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# Impact of Financial Inclusion and Liberalization on ASEAN Economic Development

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# DECLARATION

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# ABSTRACT

This dissertation includes seven chapters. In chapter 1, we provide the focus and motivation of the PhD research in terms of examining the impacts of financial development and financial inclusion on ASEAN LDCs, particularly on Cambodia. The literature on the financial inclusion and its measurement are clearly identified and discussed in chapter 2. This chapter aims to highlight the important role of financial inclusion in the economy, particularly in poverty reduction and accelerating economic growth. An inclusive financial system has both economic and social benefits based on the efficient allocation of productive resources leading to the reduction of the cost of capital and hence contributing to achieving the goals of growth. In addition, an increase in access to financial services also appears to be associated with poverty reduction as more vulnerable population have access to important financial resources to invest and improve their living standards. However, policy effectiveness is dependent on accurate measurement of the level of financial inclusion, which remains a major obstacle due to the availability and quality of data. To fill in the data gap for the estimation of financial inclusion, it is important to understand the data generation process in terms of data collection, essentially from both demand and supply sides of financial inclusion. The chapter clearly identifies the demand and supply-side of financial inclusion in the domestic economy. More robust measurement of financial inclusion is needed to take into account various economic and social dimensions in specific country, which are crucial in pursuit of key policy initiatives.

In chapter 3, we discuss the ASEAN financial integration process and structure in line with regional integration of economic and financial structure. Financial integration is one of the objectives of ASEAN in order to develop a strong ASEAN Economic Community with a shared destiny. Financial inclusion is considered as one of the key catalysts of financial integration as it enhances access to cross-border remittances to support regional labour mobility, enhancing SMEs financing for trade, and also increase the cross- border investments that enables domestic firms, especially the SMEs, to benefit from greater access to markets. Financial inclusion promotes financial integration through financial stability as the later would enhance the resilience of financial system.

Chapter 4 identifies the key trends and examines the determinants of financial inclusion in ASEAN countries. The Global Findex dataset is employed to examine the determinants of financial inclusion in terms of (a) account ownership at formal financial

institution, (b) individuals holding saving account at formal financial institution, and (c) usage of bank credit. The results indicate that status of employment and education are two key variables that will promote financial development and inclusion in the ASEAN region. Individual employment and the ability to earn seem to the key determinants for financial market development in the region. Both of these variables have high correlation to the economic growth and development in the ASEAN countries. The result also indicates that education and educated individuals tend to use the financial services more actively than less educated individuals. This highlights key policy issue on a need to develop strong financial education for less educated individuals to use more financial services that will have positive impact on their welfare.

The impacts of financial intermediation and financial inclusiveness on saving behavior of developing economy such as Cambodia using individual data from Global Findex database in 2017 is examined in chapter 5. The results indicate that financial intermediation has positive impact on the financial inclusion in terms of increasing the overall saving behavior through saving at a bank or financial institution and reducing the informal savings of households with saving clubs and/or saving cooperatives. Furthermore, in comparing financial market development of Cambodia and Vietnam, the findings show that Cambodia has high degree of openness in its financial market compared to Vietnam. However, Vietnam has a higher level of financial inclusiveness compared to Cambodia. This finding suggests that (1) financial sector openness is not the only criteria to further improve financial inclusion, and (2) effective financial intermediation (deposit creation), as in Vietnam, tends to increase financial inclusion and increase the saving of the poor segment in the domestic economy.

In chapter 6, we provide an alternative measure of financial inclusion using administrative level data. This chapter employs supply-side data collected from financial services providers and data from Credit Bureau Cambodia to measure the level of access and usage of formal financial services (credit, savings, insurance, e-wallet) by adult population in Cambodia. The findings suggest that the level of access to formal financial services is relatively high at 73%., which is higher than the Global Findex measure of 22% for Cambodia. From these measurements, it is clear than financial inclusion in Cambodia is driven by two basic products: credit and savings. The chapter highlights the need in policy measures to encourage access to insurance products which is particularly crucial to provide safety nets for low-income households. Furthermore, the findings also

suggest that microfinance institutions play important role in financial inclusion efforts. It is noting that not all MFI in Cambodia are allowed to take deposits, only 7 MFIs, while the rest are only allowed to provide credit.

In chapter 7, we summarize the key results of the thesis and discuss policy options for promoting financial inclusion at both country and regional levels.

Key Words: Financial Inclusion, Financial Integration, Trade, Fintech, ASEAN

# DEDICATION

This thesis is dedicated to my father who believes in high education for girls and tirelessly encouraged me throughout each and every one of my higher education degrees, and to my mother who is my role model and inspiration and proves that women can be independent and successful regardless of their men.

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# CONTENTS

# LIST OF FIGURES

# LIST OF TABLES

# CHAPTER 1 INTRODUCTION

## 1.1 Background

Several studies have highlighted the importance of financial inclusion as key component of financial development to drive growth, promote income equality, and reduce poverty (Honohan, 2004; Beck, Demirgüç-Kunt, and Levine, 2007; Dabla-Norris et al., 2015). In a recent study by Rasheed et al. (2016), using a panel data of 97 countries during 2004-2012, financial inclusion is identified to be statistically significant determinant of financial development. In this regard, it is important that policies and strategies should take into account issues related to financial inclusion as a key part of the development agenda.

Financial inclusion is defined as "the ease of access, availability and usage of the formal financial system by all members of the economy" (Sarma, 2008). Access to financial services, such as credit, can help individuals smooth their consumptions over time and improve their living standard. The United Nations recognizes "financial inclusion as enablers for seven out of seventeen sustainable development goals"[1]. Moreover, from a business perspective, financial inclusion is necessary for firms to develop and grow. Access to formal financial services have also played key roles in formalization of businesses[2], a critical element for micro, small and medium enterprises (MSMEs) to thrive and contribute to the country's economic growth. Formal financial activities assist in data collection as well as in the tax collection. However, in developing countries, informality is often a major constraint for MSