectual skills (logic), affective

are matters relating to intelligence or personality attitude skills (ethics/politeness), and psychomotor are matters relating to intelligence or motoric and mechanical skills. Jean Piaget in the theory of cognitive development says that education must be in accordance with human development. This means that education must always pay attention to two things at once, namely the development or ability of every human being and pay attention to the dynamics that develop in society which includes science, technology, and culture. Along with the dynamics of life which is marked by increasingly sophisticated technology, increasingly complex life problems, and the increasing demands of society, it should be followed by intelligence in carrying out the educational process so that education is not left behind with the dynamics of social life (Muchith, 2016).

According to Law Number 20 of 2003 concerning the National Education System, Article 1 paragraph (1), education is a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble character, and skills needed for themself, their community, their nation, and their country.

Educational institutions are a vital aspect of human life aimed at humanizing humans in a humane way so that an order of mutual respect and respect is realized. This idealism must be fully implemented according to expectations while remaining a critical and open vehicle by means of developing frameworks and programs to foster moderate and tolerant attitudes in countering the dangers of terrorism. Frameworks and programs are implemented in simple forms, such as allocating time for public lectures (joint lessons) on terrorism crimes from the National Counterterrorism Agency (BNPT), the Armed Forces, or the Police; involving the role of psychology teachers/lecturers to convey information and understanding about youth and positive self-discovery by providing opportunities for students to express their opinions and feelings openly; accommodate, direct, and supervise extracurricular activities as normal activities and invite students to think positively, work together, discuss, work together, the spirit of unity, and take care of each other and have the courage to refuse terrorism crimes. Educational institutions have a goal to achieve religious spiritual strength, self-control, have a personality, and have the intelligence, morals, and skills needed by the students, their society, their nation, and their state.

3.2 Exemplary in Society

In essence, terrorism is a matter of cultural conflict in a culturally plural society group that can be prevented through preventive and pre-emptive actions through legal culture and local wisdom. Legal culture and local wisdom are instrumental solutions that create role models in diluting the atmosphere in the life of society, nation and state to make it more harmonious. All components of society must be responsible for finding effective solutions to become pioneers in breaking the chain of terrorism in Indonesia. Community leaders, religious leaders, and traditional leaders can work together and synergize to form the values of nationalism and nationality in the youth generation.

In legal culture and local wisdom, the level of obedience and trust of the youth generation is still very high (63.60%) to the example of community leaders, religious leaders, and traditional leaders (Hidayat & Sugiarto, 2020). The figures have become role models to be followed and imitated by the youth generation. Local wisdom applies exemplary leadership based on a system of human values, tolerance, greatness of soul, democracy, and freedom of opinion. Local culture teaches the main values of life, such as justice, honesty, and truth.

The existence of a cultural community is likely to increase awareness of the youth generation to find their Indonesian identity and influence the desire to innovate to form social resilience through pride in local identity, solidarity, strengthening a sense of belonging, and pride as a nation. The existence of a cultural community within the youth generation is expected to create an effective deterrent to tackle terrorism.

In the context of prevention, the legal culture of the community has the responsibility to provide socialization and ideological strengthening as well as services for detecting the potential for radicalism, as well as supervising the association between young people in order to prevent understanding that leads to the doctrine of terrorism.

3.3 Eradicating in Justice

Finding the problem that is at the root of the problem of terrorism is not an easy job, but it is by no means without a solution. One of the root causes is injustice or inequality. Injustice is a hidden and latent factor whose existence is very important and decisive for the growth and development of terrorism activities. Deputy Secretary General of the Indonesian Ulema Council (MUI) Amirsyah Tambunan said that one of the triggers for acts of terrorism was state injustice in politics, economy, social and culture, which led to social inequality (Rajasa, 2016). The Rector of the University of Muhammadiyah Prof. Dr. Hamka (Uhamka) Suyatno assessed that radicalism and terrorism movements did not arise by themselves. Radicalism arises because the government fails to create a sense of justice for the people. Radicalism because there is no justice in the hands of the people,

then the phenomenon of terrorism and radicalism will appear. This injustice can be seen from the widening gap between the rich and the poor, then angry and desperate to take radical actions to terrorism (Ihsanuddin, 2018).

Terrorist activities use the issue of injustice as one of the central factors. Injustice can be influenced by global, regional and national perspectives. Injustice in a global perspective is seen in the attitude of America and European countries towards Israel and Palestine.

Injustice in a regional perspective is the attitude of a country towards other countries sometimes also provokes terrorism efforts. The progress of certain countries has the potential to trigger jealousy and give birth to terror efforts, especially if their interests are disturbed. The progress of Singapore and Malaysia in the past compared to the east coast of Sumatra Island gave rise to the seeds of terrorism against ships sailing in the Malacca Strait. Injustice from a national perspective is reflected in the unfair treatment of certain groups who are dissatisfied with government policies.

Terrorism is the action of a reaction, so to prevent increasingly sophisticated acts of terrorism, it would be better if we evaluate the things that trigger terrorism. It should be remembered that acts of terrorism are also increasingly sophisticated with new methods and ways, even more terrible if future acts of terrorism use unmanned systems to take control of nuclear power.

Therefore, every country needs to be more open and communicate with neighboring countries more intensively and eliminate injustice and inequality so that the gap will not widen. If the gap of injustice and inequality gets wider, acts of terrorism will also intensify with patterns and actions that are sometimes unexpected. The bombing of the WTC Twin Towers in America, which is famous for the events of March 11th, is a lesson that may not have been predicted before. The form of terrorism prevention strategy is the need for education and culture.

3.4 Transcendence

Having a comprehensive understanding of the acts of terrorism conducted by the youth generation and the tactics to counter them is absolutely necessary. The deviation of values among the youth generation is based on sophisticated and globalized information technology. Nowadays, the younger generation is likely more intelligent and has critical thinking than the older one. However, they are still unstable in seeking self and group identity. If the deviation increases, then acts of terrorism by the youth generation will spread fear and act of undirected violence.

Transcendence comes from the Latin *transcendentia*, which means beyond and is often used in philosophy, religion, and theology to describe the relationship between man and his God. God is transcendent, because it transcends the human being who is His creation. The opposite of transcendent is immanent, that is, something that is close to the everyday world of humanity, without connection with anything greater than it (Wattimena & Arifin, 2018).

Transcendence thinking is no longer only about self, family or group, but also thinking from the perspective of the whole. Transcendence emphasizes empathy, namely the ability to feel and see the world from the perspective of others. Both are basic elements for the creation of cosmopolitanism consciousness. Transcendence ability is the human ability to see the world with a wider lens than self, family or group interests.

Therefore, the step of transcendence empathy is important as an effort to counter the influence of terrorism among the youth generation, starting from increasing national security to changing the paradigm of the national education system. However, the most basic and effective step is to build a transcendence mindset, namely a mindset that transcends the barriers of difference and touches the overall point of view.

The transcendent concept is implemented by always conveying 'Truth, Immortality, and Goodness' through religious and philosophical education as well as exemplary community leaders, religious leaders, and traditional leaders. Transcendence can be used as an antidote to terrorism among the youth generation by providing guidance that focuses and attaches attention to the activities of extracurricular groups and prevents the entry of non-organic organizations in campuses and schools. The youth generation is invited to think openly, no longer only about themselves, their families or their groups, so that a sense of empathy grows on how to feel and see the world from the perspective of others.

3.5 International Cooperation

The terrorist act of September 11, 2001 in the United States shows that terrorism has become global. Therefore, it is important to carry out international cooperation. International terrorism is a political act that aims to create dramatic and fatal damage to civilians and create an atmosphere of fear (terror) for political, ideological, secular, and/or religious reasons. Terrorism is against the universally accepted principles of law, order, human rights and

peaceful resolution of disputes. Terrorism has used terror as a tactic around the world, regardless of the wealth, gender or age of its victims, most of whom are civilians (Brieger, 2011).

The crime of terrorism has deeply disturbed the public and governments in various countries around the world. The crime of terrorism is seen from a legal perspective as an extraordinary crime and is considered an enemy of mankind. Therefore, security cooperation in the context of tackling terrorism is deemed necessary through regional and global organizations.

The widespread impact of terrorism has made Indonesia and ASEAN countries have a common interest in actively participating in solving this problem. Discussion forums and cooperation in combating terrorism that have been initiated by the Indonesian government include the ASEAN Ministerial Meeting on Transnational Crime (AMMTC), which is a meeting forum under ASEAN to discuss transnational crime issues. In addition, Indonesia can take advantage of the ASEAN Regional Forum (ARF), which is a forum for ASEAN cooperation in addressing regional security issues. Apart from ASEAN, the ARF also consists of the United States, Russia, China and Japan. The establishment of the ASEAN Charter can also support ASEAN cooperation, in dealing with the problem of terrorism and to strengthen cooperation, ASEAN has also drafted and signed the ASEAN Convention On Counter Terrorism (ACCT), during the 12th Summit in Cebu, Philippines, on January 13th, 2007 (Setiawati, 2015).

Forms of international cooperation that accommodate the activities of the youth generation can be arranged through various programs, such as student exchanges, educational scholarships, workshops, and campus training. Larger efforts can be developed through the Sister Campus or Sister School collaborative program, which has the potential to be developed into the ASEAN University Network program. Youth cooperation through the ASEAN Socio-Cultural Community (ASCC) through the activities of the ASEAN Sports Week, ASEAN Cultural Week, and ASEAN Women's Solidarity at the student or student level. The ASEAN Community which has been agreed since 2015 aims to build a harmonious, prosperous, and integrated ASEAN community in the political, economic, social, and cultural fields (ASEAN, 2019). Cooperation in the ASEAN community framework will have an effect on social development that will prevent the youth generation from being exposed to radicalism to terrorism.

4. Conclusion

The prevention of terrorism among the youth generation needs to be addressed with the policies of the Indonesian government in the field of national security, one of which is the policy of not giving mercy to anyone involved in terrorism.

The government needs to involve community leaders, religious leaders, and traditional leaders as well as families to continuously deliver guidance through formal and non-formal education in an effort to prevent terrorism among the youth generation. The family plays a very important role in character building, where a set of social and ethical rules must be applied from home.

National security policies are implemented in tactical steps through critical and open education, exemplary in society, eradicating injustice, transcendence, and international cooperation to the youth generation in order to create a dynamic and tenacious Indonesian national resilience in order to deal with the environmental influences that are volitile, uncertain, complex, and ambiguous.

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Institutional Impact on Achieving the Sustainable Development Goal of Ending Poverty

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Abstract

The role of institutions is increasingly emphasised as a cornerstone of achieving the Sustainable Development Goals (SDGs). However, previous studies have not sufficiently considered the relationship between institutions and SDGs using cross-country empirical analysis. Therefore, this study examined the effects of institutions on SDG1 (end poverty) performance using a panel data set covering 111 countries for the period 2010–2019. Instrumental variable (IV) estimation (2SLS) and the three-stage least squares (3SLS) method were used to explore the direct and indirect impacts, respectively, of institutions on SDG1 performance. The institutional impact was captured using a composite index developed from individual worldwide governance indicators and SDG1 performance was evaluated with an index constructed using the SDG index database. The results showed that institutions have a highly significant direct positive relationship with SDG1 performance. Regulatory quality has the strongest influence on SDG1 performance while political stability has the lowest. Furthermore, institutions affect SDG1 indirectly via mediating factors – state policy, economic growth, and SDG2 (end hunger) performance. This study provides robust empirical evidence for enhanced regulatory quality and control of corruption creating a conducive environment for facilitating the achievement of the SDG of ending poverty, suggesting that policies aimed at fulfilling this goal should include the prerequisite of upgrading the country's institutions.

Keywords: ending poverty, institutions, sustainable development goals, 3SLS, 2SLS

1. Introduction

The United Nations' Sustainable Development Goals (SDGs) are an essential framework that sets the global vision for action up to 2030. It is not just a replacement for the unfinished elements of the Millennium Development Goals (MDGs), but goes far beyond the battle against the indignity of poverty. Adopted by 193 UN member states, the SDGs are a significant international step towards sustainable development.

Recent global research is increasingly geared towards addressing issues related to the implementation of SDGs, while the devastating impacts and consequences of the COVID-19 pandemic of 2020–2021 have provided further impetus to the scholarly interest in SDGs. With their deadline now only a decade away, attaining many of the SDG targets is even more challenging (United Nations, 2020). Although the SDGs have received much scholarly attention, the underlying mechanisms that explain the effects of institutional and governance factors on achieving SDGs are yet to be fully understood. The significance of governance in attaining SDGs has been emphasised by the SDG framework itself [SDG16 (promote peaceful and inclusive societies)] and by many scholars (Biermann, Kanie, & Kim, 2017; Fukuda-Parr, 2013; Glass & Newig, 2019). Thus, the insights generated by analysing the institutional and governance factors that influence the achievement of SDGs can ultimately lead to their effective implementation.

The significance of governance for sustainable development has consistently been emphasised; the need for effective policies, good governance, and active institutions for attaining the global development goals has been acknowledged (Omona, 2010; Roy & Tisdell, 1998). Weak institutions are suggested as the leading reason for the limited success of the MDGs (Miyazawa & Zusman, 2015). The evidence implies that developing countries that began implementing MDGs with solid policies and institutions surpassed others in meeting the goals (Go & Quijada, 2015). Since substantial governance aspects are integrated into the SDGs, it is anticipated that they have

more opportunities to go beyond the MDGs (Biermann et al., 2014).

Although a few studies have attempted to elucidate the influence of institutional and governance factors on achieving the SDGs, the lack of comprehensive and concrete empirical evidence supporting the link hinders evidence-based policymaking to upgrade state institutional mechanisms. The literature (Bowen et al., 2017; Kanie & Biermann, 2017; Meuleman & Niestroy, 2015; Monkelbaan, 2019; Vijge et al., 2020) has predominantly focused on conceptual and normative perspectives of the role of governance in SDGs. Glass and Newig (2019) used cross-sectional data, drawn only from a sample of countries with a high- and upper-middle-income, and simultaneously focused on all SDGs and their overall achievement to contribute to the discourse on governance in SDG implementation. The study used four governance indicators (participation, policy coherence, reflexivity and adaptation, and democratic institutions) drawn from Sustainable Governance Indicators (SGI) to measure diverse aspects of governance. Democratic institutions and participation have explained the achievement of SDGs in accordance with its findings. Furthermore, the authors highlighted the usefulness of longitudinal analysis for verification of their findings. However, since they used multiple linear regression as the analytical tool for their analysis, they did not address the potential endogeneity of the explanatory variables.

A cross-country empirical analysis using a large panel of data can provide strong support for predicting the level of influence of institutional and governance factors in achieving the SDGs. Instead of concurrently scrutinising a large number of goals, consideration of each goal separately will provide more scope for in-depth analysis and identification of all potential relationships. The prioritisation of poverty eradication in both the MDGs and SDGs makes it clear that the international community regards poverty as a primary global challenge and its elimination as indispensable to sustainable development. Moreover, the criticality of concentrating on achieving SDG1 (end poverty in all its forms) was endorsed by the recent findings of the synergetic relations of SDG1 with most of the other SDGs (Fonseca, Domingues, & Dima, 2020; Kroll, Warchold, & Pradhan, 2019). Therefore, this study attempts to explicitly demonstrate the importance of institutional aspects in achieving SDG1.

The role of institutions in poverty alleviation has received considerable academic interest (Chong & Calderón, 2000; Fagbemi, Oladejo, & Adeosun, 2020; Rizk & Slimane, 2018; Tebaldi & Mohan, 2010). Although many empirical investigations have examined the direct relationships of institutions to poverty, only a few have posited indirect impacts (Brady, Blome, & Kleider, 2017; Deolalikar et al., 2002; Enders & Hoover, 2003). Hardly any studies have explored the indirect effects of institutions on achievement of SDG1.

To bridge the above gaps in the literature, this study examines the institutional impact on the fulfilment of SDG1 and the pathways through which these impacts operate. Accordingly, the study first analyses the direct impact of institutions on achieving SDG1 using the instrumental variable (IV) approach (two-stage least squares [2SLS]) as a measure to overcome the endogeneity of the regressors. Then, the indirect or mediation effects of institutions on the realisation of SDG1 through state policy, economic growth, and fulfilment of SDG2 (end hunger) are estimated separately using the three-stage least squares (3SLS) method. These analyses rely on panel data for 111 countries under all income categories over a ten-year period from 2010 to 2019. This investigation contributes in two ways to the literature on the institutions–SDG nexus: methodologically, it uses more robust estimation techniques and a large panel of data compared to the existing literature for analysing the direct effect of institutions; and empirically, it analyses hitherto unexplored mediation effects of institutions on fulfilment of SDG1.

2. Literature Review

2.1 Institutions

The term 'institution' refers to a wide variety of structures, bodies, processes, and norms that organise people's lives and societies (United Nations, 2016). North (1990, p. 3) provides the following definition: "Institutions are the rules of the game in a society or are the humanly devised constraints that shape human interaction". In general, political institutions – the primary determinant of long-term growth – establish economic institutions. Political and economic institutions are both categorised as inclusive or extractive. Inclusive political institutions tend to establish inclusive economic institutions and enable equal distribution of resources, thereby providing a level playing field in the market and guaranteeing contracts and securing property rights (Acemoglu & Robinson, 2012). Consequently, the variability in economic institutions, which are based on the system of political power and the type of political institutions, is the essential cause of divergence in economic development (Acemoglu, Johnson, & Robinson, 2005).

2.2 Nexus of Institutions and Poverty

Theoretical investigations suggest that institutions influence poverty through market distortions and resource misallocation. According to the institutional economics literature, the quality of institutions is an appropriate factor for explaining the economic and socio-political performance of a group, society, or nation (Bardhan, 2002; Dasgupta & Serageldin, 2000; North, 1990). The capability approach explicitly focuses on profit variation between groups from the available resource endowment while simultaneously considering distribution of and access to resources (Sen, 1983). The examination of institutions as 'rules of the game' in allocating resources and working for or against distinct social groups would allow a glimpse of these issues (Bastiaensen, De herdt, & D'Exelle, 2005).

From a theoretical standpoint, weak institutions may lead to income disparities. Chong and Gradstein (2007) empirically confirmed the correlation between weak institutions and income inequality. Accordingly, the poor are not protected by an unbiased judicial system. It has also been proposed that wide income disparity makes it possible for the rich to exert stronger political dominance, thereby sabotaging institutions. As explained by Tebaldi and Mohan (2008) poor institutions result in a reduction in the efficiency of technology and productivity of labour and capital. Furthermore, weak institutions produce poverty traps that can be escaped only through improvement of institutions. Besides, Justesen and Bjørnskov (2012) explained the interaction between poverty and corruption suggesting that poor people are victims of government bureaucrats' corrupt behaviour in developing countries, particularly in African countries. Grindle (2004) highlighted good governance as an indispensable condition for combating poverty.

The crucial role played by the state in shaping poverty and inequality has been explained by the conventional approach as a mediating factor, which often has indirect implications for power resources and institutions (Brady et al., 2017). The importance of state policies to poverty is better described as the significance of a mixture of social policy and regulations that influence the distribution of economic resources and opportunities in life (Brady et al., 2017; Wilensky, 2002). According to Sindzingre (2005), institutions have significant capacity to influence poverty by mediating the effects of economic transitions and disseminating economic outcomes. In summary, institutions have a fundamental role in poverty and inequality with direct and indirect consequences.

3. Materials and Methods

3.1 Analytical Framework

Institutions have direct and indirect impacts on poverty through various mediating factors (Deolalikar et al., 2002). Figure 1 illustrates the nature of the interrelationships between poverty eradication and institutions, state policy, economic growth, and elimination of hunger. This paper considers all the linkages depicted in this diagram, and concentrates more on the direct impacts of institutions on ending poverty, which is the ultimate target of SDG1.
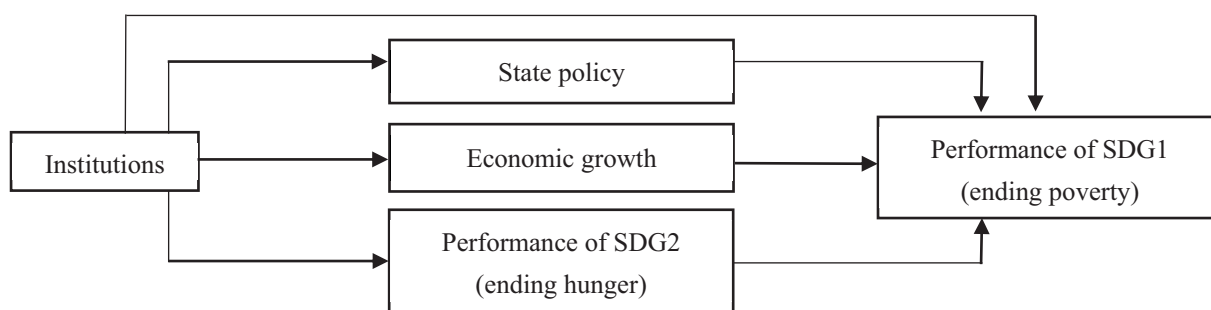
Figure 1. Direct and indirect effects of institutions on the achievement of SDG1

3.2 Data

Based on data availability, this paper analysed a panel data set covering 111 countries in the period 2010–2019. A composite index for SDG1 performance, which is the main dependent variable in this study, was constructed using raw data gathered from the SDG index database developed by the Sustainable Development Solutions Network (SDSN). In creating the composite index, indicators for SDG1 were normalised and aggregated into a goal score (SDG1 index) using the same methodology adopted to develop the SDG index by the SDSN (Sachs et al., 2020). The SDG1 index was scaled from 0 to 1, with higher values denoting better SDG1 performance.

This study used institutions as the main independent variable, which was a composite index developed using the

worldwide governance indicators (WGIs), i.e. voice and accountability (*VA*), political stability and absence of violence/terrorism (*PS*), government effectiveness (*GE*), regulatory quality (*RQ*), rule of law (*RL*), and control of corruption (*CC)* (Kaufmann, Kraay, & Zoido-Lobatón, 1999). For constructing the composite institution index (*INS*), principal component analysis (PCA) was performed for the cross-country data. The six WGIs are deemed superior to other institutional variables because they are estimated using 31 different qualitative indicators gathered from 13 reliable sources (Globerman, 2002; Kaufmann, Kraay, & Mastruzzi, 2011). For checking the robustness of the results, data on Political Risk Services (PRS) – created using 12 indicators – issued by the International Country Risk Guide (ICRG) (ICRG, 2016) were used.

For analysing the direct effect of institutions on SDG1, annual GDP growth (GDPG), personal remittances received in percentage GDP (*REMI*), net inflows of foreign direct investment as a percentage of GDP (*FDI*), trade openness (*TO*), and urban population as a percentage of the total population or urbanisation (*URBN*) were used as structural controls. For evaluating the indirect impacts of institutions on SDG1 performance through different mediating variables in the direct 3SLS model estimation, *FDI*, *URBN*, *REMI*, *POPG* (annual population growth) or *POPD* (people per square kilometre of land area), *UNEMP* (total unemployment as a percentage of total labour force) and *EDU* (the number of years of schooling) were used as the control variables depending on the mediating variable. *URBN, POPG, REMI,* percentage of merchandised exports in manufacturing exports as a proxy for technology (*TECH*), number of scientific and technical journal articles (*SCJL*) as a proxy for new scientific discoveries, and agriculture value added as a percentage of GDP (*AGRI*) were used as the control variables in the indirect models. Based on the explanation of the link between poverty and state policy by Brady et al. (2017), general government final consumption expenditure was used as a proxy for state policy (*STPOL*) while per capita GDP was used as a proxy for economic growth (*PCGDP*).

This study employed the instrumental variables from previous studies on governance and sustainable development (Güney, 2017). The legal origin was used as an instrument for legal institutions (Acemoglu, Johnson, & Robinson, 2001; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997). The log of settlers' mortality (Acemoglu et al., 2001) and latitude (La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1999) were also used as instrument variables. However, this study treated data on religion from the Pew Research Centre as a proxy for the fractionalisation level, owing to the limited data for the ethnolinguistic fractionalisation index for recent years.

3.3 Estimation Techniques and Model Specification

3.3.1 Principal Component Analysis

This study employed principal component analysis (PCA) to construct the *INS* using the WGIs (Kaufmann et al., 1999). Many scholars acknowledge the superiority of composite indices constructed using WGIs to measure institutions (e.g. Globerman, 2002). PCA uses orthogonal transformation to convert a set of correlated variables $(X_1 \ldots X_P)$ into a set of values for linearly uncorrelated variables $(PC_1 \ldots, PC_K)$, which are called principal components. The predicted model was as follows:

$$INS_{it} = (PC_{VA} \times VA_{it}) + (PC_{PS} \times PS_{it}) + (PC_{GE} \times GE_{it}) + (PC_{RQ} \times RQ_{it}) + (PC_{RL} \times RL_{it}) + (PC_{CC} \times CC_{it})$$
(1).

3.3.2 Instrumental Variable (IV) – The 2SLS Method

The 2SLS method was employed with selected instrumental variables to test the direct effect of institutions on SDG1 performance. Accordingly, the model used was as follows:

$$SDG1_{it} = \beta_1 INS_{it} + \beta_2 FDI_{it} + \beta_3 TO_{it} + \beta_4 REMI_{it} + \beta_5 GDPG_{it} + \beta_6 URBN_{it} + \varepsilon_{it}$$
(2),

where the subscripts i and t were cross-section unit and period, respectively, $SDG1$ was the composite index for SDG1, INS was the composite index which captured the effect of institutions, FDI, $TO, REMI, GDPG$ and $URBN$ were the structural controls denoting foreign direct investment, trade openness, foreign remittance, GDP growth, and urbanisation, respectively, β_1, β_2, β_3, β_4, β_5, and β_6 were the respective coefficients for estimation and ε_{it} was the error term. The use of instrumental variables and the 2SLS method for estimating the above model helped to conquer the potential endogeneity between SDG1 and institutions.

A number of diagnostic tests were performed to determine whether the model adequately explained the associations between the variables. For testing endogeneity in the model, the Durbin chi-squared test and the Wu–Hausman test were applied, and the null hypothesis was tested for exogeneity of variables. A finding of significance ($p \leq .05$) led to the rejection of the null hypothesis and the conclusion that the regressors were endogenous. To test for a weak instrument problem in the model, the null hypothesis was tested with the Wald test at the $p \geq .01$ level. By rule of thumb, this inference is supported if the minimum eigenvalue is higher than

the 15% rejection level of the critical value. The test for validity (overidentified restrictions test) assesses whether any instrument is invalid if it is correlated with the error term of the outcome variable. The Sargan test and Basman test were employed as validity tests, and the null hypothesis was that all instrumental variables in the stage 2 regression were uncorrelated with the error term for the dependent variable. A finding of non-significance confirmed the null hypothesis.

3.3.3 Structural Equation Model

The structural equation model consisted of a cross-country SDG1 equation and three separate channel equations for state policy, economic growth, and SDG2 performance. The 3SLS model, which was introduced by Zellner and Theil (1962), was used to capture the endogeneity in the structural equation. *lnSTPOL*, *lnPCGDP*, and *SDG2* index were the mediating variables in the three models. Here, the coefficients of the parameters of interest described the effect of a marginal change in *INS* on the dependent variable. The product of the coefficient of *INS* in the channel equation and the coefficients of the mediating variables *lnSTPOL, lnPCGDP*, and *SDG2* index indicated how *INS* affected *SDG1* through the mediating variables. Some of the control variables included in the channel equation were endogenous in the system; thus, the use of instrumental variables was crucial in this case. To make this model more efficient, Tavares and Wacziarg (2001) introduced several restrictions.

lnSTPOL, lnPCGDP, and *SDG2* index as mediating variables (MV) in the relationship between *INS* and *SDG1* were modelled in equation (3):

$$SDG1_{it} = \beta_0^{SDG1} + \beta_1^{SDG1} INS_{it} + \beta_2^{SDG1} MV_{it} + \sum_{l=n}^{n} \beta_l^{SDG1} CV_{it}^{SDG1} + \varepsilon_{it}^{SDG1} \qquad (3).$$

CV_{it}^{SDG1} denoted control variables. Equations (4), (5), and (6) were channel equations in which *lnSTPOL, lnPCGDP* and *SDG2* were the dependent variables, respectively, while INS_{it} was the independent variable.

$$STPOL_{it} = \beta_0^{STPOL} + \gamma_1^{STPOL} INS_{it} + \sum_{l=n}^{n} \beta_l^{STPOL} CV_{it}^{STPOL} + \varepsilon_{it}^{STPOL} \qquad (4).$$

$$lnPCGDP_{it} = \beta_0^{lnPCGDP} + \gamma_1^{lnPCGDP} INS_{it} + \sum_{l=n}^{n} \beta_l^{lnPCGDP} CV_{it}^{lnPCGDP} + \varepsilon_{it}^{lnPCGDP} \qquad (5).$$

$$SDG2_{it} = \beta_0^{SDG2} + \gamma_1^{SDG2} INS_{it} + \sum_{l=n}^{n} \beta_l^{SDG2} CV_{it}^{SDG2} + \varepsilon_{it}^{SDG2} \qquad (6).$$

The Sobel test was used to determine the mediation effect in a model (Sobel, 1982). Here, the coefficients of interest were those that described the effect of INS_{it} on the channel variables in the three models ($\gamma_1^{STPOL}, \gamma_1^{lnPCGDP}$ and γ_1^{SDG2}) and the coefficients that described the effect of each channel variable on *SDG1* (β_1^{SDG1}). The respective channel effect was then provided by the product of corresponding parameters on a particular channel path. The standard error of S_{ab} was obtained using the following formula when testing the statistical significance of channel effects:

$$S_{ab} = \sqrt{b^2 S_a^2 + a^2 S_b^2 + S_a^2 S_b^2} \qquad (7),$$

where S_{ab} was the standard error of $\gamma_1^m \beta_m^Y$, a and b were γ_1^m and β_m^Y, respectively, S_a^2 was the variance of the equation describing the effect of *INS* on the channel variable, and S_b^2 was the variance of the equation describing the effect of the channel variable on SDG1.

3.3.4 Pooled Ordinary Least Square, Fixed Effect and Random Effect Models

The pooled ordinary least square (OLS), fixed effect (FE) and random effect (RE) models were used in testing the robustness of the results. As diagnostic tests, the Lagrange Multiplier (LM) test was performed to determine whether the RE model was better than the pooled OLS estimation, while the Hausman test was employed to select the best from the FE and RE models (Eom, Sock, & Hua, 2007).

4. Results and Discussion

4.1 Principal Component Analysis

The PCA constructed a composite index using six alternative measures for institutions. The results for pairwise correlations (Table A1 on request) show that the correlations were significantly positive for the indicators. According to results (Table A2 on request), only the eigenvalue of component 1 (5.21954) was > 1, and captured 87% of the internal system's variability.

4.2 Summary Statistics

Table 1 provides summary statistics for almost all the variables used in this study. The *SDG1* index ranged between 0 and 1. An average country in the sample had achieved about 80% of SDG1. The institution index (*INS*) ranged between -4.858 and 4.603.
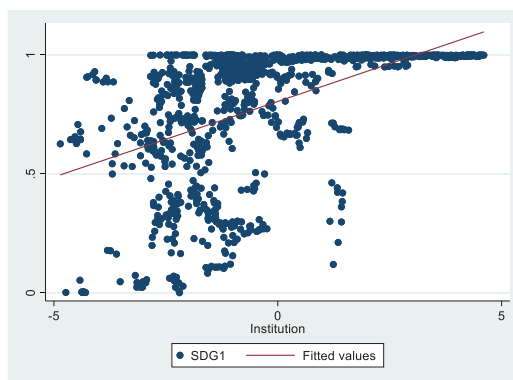
Figure 2. Scatterplot of *INS* and *SDG1*, *sourced,* Author's creation using secondary data

Table 1. Summary statistics

Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
SDG1	1110	0.804	.267	0	1
INS	1110	0	2.285	-4.858	4.603
FDI	1110	5.907	16.543	-40.414	280.132
URBN	1110	59.866	21.564	15.544	100
GDPG	1110	3.555	3.355	-36.392	25.163
TO	1110	91.325	51.65	20.275	381.785
POPG	1110	1.23	1.23	-2.258	6.568
lnPCGDP	1110	8.669	1.484	5.811	11.436
lnSTPOL	1043	23.158	2.114	18.673	28.551
EDU	782	88.461	28.462	15.039	163.935
REMI	1100	4.441	6.149	0	32.506
SCJL	1110	18 233.981	59 195.865	1.1	528 263.25
TECH	1073	46.431	28.826	0	96.239

Table 2. Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) SDG1	1.000												
(2) INS	0.544*	1.000											
(3) FDI	0.005	0.093*	1.000										
(4) TO	0.146*	0.313*	0.253*	1.000									
(5) REMI	-0.084*	-0.362*	0.004	-0.009	1.000								
(6) GDPG	-0.182*	-0.225*	-0.003	0.028	0.046	1.000							
(7) POPG	-0.555*	-0.462*	0.029	-0.118*	-0.012	0.259*	1.000						
(8) URBN	0.613*	0.605*	0.052	0.216*	-0.320*	-0.285*	-0.246*	1.000					
(9) EDU	0.724*	0.717*	0.028	0.217*	-0.242*	-0.350*	-0.598*	0.691*	1.000				
(10) TECH	0.381*	0.451*	-0.023	0.212*	-0.040	-0.113*	-0.488*	0.276*	0.454*	1.000			
(11) SCJL	0.181*	0.206*	-0.060*	-0.197*	-0.193*	-0.012	-0.156*	0.175*	0.155*	0.270*	1.000		
(12) lnPCGDP	0.788*	0.861*	0.053	0.235*	-0.414*	-0.288*	-0.509*	0.769*	0.820*	0.478*	0.269*	1.000	
(13) lnSTPOL	0.495*	0.567*	-0.121*	-0.154*	-0.506*	-0.184*	-0.305*	0.544*	0.552*	0.464*	0.571*	0.720*	1.000

4.3 Pairwise Correlation

The results for pairwise correlations between variables used (Table 2) to explore the institutions–SDG1 nexus show that the correlation between SDG1 performance and *INS* was significantly positive (Figure 2). The correlation between SDG1 and *lnPCGDP* and that between SDG1 and *lnSTPOL* were also significantly positive. In the case of structural controls, except for *GDPG, POPG, REMI*, and *FDI*, all other variables showed significant positive correlations. Only *FDI* showed a non-significant positive correlation with SDG1 performance.

4.4 The Direct Effect of Institutions on SDG1 Performance

Table 3 summarises the regressions of instrumental variables for institutions against the *SDG1* index and shows the impact of institutions on SDG1 performance. Model 1 was estimated using a composite index of institutions as the independent variable to capture their overall impact on SDG1 performance. Models 2 to 7 were estimated using individual governance indicators as independent variables to explore the relative contribution of different aspects of institutions to achieving SDG1.

Diagnostic tests – Durbin chi-square and Wu–Hausman tests – confirmed that fitted models were valid since the endogeneity test indicated that there were endogenous variables ($0.0000 < 0.05$). The test of weak instruments, instrumental variable first-stage test, further confirmed that instruments used in the model were not weak ($0.0000 < 0.05$). In the case of overidentified restrictions, the Sargan and Basman tests indicated that instrumental variables were uncorrelated with the error term of the *SDG1* index ($0.0000 > 0.05$).

The composite index for institutions and all the individual governance indicators showed a highly significant positive direct effect on SDG1 performance, which clearly means that institutions play a crucial role in achieving SDG1 (Figure 2). An increase in the institution index by 1 unit, increased the SDG1 index by 0.1255 units. Furthermore, of the alternative measures for institutions, regulatory quality (*RQ*) showed the strongest direct influence while political stability (*PS*) showed the weakest influence on SDG1 performance. Glass and Newig (2019), showed that only participation of four key aspects of governance for sustainable development (participation, policy coherence, reflexivity and adaptation, and democratic institutions) had a significant positive relationship with SDG1 performance.

Contrary to expectations, this study found a highly significant negative correlation between FDI and SDG1 performance. While most previous studies supported the positive effects of FDI on poverty reduction, others found that FDI had a negative or insignificant effect (Magombeyi & Odhiambo, 2017) Indeed, the impact of FDI on poverty reduction can differ between countries due to differences in economic, social, and institutional conditions (Nguea, Noumba, & Noula, 2020). The indirect impact of FDI on reducing poverty is found across different states of economic growth. Some arguments to explain the negative association between FDI and economic growth are the major technological gap between investing and beneficiary economies (Li & Liu, 2005), the crowding-out effect of FDI on domestic investment (Borensztein, De Gregorio, & Lee, 1998), and constraints of 'threshold externalities' in the least developed countries, e.g. levels of education, health, infrastructure and technology, which are inadequate to optimise FDI's potential benefits (OECD, 2002).

Trade openness also had strikingly negative correlations, and except in one case, they were statistically significant. Rodrik (2001) argued that countries need to improve their human resources and restructure their institutions so that trade openness can have the preferred effect on poverty reduction and the poor can gain from the opportunities afforded by it. Both remittances (Adams & Page, 2005; Qayyum, Javid, & Arif, 2008) and GDP growth (Mulok, Kogid, Asid, & Lily, 2012; Stevans & Sessions, 2008) had the expected positive correlations. Furthermore, urbanisation showed positive correlations, and in most cases, they were statistically significant at $p < 0.01$. Liddle (2017) and Martinez-vazquez, Panudulkitti and Timofeev (2009) suggested a U-shaped association between urbanisation level and poverty level.

Table 3. Direct impact of institutions on SDG1 performance.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Variables	INS	CC	GE	PS	RQ	RL	VA
INS	0.1255***						
	(6.4920)						
CC		0.2700***					
		(6.1570)					
GE			0.2268***				

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				(7.8193)			
PS				0.1845***			
				(3.9794)			
RQ					0.3204***		
					(6.4260)		
RL						0.2371***	
						(7.0750)	
VA							0.2155***
							(5.5610)
FDI	-0.0037***	-0.0042***	-0.0027***	-0.0034***	-0.0025**	-0.0040***	-0.0042***
	(-3.1805)	(-3.4628)	(-2.8319)	(-3.2082)	(-2.1505)	(-3.7263)	(-3.7270)
TO	-0.0008***	-0.0006*	-0.0006***	-0.0007**	-0.0009***	-0.0005**	-0.0000
	(-2.6280)	(-1.9560)	(-2.6100)	(-2.2755)	(-2.8612)	(-2.0412)	(-0.1444)
REMI	0.0156***	0.0177***	0.0151***	0.0083***	0.0116***	0.0175***	0.0088***
	(5.2504)	(5.3709)	(6.2039)	(3.4182)	(4.2344)	(6.0855)	(3.4878)
GDPG	0.0108**	0.0083	0.0042	0.0009	0.0081	0.0059	0.0074
	(1.9778)	(1.4963)	(1.0113)	(0.1963)	(1.5158)	(1.2617)	(1.4124)
URBN	0.0018	0.0029***	0.0034***	0.0047***	0.0013	0.0037***	0.0038***
	(1.6121)	(2.7574)	(4.4760)	(4.8659)	(1.0827)	(4.5847)	(4.0231)
Constant	0.6873***	0.5797***	0.5546***	0.5619***	0.6728***	0.5333***	0.5062***
	(9.2213)	(8.6739)	(10.8759)	(7.6363)	(9.1176)	(9.7080)	(8.7206)
Observations	377	377	377	377	377	377	377
R-squared	0.1726	0.0903	0.4301	0.3002	0.1508	0.2987	0.2367
Durbin chi-squared	45.13	45.66	24.04	17.67	40.4	37.80	32.10
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Wu-Hausman F-statistic	45.19	50.66	25.14	18.15	44.21	41.13	34.35
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
IV FS statistic	35.65	33.34	63.40	19.3	31.19	55.76	21.35
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Adj. R-squared	0.5356	0.4665	0.5642	0.5299	0.5002	0.5352	0.4579
Sargan chi-squared	0.3310	0.731	0.524	42.61	0.087	0.049	22.35
	(0.5650)	(0.392)	(0.469)	(0.000)	(0.769)	(0.825)	(0.000)
Basman chi-squared	0.3243	0.717	0.514	46.77	0.085	0.048	23.13
	(0.5690)	(0.397)	(0.473)	(0.000)	(0.771)	(0.826)	(0.000)
Instruments	Settler mortality	Settler mortality	Settler mortality	Settler mortality	Settler mortality	Settler mortality	Settler mortality
	Latitude	Latitude	Latitude	Latitude	Latitude	Latitude	Latitude
				UK law			UK law
				Muslim			Muslim

Note: All models were estimated using 2SLS estimation. Numbers within parentheses are t statistics of coefficients except in the case of Durbin chi-squared, Wu–Hausman F-statistic, IV FS statistic, Sargan chi-squared and Basman chi-squared for which p-values are given. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

In this study, a further effort was made to determine whether the impact of institutions on SDG1 performance varied according to the level of development of a country by splitting the sample into two categories of developed and developing countries. Table 4 shows the results of the 2SLS estimation for developed and developing countries separately.

Table 4. Direct impact of institutions on SDG1 performance: developed countries versus developing countries

Variable	Developed countries[1]	Developing countries[1]
INS	0.0455***	-0.4993**
	(3.6930)	(-2.2576)

FDI	0.0004	-0.0136***
	(0.4059)	(-2.8282)
TO	-0.0004**	0.0009
	(-1.9945)	(0.4757)
REMI	0.0097**	0.0330***
	(2.5234)	(3.0659)
GDPG	0.0084	0.0227
	(1.5877)	(1.3415)
URBN	0.0005	0.0102***
	(0.6959)	(3.1107)
Constant	0.8244***	-1.1056*
	(15.2423)	(-1.6968)
Observations	184	193
Durbin chi-squared	6.09	37.44
	(0.0135)	(0.000)
Wu-Hausman F-statistic	6.03	44.53
	(0.0150)	(0.000)
IV FS statistic	23.26	3.46
	(0.000)	(0.033)
Adj. R-squared	0.4378	0.1011
Sargan chi-squared	1.779	2.002
	(0.182)	(0.157)
Basman chi-squared	1.718	1.939
	(0.189)	(0.164)
Instruments	Settler mortality	Settler mortality
	Latitude	Latitude

Note: All models were estimated using 2SLS estimation. Numbers within parentheses are t statistics of coefficients except in the case of Durbin chi-squared, Wu–Hausman F-statistic, IV FS statistic, Sargan chi-squared, and Basman chi-squared, for which p-values are given. ***, ** and * indicate significance at 1%, 5% and 10% level, respectively.

[1]Based on the country classification of the World Bank, high- and upper-middle-income countries are considered developed countries, whereas low- and lower-middle-income countries are considered developing countries.

Diagnostic tests confirmed the validity of the models and the instrumental variables used. The impact of institutions on SDG1 performance was significantly positive in developed countries and significantly negative in developing countries. This result corroborates the findings in previous studies of the negative effect of institutions on poverty reduction in developing countries (e.g. Siddique, Shehzadi, Shaheen, & Manzoor, 2016). They described poor governance and weak institutions as a persistent challenge for economic development and poverty reduction in developing countries. Corruption and ineffective implementation of government programmes in developing countries misdirect the target of poverty eradication.

4.5 The Indirect Effect of Institutions on SDG1 Performance

The coefficient estimates of the structural models are summarised in Table 5. In model (8) of 3SLS, on average, a 1% increase in state policy increased SDG1 performance by 0.0003 units, and a 1 unit increase in institutions increased state policy by 30.33%. Similarly, according to model (9), on average, a 1% increase in economic growth increased SDG1 performance by 0.001 units, while a 1 unit increase in institutions increased economic growth by 45.0%. Model (10) indicated that a 1 unit increase in the SDG2 index increased SDG1 performance by 0.28 units, whereas a 1 unit increase in institutions increased SDG2 by 0.0152 units.

The results for the Sobel test showed that the indirect effects of INS on SDG1 performance were significantly positive for all three channel variables independently. This implies that institutions accelerate SDG1 performance through state policy, economic growth, and SDG2 performance. The results showed that state policy had a 0.96% mediation impact on SDG1 when the institution index increased by one unit. This appears to corroborate the conceptual exposition of the behaviour of state policy as a critical mediating variable for the institutions–poverty nexus (Brady et al., 2017; Deolalikar et al., 2002).

Table 5. Indirect impact of institutions on SDG1 performance through state policy, economic growth, and SDG2 performance

Variable	Model (8) State policy as mediating variable		Model (9) Economic growth as mediating variable		Model (10) SGD2 performance as mediating variable[2]	
	SDG1	lnSTPOL	SDG1	lnPCGDP	SDG1	SDG2
lnSTPOL	0.0317***					
	(3.375)					
lnPCGDP			0.0966***			
			(3.9580)			
SDG2					2.7506***	
					(12.3167)	
INS	0.0564***	0.3033***	-0.0235***	0.4502***	-0.0305***	0.0152***
	(8.431)	(6.999)	(-2.7798)	(20.1678)	(-3.5990)	(7.2949)
FDI			0.0008		-0.0006	
			(1.0607)		(-0.5057)	
URBN			0.0013*		0.0031***	0.0009***
			(1.9595)		(4.4667)	(3.9708)
POPG			-0.0897***			-0.0404***
			(-7.5821)			(-9.3626)
EDU			0.0000			
			(0.0028)			
REMI	0.0147***			-0.0408***	0.0099***	
	(5.926)			(-5.1535)	(5.1512)	
UNEMP	0.0067***					
	(2.706)					
TECH		0.0181***		0.0080***		0.0001
		(5.544)		(5.0574)		(0.5098)
SCJL		0.0000 ***		0.0000**		
		(10.25)		(2.4865)		
POPD					0.00001	
					(0.2625)	
AGRI						0.0003
						(0.6864)
Constant	-0.0517	22.2123***	0.0050	8.3812***	-1.0721***	0.5891***
	(-0.232)	(137.7)	(0.0289)	(105.6685)	(-8.6324)	(28.8022)
Observations	335	335	268	268	322	322
R-squared	0.413	0.511	0.7261	0.7528	0.4829	0.6677
Sobel test	0.0096***		0.0435***		0.0418***	
	(3.04)		(3.884)		(6.276)	

Note: All models were estimated using 3SLS estimation proposed by Zellner and Theil (1962). Numbers within parentheses are *t*-statistics of coefficients. ***, ** and * indicate significance at 1%, 5% and 10% level, respectively.

[2] Based on the compatibility of the available data for SDG1 and SDG2, the analysis of the indirect effect of institutions through SDG2 performance was limited to a panel of 95 countries.

Similarly, economic growth had a 4.3% mediation effect on SDG1 performance when the institution index increased by one unit. This finding confirms the argument of Deolalikar et al. (2002) that the institutional impact on economic growth influences the pace of poverty reduction. Similarly, the results shown in Table 5 indicate that when the institution index increased by one unit, SDG2 performance had a mediation impact of 4.2% on SDG1 performance. Consequently, this finding provides empirical support for the idea of a synergetic relationship between SDG1 and SDG2 suggested by several recent studies (Barbier & Burgess, 2019; Fonseca et al., 2020; Yang, Zhao, Liu, Cherubini, Fu, & Pereira, 2020).

The results of 3SLS reveal that although direct impact of institutions on SDG1 performance is negative in models (9) and (10), indirect impact of institutions on SDG1 performance through all 3 mediators are positive and highly significant. Thus, focussing on the mediation effect of institutions carried by state policy, economic growth and SDG2 performance will provide the direction for policies aimed at fulfilling SDG1.

5. Robustness Check

The robustness of the model fitted for the direct impact of institutions on SDG1 performance using a composite index for institutions (Model 1) was checked using both alternative estimation techniques (OLS, FE, and RE) and alternative measurement of institutions (ICRG Index; Tables A3 and A4 on request). The findings of the robustness check confirm a similar institutional impact on SDG1 performance. Similarly, the composite index developed using ICRG data was used as an alternative institution index to test the robustness of the models for the indirect impact of institutions (Table A5 on request). The results corroborate the existence of a mediation impact of institutions on SDG1 performance through state policy, economic growth, and SDG2 performance. However, in the robustness check, the sign of the mediation impact only through SDG2 performance was different from that expected.

6. Conclusion

Given the scanty literature on institutions-SDG nexus, this study aimed to show the likely impacts of institutions on achieving SDG1 together with their specific aspects and paths of influence. This paper contributes to the literature by providing cross-country empirical evidence for the theoretical perspectives on both direct and indirect effects of institutions on achieving SDG of ending poverty, suggesting evidence-based policy implications. Another contribution is capturing the institutional impact by composite index developed using six governance indicators – voice and accountability, political stability, government effectiveness, regulatory quality, the rule of law, and control of corruption – to see the overall impact of institutions along with six individual governance indicators to explore the relative contribution of different aspects of institutions, in achieving SDG1. A further unique feature of this study is employing the instrumental variable (2SLS) method using longitudinal data to enhance the robustness of the estimates.

The results of the analysis of a panel of 111 countries showed that institutions positively affect SDG1 performance at $p < 0.01$ level. Regulatory quality showed the strongest influence while political stability showed the weakest influence on SDG1 performance. This study also finds that the fulfilment of SDG1 is more likely with enhanced regulatory quality and control of corruption compared to other governance aspects. This finding is precisely consistent with the conclusion of Doumbia (2019) that, in comparison with the other governance indicators, regulatory quality and control of corruption have a more significant effect on the earnings of the poor. Indirect impact analysis of institutions using 3SLS revealed that the mediation effects of institutions on SDG1 performance through state policy, economic growth, and SDG2 performance affect the pace of achieving SDG1.

Based on the findings, the main policy recommendation of this study is that all countries need to strengthen their institutional framework so that the achievement of SDG1 is expedited. The results also suggest that a mechanism that ensures minimal abuse of public power for private benefits with a more efficient regulatory system will furnish a substantially conducive environment for the achievement of SDG1. Furthermore, focussing on the mediation effect of institutions carried by three mediators – state policy, economic growth, and SDG2 performance– will provide the direction for formulating desirable policies aimed at fulfilling SDG1. The policies to attain strengthened governance through a solid institutional framework can facilitate social development (e.g., education, health, and infrastructure), economic growth, and food security, thereby contributing to SDG of ending global poverty.

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Appendix

Table A1. Pairwise correlations for the governance indicators

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) CC	1.000					
(2) GE	0.931*	1.000				
(3) PS	0.759*	0.743*	1.000			
(4) RQ	0.883*	0.940*	0.714*	1.000		
(5) RL	0.956*	0.961*	0.768*	0.932*	1.000	
(6) VA	0.815*	0.806*	0.729*	0.839*	0.841*	1.000

* *p<0.1*

Table A2. Principal Components

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	5.21954	4.86071	0.8699	0.8699
Comp2	.358824	.123381	0.0598	0.9297
Comp3	.235442	.121835	0.0392	0.9690
Comp4	.113608	.0715349	0.0189	0.9879
Comp5	.0420728	.0115573	0.0070	0.9949
Comp6	.0305155		0.0051	1.0000

	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
CC	0.4192	-0.1368	-0.2472	-0.6674	0.4228	0.3469
GE	0.4226	-0.2477	-0.2664	0.1684	-0.7116	0.3929
PS	0.3662	0.8948	-0.2075	0.1459	0.0251	0.0126
RQ	0.4166	-0.2894	0.0304	0.6764	0.5298	0.0597
RL	0.4283	-0.1731	-0.1666	-0.1554	-0.1278	-0.8476
VA	0.3932	0.0738	0.8923	-0.1527	-0.1314	0.0561

Table A3. Direct impact of institutions on the performance of SDG1 (Robustness check using alternative estimation techniques)

Variables	2SLS	OLS	FE	RE
INS	0.1255***	0.1832	2.3965*	1.1721*
	(6.4920)	(0.6349)	(1.7980)	(1.8805)
FDI	-0.0037***			
	(-3.1805)			
TO	-0.0008***	0.0798***	-0.0428	0.0244

	(-2.6280)	(7.9528)	(-1.5017)	(1.2797)
REMI	0.0156***	0.0269	0.3837	0.1628
	(5.2504)	(0.3108)	(1.3532)	(0.9380)
GDPG	0.0108**	-0.0583	0.1032	0.1075
	(1.9778)	(-0.3519)	(0.7636)	(0.8151)
URBN	0.0018	-0.0136	-0.5466**	-0.0511
	(1.6121)	(-0.4639)	(-2.1528)	(-0.7499)
Constant	0.6873***	-0.4661	40.5335***	5.6291
	(9.2213)	(-0.2111)	(2.6409)	(1.2096)
Observations	377	1,100	1,100	1,100
Number of codes			110	110
F-Test			323.25	
			(0.000)	
LM-Test				4626.67
				(0.000)
Hausman Test				10.90
				(0.0915)
Durbin chi^2	45.13			
	(0.000)			
Wu-Hausman F-st	45.19			
	(0.000)			
IV FS stat	35.65			
	(0.000)			
Adj.R-square	0.5356			
Sargan chi^2	0.3310			
	(0.5650)			
Durbin chi^2	45.13			
Basman chi^2	0.3243			
	(0.5690)			
Instruments	Settlers Mortality			
	Latitude			

Note: All models were estimated using 2SLS estimation, OLS method, fixed effect and random effect models. Numbers within parentheses are t statistics of coefficients except random effect model, Durbin chi^2, Wu-Hausman F-stat, IV FS stat, Sargan chi^2 and Basman chi^2. Numbers in parentheses of Durbin chi^2, Wu-Hausman F-stat, IV FS stat, Sargan chi^2 and Basman chi^2 are *p*-values except random effect model, which are z-statistics. ***, ** and * indicate significance at 1%, 5% and 10% level, respectively.

Table A4. Direct impact of institutions on the performance of SDG1 (Robustness check using alternative measurement for institution index)

Variables	2SLS	OLS	FE	RE
POLRISK	0.0158***	0.0053***	0.0005	0.0010**
	(6.3292)	(8.2978)	(1.2642)	(2.3341)
FDI	-0.0050***	-0.0005	0.0000	0.0000
	(-3.5445)	(-1.2373)	(0.0805)	(0.1516)
TO	-0.0002	0.0000	-0.0001	-0.0001
	(-0.6387)	(0.2044)	(-1.3648)	(-1.2529)
REMI	0.0000***	0.0000***	0.0000***	0.0000***
	(2.8683)	(6.1686)	(8.3283)	(8.1407)
GDPG	-0.0007	-0.0006	-0.0001	-0.0001
	(-0.1945)	(-0.2980)	(-0.2827)	(-0.3615)
URBN	0.0029***	0.0065***	0.0050***	0.0066***

	(2.8668)	(17.8175)	(6.1343)	(10.9371)
Constant	-0.3821***	0.0499	0.4512***	0.3236***
	(-3.7140)	(1.4524)	(7.5393)	(6.6837)
Observations	408	1,055	1,055	1,055
R-squared	0.4040	0.4833	0.1370	
Number of codes			110	110
F-Test			346.77	
			(0.000)	
LM-Test				4408.18
				(0.000)
Hausman Test			13.80	
			(0.0170)	
Durbin chi^2	28.98			
	(0.000)			
Wu-Hausman F-st	30.59			
	(0.000)			
IV FS stat	31.94			
	(0.000)			
Adj.R-square	0.6160			
Sargan chi^2	18.62			
	(0.000)			
Basman chi^2	19.03			
	(0.000)			
Instruments	Settlers Mortality			
	Latitude			
	UK Law			
	French Law			

Note: All models were estimated using 2SLS estimation, OLS method, fixed effect and random effect models. Numbers within parentheses are t statistics of coefficients except random effect model, Durbin chi^2, Wu-Hausman F-stat, IV FS stat, Sargan chi^2 and Basman chi^2. Numbers within parentheses of Durbin chi^2, Wu-Hausman F-stat, IV FS stat, Sargan chi^2 and Basman chi^2 are *p*-values except random effect model, which are z-statistics. ***, ** and * indicate significance at 1%, 5% and 10% level, respectively.

Table A5. Indirect impact of institutions on the performance of SDG1 through state policy, economic growth and performance of SDG2 (Robustness check using alternative measurement for institution index)

Variables	State policy as mediator variable		Economic growth as mediator variable		Performance of SGD2 as mediator variable^2	
	Direct Model	Indirect Model	Direct Model	Indirect Model	Direct Model	Indirect Model
	SDG1	lnSTPOL	SDG1	lnPCGDP	SDG1	SDG2
lnSTPOL	0.0272**					
	(2.370)					
lnPCGDP			0.0628**			
			(2.3981)			
SDG2					-0.1914	
					(-0.6554)	
POLRISK	0.0106***	0.0409***	-0.0027*	0.0956***	-0.0002	0.0053***
	(8.318)	(5.155)	(-1.6878)	(21.1161)	(-0.1566)	(12.7179)
FDI			-0.0005		-0.0007	
			(-0.5261)		(-0.7125)	
URBN			0.0031***		0.0044***	
			(4.1027)		(5.3667)	

POPG			-0.1232***		-0.1372***
			(-10.1617)		(-8.6072)
EDU			-0.0000		0.0013**
			(-0.0370)		(2.0248)
REMI	-0.0000			0.0000		-0.0000*
	(-0.485)			(1.3100)		(-1.7171)
UNEMP	0.0091***					
	(4.206)					
TECH		0.0188**		0.0023		0.0008*
		(2.539)		(0.5702)		(1.8308)
SCJL		-0.0000***		0.0000***		0.0000***
		(11.88)		(2.9390)		(3.0188)
Constant	-0.5956***	20.1449***	0.4099***	2.2962***	0.7350***	0.2351***
	(-2.894)	(43.29)	(3.6035)	(8.1213)	(5.6435)	(9.0331)
Observations	398	398	273	273	248	248
R-squared	0.4372	0.4264	0.7585	0.7256	0.7154	0.5731
Sobel Test	0.001		0.006		-0.00102	
	(2.15)		(2.38)		(-0.652)	

Note: All models were estimated using 3SLS estimation proposed by Zellner & Theil (1962). Numbers within parentheses are t-statistics of coefficients. ***, ** and * indicate significance at 1%, 5% and 10% level, respectively.

[2] Based on the compatibility of the available data for SDG1 and SDG2, the analysis of the mediation effect of institutions through SDG2 performance was limited to a panel of 95 countries.

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Why Code-switch on WhatsApp? A Quantitative Analysis of Types and Influences of Code-switching

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Abstract

This paper examines an asynchronous computer-mediated communication (CMC) between bilingual university students in Malaysia, in particular via Whatsapp by appropriating a functional approach in scrutinizing the diverse *types* and *influences* for codeswitching (CS). A quantitative methodology was employed wherein a survey was designed and administered to undergraduate students from the Universiti Teknologi MARA (UiTM). A dataset from a total of 90 respondents was collected from five faculties; Academy of Language Studies, Faculty of Law, Faculty of Communication and Media Studies and Faculty of Education. The yielded findings postulate that *inter-sentential* code-switching was the most used type of code-switching among the respondents and *habitual expression* is the main factor that influence them to code-switch.

Keywords: Code-switching, Computer-Mediated Communication (CMC), WhatsApp, Bilingualism

1. Introduction

1.1 Background of the Study

Numerous scholars have described code-switching in numerous ways. It is the most widespread and distinguished traits of bilingual demeanour (Heller & Pfaff, 2008; Schendl & Wright, 2011; Auer, 2020). Gumperz, a forerunner in the field, demarcated code-switching as the collocation of speech belonging to two different grammatical systems or subsystems (1982). Trudgill outlines that code switching is a technique used by bilingual speakers to alternate between languages and dialects when conversing (2000). Code-switching phenomenon is eminent in Malaysia because Malaysians are at the very least bilingual, if not multilingual (Gaudart, 2002). In addition, the implementation of National Education Policy made it compulsory for Malay and English languages to be part of the core subjects, and must be taken by all ethnic groups (Lee, 2010). As such, code-switching becomes the colourful fabric of Malaysia's sociolinguistic framework.

The oscillating practice to use more than one languages or dialects is common in the Malaysian speech styles. The multilingual Malaysians, Malay, Chinese and Indian are faced with varieties of linguistics choices when communicating with people of different ethnic groups. Nonetheless, many linguists have contended that code-switching may lead to several issues such as negative repercussions in language acquisition. Purists also believed that those who code-switch are lazy, and this may affect their language development. In a similar vein, code-switching is claimed to be commonly linked with linguistic incompetence (Dewaele & Wei, 2014). According to Ariffin & Hussin (2011), code-switching is considered as a hurdle when learning a new language. It is noteworthy to highlight that the emphasis of code-switching researches, thus far, are predominantly centred on the use of language change, levied by the word level manipulation between speaker and listener (Fricke et al., 2016). The speakers' articulatory demeanours among bilinguals are observed to modify the phonological facets and shift the lexical choices (Tamargo et al., 2016; Shen et al., 2020). On the contrary, there are also academicians who encourage the usage of code-switching. According to Nurul, Azu, Khairunnisa & Tengku (2015), code-switching revolutionises and enhances the creativity in expressing feelings. Code-switching also plays an important role in achieving a successful communication as it helps to emphasize the key point in a sentence. Puteh et al (2020) concurred that the occurrence of code-switching in Malaysia is a form of strategy to

create understanding among interactants by means of the similar discourse. They further illustrated that positive social tone can be harvested via online collaborative activities. Consequently, higher self-worth can be heightened and this is viewed positively in which language is used as a form of an intermediary in a social context.

Accoding to Holmes (1992), code-switching represents a spectacle where the speakers switch their first language to their second language. In examining the occurrence of code-switching in Malaysia, WhatsApp is the most suitable instant messaging application to be used in the study. This is because WhatsApp allows its users to convey themselves creatively in online communication. Halim, Nadri & Mahmood (2015) pointed out that code-switching is employed typically everywhere in Malaysia since Malaysians are accustomed to the practice of *Bahasa Rojak. Bahasa Rojak,* which is also known as Salad Language represents phrases that utilize two languages at inter and intra sentential level (McLellan, 2012; Nil, Zurina, & Shamala, 2012). The deliberations thus far have established that there is an abundance of researches on CS in the Malaysian setting. However, many of these studies are predisposed towards face to face rather than CMC. Principally, Malaysians may be able to speak Malay and English, but it is possible that they may not be conscious of the significance, strategies and choice of CS, especially on computer-mediated communication. Governed by the social dynamics of WhatsApp as a multi-mode digitised discourse, it would be noteworthy to draw on various motivation, strategies and linguistic features to confer facets of meaning. Therefore, the aim of the research is to examine the diverse types and influences for codeswitching which occur on WhatsApp among bilingual university students in Malaysia.

1.2 Objectives of the Study

The purpose of this research is to examine an asynchronous computer-mediated communication (CMC) between bilingual university students in Malaysia, in particular via Whatsapp by appropriating a functional approach in scrutinizing the diverse types and influences for codeswitching (CS).

1.3 Research Questions

This study was delimited to analyze the different types of CS and factors that incluence CS via WhatsApp. Thus, this study attempts to answer the following research questions:

1.   What are the types of code-switching mostly used by UiTM undergraduates on Whatsapp?

2.   What are the factors that influence the undergraduates to code-switch on WhatsApp?

2. Literature Review

2.1 Types of Code-Switching

Poplack (1980) and Hoffmann (2014) stated that there are three types of code-switching, namely tag-switching, inter-sentential switching as well as intra-sentential switching. Tag-switching can happen anywhere without affecting the linguistic rule of the sentence. Meanwhile inter-sentential switching occurs at sentence boundaries and intra-sentential switching occurs within clause boundaries. In another light, Blom and Gumperz (2000) also classified code-switching into two categories, namely situational code-switching and metaphorical code-switching. Situational code-switching happens due to several factors which are speaker, topic and setting. According to Suryawati (2013), in this type of code-switching, the speaker has a purpose of using situational code-switching in a conversation as it is intentional. As an example, situational code-switching occurs when an individual with a low language competency participates in a discussion with a speaker, the speaker eventually code-switches in order to make the person feels comfortable in the discussion. Meanwhile, metaphorical code-switching represents a way to encourage speech acts, namely complimenting, apologising, as well as asking for a favour (Choy, 2011). Metaphorical code-switching is different than situational code-switching since it has no specific purpose and unintentional.

2.2 Reasons and Factors of Code-Switching in Malaysia

Many linguists are curious about the reasons and factors of code-switching. Therefore, a lot of researches have been conducted to identify the reason and factors that influence a speaker to code-switch. According to a study conducted by Malik (1994); as cited in Choy (2011), there are 10 factors that caused code-switching, specifically lack of facility, lack of register ability, speaker's emotions, emphasis of a point, habitual expressions, semantic significance, display of identity within a group, communication with various audiences, pragmatic factors, as well as attention-grabbing. People code-switch during a conversation due to several factors. Lack of facility is one of the reasons. Bilinguals tend to code-switch when they are not able to find the words in other languages as a way to express themselves and to avoid any miscommunication. Other than that, lack of register ability also

causes people to code-switch. Bilinguals code-switch when they are not proficient in any of the languages. Hence, they find it difficult to hold a conversation when they are not able to choose the correct words in a particular language. Some people also code-switch because they choose to speak in another language in a sentence as they prefer a different language than the actual language. Speaker's emotions also play an important role in influencing the use of code-switching. Bilinguals code-switch depending on their emotions such as sad, angry, happy. This is because other words in a different language may be simpler and easier to convey at that particular time. Code-switching also occurred because bilinguals want to emphasise a point during a conversation. Joanna (2014) pointed out that code-switching happened regularly in classrooms in Malaysia as teachers tend to code-switch between English and Malay language to make the students have a better understanding. Besides that, habitual expressions are also one of the common factors that influence a lot of people to code-switch, especially in Malaysia where there are various races. The use of code-switching can be seen in greetings, discourse particles, as well as apologies. The phrase "Sorry" that has been used a lot by Malaysians in a Malay language sentence proves that it has become a habit of Malaysians to include English words into their daily conversations (Ismail et al., 2021).

Another factor is semantic significance. Code-switching can also convey important details which lead to bilinguals expressing their emotions towards other people. This helps prevent confusion and misunderstandings in the context of relational communication. Moreover, people code-switch because they want to showcase their identity within a group. For example, deliberating on the notion of code-switching as an external imposition, speakers can strategically code-switch to regulate the aspects of identity that complement the context. According to Joanna (2014), code-switching takes place in classrooms because teachers are trying to create a warm connection with the students in order to achieve the targeted learning objectives as well as to create a positive surrounding in the classroom. Furthermore, code-switching is also used to communicate with various audiences, depending on the background of the audience, which lead to the use of different languages in a single exchange of interaction. Furthermore, pragmatic factors also cause people to code-switch. The setting of the conversation such as formality determines the selection of language. Lastly, code-switching also takes place because people want to attract the attention of others in communication. Therefore, a lot of retail companies include code-switching in advertisements as a way to communicate in a friendly manner with customers as well as to grab their attention towards the products that they are promoting. According to a research that was done by John & Dumanig (2013), it is important to include Malaysians' favourite expressions in advertisements as it helps to grab the attention of customers and develop a good point of view towards the brand.

2.3 Computer-mediated Communication (CMC)

Hassan & Hashim (2009) stated that the internet, the web and technology make it easier for people to communicate with each other around the world. CMC is a medium of communication through technology, namely email, instant messaging and video call. CMC is separated into two main categories according to its feature of synchcronicity; synchronous and asynchronous CMC. Synchronous CMC helps participants connect and interact in actual time which help the participants to receive fast responses in a conversation. According to Rasdi (2016), both sender and receiver are required to be present at the same time on synschronous CMC mediums such as chatrooms, video calls and instant messaging. Asynchronous CMC, on the contrary, differs from the aspects of receiving responses from receiver as users are not required to be present at the same time. However, asynchronous CMC provides disadvantages to people as it may cause delayed responses which can be seen in emails and social media platforms which have the same characteristics as written communication.

2.4 The Use of WhatsApp in Malaysia

According to Constine (2018), 1.5 billion people around the world use WhatsApp for communication purposes. Ninety seven (97%) Malaysians chose WhatsApp than any other instant messaging applications such as Telegram and WeChat (Telenor Research, 2016). Fifty one (51%) of WhatsApp users are from Malaysia, which are the largest WhatsApp users in the world (Newman et al., 2017). The astounding number of users is due to the user-friendly features. Most importantly, WhatsApp has made it easier for people to keep in touch with each other as it has important tools such as group chats, broadcast message, phone and video call functions. WhatsApp also does not require its users to pay in order to use the application. This reason led people to abandon the traditional Short Message Service (SMS) as it charges people for every message (Resende et al., 2019). In Malaysia, WhatsApp is used a lot in teaching and learning process by educators as well as learners. This is because it helps to spread knowledge among friends, enhances the process of acquiring new knowledge and develops evaluation skills (Barhoumi, 2015). Che Su, Che Hasniza, Hassan & Bahtiar (2018) pointed out that utilizing WhatsApp for education helps to sharpen the students' social skills and enhance the students' as well as the teachers' creativity. Educators and students can make full use of the functions in WhatsApp such as

creating voice notes, sending photos and videos, as well as making phone and video calls. Hence, educators are able to provide an interactive learning experience and students will be more encouraged to learn.

3. Method

The section describes in detail how the study was conducted, including research design and approach, the setting and respondents of the study, the method used in collecting and analysing the data, as well as the ways to measure the reliability and validity.

3.1 Research Design and Approach

This research examines the use of code-switching among UiTM undergraduates while communicating using WhatsApp. This research is based on a descriptive research design. A survey instrument was utilised in this study to collect the data. The questionnaire consists of questions seeking information regarding the types of code-switching and the factors that lead students to code-switch while communicating using WhatsApp. In the present study, some variables were acquired from (Noor & Mostafa, 2017), such as gender, faculty, whereas other variables were produced by the researcher. Quantitative method approach was used in conducting this study.

3.2 Research Setting, Sample and Sampling Technique

Research survey was created on Google Form which was then distributed through WhatsApp. The links of the survey were distributed to students of Academy of Language Studies, faculties such as Law, Communication and Media Studies and Education. The sample of this research consists of 90 Universiti Teknologi Mara (UiTM) undergraduates of Social Sciences and Humanities from Academy of Language Studies, Faculty of Law, Faculty of Communication and Media Studies and Faculty of Education. Simple random sampling technique was used to select 90 undergraduates as a sample for study. Respondents from four faculties achieved band 3 and above for MUET and they had to pass the interview conducted by the faculties, thus marked the main reason for them to be chosen for this research. Bilinguals who code-switch are individuals who are competent in both of the languages, which are English and Malay Language.

3.3 Research Instrument

The instrument used in this research study included the use of a research survey. The development of the survey instrument started with an in-depth review of studies related to the research questions of this research; the types of code-switching that are mostly used by UiTM students on WhatsApp and the factors that influence them to code-switch on this messaging application, WhatsApp. From the studies gathered, the researcher produced a questionnaire with a total of 6 items related to demography profile and 39 items related to the research questions of this research. The questionnaire consists of a 45-items survey that has been separated into three parts that collected information on demographic profile, types of code-switching and factors of it. Section A which is the demographic questions contains 6 questions. Section B contains 23 questions that are related to the five types of code-switching while Section C contains 16 questions that are related to the seven factors of code-switching. Section B through Section C in the questionnaire comprises questions that were created by the researcher by referring to other studies. The questionnaire used a 10-point Likert-type scale as it gave accurate scale value for statistical analysis purposes. Prior to the actual data collection, the survey was pilot tested before it was distributed to the research subjects in order to measure the validity and reliability. A group of 10 students from four different faculties were selected to pilot test the instrument. After the students were done with the pilot test, the questions were improvised.

3.4 Data Collection Procedures

A survey was conducted to collect quantitative data. The subjects consist of 90 Universiti Teknologi Mara (UiTM) students enrolled in programmes, namely English for Professional Communication, English for Intercultural Communication, Malay for Professional Communication, Arabic for Professional Communication at Academy of Language Studies. Other than that, other programmes such as Law, Public Relations, Journalism, Broadcasting at Faculty of Communication and Media Studies and Teaching English as a Second Language (TESL) at Faculty of Education. The researcher was intrigued in investigating the types of code-switching that are frequently utilised by UiTM students while communicating using WhatsApp. Thus, a research was considered relevant. A questionnaire with a total of 45 items was prepared and designed by the researcher based on other published articles. Each of the question items was retrieved from 20 journal articles. Some of the studies that have been selected and analysed to create the question items were from Nik & Suthagar (2013) and Cresensiana (2020).

3.5 Data Analysis

Upon collecting the data from the questionnaire, the types and factors of code-switching have been identified. The Likert Scales were specified with a number from 1 to 10. In Section B and C, 1 and 2 refer to 'Strongly Disagree', 3, 4 and 5 refer to 'Disagree', 6, 7 and 8 refer to 'Agree' and 9 and 10 refer to 'Strongly Agree'. For quantitative data collection, cross-tabulations between faculties and the items in research question 1 and 2 were conducted. Besides that, descriptive analysis was used between variables in order to find the mean differences and standard deviation. The data was tabulated and analysed using SPSS software version 21.0.

3.6 Reliability and Validity

The instrument consists of a questionnaire which has a 45-items questionnaire that has been separated into 3 different parts that collected information on demographic profile of the respondents, various types of code-switching, and factors that influence the use of it. The questionnaire's content validity was examined carefully by content experts and it was considered as valid because a cross-check has been done. The reliability of the questionnaire has also been verified by conducting a pilot test to a group of 10 students from four different faculties. After the students were done with the pilot test, the questions were improvised. Other than that, the items in the questionnaire were adapted from published articles. Reliability has been analysed by utilising Cronbach's Alpha on SPSS 21. The results obtained from the reliability analysis was 0.905. Therefore, the questionnaire is reliable and can be utilised for this study. The questionnaire was then being disseminated to the subjects in four faculties after measuring the validity and reliability of the questionnaire.

4. Results

4.1 Demographic of the Samples

Table 1. Demographic Distribution of the Subjects by Faculty and Gender

Faculty		Gender		Total
		Male	Female	
1	Academy of Language Studies	8(8.9%)	27 (30.0%)	35 (38.9%)
2	Faculty of Law	10 (11.1%)	9 (10.0%)	19 (21.1%)
3	Faculty of Communication and Media Studies	8 (8.9%)	6 (6.7%)	14 (15.6%)
4	Faculty of Education	12 (13.3%)	10 (11.1%)	22 (24.4%)
	Total	38 (42.2%)	52 (57.8%)	90 (100%)

Table 1 shows demographic distribution of the subjects by faculty and gender. From the total of 90 subjects, 35 (38.9%) were from Academy of Language Studies, 19 (21.1%) were from Faculty of Law, 14 (15.6%) were from Faculty of Communication and Media Studies and 22 (24.4%) were from Faculty of Education. Subjects consisted of 8 (8.9%) males and 27 (30.0%) females enrolled in the Academy of Language Studies. Other than that, there were 10 (11.1%) males and 9 (10.0%) females enrolled in Faculty of Law. For Faculty of Communication and Media Studies, there were 14 students who were 8 (8.9%) males and 6 (6.7%) females. Faculty of Education consisted of 12 (13.3%) males and 10 (11.1%) females.

Table 2. Demographic Distribution of the Subjects by Faculty and Semester

Faculty	Semester								Total
	1	2	3	4	5	6	7	8	
Academy of Language Studies	0	2	5	3	13	12	0	0	35
Faculty of Law	0	0	0	1	2	15	0	1	19
Faculty of Communication and Media Studies	2	2	0	4	4	2	0	0	14
Faculty of Education	4	1	1	1	0	4	9	2	22
Total	6 (6.7%)	5 (5.6%)	6 (6.7%)	9 (10%)	19 (21.1%)	33 (36.7%)	9 (10%)	3 (3.3%)	90 (100%)

Table 2 illustrates demographic distribution of the subjects by semester and faculty. 33 (36.7%) subjects are semester 6 students which consisted of 12 students from Academy of Language Studies, 15 students from

Faculty of Law, 2 students from Faculty of Communication and Media Studies and 4 students from Faculty of Education. Next, 19 (21.1%) subjects are semester 5 students who were 13 students enrolled in Academy of Language Studies, 2 students enrolled in Faculty of Law and 4 students enrolled in Faculty of Communication and Media Studies. Other than that, there were 9 (10.0%) subjects who were in semester 4 and 7 respectively. 9 subjects in semester 4 consisted of 3 students from Academy of Language Studies, 4 students from Faculty of Communication and Media Studies and 1 student from Faculty of Law and Faculty of Education respectively. Meanwhile, 9 subjects in semester 7 consisted of students enrolled in Faculty of Education. There were 6 (6.7%) semester 3 and semester 1 students respectively. 6 subjects in semester 3 consisted of 5 students enrolled in Academy of Language Studies and 1 student enrolled in Faculty of Education. However, 6 subjects in semester 1 consisted of 4 students from Faculty of Education and 2 students from Faculty of Communication and Media Studies. Besides that, 5 (5.6%) subjects in semester 2 were two students from Faculty of Communication and Media Studies and one student from Faculty of Education. Lastly, there were 3 (3.3%) subjects in semester 8. Two subjects were students enrolled in Faculty of Education and one subject was a student enrolled in Faculty of Law.

4.2 Research Question 1: What Are the Types of Code-switching Mostly Used by UiTM Undergraduates on Whatsapp?

Table 3. Undergraduates' Ranking of Types of Code-switching

Ranking	Factors	Mean	Std. Deviation	N
1	Inter-sentential Code-switching	3.6111	.58912	90
2	Metaphorical Code-switching	3.5815	.60287	90
3	Intra-sentential Code-switching	3.1730	.43862	90
4	Situational Code-switching	3.1500	.54541	90
5	Tag Switching	2.9540	.41681	90

The first objective of this research is to find out the types of code-switching mostly utilised by UiTM undergraduates on WhatsApp. The result of the descriptive analysis on Section B of the questionnaire explained undergraduates' ranking of 5 types of code-switching. Table 3 illustrates the undergraduates' ranking of types of code-switching. In the table above, the types of code-switching are arranged ascending from the highest mean score to the lowest mean score. As shown in Table 3, inter-sentential code-switching was considered as the most frequent type of code-switching on WhatsApp used by UiTM undergraduates (M = 3.61, Std. Deviation = .589) followed by metaphorical code-switching (M = 3.58, Std. Deviation = .602). Next, the respondents also used intra-sentential code-switching on WhatsApp (M = 3.17, Std. Deviation = .438). Other than that, respondents used situational code-switching on WhatsApp (M = 3.15, Std. Deviation = .545). The least used type of code-switching by UiTM undergraduates on WhatsApp was tag-switching (M = 2.95, Std. Deviation = .416).

The reason why inter-sentential code-switching was the most common type of code-switching on WhatsApp among UiTM undergraduates (M = 3.61, Std. Deviation = .589) was mainly due to the fact that people find it is more convenient to communicate with others by using a different language in a sentence then switching to another language in the following sentence. Using inter-sentential code-switching will make other people understand the sentence better. Other than that, the second most common type of code-switching among the undergraduates was metaphorical code-switching (M = 3.58, Std. Deviation = .602). According to question item 21, 22 and 23, the respondents preferred to insert metaphorical code-switching when they wanted to strengthen their apology, complaint and request. Besides that, the third most frequent type of code-switching was intra-sentential code-switching (M = 3.17, Std. Deviation = .438). Intra-sentential code-switching occurs when the person switches to a different language within a sentence. However, most of the respondents disagreed over the fact that they regularly switch to a different language within a sentence when they send WhatsApp messages to lecturers but they agreed that they regularly code-switch within a sentence when they send WhatsApp messages to family members, friends and classmates.

4.3 Research Question 2: What Are the Factors That Influence the Undergraduates to Code-switch on WhatsApp?

The second objective of this research is to investigate factors that influence the use of code-switching among undergraduates while communicating using WhatsApp. The result of the descriptive analysis on Section C of the questionnaire revealed undergraduates' ranking of 7 factors of code-switching. Table 4 represents the undergraduates' ranking of seven factors of code-switching. The factors are ranked ascending from the highest

mean score to the lowest mean score. According to the table, 'Habitual Expression' was the main factor that influences the undergraduates to code-switch on WhatsApp (M = 3.77, Std. Deviation = .468), followed by 'Emphasis of a Point' (M = 3.74, Std. Deviation = .509). Besides that, 'Lack of Vocabulary' was also the factor that motivates students to switch to another language while texting on WhatsApp (M = 3.68, Std. Deviation = .568). Students tend to code-switch a lot on WhatsApp depending on the 'Mood of the Speaker' (M = 3.53, Std. Deviation = .641). 'Language Preference' was also one of the reasons that influences students to switch to another language on WhatsApp (M = 3.46, Std. Deviation = .690), followed by 'Display of Identity' (M = 3.22, Std. Deviation = .549). However, the factor 'Linguistic Background' had the lowest mean score (M = 3.16, Std. Deviation = .788) which shows that not many students code-switched according to the linguistic background of the other person during a conversation on WhatsApp.

Table 4. Undergraduates' Ranking of Factors of Code-switching

Ranking	Factors	Mean	Std. Deviation	N
1	Habitual Expression	3.7778	.46875	90
2	Emphasis of Point	3.7444	.50971	90
3	Lack of Vocabulary	3.6806	.56839	90
4	Mood of Speaker	3.5370	.64127	90
5	Language Preference	3.4667	.69022	90
6	Display of Identity	3.2222	.54966	90
7	Linguistic background	3.1667	.78889	90

Based on the results above, it can be observed that 'Habitual Expression' was the most chosen factor that influences UiTM undergraduates to code-switch while communicating using WhatsApp (M = 3.77, Std. Deviation = .468). This is because respondents preferred to insert discourse particles such as "you know", "lah" and "kan" while texting. Other than that, most of the respondents also chose 'Emphasis of a Point' (M = 3.74, Std. Deviation = .509) as the factor that influences them to code-switch on WhatsApp. This is because the respondents assumed that switching to another language during an argument can add more force to the statement. A lot of respondents chose 'Lack of Vocabulary' (M = 3.68, Std. Deviation = .568) as the factor because they preferred to code-switch when they are unable to explain using their first language or second language, and they also code-switch when they can't find equivalent words in their first language. Other than that, the respondents often switch to another language when texting on WhatsApp to overcome issues such as grammatical problems.

5. Discussion

Based on the results received from the questionnaire of this study, the undergraduates preferred to use inter-sentential code-switching by switching from Malay language to English language from one sentence to another sentence on WhatsApp so that it can be easily understood by the reader. Inter-sentential code-switching helps WhatsApp's users to achieve an effective communication with one another. Another type of code-switching that the undergraduates regularly used was metaphorical code-switching. The undergraduates frequently use metaphorical code-switching when they want to strengthen their apology to others. They also prefer switching to another language when they want to strengthen their complaint or request for favours. This is because metaphorical code-switching allows the speakers to modify the tone of the conversation. The results yielded show that the main factor for undergraduates to code-switch on WhatsApp was due to '*Habitual Expression*'. This is because it has become a habit of them to code-switch by using discourse particles, namely *"you know", "i mean" "lah" or "kan".* This is rather typical for a multiligual country like Malaysia (David, 2003; Alinda, 2019). Malaysians have a higher tendency to use the discourse particles while texting in a full-English sentence as Malaysia is a multiracial country and various languages are being used by different races. Therefore, *Bahasa Rojak* or Salad Language has become a norm in Malaysia. Other than that, the second factor that most of the respondents agreed to was '*Emphasis of a Point*'. All undergraduates from Academy of Language Studies, Faculty of Communication and Media Studies and Faculty of Education preferred to code-switch to strengthen a statement when arguing on WhatsApp. However, not all undergraduates from Faculty of Law agreed with it. This indicates that Faculty of Law's undergraduates preferred to speak in full English or Bahasa Melayu sentence during an argument on WhatsApp. This result is in line with studies conducted by Nik & Suthagar (2013) and Almelhi (2020) that people switch and shift to a different language in a conversation to make the utterance more understandable for others and simultaneously to strengthen the point in an argument to invariably show solidarity. The majority of respondents from the four faculties also agreed that

'Lack of Vocabulary' was one of the factors that triggered them to code-switch. The respondents mostly responded "Agree" and "Strongly Agree" that they code-switch when they are unable to explain using their first or second language and when they can't find equivalent words in their first language. This shows that the undergraduates chose to explain in any language that they could think of when texting on WhatsApp as WhatsApp is a type of synchronous CMC where it requires instant response and both user and receiver should be logged in simultaneously.

6. Conclusion

The study was primed to investigate an asynchronous computer-mediated communication (CMC) between bilingual university students in Malaysia, in particular via Whatsapp by arrogating a functional approach in analyzing the diverse *types* and *influences* for codeswitching (CS). The findings revealed that the respondents from four faculties (Academy of Language Studies, Faculty of Law, Faculty of Communication and Media Studies and Faculty of Education) regularly code-switch with one another on WhatsApp. The most used form of code-switching by the respondents was *inter-sentential code-switching* as they want the message to be understood easily by readers. The main factor that influenced the respondents to code-switch is '*Habitual Expression*', denoting customary decorum and completely nothing out of the ordinary, especially in the Malaysian context. The '*Habitual Expressions*' such as discourse particles such as '*lah*' and '*kan*' are inserted to better convey the messages. It is noteworthy to mention that these diplays of behaviours are done unconsciously, reflecting the speakers' interaction patterns. At this juncture, the findings are replete with illustrations, attributed to the multi-ethnic identities and environment in Malaysia. Other factors of code-switching such as '*Emphasis of a Point*' and '*Lack of Vocabulary*', which also instigated the students to habitually switch to another language when communicating using WhatsApp. Ultimately, this study confirms that linguistic means are associated and shaped by the speakers' expressions of identity, albeit via mediated communication. Likewise, the findings of the study are akin to the existing pool of researches on the use of first and second languages within a multilingual context. Future researches on CS and CMC in other multilingual settings can be done to warrant better understanding of the relationship between the two, and to remit its teaching, learning and communicative potential, especially in the language teaching and learning so as to second language learners (LL2) are able to foster academically successful attitudes and cultures from a standardized language model.

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Online Learning Challenges in Schools During the Pandemic COVID-19 in Indonesia

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Abstract

The purpose of this research is to provide information to the Government of Indonesia in particular and observers of education in general regarding the challenges of online learning in schools in remote areas in Indonesia so that there is mutual attention from educational stakeholders to pay attention to students in remote areas to retain their rights in education. This research methodology is qualitative, using the result of previous relevant researchs that support in writing of this research. The research findings include: 1) the importance of the role of school principals as implementers of government policies; 2) teachers' strategies in implementing online learning that are easily understood by students; 3) the importance of the role of parental assistance during online learning; and 4) Regional Government policy strategies for the success of online learning, especially in remote areas. The recommendations of this research are: 1) adjusting online learning based on local conditions; 2) the existence of task forces in the regions to help the online learning process run smoothly; 3) monitoring and evaluation; 4) broad autonomy for school principals to innovate; 5) teacher training program to support the online learning process; 6) the existence of cooperation between the government and the private sector in the telecommunications sector; 7) face-to-face learning for students who do not have telecommunication equipment.

Keywords: role of school principal, learning strategy, online learning, remote area society

1. Introduction

The Covid-19 pandemic has affected the education system in the world and especially in Indonesia. Starting from March 2020 until now the Indonesian Government through the Ministry of Education and Culture has been working and always trying to issue policies in the field of education that can be accepted and implemented in Indonesia. The education sector policies, such as: implementation of online learning for all levels of education; free internet credit quota assistance to all students and educators at all levels of education; financial assistance to teachers and education personnel working in the education sector; modification of the learning curriculum that prioritizes the use of technological devices. All policies issued by the Indonesian Government have the full support of the Parliament, and the budget issued also comes from the State Revenue and Expenditure Budget. On March 24, 2020 the Minister of Education and Culture of the Republic of Indonesia issued Circular Letter Number 4 of 2020 concerning Implementation of Education Policies in an Emergency for the Spread of COVID, in this circular explaining that the learning process is carried out at home through online / distance learning which is carried out to provide experience meaningful learning for students. The learning process at home is more focused on life skills education, including regarding the Covid-19 pandemic. The Minister of Education and Culture collaborates with various parties to conduct online learning. Some parties that focus on developing an online education system are Google Indonesia, Class Smart, Microsoft, Quipper, Ruangguru, Sekolahmu, and Zenius, while the Ministry of Education and Culture itself also has its own learning portal, namely the Learning House.

Indonesia is a large archipelago country, and has a total number of schools are 307.655, of which many are located in remote areas spread across 34 provinces in Indonesia, where access to transportation and telecommunication is still very limited. Not to mention the lack of technological literacy for teachers and

students in remote areas. During its development during the Covid-19 Pandemic, dynamics emerged from various regions in Indonesia, especially with regard to the implementation of online learning. Many areas and schools in remote areas are not ready. This is because there is still very limited understanding of online learning and also the use of technological devices during the learning. Not to mention that there are still many children and parents who are not familiar with cellphones, so this condition makes the dynamics of the online learning process in remote areas in Indonesia a new thing that needs to be examined properly and wisely.

Leaders from all provinces and districts in Indonesia are trying to translate the policies of the Central Government and the Ministry of Education and Culture to be able to provide a legal umbrella for local policies in the online learning process in the regions. A number of policies in the regions have also emerged and remain under coordination and monitoring of the Central Government. However, no matter how good and ideal the policies are, if conditions in remote areas are not ready then it still creates uncertainty in their implementation and also creates turmoil. Even today, the Government of Indonesia is still trying to find innovative solutions and policies that are relevant for the State and the region so that during the Covid-19 Pandemic students can still get their right to learn.

With regard to this condition, the researcher tries to dig up information from various relevant literature sources, which can be useful for providing input and insight to the Indonesian Government or readers, so that even in the Covid-19 Pandemic situation, the online learning process can still take place with a strategy. and in different ways, teachers can carry out their duties properly and students still have the right to learn.

2. Method

This literature review has the purpose to extract information from various previous research sources that are relevant to the challenges of online learning in schools, so that it can provide benefits to the Indonesian government in particular and to readers in general. This method is in line with that proposed by Denzin & Lincoln (2017), Ward & Delamont (2020) that appropriate academic opinion from researcher that able to give an impact to the community have to be based on relevant previous researchs and relevant literatures review.

3. Findings

Several relevant research results such as those conducted by Trybulkevych et al. (2021), Wu (2020), Usmanjonovna et al. (2020) found that online learning readiness is influenced by the literacy ability of its users and supporting infrastructure for fluency during the learning process. Other research found by Tuan (2020), Papay et al. (2017), Pacho (2020), Mohiuddina et al. (2021) suggests that for areas where people have a low reading culture, it greatly affects the ability to use technology as a learning tool for children, and this will also affect the ability of teachers to apply online learning strategies.

With regard to family support for children for online learning, several research results by Mathew et al. (2017), Liguori & Winkler (2020), Kinseng (2021), Hafeez et al. (2021) suggest that parents play an important role in mentoring to children when learning online because not all children are able to use technological devices and are able to clearly accept explanations from the teacher. There is also research that discusses the role of peers in the online learning process, this is as stated in the results of research conducted by Kalyanasundaram & Madhavi (2019), Li & Zizzi (2018), Mohiuddina et al. (2021), Muls et al. (2020) which suggests that the existence of peers during the online learning process will make it easier for students to communicate with each other so that the material presented by the teacher can be easily accepted.

The results of research in remote areas or in rural areas conducted by Aslan & Aybek (2019), Papay et al. (2017), Ramadhani et al. (2019), Tuan (2020), Yaman-Ortas (2019) suggest that in the modern era with development technology is fast, schools in remote areas are not yet fully ready to adapt to technology to carry out online learning, the most important thing that is felt is the lack of teachers' ability to use technology itself. In line with this, research that looks at the readiness of technology adaptation by teachers, as stated by Wang & Hu (2019), Trybulkevych et al. (2020), Taylor et al. (2017), Polly (2017) states that in general the background of the learning process What was experienced by the teacher during previous schooling was the face-to-face learning process in class, with books that are directly in the classroom, when then the teacher has to adapt to technology, especially for online learning, the teacher is not ready, so this condition affects the lesson plan compiled by the teacher, and many things happen that teachers still need time to adapt to the use of these technologies.

With regard to online learning methods, several research results such as by Polly (2017), Schipper et al. (2019), Tuan (2020), Arifin & Hermino (2017) suggest that teachers need to inform parents of the lesson plan every week regarding learning materials and targets to be achieved, so that students with the support of their parents can prepare themselves to take part in learning well. Regarding online learning strategies, the results of research

by Taylor et al. (2017), Ramadhani et al. (2019), Muls et al. (2020), Mikhailovna et al. (2019) suggest that online learning can be easily accepted by students when done with a model interactive, namely by means of case-based learning or project-based learning or problem-based learning so that students will easily understand the meaning of the material presented by the teacher, and the teacher can explain the learning material based on what the students get so that the learning objectives can be achieved.

Based on all the results of the research information, several things can be found regarding the benefits of online learning, especially those that can be of concern in remote areas in Indonesia, such as: 1) the importance of the role of school principals as implementers of Government policies; 2) teachers' strategies in implementing online learning that are easily understood by students; 3) the importance of the role of parental assistance during online learning; and 4) Regional Government policy strategies for the success of online learning, especially in remote areas. These four findings will then be discussed in depth in the discussion.

4. Discussion

4.1 The Importance of the Role of the Principal as Implementer of Government Policy

In remote areas the principal is not only a leader in the school but also a community leader and agent of reform. Regarding this, the Principal must be able to act such as: 1) providing clear directions to teachers and education personnel regarding the implementation of government policies regarding online learning; 2) together with the teachers to prepare online learning lesson plans that are simple and easy for students to understand; 3) coordinate with local governments to provide support for online learning tools; 4) coordinate with village heads to jointly provide understanding to school committees and parents about online learning policies during the Covid-19 Pandemic; and 5) regularly monitoring and evaluating the implementation of online learning and reporting the results of the process to local governments.

In its implementation, the Principal does not have to work alone but also involves the Village Head, Community Leaders, Religious Leaders, so that together they can provide support and advice to the public in general and to parents of students to understand the importance of understanding government policies regarding online learning so that children still get the opportunity to receive learning. This is also as stated by Arifin & Hermino (2017); Aslan & Aybek (2019); Hartinah et al. (2020) stated that involvement with community leaders in the village in monitoring and evaluating education in the village where the school is located aims to make learning successful in schools, as well as to provide a sense of comfort in the process of improving the quality of education in their village.

However, the School Principal must also be able to provide effective directions and strategies to teachers regarding the online learning model that will be carried out. This is because not all of the community or parents of students have cellphones, and not all students are able to understand the use of cellphones as a medium of learning media. In this condition, the School Principal can at least give sufficient special time to teachers with regard to: 1) understanding the use of cellphones or learning media based on Information and Technology; 2) preparation of lesson plans that are simple and easy to understand by parents and students. The lesson plans must be given to the parents of students at least one week in advance; 3) determining the learning model that will be implemented so that learning objectives can be achieved. The learning model can be in the form of case-based learning, problem-based learning, or project-based learning; 4) monitoring and evaluation of student academic development; and 5) the schedule of teacher visits to several student homes to obtain input and/or evaluation from students' parents. This condition is also as stated by Hafeez et al. (2021); Hermino (2016); Kalyanasundaram & Madhavi (2019); Nashir et al. (2020) stated that the broad insight and good competition possessed by the Principal as a leader and manager will facilitate the implementation of a policy from the State.

In this regard, the role of the Principal can be described as follows:
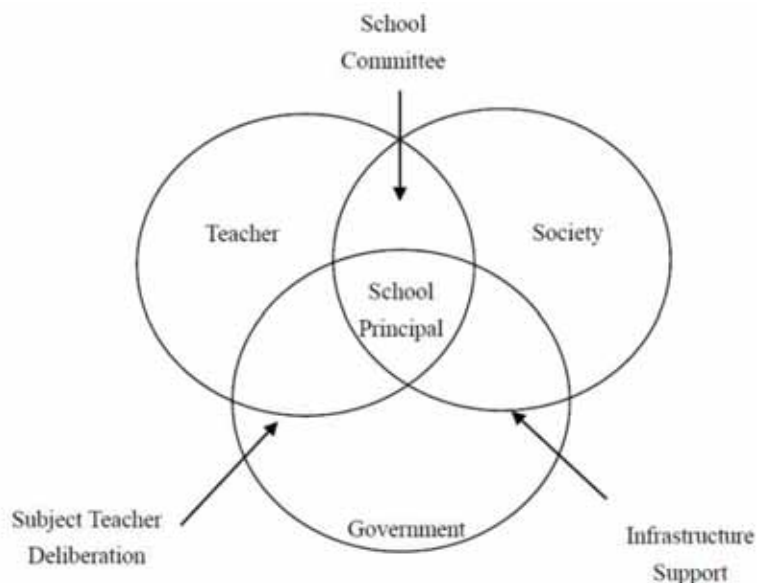
The picture above explains that the role of the School Principal for the success of online learning in remote areas is that the School Principal must be able to coordinate and communicate well with: 1) the teacher, this is intended so that the teacher feels not running alone because of support in the form of strategic steps for the process implementation of online learning; 2) community, it is intended that the community can support each other so that each parent of students as a member of the community can provide quality time and quality of communication to children through assistance during the online learning process; and 3) the government, it is intended that the government can conduct direct observation in the field to find out the implementation of online learning in schools so that it can provide strategic input to the Central Government. This condition is also as stated by: Kinseng (2019), Liguori & Winkler (2020), Mathew et al. (2017), Pacho (2020) that whatever the government's education model policy, if the Principal can position himself to coordinate and collaborate with community members, the learning process will run well and in a pleasant atmosphere felt by the children.

Referring also to the picture above, there are 3 slices which are also the role of the Principal's strategy, namely that the School Principal must also be able to: 1) mobilize the School Committee in the function of supervising educational progress and to provide support to parents in order to pay attention to children during at home; 2) mobilizing subject teacher deliberations so that teachers can share experiences and get input for improvements and innovations in implementing learning strategies; and 3) fulfilling infrastructure support in schools and in the community referring to policies imposed by the central government so that online learning programs can be implemented according to the expected targets. This is in accordance with what was stated by Ainscow et al. (2019), Wilson (2018), Wagner (2017), Koh et al. (2018) that the School Principal as an agent of change must be able to position himself as a catalyst for all stakeholders in the education sector and be able too. mobilizing these stakeholders to jointly and with care to advance the education in the area in accordance with government policies and conditions of global development.

4.2 Teacher Strategies in Implementing Online Learning That Is Easy for Students to Understand

The success of implementing online learning depends on the role of the teacher. The teacher is not only limited to delivering learning material but the teacher must be able to ensure that the material being taught can be conveyed well and can be received well by the students. Many obstacles were encountered in remote areas for the implementation of this online lesson. These constraints can come from the teacher himself, from the situation of the family and society, and from the situation of the students. This condition requires teachers to be able to manage it. *First*, constraints from within the teacher himself. The rapid advancement of technology makes everyone have to be able to adapt, said the teacher. Teachers like it or not, like it or not, they must always keep up with the times and technology to adapt to the new world, especially online learning. Teachers must also be able to independently and work with teams to broaden their horizons and optimize their ability to adapt to technology in line with policies imposed by the government (Usmanjonovna et al. (2020); Schipper et al. (2019); Rahim & Hulukati (2021)). With teachers being able to adapt to these technological advances, it will make it easier for teachers to carry out their duties as educators, especially in the implementation of online learning.

Second, constraints due to the community and family situation. In remote areas, the use of technology is not the main thing because people are more concerned with working and surviving. School for children is also not a priority because for society in general, if children are able to read, write and count, then this is enough for them to find work in the future (Papay et al. (2017); Pacho (2020); Nashir et al. (2020)). This condition requires teachers to be able to approach and communicate well with the community and parents of students so that individual awareness and collective awareness are built to support children's education through providing quality time and quality of mentoring to children while at home or while the child participates in the learning process.

Third, constraints due to the situation and condition of the students. Students in remote areas are generally children who are obedient to their parents (Hartinah et al. (2020); Hafeez et al. (2021); Kinseng (2021)). They grow and thrive in a family atmosphere that requires them to work. This condition makes students generally obey only to obey the wishes of their parents. In all their limitations, they are powerless to express their desire to be able to continue to a higher level of education, this is because the family economic conditions make them have to think about survival by working rather than thinking about dreams by going to school which will take time and cost. Not to mention the challenges faced by teachers with the condition of these students are the lack of technological literacy skills, so that children will feel confused about using cellphones as a tool for learning. Regarding all of this, the teacher plays a role not only as a teacher who delivers learning material only, but teachers must be able to position themselves as parents and educators to their students, namely providing a sense of comfort and understanding of the use of technology and learning materials so that they can be accepted easily and well.

Based on the explanation above, the teacher also plays a role as an agent of change, namely: 1) changes in themselves because they have to adapt to technological developments and implement government policies; 2) play a role in providing a paradigm shift to the community that during the Covid-19 Pandemic, children still have to get their right to learn and get knowledge from teachers, namely through online learning that was previously done face-to-face. Against this, the role of the teacher as a renewal agent can be described as follows.
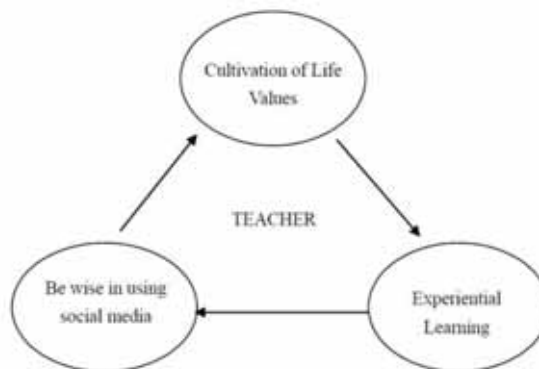
Referring to the Figure above, it can be interpreted that in the implementation of online learning, it is hoped that the teacher is able to provide learning material not only to complete the lesson plan targets, but also to provide learning messages to students regarding character education, namely: 1) students are invited to be able to interpret the values of life in the form of advice from any material delivered by the teacher. This aims to open children's insight into the faith as a provision to become human beings who know God; 2) students are invited to do assignments through case-based learning, problem-based learning, or project-based learning models, so that students and teachers will collaborate for a critical thinking process by students. This experiential learning will make it easier for students to remember and understand the process of a learning material being taught by the teacher; and 3) students are invited to policy on the use of social media. This is so that students do not carelessly open sites that are not useful for themselves and are not relevant to the learning material. With regard to the three roles of teachers, this is in line with what was stated by Hermino (2016), Li & Zizzi (2018), Mathew et al. (2017), Nastiezaie & Musavinejad (2018), Muttaqin (2018) that in the era of global adaptation in With the rapid development of technology, the teacher also has an obligation to provide character education learning through moral values that are included in each learning material, which will be very useful for students to become good and wise individuals in the future.

4.3 The Importance of the Role of Parental Assistance During Online Learning

In order for the learning process to run as it should, there needs to be two-way communication between the school and the parents of students. Building communication is important so that parents understand the learning

objectives expected by the teacher and vice versa, the teacher also understands the wishes of parents in accompanying children while studying at home. Parents' expectations for online learning include: 1) the material presented can be understood by children well; 2) the instructions for carrying out the task must be clear; 3) the tasks given are not burdensome to the child; 4) the teacher in giving explanations of the material is not too fast so that students can better understand the material; 5) receive internet quota assistance because internet quota is one of the things that is burdensome for the parents of students; 6) online learning methods can be made as attractive as possible so that students do not feel bored when participating in learning; 6) communication between students and teachers is more intense if there are obstacles; 7) the material presented is easy to understand, and the material is integrated with student life; 8) learning is carried out in a pleasant atmosphere for students; and 9) students acquire skills and character education.

With regard to these conditions, online learning at the school cannot be separated from the role of parents as learning companions. Parents have full responsibility for the success of the child's learning process. Many parents are unable to fully assist their children to study because both parents have to work, so those who accompany the children to study at home are other family members. There are also parents who cannot understand the material provided by the teacher, so as a solution parents give confidence to a special teacher who is contracted by the parent to assist the child in learning. Activities that are usually carried out by parents in accompanying children to study at home are nothing more than just checking the assignments given by the teacher to the child. In the meaning of online learning, two-way communication between parents and children will position the child in a comfortable condition and feel accompanied by the parents, so that the child will remain enthusiastic about learning. With this regard, as stated by Lilawati (2020); Basilaia & Kvavadze (2020); Liguori & Winkler (2020); Mohiuddina et al. (2021); Pacho (2020) states that parents 'interest and awareness to accompany their children during online learning is determined by several factors such as education, occupation and parents' income. This is also in line with what was stated by Rahim & Hulukati (2021); Trybulkevych et al. (2021); Wu (2020); Usmanjonovna et al. (2020) stated that the quality of time and quality of assistance by parents to children during online learning greatly determines the level of children's understanding in receiving learning material, for this condition parents who have awareness of the importance of education for children will provide sufficient time to provide assistance, and this is also influenced by the economic welfare in the family.

4.4 Local Government Policy Strategies for Successful Online Learning, Especially in Remote Areas

There are at least three strategic steps that can be taken by the Government to support the implementation of online learning in Indonesia, even after the COVID-19 pandemic ends. Such support includes: *first*, instilling a mindset about new ways of learning. With the current development of technology and the internet, the learning process can occur anytime, anywhere, and with anyone without space and time boundaries. Hafeez et al. (2021); Basilaia & Kvavadze (2020); Aslan & Aybek (2019). Regarding this, the education climate in Indonesia must be adaptive to the development of global dynamics and technology. Regarding this, the Indonesian Ministry of Education and Culture must be able to communicate to the public to realize the new demands of the education system that are not sufficiently taught only through formal classes.

Second, preparing regulations for the development of digital learning resources. The use of any platform massively and openly and which is effective for the implementation of online learning is one of the most effective trends in online learning practices today. The use of the platform for learning must of course be socialized to users in schools, so that school students can know and use it properly and optimally for the success of the learning process (Liguori & Winkler (2020); Kinseng (2021); Kalyanasundaram & Madhavi (2019)). *Third*, print adaptive teaching staff in learning technology. This is related to the ability of educators in designing learning strategies to be very important because it is a determining factor for the success of the implementation of online learning. The ability of the educator or teacher so that the material being taught can be conveyed properly to students, and students can receive the learning material properly and optimally, the teacher needs to have skills in designing, organizing, and controlling interactive learning activities and materials to achieve learning objectives (Ainscow et al. (2019); Hartinah et al. (2020); Mathew et al. (2017); Nastiezaie & Musavinejad (2018); Adxamovna (2020)). The thing that must be avoided regarding the role of the teacher is that the Government must be able to ensure that teachers do not only carry out online learning tasks without providing feedback and assume that when the learning material has been delivered to students, they consider the task to be completed without planning a long-term learning strategy, or more. to be precise it merely transfers one-way learning from what is usually in the classroom, to the 'cloud'.

In this regard, the local government strategy to implement central government policies in order to make online learning successful, especially in remote areas can be illustrated in the following diagram below.

Referring to the diagram below, it can be interpreted that the role of local government in issuing policies to make success in implementation of the online learning and the importance of understanding family and society towards the future of children, it is necessary to get a mutual understanding between the village, community, family, and school, so that the policy is accepted. by all citizens, can be understood and implemented properly, so as to produce an impact of the goals to be achieved from the policy. This is also in line with what was stated by White & Warfa (2011); Yaman-Ortas (2019), Hung (2020) stated that the implementation of policies on the quality of education and the interest of children in school must be supported by all parties in society and cannot be left only to schools, so a collective understanding is needed to support a better future for children
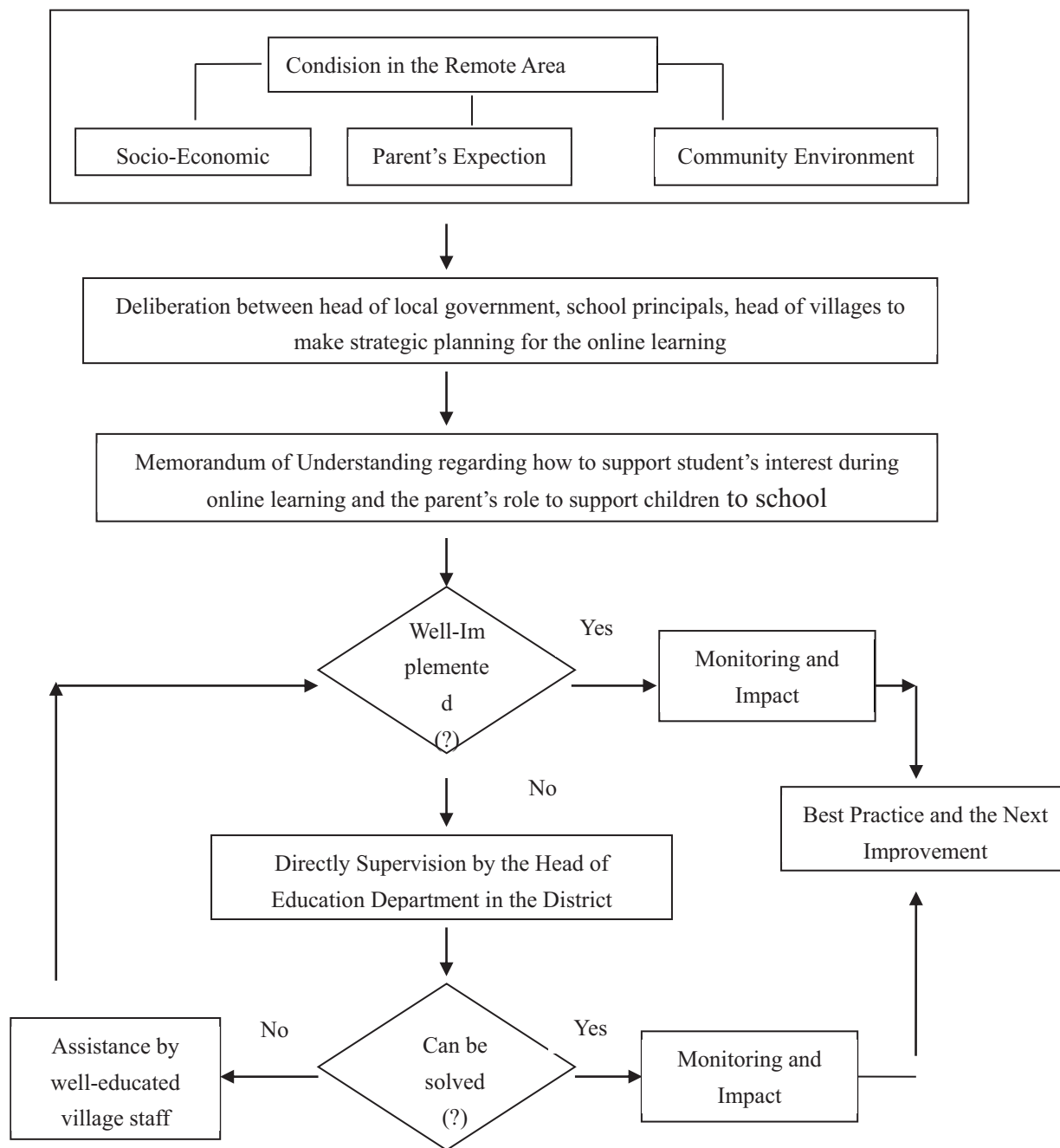
5. Recommendations

There are several recommendations as follows: *first*, the government needs to adjust the implementation of online learning according to local conditions. This is because internet access in remote areas is still quite difficult, so it is possible that the delivery of learning materials can be done via radio. *Second*, forming regional work groups to provide guidance on online learning strategies. The task force in the area is to assist local governments in providing financial assistance outside of the School Operational Assistance provided by the Central Government, and access to recording studios and equipment for schools and teachers, if teachers have to prepare learning materials that must be recorded in advance, or by by using youtube.

Third, develop a monitoring and evaluation framework for the use of School Operation Assistance funds in the context of implementing online learning. This monitoring or supervision not only helps ensure that funds are used in accordance with the direction of the Ministry of Education and Culture, but also to identify areas where assistance is most needed. *Fourth*, provide broader autonomy to school principals to issue internal school policies in implementing online learning. These internal policies can range from the use of School Operational Assistance funds received from the Central Government, to strategies to collaborate with local governments, village heads, community leaders, religious leaders to jointly pay attention to children in participating in online learning.

Fifth, equip teachers with skills to carry out online learning. For the successful adoption of distance learning, teachers have not only basic technology skills (such as using computers and being connected to the internet), but also knowledge for using recording devices and software, as well as methods for delivering lessons without face-to-face interaction. These skills will be required when it comes to using platforms for online learning. *Sixth*, maintaining government partnerships with the private sector in the education sector. The partnership between the government and the private sector, especially in technology service providers, is in the provision of infrastructure to support online learning. Such partnerships could include the provision of telecommunications equipment and hardware to equip all schools, especially those located in remote areas, with internet connections, information technology and communication facilities, and skills development programs for teachers. *Seventh*, support underprivileged students to return to school. In this regard, the Central and Regional Governments take additional steps to ensure that students from disadvantaged families and eldest children who have to help their parents work because they come from poor families, where they are potentially the most vulnerable to dropping out of school, can remain enrolled in school. Against this, the strategy adopted by the teacher is home visits to them so that direct learning can be carried out.

6. Conclusion

The rapid spread of the Covid-19 pandemic has caused disruption to the education sector in Indonesia especially in remote areas where around 45 million students are unable to continue their learning activities at school. The Ministry of Education and Culture needs to consider the implementation of online learning tailored to the different characteristics of regions in Indonesia. Online learning has added to barriers for students who are already having difficulty accessing education in remote areas. In this regard, diversification of delivery media other than using the internet is considered, such as using radio or using postal services for areas with low internet connectivity.

There is awareness and joint involvement between the Central and Local Governments, Principals, Teachers, the community, and parents to jointly provide attention and support for children to actively participate in online learning will make children in a comfortable condition and remain excited to receive learning from teachers and a good future.

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Socio-economic Constraints Jordanian Women Had Encountered as a Result of COVID-19 Pandemic, and Coping Mechanisms

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Abstract

This research paper sheds light on what Jordanian women had to endure as a result of the COVID-19 pandemic's effects, since the imposition of the full lock-down and shelter-in-place order in March of 2020. The paper primarily aims to identify socio-economic constraints Jordanian women encountered during this period, and to explore the coping mechanisms women had adopted. A total of 480 women had partaken in this study; who were randomly selected from different regions in Jordan.

The findings suggest that women had suffered more from social constraints as opposed to economic ones, the foremost of which was directly pertinent to the outbreak. This includes increasing household chores and caregiving work, due to the long time women had to stay home, in addition to the burdens of applying health safety precautions and online learning. As for economic constraints, women had specifically suffered from declining income and increasing financial burdens in general.

Statistically significant differences in favor of the lower age groups, families with more children and less monthly income, women working in the government sector, and women residing in the Badia[*] regions have been detected.

The findings also indicated that the most prominent mechanisms that helped women cope with the constraints are prayer, participation in the public debate about the pandemic, and self-sufficiency. It was also found that such coping mechanisms are more correlated to economic as opposed to social constraints.

Keywords: COVID-19, constraints, online learning, unpaid work, household chores, lockdown, coping mechanisms

1. Introduction

As unprecedented as COVID-19 is in human history, the World Health Organization had declared it a global pandemic on 11/3/2020. Despite its direct death toll; causing more than 3 million mortalities and infecting several other millions around the world, its direct and indirect implications, however, on socio-economic life are no less dreadful than death itself; in light of the expectations that its aftermath will perpetuate for many years to come.

Natural disasters and health crises often reveal gender dimensions that show different male-female responses thereto (Boncori, 2020). Although the COVID-19 death rate among males is higher than among females, according to global statistics, gender differences appear in other socio-economic aspects and quality of life. (Chen et al., 2020). Women are often the most affected in these aspects, as they are among the most vulnerable social groups in most human societies.

According to the World Health Organization, COVID-19 had changed the entire way of life, creating a social legacy that will lead to further social change. As a result of the COVID-19 pandemic, new social practices and life styles have emerged (Alon et al., 2020). Our normal way of life has changed forever, and social distancing has become the new normal. (Karus et al., 2020).

Gender norms that are based on gender discrimination in different societies have long been reflected in various

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[*] The people of the Jordan Badia are living in an area of 73,000 km2, There are approximately 319 settlements (villages, towns, and cities) scattered throughout the three regions of the Badia (North, Central, and South). The Bedouin are suffering from Poverty it can be largely attributed to The large family size (7 members) The high rate of illiteracy, Limited income sources.www.badiafund.gov.jo

household chores and caregiving activities. Estimations by the World Bank suggested that women perform more than 75% of all such work worldwide. (ILO, 2018: xxix). This situation makes it very likely that women will take on a disproportionate share of the increased extra caregiving duties during the crisis. (Zsuzsa et al., 2020).

In fact, the COVID-19 crisis had only deepened pre-existing gender inequalities, which were further exacerbated by quarantine and lock-down measures. This has revealed new weakness in socio-economic systems that amplified the effects of the pandemic on women more than men. (United Nations, 2020).

According to UNESCO, the most significant implication of COVID-19 is the widespread closure of schools and universities around the world since February 2020; affecting nearly 1.7 billion learners at all levels of education. (UNESCO, 2020a).

With a view to prevent the spread of the virus, most countries have moved to imposing full lock-downs, curfews, and shelter-in-place orders, in addition to cancelling mass events. Countries have also imposed restrictions on mass transportation and travel. (Usher, 2020).

Similar to the rest of the world, the Jordanian government had also imposed a full lock-down and home quarantine on 3/21/2020, which lasted for more than six continuous months. Despite the fact that; subsequently, the lock-down was reduced to a curfew and some sectors were allowed to open up, school and university education was still in a complete moratorium from the beginning of the crisis until September 2021. During this period, homes became a vital space for all family members, and from it all life, practical and educational activities stemmed. This space is perceived by society as women-exclusive; where women exercise their basic roles.

To understand the roles and responsibilities of women in the Jordanian context, one must take a whole-of-society approach to the analysis. The Jordanian society fosters a traditional social structure; dominated by tribal networks that are underpinned by a kinship system. (Mahmoud, 2009). Most families in the Jordanian society are still fixated on a hierarchical patriarchal system, which views women and men as affiliates; not as independent individuals. Such affiliation gives men roles of power and control, and on the other hand relegates the majority of women roles to the home (Barakat, 2009).

Despite the Kingdom's official recognition that advancing women in the public sphere is a crucial modernization step, conservative voices in society demand preservation of the traditional role of women as housewives (Massad, 2001). Moreover, the family, through the process of socialization, carefully inculcates these traditional roles in children's mentality. The state's formal education curricula also perpetuate the traditional gender roles in the school textbooks; which portray women in the private sphere as housewives (Al Emam, 2015).

Within this context, it is expected that the lock-down and home quarantine in these exceptional circumstances had amplified the already existing pressure on women; by intensifying the roles and responsibilities they perform, which manifest in housekeeping, supervising children's online learning, raising the children, household chores, and applying health precautions. Therefore, the research problem can be determined by examining the constraints caused by COVID-19 pandemic to Jordanian women; from both the social and economic aspects. The researcher believes that this research is uniquely important in contributing to the development of a general framework on how women have suffered and been affected by the COVID-19 ramifications; both socially and economically. The researcher hopes that such finding would benefit relevant official and civic institutions to improve their interventions and assistance programs, especially that respondents represent different regions of Jordan.

1.2 Research Questions

1. What are the (social and economic) constraints Jordanian women had encountered during the lock-down and shelter-in-place order due to the COVID-19 pandemic?

2. What coping mechanisms had women adopted to deal with the constraints of the pandemic?

3. Is there a statistically significant correlation between the socio-economic constraints and the coping mechanisms women had adopted?

2. Literature Review

Arab countries have so far failed to transcend beyond the patriarchal system that defines social structures on the basis of patriarchal authority. This is in spite of the fact that most of these countries do recognize women's rights; by improving their access to education and employment, and seeking to integrate them into the public sphere. Nevertheless, all of these efforts combined weren't able to make a big-enough dent in the reality of the social structure. The problem is deeply rooted in the very foundations of Arab societies in general, and the Jordan

society in particular. In this setting, the status of women; whether in employment or within the family as an integral unit of society, is shaped by the man in his authoritative capacity, who assigns her very diverse tasks, specifically in the home, or what so-called "her world" (Barakat, 2009).

Undoubtedly, Arab women fought a great struggle to bring about a change in the existing social situation, and to break the stereotype of Arab women as being submissive and without will. Case in point; the most recent movement in Saudi Arabia that emerged strongly during the Arab uprising; leading to many democratic developments, especially in the area of women's rights (Asl. 2020). However, we cannot claim that the Arab women's movement created a profound change in the basic structure of society and the family, as the traditional structure remains, where the woman's relationship with men, the family, and society at large is not a reciprocal one, but rather conspicuously subject to male domination.

The reality of the matter is that the traditional structure has produced two distinct worlds in which the two sexes play their roles without encroachment into the world of the other. For example, conventional wisdom is that for a man to stay at home among women who are busy in their domestic work is unmanly (Hamdawi, 2000).

This traditional pattern of gender roles distribution, particularly in the family and the home, have yielded significant imbalances during the Covid-19 pandemic, specifically on women. As indicated by ESCWA's report on the effects of the Covid-19 pandemic (2020) on gender equality in the Arab region, women will bear the brunt of pandemic aftermath; in light of the fact that; on average, women spend 5 times more time on unpaid than men, which is the highest rate among all regions of the world, and are also the most vulnerable to poverty and job loss. Additionally, the pandemic constraints deepen women vulnerability, which would likely drag the rate of domestic violence along with it, which already affects 37% of women in Arab countries. This is the reason why the report recommends that prejudices and social norms against Arab women in the public and private spheres be factored into any response measures.

In Jordan in particular, most women seek employment in the jobs that fit within their social and family duties. Therefore, most of the Jordanian women in the workforce are concentrated in the public sector, especially in education. Local reports about the pandemic have shown that women suffer economic and psychological constraints more than men (ESC, 2020). This even worsened by the increase in violence incidents for economic reasons; related to poverty and the high cost of living, especially in the poorest and least educated regions of the south, as shown by Khataybeh study, 2021. With the above in mind, this article is based on the gender theory; in its theoretical framework. Gender is a socio-cultural concept; rooted in biological sex, where male and female dos and don'ts are shaped by cultural ideals and social institutions (Connell, 2002). This concept is used to ascribe roles, status, and incorporeal prominence of the individual being a male or female in a society (Lorber, 1994). These roles and positions are socially constructed; where the social context defines relatively fixed composes of roles and responsibilities for both women and men (McRobbie, 2009).

Any gender-based construct would usually create structural gender inequality and maintain it in social reality through socialization (O'Hagan et al., 2019). From feminist perspective, gender inequality against women is linked primarily to confining their role in the private sphere; especially within the family as a housewife who has to do household chores (Haney, 2000).

The feminist thinker Kate Millett, explains that the source of discrimination against women in societies that foster the concept of power-based relationships comes from the permeation of patriarchal ideology (Levit, 1998).

According to the feminist doctrine, despite the diversity of societal cultures worldwide, none of them had attempted to ascribe non-traditional roles to women that would enhance their participation outside the family's limitations (Schneir, 1994).

This article assumes that the COVID-19 pandemic has increased the magnitude and the variety of constraints affecting Jordanian women, especially those associated with the traditional women roles within the society, which are perceptively limited to household chores and family care. As an unprecedented situation, the pandemic and the subsequent measures, most notably the full lock-down and the shelter-in-place order, have exacerbated this dynamic. The literature reviewed in this research confirm that traditional gender division of labor is widely practiced, which makes women in all societies bear the greater part of the social caregiving burden in the family. For example, a research by (Maarefvand et al., 2020) examined constraints associated with the Covid-19 pandemic in the Iranian society; through an online survey during the peak of the virus outbreak, aiming to assess constraints and constraint levels. 3787 Iranians participated in the survey, the majority of whom were females (67.4%), and it revealed that constraints were significantly higher on females, especially in the age group between 30 and 39 years, and among housewives.

Additionally, work-from-home arrangements during the lock-down lead to rearrangement of parenting duties unequally among mothers and fathers in Italy, according to (Manzo & Minello, 2020) study. This has exacerbated the "caregiving crisis" in light of the intense burdens as a result of lock-down and home quarantine.

Furthermore, (McLaren et al., 2020) study; which included the contributions of researchers from four countries: Sri Lanka, Malaysia, Vietnam, and Australia to research the concept of gender-based distribution of burden in the field of work, reproduction, and community participation, concluded that the burden on women is exponentially rising, and that women will bear these exacerbated burdens for a long time, even after the pandemic has been long gone. Nevertheless, the state of lock-down and home quarantine due to COVID-19 had revealed the magnitude of the burden that women bear, with no statistically significant differences in these findings within the study population.

The complete lock-down in Nepal, which lasted from March 24, 2020 until June 14, 2020 has imposed other constraints on women; which mainly manifested in impeding access to maternity health care, suspension of all schools and colleges, and children being forced to spend their time at home, according to (Mahato et al., 2020) study.

Additionally, the pandemic had disproportionately affected the working conditions for academic women during the lock-down, compared to their male counterparts, according to a (Yild irim & Eslen-Ziya, 2020) study. According to the study, women were disproportionately affected by higher rates in terms of their daily routine with children care, and household chores taking longer time after the pandemic.

The full lock-down has directly contributed to women increased burden of household chores more than men. In a study by (Kalayilıoğlu, 2020) it was found that there is an increase in household chores; such as "housekeeping", "cooking and serving meals". Findings of the study showed that 77.6% and 59.9%; respectively, of the women surveyed had seen an increase in household chores, compared to 47% and 23.9% of the men surveyed. House cleaning appeared to be the most time consuming activity for women; 56.1%, compared to 27% for men.

Furthermore, a literature review by (Fortier, 2020) revealed that women were affected negatively and disproportionately by socio-economic challenges caused by gender-based discrimination. Economic conditions; for example, had worsened as a result of COVID-19, as women 's jobs are perceived to be of inferior priority as opposed to men's jobs, either because women work part – time, or due to a gender pay-gap. This makes women unfairly more susceptible to economic insecurity in the short and long runs; dragging the level of wellbeing down with it. In this context, (Kartseva & Kuznetsova, 2020) study have emphasized the gravity of the pandemic's impact on the Russian labor market and household income, especially in the fragile employment sector. The study anticipated that the COVID-19 pandemic would also lead to further deterioration of women economically; due to the expansion of the "unpaid care work" economy under these circumstance.

3. Method

3.1 Participants

480 Jordanian women; in the age groups from 20 years to 60 and above, have participated in this study. The sample covered different regions of Jordan. The study sample was obtained by the available sample method, without relying on the total statistical community framework. This sampling method was used due to time, cost, and effort considerations. (Al-Rofou', 2014)

3.2 Instrumentation

In collect data, the field research deployed a "Google Forms" based electronic questionnaire. The instrument consists of three sections:

(1) Demographic characteristics; (2) Constraints' measurement, which consists of 15 paragraphs, ten of which to measure social constraints and five to measure economic constraint. Some of these were mentioned in previous literature. (3) This part is related to coping mechanisms; and it consists of eight paragraphs.

The survey questions are uniform, while the answers to section I "socio-economic constraints" were recorded on a 4-point scale; ranging from 1- "No constraints" to 4 "significant constraints." Answers to the "coping mechanisms" section were also recorded on a 4-point scale; ranging from 1 "never" to 4 "often."The questionnaire was administered in the period between October 9th, 2020 and December 12th, 2020.

To validate the internal consistency of the instrument, the latter was presented to a group of experts in the field of sociology, metrology and evaluation in order to solicit their feedback; in terms of paragraphs' clarity, proper use of language, and relevance to the respective dimension. The experts were encouraged to modify or delete any paragraphs they deem inefficient, or to add paragraphs as they deem appropriate. Modifications were made to

the instrument accordingly

To validate the internal consistency of the scale, the latter was administered to a pilot sample consisting of (35) off-sample women. Pearson's correlation coefficient was calculated between each of the scale items and the dimension to which the item belongs.

It was found that all items are correlated to the total degree of the dimension with a statistical significance, as the values of correlation coefficients for the three dimensions were, respectively, between (0.66-0.86), (0.76-0.91), and (0.48-0.82), which indicates valid internal consistency of the questionnaire items. The instrument's reliability was also validated by applying Cronbach's alpha formula a pilot sample; consisting of 35 women. The reliability coefficients for the dimensions were as follows: "0.92" for social constraints, "0.88" for economic constraints, and "0.79" for coping mechanisms; resulting in a total coefficient of 0.90. This is a high reliability indicator that allows for administration.

3.3 Data Analysis

The data was analyzed using (SPSS) software, utilizing several statistical methods. These included simple descriptive models to analyze the demographic characteristics of the study sample. Additionally, arithmetic means and standard deviations were calculated for "socio-economic constraints", and for "coping mechanisms". The progressive scoring scheme was adopted as follows: (1-2 low; 2.1-3 moderate; and 3.1-4 high). Moreover, some tests were used to address the research objectives, including multivariate analysis of variance (MANOVA) to compare of respondents' mean estimates of "socio-economic constraints", and "coping mechanisms"; depending on the qualitative variables: (age, marital status, number of children, level of educational, employer, monthly income per capita, monthly household income, and area of residence). Scheffé's test was also used to learn the significance of statistical differences at ($\alpha \leq 0.05$).

Table 1. Characteristics of the study sample

Variable		No.	%
	20-29	105	22
	30-39	175	36
Age	40-49	133	28
	50-59	59	12
	60and over	8	2
	Married	353	73
Marital status	Divorced	18	4
	Widowed	5	1
	Single	104	22
	3or less	189	40
Number of children	4-6	140	29
	7or more	15th	3
	None	136	28
	Grade school education	65	13
Educational level	University education	299	62
	Postgraduate	116	25
	Less than 200	46	10
	200- 400	114	24
	400-600	68	14
Monthly income / in JOD	600-800	40	8
	800-1000	32	7
	1000≤	50	10
	No personal income	130	27
	Less than 200	134	28
	200-400	155	32
	400-600	78	16
Household monthly income / JOD	600-800	29	6
	800-1000	43	9
	1000≤	41	9
	No household income	0	0

		Government sector	193	40
Employer		Private sector	82	17
		Self-employed	29	6
		Retired	21	5
		House wife	155	32
Residence area		Urban	324	68
		Rural	106	22
		Badia	50	10

The demographic characteristics of the study sample

Table 1 above shows that 36% of the respondents are in the age group of 30 – 39, then 28% are in the age group of 40 – 49. The highest percentage of participants went to the married group at 73%; with 40% of them having three children or less, 29% with 4 – 6 children, while married women with no children came very near behind at 28%. Speaking of majorities, 62% of respondents had a university education, with only 27% of them making no personal income. 24% of the respondents reported a personal income between 200 – 400 JODs. A little over third of the sample; 32%, reported a household income in the range of 200 - 400 JODs, and 28% reported that their household income is less than 200 JODs. Public sector employees formed the majority among respondents at 40%, while stay-home wives were at 32%. For the last variable, 68% of the respondents reported living in urban settings.

4. Results

Arithmetic means and standard deviations were calculated to detect socio-economic constraints and coping mechanisms; as shown in Tables 2 and 3 below:

Table 2. Arithmetic means and standard deviations of the socio-economic constraints dimension

Score	SD	AM	Paragraph	No.	Dimension
High	1.02	3.02	Family needs	3	
Moderate	0.99	2.97	Family members adherence to health precautions to prevent infection (social distancing, disinfection, mask)	1	
Moderate	1.28	2.95	Supervising children's online learning	5	
Moderate	1.20	2.80	Children's free time	8	Social constraints
Moderate	1.26	2. 71	The Internet connection is adequate for online learning	6	
Moderate	1.18	2.67	Work from home	4	
Moderate	1.06	2.59	Access to essential health services	10	
Moderate	1.12	2.50	House space	2	
Moderate	1.77	2.47	Problems at work	9	
Moderate	1.27	2.35	Use of tutoring	7	
Moderate	**1.06**	**2.70**	**Total**		
Moderate	1.13	2.95	Financial obligations in general	13	
Moderate	1.10	2.94	Income	11	Economic constraints
Moderate	1.19	2.70	Debt I don't know how to pay off	12	
Moderate	1.15	2.31	My performance at work	15th	
low	1.17	1.96	I lost my job or part of it	14	
Moderate	**1.08**	**2.57**	**Total**		

1 – 2 low; 2.1-3 moderate, 3.1-4 high

The results showed that the overall score of social constraints on women due to the COVID-19 pandemic were

moderate (arithmetic mean 2.70, standard deviation 1.06), and the most significant social constraint was "Family needs" with a high score; (arithmetic mean 3.02, standard deviation 1.02). This is followed by "Family members' adherence to health precautions to prevent infection (social distancing, disinfection, mask)" to a medium degree (arithmetic mean 2.97, standard deviation 0.99). As for women's economic constraints, it came at a moderate score (arithmetic mean 2.57, standard deviation 1.08), while the most significant economic constraint was "overall financial obligations"; which also scored moderate (arithmetic mean 2.95, standard deviation 1.13), followed by constraints related to "financial income" "(arithmetic mean 2.94, standard deviation 1.10), while the economic constraints related to "loss of work or part of it" came in last with a low score. It's worth noting that this finding does not necessarily lead us to believe that Jordanian women weren't vulnerable to loss of work. Rather, the study was able to reach out to a sample the majority of which; (40%) were public sector employees; against 32% for stay-home wives, i.e. working in unpaid caregiving work. It's a well-established fact that the Jordanian public sector never laid-off or furloughed any of its employees during the crisis, but only suspended monthly bonuses and salary raises. Naturally, this suspension had an adverse effect on personal and household income levels.

Table 3. AM and SD for the "coping mechanisms" dimension

Score	SD	AM	Paragraph	No
High	0.77	3.58	Prayer and supplication	2
High	0.87	3.13	Participation in public debates about the pandemic	3
High	0.96	3.07	Self-sufficiency in living	5
Moderate	1.03	2.82	Significantly reducing the household budget	7
Moderate	1.16	2.57	Becoming more inclined to isolation	8
Moderate	0.98	2.45	Exercising and performing physical activities	1
Moderate	1.04	2.25	Volunteering	4
Moderate	1.12	2.13	Constantly taking sedatives and tranquilizers	6
Moderate	1.03	2.75	Total	

As shown in Table 3 above, the overall score for the "coping mechanisms" dimension was moderate (with an overall the arithmetic mean of 2.75, and standard deviation of1.03). The coping mechanism that scored the highest was "prayer and supplication"; (arithmetic mean of 3.58, standard deviation of 0.77). It was followed by "Participation in the public debates about the pandemic"; (arithmetic mean of 3.13, and standard deviation of 0.87). "Becoming more self – sufficiency" came in last; with an arithmetic mean of 3.07, and standard deviation of 0.96.

Pearson's correlation coefficient was calculated to detect statistically significant correlation between the "socio-economic constraints" dimension, and the "coping mechanisms" dimension; as shown in Table 4 below:

Table 4. Pearson's correlation between "socio-economic constraints" and "coping mechanisms"

Dimension	Coping mechanisms
Social constraints	0.39**
Economic constraints	0.41**

**Statistical significance at ($\alpha \geq 0.01$)

A positive statistically significant correlation appeared between "socio-economic constraints" and the "coping mechanisms". The values of the correlation coefficient for the two dimensions was (0.39) and (0.41), respectively. This suggests that the "economic constraints" have a higher correlation to "coping mechanisms" than "social constraints"; according to respondents.

In order to detect statistically significant differences between the respondents' average answers; in the "socio-economic constraints" dimension; arithmetic means and standard deviations were calculated in relation to the qualitative variables; which yielded minor superficial differences to be detected. To verify the significance of differences, the multivariate analysis was utilized; as in Table 5 below:

Table 5. Multivariate analysis of respondents' average answers in the "social constraint" dimension; in relation to the variables

SV	SS	DF	MS	F. Col.	Statistical significance
Age	695.26	4	173.82	3.89	0.004
Marital status	168.69	3	56.23	1.26	0.288
Number of children	1011.11	3	337.04	7.55	0.00
Educational level	140.28	2	70.14	1.57	0.209
Employer	629.27	4	157.31	3.52	0.008
Monthly income per capita	247.78	6	41.29	0.925	0.477
Household monthly income	317.30	5	63.46	1.42	0.215
Area of residence	511.67	2	255.83	5.72	0.003
Error	20053.70	449	44.66		
Total	380,537.00	479			

*Statistical significance at ($\alpha \geq 0.05$)

No statistically significant differences attributed to the variables (marital status, educational level, monthly income per capita, household monthly income) were detected. However, variable-related statistically significant differences appeared at the level ($\alpha \geq 0.05$); between the averages of respondents' answers in relation to (age, number of children, employer, area of residence). To find out the significance of these differences; multiple comparisons were conducted following Scheffé's method.

Table 6. Multiple comparisons using Scheffé's method for the variables (age, number of children, employer, and area of residence)

Variable		20-29	30-39	40-49	50-59	60and over
	20-29		1.32	2.23	4.33*	11.94*
Age	30-39			0.91	5.64*	13.26
	40-49				6.56*	14.17*
	50-59					7.61
		3or less	4-6	7or more	No children	
	3or less		-3.27*	-5.49*	2.45*	
Number of children	4-6			-2.22	5.72*	
	7or more				7.94*	
		Public sector	Private sector	Self-employed	Retired	Housewife
	Public sector		3.47*	2.93	10.44*	1.57
	Private sector			0.55	6.97*	1.89
Employer	Self-employed				7.51*	1.35
	Retired					-8.87*
		Urban	Rural	Badia		
Area of residence	Urban		-4.58*	-5.74*		
	Rural			-1.16		

*Statistical significance at the significance at ($\alpha \geq 0.05$)

Statistically significant differences were detected at ($\alpha \geq 0.05$) in the "Social constraints" domain; in relation to lower age groups, and larger number of children. This means that the more children in the household the greater its susceptibility is to "social constraints". The same is also true for public servant women, and also for women

who live in Badia areas.

Multivariate analysis was used to identify the significance of differences in relation to the "economic constraints" domain, according to the study variables, as shown in Table 7 below:

Table 7. Multivariate analysis of respondents' average answers; in the "economic constraint" domain, in relation to the study variables

SV	SS	DF	MS	F. Col.	Statistical significance
Age	49.51	4	12.38	0.81	0.52
Marital status	61.29	3	20.43	1.34	0.26
Number of children	66.17	3	22.06	1.45	0.23
Educational level	1.02	2	0.51	0.03	0.96
Employer	365.18	4	91.29	5.99	0.00
Monthly income per capita	91.57	6	15.26	1.003	0.42
Household monthly income	415.36	5	83.07	5.45	0.00
Area of residence	99.96	2	49.98	3.28	0.04
Error	6834.05	449	15.22		
Total	88819.00	479			

*Statistical significance at ($\alpha \geq 0.05$)

No statistically significant differences were found in the "economic constraints" domain; in relation to (age, marital status, number of children, level of education, monthly income per capita). However, statistically significant differences were found at the level ($\alpha \geq 0.05$) between respondents' average answers in relation to the variables (employer, household monthly income, and area of residence). In order to find out the significance of these differences, multiple comparisons were conducted following Scheffé's method.

Table 8. Multiple comparisons using the Scheffé's method of the variables (employer, household monthly income, and area of residence)

Variable		Public sector	Private sector	Self-employed	Retired	Housewife	
Employer	Public sector		0.14	-2.35	2.86*	-0.02	
	Private sector			-2.09	3.11*	0.11	
	Self-employed				5.32*	2.32	
	Retired					-2.99*	
		less than 400	400-800	800-1200	1200-1600	1600-2000	2000and above
Household monthly income	less than 400		0.86	3.21*	3.18*	4.29*	5.49*
	400-800			3.35*	2.31	3.43*	4.63*
	800-1200				0.03	1.08	2.28
	1200-1600					1.11	2.31
	1600-2000						1.19
		Urban	Rural	Badia			
Area of residence	Urban		-2.06*	-2.80*			
	Rural			0.74			

*Statistical significance at the level ($\alpha \geq 0.05$)

Statistically significant differences were found at the level ($\alpha \geq 0.05$); in the "economic constraints" domain, in relation to the "employer" variable, and in favor of public servant women, as well as in relation to the

"household monthly income" variable; in favor of lower income households, and in relation to the "area of residence" variable; in favor of Badia.

To detect the statistically significant differences between the average answers of respondents in the "coping mechanisms" domain; in relation to the qualitative variables, arithmetic means and standard deviations were calculated. Minor superficial differences were found. To verify the significance of differences; multivariate analysis was applied, as shown in Table 9 below:

Table 9. Multivariate analysis of the respondents' average answers in the "coping mechanisms" domain; in relation to the study variables

SV	SS	DF	MS	F. col.	Statistical significance
Age	37.28	4	9.32	0.61	0.66
Marital status	18.39	3	6.13	0.40	0.75
Number of children	71.54	3	23.84	1.56	0.19
Educational level	61.97	2	30.98	2.03	0.13
Employer	26.95	4	6.74	0.44	0.78
Monthly income per capita	193.40	6	32.23	2.11	0.059
Household monthly income	221.33	5	44.26	2.89	0.014
Area of residence	47.92	2	23.96	1.57	0.21
Error	6860.69	449	12.28		
Total	239622.00	479			

No statistically significant differences were found in relation to the variables (age, marital status, number of children, educational level, employer, monthly income per person, and area of residence). However, statistically significant differences appeared at the level of ($\alpha \geq 0.05$) between the average answers of respondents; in relation to the variable (household monthly income) only. In order to find out the significance of this difference; Scheffé's method of multiple comparisons was applied.

Table 10. Scheffé's method of multiple comparisons for the variable "Household monthly income"

Variable		Public sector	Private sector	Self-employed	Retired	Housewife	
		less than 400	400-800	800- 1200	1200-1600	1600-2000	2000and above
Household monthly income	less than 400		0.15	1.32	0.21	2.88*	3.40*
	400-800			1.17	0.06	2.73*	3.25*
	800-1200				1.12	1.55	2.07
	1200-1600					2.67	3.19
	1600-2000						0.52

*Statistical significance at the level ($\alpha \geq 0.05$)

Statistically significant differences were found at the level ($\alpha \geq 0.05$), in the "coping mechanisms" domain; in relation to "Household monthly income" variable in favor of higher income households. This means that lower income households adopt more "coping mechanisms".

5. Discussion

This study endeavored to identify the socio-economic constraints Jordanian women had encountered as a result of the COVID-19 pandemic; whilst the lock-down and stay-home orders were in effect. The findings revealed that the overall score of women's constraints was moderate; while social constraints had more effects on women as opposed to economic ones. This finding concurs with the findings of (McLaren et al., 2020; Manzo & Minello, 2020).

The findings have also revealed that there is a high degree of social constraints on women; linked directly to the virus outbreak. As a result of mass lock-down, women have suffered an increase in family needs. Additionally, homes became crowded places where all members of the family conglomerate at once for long periods of times; thus increasing the burden on mothers in meeting the family needs in terms of food, education, and recreation. Moreover, the pandemic situation had imposed new roles on women, such as the preventive role women had to often play to prevent infection. It is likely that these new obligations would consume more time and effort on the woman's part; adding even more stress. These findings concur with those of (Kalaylioglu, 2020), and (Yildirim & Eslen-Ziya, 2020) (Maclaren et al., 2020), despite the difference in socio-cultural contexts.

Among the new constraints women have to encounter due to the pandemic, is supervising their children's online education; caused by the full lock-down which also included schools, prompting a swift shift to online education. Although women are often the ones responsible for monitoring children education under normal conditions, online education had, however, become a multiplier of load on women; especially that public education; in which the majority of Jordanian children are enrolled, did not take an online interactive modality, but rather distant learning platforms that delivered the lessons on national TV, while teachers corresponded with their students via social media; which means that the effort and time mothers exerted with children's education was unbearable. This result concurs with that of (Mahato et al., 2020) study.

These findings confirm the gender roles distribution in traditional societies, based on patriarchal authority, which places the largest burden of domestic chores on women. These roles and responsibility represent the women's status and prominence in the traditional society; according to the gender theory. Therefore, as an unprecedented situation, the pandemic had no effects on redistributing or influencing such roles in the Jordanian society.

With regard to economic constraints, the results suggest that women have suffered increasing financial obligations and declining financial income, as well as debt accumulated due to the pandemic. Although more than one - third of the study sample were public sector employees who didn't suffer loss of employment due to the pandemic, it is however safe to say that Jordanian working women have been already suffering past and continuing imbalances in their economic conditions as a result of wage gaps, lack of new job opportunities, and high unemployment. Official estimates for 2019 indicate that the unemployment rate among Jordanian women is 27%; compared to 17% for men, while the economic participation rate for women is 14%; compared to 54% for men. The gender wage gap had reached 13.6% and 14.2% in the in the public and private sectors respectively. These imbalances have significantly weakened the ability of women to face economic constraints, especially with the pandemic conditions. This finding seems consistent with (Fortier, 2020) & (Kartseva & Kuznetsova, (2020).

No statistically significant differences were detected in the "social-economic constraints" domain attributed to the "marital status, educational level, or monthly income per capita) variables. However, statistically significant differences were found at ($\alpha \geq 0.05$) for women in the younger age groups. This finding is consistent with that of (Maarefvand et al., 2020); of which findings about the most vulnerable age group is discussed above. Additionally, positive differences appeared due to the "number of children", "employment at the public sector", and the" area of residence in Badia". These findings, related to the statistically significant variables of "household monthly income", "employer", and" area of residence" can be explained with the argument that despite that women who work in the public sector were not affected the loss of employment, inherently, however, it's quite difficult to make ends meet on a public sector salary; especially that the average monthly income of Jordanian families is (959) JODs; according to official figures for 2017. This average is quite low when compared to the high cost of living and services. Furthermore, Badia is one of the most impoverished regions of Jordan.

On the other hand, the findings suggest that economic constraints are more related to the previously indicated "coping mechanisms" than they are to social constraints. According to respondents' answers, religious-oriented (prayer) practices scored the highest among other coping mechanisms, followed by and socially-oriented practices (participation in the public debates about the pandemic), and finally simple economic practices; mainly (self-sufficiency) to help the family make ends meet.

It was also found that statistical significance of "coping mechanisms" is only attributed to the low household income variable, as families with low monthly income are more inclined to adopt coping mechanisms. Nevertheless, it must be noted that these coping mechanisms are not intrinsically practical solutions that would profoundly affect women's and their families, they are rather spontaneous mitigating techniques rooted in the religiously-oriented and more organically coherent society. It's worth noting here that official efforts to respond to the pandemic have failed to incorporate in its calculations the measures potential impacts on women; as one of

the most vulnerable groups. This leads us to say that women were already living under socio-economic constraints before the pandemic, but the latter's conditions and response measures have exacerbated these constraints; by increasing the responsibilities on women. This is perhaps what women will live with for a long time, in light of official disregard.

6. Conclusion

This study aims to identify constraints faced by Jordanian women as a result of COVID-19 pandemic. Despite the different societal cultural and normative contexts around the world, there is a common thread in all literature on women in crisis; namely, that women bear the brunt in family caregiving. What is certainly is that; as an unprecedented situation, the COVID-19 pandemic lead to an increase in the volume of such burden, especially in a lock-down and shelter-in-place context. This has caused constraints on women to amplify in the various social, economic and psychological manifestations. This is; undoubtedly, a clear sign of gender discriminatory that takes this dimension on a global scale.

The findings of the study revealed that economic constraints are more related than social constraints to the coping mechanisms identified in the study. These mechanisms exhibit themselves in simple religious, socio-economic practices. This could potentially indicate a lack of realistic economic opportunities and resources for women to meet their needs; which makes designing and implementing women-specific socio-economic assistance programs, such as cash transfers and vocational training, crucial.

The findings also showed that women have participated in public debates about the pandemic as one of the coping mechanisms to alleviate the stress, which is a healthy tendency. Notwithstanding this engagement, the Jordanian government had completely ignored women in this crisis; as women were not at all represented in the National Supreme Committee for managing the COVID-19 crisis.

Also, although Bedouin women are underrepresented in this study, statistical differences indicated that they suffer the most from the pandemic's constraints, which calls for more governmental and non-governmental attention to this category; in socio-economic programs.

The roles performed by women at home, made daily life possible for the family; and helped the latter socially and emotionally during these times of crises. Nevertheless, these roles are not reflected in power dynamics that could potentially promote women status in society; in light of the stringent traditions and norms in Jordan. Some local studies, for example, that went to identify the attitudes of Jordanian university students (boys and girls) towards women; revealed support for the stereotype that limits the woman basic role to household chores and child care (Abu Zaytoun et al., 2018; Nasarat et al., 2017). These mental stereotypes are part of the cultural and social construct of the Jordanian society; exercising rigorous guidance and control over one's behavior. Formal and informal socialization reproduces these stereotypes with the new generation, and thus it's crucial to make gender at the center of all social policies and different educational curricula.

7. Limitations and Future Research

Although this research had attempted to reach out to the largest possible number of Jordanian women from different regions and social backgrounds, some limitations presented themselves; as 68% of respondents live in urban settings, and 62% hold an undergraduate degree. Furthermore, the majority of respondents; standing at 40%, are public sector employees. The researcher wasn't able to reach under-educated or illiterate women to participate in the survey, as the instrument was based on "Google forms" and was filled-out electronically. This of course would require to respondent to be able to read and write, and be computer literate. It is likely that such skills are lacking with illiterate or undereducated women.

Additionally, Badia areas are inadequately represented in the study. Such regions are suffering steep economic problems, and without any supportive community institutions; which translates into more and larger constraints on this category of women.

Moreover, women working in the informal sector; which constitutes 44% of the total labor force, are also insignificantly represented in this study. The informal sector is 15% women; according to local official figures by the Ministry of Planning and International Cooperation, 2012. Official forecasts indicate that the informal sector is the most affected by the pandemic constraints, thus it is essential to identify the socio-economic constraints on women in this sector.

The researcher recommends conducting an in- depth qualitative research to examine the effects, constraints, and threats from all aspects of life; as a result of the COVID-19 pandemic. Such a research should cover a larger sample of Jordanian women, including groups like divorced and widowed women.

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Parameters Influencing Citizens' Levels of Satisfaction: Soft Indicators of 'Good Governance'

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Abstract

Previous studies highlighted the importance of soft indicators (e.g., quantitative sociological survey) influencing citizen satisfaction towards municipal service quality. Citizen satisfaction assessments have raised concerns over numerous independent parameters such as gender, age, and education on satisfaction levels toward administrative performance. It is also crucial to underline that the application of sociological survey for improving service quality is not well understood by municipal officers or scholars. To obtain substantial combined multiple indicators of service quality, it seems rationale to reconnoitre numerous parameters of citizen satisfaction and quantitatively investigate impacts of independent variables (e.g., gender, age, education) on corresponding satisfaction levels by using some advanced statistical tools. In this sociological assessment, a targeted population was constructed of Bangkok Metropolitan administration (BMA) stakeholders ($n = 38,500$), which are as follows:

- Bangkok residents in 50 districts under the governance of BMA

- Board committee, executive directors and general staff of 27 BMA offices

This multiple dimensional analysis sociological survey data indicates that gender, age, and education play some important roles in governing municipal citizen satisfaction levels. Overall, the knowledge of relationship between citizen satisfaction levels and independent parameters can enhance the service quality of municipal administration.

Keywords: Bangkok Metropolitan Administration (BMA), Citizen Satisfaction, t-Test, Analysis of Variance (ANOVA), Good Governance (GG), Soft Indicators

1. Introduction

Governance consists of numerous dimensional elements in a state, a market, a network (e.g. family, tribe, formal or informal organization) and thereby affect and announce measures and decision related with public life and socio-economic development (Bevir, 2012; Ehler, 2003). Governance can also be executed by the municipality and/or metropolitan administration, as well as the private sector and civil society (Ehler, 2003). With relation to civil service management (CSM) under the context of metropolitan administration, governance can be ascribed to the frameworks and operations used to control service quality, both 50 BMA districts and 27 BMA offices, in the BMA area and the resources and activities it contains. In order to evaluate the performance of public administration, there are generally two types of indicators namely 'soft indicators' (e.g. satisfaction level) and 'hard indicators' (e.g. resources and outputs) (Bouckaert & Van de Walle, 2003). For Information Technology (IT) industry, hard and soft sides can be referred as 'contract' and 'trust', respectively (Barthélemy, 2003). Although the hard and soft sides are frequently employed individually, both of them play an important role for success based on the assessment of 50 IT outsourcing efforts (Barthélemy, 2003). Empirical data, which were drawn from 370 Greek companies employing the sociological survey measure, indicated that quality improvement and the consolidation of the company's market position are significantly affected by using "soft" and "hard" total quality management (TQM) elements (Fotopoulos & Psomas, 2009).

In order to assess the quality of life, a soft indicator was further developed by using sociological survey based on four dimensions (i.e. environment, socio-culture, economy and governance), which are deeply connected with good governance (GG) (Grieve et al., 2011). In numerous policy descriptions, the topic of GG has been widely discussed and related with the following aspects (Grieve et al., 2011):

· transparency

· participation

· horizontal and vertical integration

· legitimacy

· subsidiarity

· high quality of communication and conflict management

· high quality of learning mechanisms

In spite of numerous interpretations of GG, there are several studies focusing on quantitative analysis by using five-point Likert's scale to evaluate the effectiveness of GG (Kalsi et al., 2009). For instance, both quantitative and qualitative analysis were employed for assessing the effectiveness of Participatory Health Councils (PHC) and their GG in healthy democracy in Brazil (Kohler & Martinez, 2015). A further attempt to test the hypothesis that GG leads to poverty reduction based on the principle of Millennium Development Goals (MDGs) was examined through an empirical panel-data estimation using Worldwide Governance Indicators (WGI) and the poverty headcount ratio in 98 countries (Kwon & Kim, 2014). Unfortunately, the finding did not support the hypothesis that GG leads to poverty reduction, and underlining the immediate requirement to address structural inequality in developing countries (Kwon & Kim, 2014).

A five-point Likert's scale, as a part of quantitative sociological surveys, has also been used in the determinants of patient satisfaction in postmastectomy breast reconstruction (Alderman et al., 2000), the evaluation of customer loyalty associated with optometric businesses (Vuuren et al., 2012), the study of nurses' job satisfaction (Mahmoud, 2008), and the sexual satisfaction on psychological well-being in people with physical disability (Taleporos & McCabe, 2002). Over the past few decades, a five-point Likert's scale has also been applied for a gender analysis of job satisfaction, job satisfier/dissatisfier factors (Cano & Miller, 1992), an investigation of motivational factors of gender, income and age on selecting a bottle of wine (Barber et al., 2006), and a study on the impact of gender on the turnover intentions of highly educated employees (Blomme et al., 2010).

The impacts of independent sociodemographic parameters such as age, ethnicity, gender, socioeconomic status, marital status, and family size were carefully investigated by using a metal analysis based on data obtained from a quantitative sociological survey (Hall & Dorman, 1990). A meta-analysis highlights that no overall relationship was detected for ethnicity, gender, income, or family size (Hall & Dorman, 1990). A similar meta-analysis was conducted by using a self-completion questionnaire to investigate the job satisfaction and relevant features among 172 health care service employees (i.e. clinic doctors, medico-technical workers and public health workers) in Anhui and Xinjiang provinces of China (Liu et al., 2010). Statistical analysis shows moderate job satisfactions of health care service employees in poor areas, which can be further evaluated by improving their working conditions and reward (Liu et al., 2010).

To understand human behavior in social research, demographic data of study subjects play importance data to categorize human in to variations in categorization. In Psychological study, taxometric methods approach analyzes whether males' and females' psychological attributes differ in categorical ways or dimensional ways (Hyde, 2014). A study in health science in western countries identified both age and gender are associated with health behaviors and beliefs (Deeks, Lombard, Michelmore, & Teede, 2009) but it reported to difference consumer behavior in some Asian Countries e.g. Thailand and Singapore. Men are almost less satisfied with health care service compared to women same as the married and employment status (Djordjevic & Vasiljevic, 2018). In western countries saving and investing behavior found to be influenced by the gender factor in a sense of risk taking where higher in male than female in investing and bigger gap when discussed about saving behavior (Bajtelsmit & Bernasek, 1997). Job satisfaction difference between gender paradox was confirmed for the UK, whereas little has been done to test this hypothesis on a cross-national basis (Kaiser, 2007).

In Education study, significant difference in the overall satisfaction of student's opinions towards higher-education service quality was found in term of genders while age, family income are no differences (Palli & Mamilla, 2012). Customer products and service quality satisfaction are intense studies in marketing research in order to understand customer needs and expectation. In order to understand each group of product and

service's customer, marketing researcher adopted variation of customers' demographic data both primary categories such as race, gender, ethnicity, nationality, sexual orientation, physical abilities, social class, age and secondary dimension like educational background, geographic location, income, marital status, military experience, parental status, religious beliefs and work experience to explain customer satisfaction and behavior in specific groups. Thai customers' service quality satisfaction found to be had significant difference among various demographic data such as age, income, occupation, education level. In airline service study indicate that the higher income group is trend to expect higher service quality compared to the lower income group and male customers trend to look at performance matrix of the service more female customers (Cheosakul, 2007). Thai female trend to required more service quality from chain restaurants in term of tangible, reliable and assurance, and elder group were likely to perceived service quality than the younger group. Customer income is a character of customer used in order to do segmentation of target market. In a few studies reports earning or income of customer factor affecting service quality expectation. In a study on expectation in medical tourists found the differ between income groups for the reliability and assurance service quality dimensions (Moreno, 2014). Airline customers earning more than 30,000 THB per month trend to be required less service quality in aspects of reliability, responsiveness and empathy than low income-level group (Kssuvan & Aknit, 2014)

A studied was done in Canada adopting customer service quality satisfaction to discovered government and e-government service analyzed from businesses across Canada to determine their use of e-government and their perceived satisfaction with this technology for public service delivery (Reddick & Roy, 2013). The government service satisfaction from citizen was done in Canada in 1989 and the finding mentioned the demographic variables are found to be significantly different across satisfied and dissatisfied respondents within each service (Roth & Bozinoff, 1989). In 2004, City of Perth local government service satisfaction was studied. The finding reveals the most significant linkage between level of government service satisfaction and demographic data such as gender, age group, specific ethnic and socioeconomic groups (Cripps, Ewing, & Mcmahon, 2004). As the local government is always 'there' for a range of local needs by the perception of individual and communities, yet it is less clear how citizens identify with this crucial level of government the studies of local government service' users is important to understand in order to fulfill the needs and expectation of its users.

According to the Bangkok Metropolitan Administration (BMA) Act (BE 2528 (1985)), "the administrative area of Bangkok Metropolis shall be divided into districts and subdistricts with territorial jurisdiction belonging to them on the date on which the Act comes into effect. The establishment, dissolution or modification of territorial jurisdiction of a district shall result from an announcement of the Ministry of Interior and must be published in the Government Gazette. If necessary, the administrative areas of a district may be divided into subdistricts. The establishment, dissolution or modification of territorial jurisdiction of a subdistrict shall be in accordance with an announcement of Bangkok Metropolis and must also be published in the Government Gazette" (Book, 2013). The major objective of the BMA is developing and implementing npolicies associated with environmental management, urban planning, security services, household registration, public transport bus services, and public health services. However, in the past few decades, a large number of projects have been conducted in the domain of Sustainable Development Goals (SDGs) (11 SDGs: sustainable cities and communities), an environmental quality assessment (13 SDGs: climate action), the gender-specific composition in asset ownership (5 SDGs: gender equality), and an estimation the number of HIV-infected injection drug users (3 SDGs: good health and well-being) (For more details of the projects, please see Appendix A).

Although there are many projects connected with the principles of SDGs, no studies exist that compare numerous sociodemographic variables on citizen satisfaction (CS) as soft indicators of GG of BMA. Moreover, the impacts of independent parameters of stakeholders (e.g., age, gender, education level, occupations) on CS towards numerous aspects related to SDGs remain unclear. Overall, the main principles of this study can be described as follows:

(i)   To conduct sociological survey for assessing CS of stakeholders on the performance of BMA staff by adopting the five-point Likert scale questionnaire (n = 38,500);

(ii) To apply some advanced statistical techniques, such as t-tests, an Analysis of Variance (ANOVA), Pearson Correlation Analysis (PCA), and Multiple Linear Regression Analysis (MLRA) to numerically interpret the relationship between independent parameters of stakeholders and their CS on the performance of BMA staff;

(iii) To introduce the most effective measures for improving satisfactory levels of BMA stakeholders based on a quantitative sociological survey.

2. Research Methodology

2.1 Determination of Sample Size & Sample Design

The main principle of sample design is to carefully chose a set of members from a population that explains of those members precisely describe the key elements of the population from which they were deliberately chosen. Another main aim of sample design is to achieve the highest precision per unit cost (Dattalo, 2008). It is well known that "probability sampling" allow predicts of sampling error to be computed and thus widely used in the field of social sciences (Harter et al., 2010; Özdemir et al., 2011). Four types of probability sampling strategies namely simple random, systematic, stratified and cluster sampling have been used for quantitative sociological surveys over the past few decades (Dattalo, 2008; Harter et al., 2010; Özdemir et al., 2011). In this study, a "two-stage" cluster sampling plan was conducted when the total population was divided into these 77 clusters (i.e., 50 BMA districts and 27 offices) and a simple random sample of the 77 groups is carefully chosen. In the case of considering an adequate sample size for simple linear regression analysis and multiple linear regression analysis, it is crucial to estimate a relationship between independent parameters and a continuous dependent parameter. A previous study shows that this type of estimation can apply the 20:1 rule which indicates that the binary ratio of the sample size to the number of variables in a regression analysis model should theoretically be at least 20 to 1 (Burmeister &Aitken, 2012). Previous studies have been widely used this rule for dichotomous logistic regression, survival analysis and simple linear regression analysis with continuous outcome variable (Burmeister & Aitken, 2012). The number of variables to be included for the sample size computation should involve the number of categories for each parameter. For instance, to find the predictors of CS (i.e., dependent variable) with predictors involving age group (6 categories), gender (2 categories), education level group (7 categories), and occupation group (10 categories) the following would apply:

$$n = \big((6 + 2 + 7 + 10) - 1\big) \times 20 \tag{1}$$

Equation (1) = 480 participants required in the study.

Another protocol of sample size computation for linear regression analysis has been proposed by Green as (Green, 1991):

$$N \geq 50 + 8p \tag{2}$$

Equation (2)

Where p is the number of predictors. Applying the number of predictors mentioned above and Greens method a sample of $\geq 50 + 8 \times 25 = 250$ participants, therefore a sample of 38,500 should be more than sufficient.

2.2 Sociological Sampling Locations

2.2.1 BMA Districts (n = 50)

In this quantitative sociological assessment, a simple random sampling (SRS) method was carefully chosen to obtain precise and comprehensive data from the targeted group by interviewing the stakeholders who received customer services in 50 BMA districts. More details of 50 BMA districts were written in Appendix B.

2.2.2 BMA Offices (n = 27)

BMA offices was deliberately chosen for quantitative sociological analysis. The majority of questionnaire respondents were BMA government officers, private sector employees, and local residents (see Table 1B). More details of 27 BMA offices were briefly described in Appendix C.

Table 1B. A t-test applied in examining gender differences in average level of satisfaction in 18 questions conducted at 27 BMA units.

Male Questions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Aver	5.422	5.453	5.525	5.497	5.480	5.511	5.370	5.314	5.320	5.429	5.491	5.428	5.307	5.321	5.381	5.351	5.342	5.365
Stdev	0.744	0.722	0.668	0.688	0.684	0.680	0.740	0.799	0.799	0.755	0.700	0.754	0.802	0.793	0.775	0.766	0.791	0.791
Count	5540	5539	5522	5541	5539	5502	5520	5397	5382	5537	5537	5538	5441	5430	5448	5471	5442	5477
Female Questions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Aver	5.394	5.435	5.509	5.481	5.474	5.498	5.348	5.298	5.311	5.429	5.483	5.422	5.314	5.322	5.366	5.349	5.338	5.367
Stdev	0.758	0.735	0.683	0.703	0.694	0.680	0.737	0.792	0.789	0.731	0.685	0.737	0.786	0.781	0.765	0.760	0.771	0.770
Count	6738	6737	6721	6738	6738	6699	6687	6550	6533	6732	6732	6734	6612	6591	6607	6645	6614	6642
S	0.014	0.013	0.012	0.013	0.013	0.012	0.013	0.015	0.015	0.013	0.013	0.014	0.015	0.014	0.014	0.014	0.014	0.014
t	2.017	1.381	1.330	1.231	0.462	1.100	1.652	1.091	0.667	0.036	0.585	0.445	0.470	0.056	1.129	0.136	0.320	0.148
S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Critical t (1.960, p<0.05) t-Test D

2.3 Questionnaire Design

2.3.1 Construction of Sociological Questionnaire

Probably one of the most crucial part of the sociological assessment process is the generation of questions that precisely evaluate the perceptions, attitudes and opinions of the stakeholders. For instance, a questionnaire design in the context of clinical practice should theoretically include well planned protocols to obtain credibility and validity. One should bear in mind that failure to properly draft a questionnaire may inevitably lead to problematic elucidating results and this may influence upon clinical or educational practice (Rattray & Jones, 2007). It is also crucial to underline that the imagination, surveying skill, and experience of the researcher also play a major role in developing an effective questionnaire. The concept of work design often refers to the investigation, generation, and application of the configuration, details, arrangement of tasks and responsibilities and the background in which they are conducted (Borges-Andrade et al., 2019).

The conceptualization process in drafting sociological questionnaires is an academic craft that needs some well trained and experienced specialists. An ideal sociological survey should principally be practical, apprehensible, accurate, non-biased, capable of handling with all tough feedbacks, sufficiently encapsulated, authorized and ethical. The most crucial steps for critical achievement in designing a sociological questionnaire are to decide what data you need, select components for involvement, describe particular requests, compose the questionnaires, characterize the layout, explain the details, manage the pre-test and post-test, and perform the sociological survey.

The sociological questionnaire is composed of three parts, which are:

Part 1: Opinions about the satisfaction level of interviewees and/or questionnaire respondents towards the quality-of-service procedures, speed of services, first-come-first-served basis, politeness of staff, quality of facilities, problem management, and the department's development.

Part 2: Specific opinions about the satisfaction level of interviewees and/or questionnaire respondents towards the quality of projects, development, improvement, supportive efforts, and works in harmony and synchronization with other BMA's departments.

Part 3: General information such as questionnaire respondent's gender, age, education, occupation, place of residency, place of work, and length of employment.

All satisfaction levels can be categorized as follows:

– Extremely satisfied (6 points)

– Very satisfied (5 points)

– OK (4 points)

– Neither satisfied nor dissatisfied (3 points)

– Dissatisfied (2 points)

– Extremely dissatisfied (1 point)

In addition, the scores of answers can be classified as follows:

High (80-100%) Medium (70-79%) Low (0-69%)

2.3.2 Questions in Sociological Survey

In this sociological survey, 23 questions were carefully designed for assessing levels of satisfaction on service quality delivered by BMA staff. Focus is on independent parameters which can potentially impact the level of satisfaction (i.e., age, education level, gender). All details of 23 questions can be described as follows;

Q1. Service procedures are clear and concise

Q2. Services are fast and convenient

Q3. Services are given according to the first-come-first-served basis

Q4. Officials are polite, considerate, and service-minded

Q5. Officials are knowledgeable, informative, and able to answer your inquiries

Q6. Officials are honest and honourable

Q7. Utilizing technologies to increase efficiency of the services

Q8. Contents displayed on social media (such as Facebook pages or LINE) are clear and up-to-date

Q9. District Office's website is conveniently accessible, easy to use, with data clearly displayed and up-to-date

Q10. District Office provides convenient and comfortable space for visitors

Q11. District Office is clean and well-organized

Q12. District Office provides enough facilities for good services

Q13. Various channels are provided to receive problems, reports, and/or suggestions

Q14. Problems reported or suggestions are quickly responded

Q15. District Office is reliable and dependable when problems arise

Q16. District Office supports and helps improve Bangkokian's Quality of Life (QOL)

Q17. Activities organized by District Office involved public participation

Q18. District Office oversees and improves environmental conditions to make Bangkok one of best-live cities

Q19. District Office best manages waste in its area of responsibility

Q20. District Office best manages environmental conditions and pollutions in its area of responsibility

Q21. District Office best cares for streets, sidewalks, and other infrastructures in its area of responsibility

Q22. District Office best cares for order and public safety in its area of responsibility

Q23. District Office best supports and promotes better quality of life for residents in its area of responsibility

2.4 Statistical Analysis

In this sociological assessment, numerous inferential statistics such as t-Test and Analysis of Variance (ANOVA) have been applied for test significant differences between two groups (e.g., gender), more than three groups (e.g. age, educational level and occupation), examine correlations between independent parameters (e.g. age, educational level and income) vs. dependent parameters (e.g. satisfactory levels), and feature extraction of both independent and dependent parameters, respectively. As a part of inferential statistics, t-Test has been widely used for evaluating some significant differences between the averages of two populations, which may be connected in certain features. For instance, t-Test was used to test some significant differences between male and female associated with their satisfactory levels toward the service quality of National Housing Authority of Thailand (NHAT) staff (Pongpiachan, 2018b). A similar study has been conducted to determine the factors affecting stakeholder's levels of satisfaction with Community Partnership Association (CPA) in Rayong Province, Thailand (Pongpiachan, 2018a). ANOVA was employed to assess some significant differences on satisfactory levels of stakeholders toward the service quality of CPA staff with different ages (Pongpiachan, 2018a). In this study, all inferential statistics have been conducted using the Statistical Package for Social Sciences (SPSS) Version 13. In addition, the schematic diagram of research process was clearly illustrated in Figure1.
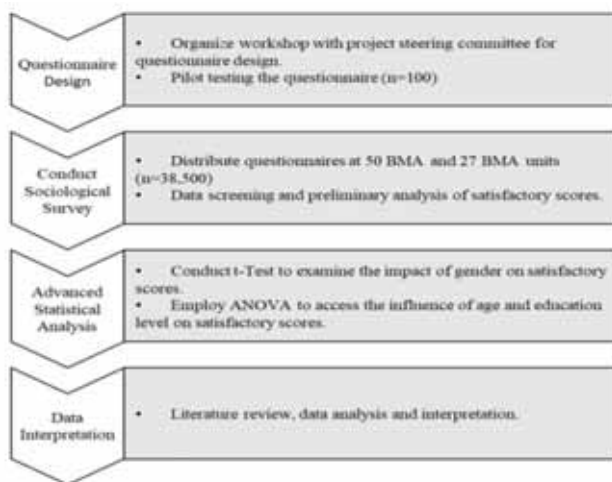

Figure 1. Schematic diagram of the research process.

3. Results & Discussion

3.1 Gender Inequality in Satisfactory Level

A t-Test was applied to investigate some significant differences associated with gender of questionnaire

respondent's satisfactory levels based on a comparatively large population size of 38,500. As illustrated in Table 1A, it is worth mentioning that gender differences were only observed in questions associated with service procedures are clear and concise. The average satisfactory level of female (i.e., 5.394 ± 0.758) is significantly less than those of male (i.e., 5.422 ± 0.744). This can be explained by several reasons. Previous studies highlight that female apply communication as a means to increase social affiliations and establish relationships (Leaper, 1991; Maltz & Borker, 1982; Wood, 1996). While female are tend to be more expressive, tentative, and polite in verbal communication, male are more confident and ambitious (Basow & Rubenfield, 2003). These different interpretations for a common communication may lead to some dissatisfactions towards daily services of BMA employee. It is also crucial to highlight that earlier studies investigate the intersection of gender and influence tactics (e.g. inspirational appeal, rational persuasion, consultation, ingratiation, personal appeals, exchange, coalition tactics, legitimating tactics, pressure) have leaded in mixed results (Carli, 1999; Carothers & Allen, 1999; DuBrin, 1991; Lamude, 1993; White, 1988; Yukl & Chavez, 2002). For instance, male appear to employ influence approaches such as personal appeal, consultation, and assertiveness, while female apply strategies such as consultation, inspirational appeal, and ingratiation more with other women and exchange tactics with male (Carli, 1999; Carothers & Allen, 1999; Dubrin, 1991; Lamude, 1993; White, 1998). These gender dissimilarities associated with some influence tactics might have been responsible for a significant difference average satisfactory level towards service procedures conducted by BMA employee.

Table 1A. A t-test applied in examining gender differences in average level of satisfaction in 18 questions conducted in 50 BMA districts.

Male Questions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Aver	5.422	5.453	5.525	5.497	5.480	5.511	5.370	5.314	5.320	5.429	5.491	5.428	5.307	5.321	5.381	5.351	5.342	5.365
Stdev	0.744	0.722	0.668	0.688	0.684	0.680	0.740	0.799	0.799	0.755	0.700	0.754	0.802	0.793	0.775	0.766	0.791	0.791
Count	5540	5539	5522	5541	5539	5502	5520	5397	5382	5537	5537	5538	5441	5430	5448	5471	5442	5477
Female Questions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Aver	5.394	5.435	5.509	5.481	5.474	5.498	5.348	5.298	5.311	5.429	5.483	5.422	5.314	5.322	5.366	5.349	5.338	5.367
Stdev	0.758	0.735	0.683	0.703	0.694	0.680	0.737	0.792	0.789	0.731	0.685	0.737	0.786	0.781	0.765	0.760	0.771	0.770
Count	6738	6737	6721	6738	6738	6699	6687	6550	6533	6732	6732	6734	6612	6591	6607	6645	6614	6642
S	0.014	0.013	0.012	0.013	0.013	0.012	0.013	0.015	0.015	0.013	0.013	0.014	0.015	0.014	0.014	0.014	0.014	0.014
t	2.017	1.381	1.330	1.231	0.462	1.100	1.652	1.091	0.667	0.036	0.585	0.445	0.470	0.056	1.129	0.136	0.320	0.148
S	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Critical t (1.960, p<0.05) t-Test D

3.2 Impacts of Age Towards Satisfactory Level

Previous studies have employed ANOVA to assess the impacts of age towards satisfactory level of numerous stakeholders in social sciences (Pongpiachan, 2018a,b; Pongpiachan & Hashmi, 2020). Over the past few decades, the impacts of age towards different types of satisfactory levels have been intensively studied in different academic disciplines (Hopwood et al., 2007; Johnson-Hillery et al., 1997; Roy & Sarker, 2016). A social survey, which adopted person perception theory to evaluate how retail sales personnel's perceptions associated with elderly consumers' satisfaction, suggests that elderly consumers perceived older sales personnel more positively than they viewed younger sales personnel (Johnson-Hillery et al., 1997). A quantitative sociological survey was conducted to investigate the impact of early marriage on female's health and their satisfactory level in Bangladesh (Roy & Sarker, 2016). In this study, it is found that the early marriage can create detrimental impacts of both female's physical and mental health. The impact of age and clinical factors on quality of life (QOL) in early breast cancer was carefully investigated by interviewing 2,208 female (mean age 56.9, range 26-87) entering a UK randomized trial of adjuvant radiotherapy (START) (Hopwood et al., 2007). Age had significant impacts on QOL with younger and older subgroups estimating lower QOL for various domains. For instance, female <50 years had poor QOL in respect of anxiety, body image and breast symptoms (Hopwood et al., 2007).

In this section, the impacts of age towards satisfactory level was carefully studied by using ANOVA ($p<0.01$). No significant differences were found for Q13 (Various channels are provided to receive problems, reports, or suggestions), Q19 (District Office best manages waste in its area of responsibility), Q20 (District Office best manages environmental conditions and pollutions in its area of responsibility), Q22 (District Office best cares for order and public safety in its area of responsibility), and Q23 (District Office best supports and promotes better quality of life for residents in its area of responsibility). A generation gap appears to play a minor role in governing satisfactory level associated with complaint hearings, solid waste and environmental management, public safety and promotions of better quality of life for BMA residents. In spite of these insignificant

differences, there are some concerns related with age. For instance, the elderly group (i.e. 70-89 years) exhibited the highest satisfactory levels connected with Q1 (Service procedures are clear and concise), Q3 (Services are given according to the first-come-first-served basis), Q5 (Officials are knowledgeable, informative, and able to answer your inquiries), Q6 (Officials are honest and honourable), Q7 (Utilizing technologies to increase efficiency of the services), Q12 (District Office provides enough facilities for good services), Q15 (District Office is reliable and dependable when problems arise), and Q17 (Activities organized by District Office involved public participation). These findings can be explained by Thai culture which has its own unique way of honouring elders, and expressing respect towards elderly customers.

Interestingly, the middle age group (i.e. 40-49 years) display the highest satisfactory levels connected with Q2 (Services are fast and convenient), Q9 (District Office's Website is conveniently accessible, easy to use, with data clearly displayed and up-to-date), Q10 (District Office provides convenient and comfortable space for visitors), Q11 (District Office is clean and well-organized), Q14 (Problems reported or suggestions are quickly responded or attended), Q16 (District Office supports and helps improve Bangkokian's Quality of Life) and Q18 (District Office oversees and improves environmental conditions to make Bangkok one of best-live cities). This group (i.e., 40-49 years) can be considered as Generation X (Gen-X) which generally refers to people born during the early to mid-1960s through 1980. It is also well known that common Gen-X characteristics have "work hard, play hard" mentality, strong entrepreneurial spirit, responsibility and try to overcome obstacles on their own. Since Gen-X grew up during the transition from analogue to digital technology, they are relatively flexible to adapt with numerous technological devices such as PC, tablets and smartphones. These explanations were supported by the highest scores detected in Q9 which directly connected with the satisfaction towards IT services. The comparatively high adaptability and flexibility can be found in the highest satisfactory scores observed in Q2, Q10, and Q14.

3.3 Analysis of Variance (ANOVA): The Satisfaction Scores in Relation to Education Level

Previous studies have shown that the education level of questionnaire respondents plays an important role in governing the satisfactory scores (Klein & Maher, 1966; Vila & García-Mora, 2005). According to the sociological survey conducted in an electronic manufacturing company, the college-educated seem to less satisfied with his/her pay than the non-college group (Klein & Maher, 1966). The impact of education level on job satisfaction was investigated by employing a representative sample of Spanish workers (Vila & García-Mora, 2005). It was found that the influences of education level on job satisfaction vary in both size and direction based on the perceptions of the job (Vila & García-Mora, 2005). Alder (2010) explored a relationship between marital satisfaction and the independent parameters of age, education level, and courtship length as well described in her Master's thesis, Pacific University. Although the findings underline that there was not a statistically significant relationship between marital satisfaction, age, education level, and courtship length, there was a negative correlation between post-engagement courtship and dyadic adjustment, emphasizing that, as period of engagement enhances, marital adjustment descends (Alder, 2010). It is also crucial to note that the number of respondents was only 60 (n = 60), which can be considered as a relatively small population.

This section classifies the questionnaire respondents into seven groups based on their education levels, as described in Table 3. ANOVA was employed to compare the average satisfaction levels of 23 questions with seven different education levels from the 27 BMA units. Some significant highest satisfactory scores were detected from questionnaire respondents with primary education level. For instance, the average scores of Q1, Q2, Q3, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, and Q23 were 5.46, 5.49, 5.56, 5.45, 5.41, 5.41, 5.53, 5.56, 5.54, 5.39, 5.41, 5.46, 5.46, 5.45, 5.47, 5.43, 5.41, 5.41, 5.46, and 5.50, respectively (see Table 3). On the contrary, the questionnaire respondents with master and/or doctorate degree showed the highest satisfactory scores of Q4, Q5, and Q6. It is also interesting to note that all lowest satisfactory scores were observed from questionnaire respondents with higher secondary education.

These findings are to some extent consistent with previous studies conducted in various countries (Al-Sakkak et al., 2008; Derman and Serbest, 1993). Factors affecting patient satisfactory scores with primary health care (PHC) services were carefully investigated by using a cross-sectional surveyed in three PHC centers, affiliated to Riyadh Military Hospital, Riyadh, Kingdom of Saudi Arabia, over two months period in 2006 (Al-Sakkak et al., 2008). Although there was no relation observed between patient's satisfactory level and their independent parameters (e.g., marital status, gender, income, occupation), patients with lower education level were more satisfied with PHC services than those with higher education level ($p < 0.001$). This result was in good agreement with the fact that the questionnaire respondents with primary education level showed the highest satisfactory scores for most of questions as previously mentioned.

It is also crucial to underline that cancer patients' awareness of disease and satisfaction with services was carefully investigated by using 45 cancer patients interviewed by six attending physicians of the clinic (Derman and Serbest, 1993). It was found that cancer patients with higher education showed the willingness to ask more questions of the physicians and thus receive more direct information from them than those of lower education (p<0.0001). Since the questionnaire respondents with master and/or doctorate degree showed the highest satisfactory scores associated with Q3, Q4, Q5, and Q6, it appears reasonable to conclude that the satisfaction towards the willingness to ask more questions was positively correlated with the communication skill of BMA staff. For instance, the questionnaire respondents with master and/or doctorate degree showed the highest satisfactory scores related with Q5 (i.e., Officials are knowledgeable, informative, and able to answer your inquiries) supporting this explanation. Furthermore, the highly educated questionnaire respondents exhibited the highest satisfaction connected with Q4 (i.e., Officials are polite, considerate, and service-minded) and Q6 (i.e., Officials are honest and honorable). These findings are in accordance with a previous study underlining that the higher education level cancer patients tend to ask more questions of the physicians and thus receiving more information associated with politeness, service attitude, honesty and prestige.

4. Conclusions

According to the sociological survey of the stakeholders related with 50 BMA districts and 27 BMA units (n=38,500), the satisfaction of female questionnaire respondents is significantly less than those of male under the topic of service procedures. This can be explained by gender differences in the perceptions of a common communication which may subsequently lead to some discontent towards routine services of BMA staff. Although no age differences were detected under the topics of complaint channels (Q13), environmental and waste management capabilities (Q19-Q20), public safety (Q22), and promotions of quality of life (Q23), the elderly group tends to be satisfied with the quality-of-service procedures, particularly the first-come-first-serve basis. The fact that Thai culture has its own extremely specific way of offering some privileges to elderly people may support these findings. While the primary education questionnaire respondents exhibited the highest satisfactory scores of the majority of questions, the comparatively well-educated group tends to gratify with communication skill of BMA staff.

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Appendix A BMA projects related with SDGs

Title of BMA projects associated with SDGs
(i) Bus Rapid Transit (BRT) has been introduced as a powerful urban transit system in many developing Asian cities as a result of its cost-effective and flexible implementation (Satiennam et al., 2006);
(ii) Several projects have been conducted to monitor the levels of PM2.5, polycyclic aromatic hydrocarbons (PAHs), carbonaceous particles, and heavy metals in the ambient air of the Bangkok Metropolitan Region (BMR) and other major cities in Thailand (ChooChuay et al., 2020a,b,c; Pongpiachan, 2013; Pongpiachan et al., 2016, 2017a,b);
(iii) The gender-specific composition in asset ownership was investigated among low-income, urban households in Bangkok, Thailand in 2002 (Antonopoulos and Floro, 2005);
(iv) Public health services for drug users infected with the human immunodeficiency virus (HIV) were carefully planned based on the estimation of 36,600 opiate users in Bangkok (Mastro et al., 1994).

Appendix B Geographical cluster sampling locations of 50 BMA districts

Abbreviations of geographical cluster sampling locations
Khlong San District Office (D1), Khlong Sam Wa District Office (D2), Khan Na Yao District Office (D3), Chatuchak District Office (D4), Chom Thong District Office (D5), Donmuang District Office (D6), Din Daeng District Office (D7), Dusit District Office (D8), Taling Chan District Office (D9), Thawi Watthana District Office (D10), Thung Khru District Office (D11), Thon Buri District Office (D12), Bangkok Noi District Office (D13), Bankok Yai District Office (D14), Bang Kapi District Office (D15), Bang Khun Thian District Office (D16), Bang Khen District Office (D17), Bang Kho Laem District Office (D18), Bang Khae District Office (D19), Bang Sue District Office (D20), Bang Na District Office (D21), Bang Bon District Office (D22), Bang Phlat District Office (D23), Bang Rak District Office (D24), Bueng Kum District Office (D25), Pathum Wan District Office (D26), Prawet District Office (D27), Pom Prap Sattru Phai District Office (D28), Phaya Thai District Office (D29), Phra Khanong District Office (D30), Pha Nakhon District Office (D31), Phasi Charoen District Office (D32), Min Buri District Office (D33), Yan Nawa District Office (D34), Ratchathewi District Office (D35), Rat Burana District Office (D36), Lat Krabang District Office (D37), Lat Phrao District Office (D38), Wang Thonglang District Office (D39), Vadhana District Office (D40), Suan Luang District Office (D41), Saphan Sung District Office (D42), Samphanthawong District Office (D43), Sathon District Office (D44), Sai Mai District Office (D45), Nong Khaem District Office (D46), Nong Chok District Office (D47), Lak Si District Office (D48), Huai Khwang District Office (D49), and Khlong Toei District Office (D50)

Appendix C Geographical cluster sampling locations of 27 BMA offices

Abbreviations of geographical cluster sampling locations
Finance Department (U1), BMA Budget Department (U2), Strategy and Evaluation Department (U3), Office of the BMA Civil Service Commission (U4), The Secretariat of Bangkok Metropolitan Council (U5), The Governor of Bangkok Secretariat (U6), BMA Training and Development Institute (U7), BMA Law and Litigation Department (U8), Administration and Registration Office (U9), Internal Audit Office (U10), Personnel Office (U11), International Affairs Office (U12), Public Relations Division (U13), Inspector General Division (U14), Office of the Permanent Secretary for the BMA (U15), Education Department (U16), Traffic and Transportation Department (U17), Public Works Department (U18), Department of Drainage and Sewerage (U19), City Law Enforcement Department (U20), Fire and Rescue Department (U21), City Planning Department (U22), Social Development Department (U23), Environment Department (U24), Medical Service Department (U25), Culture Sports and Tourism Department (U26), and Health Department (U27)

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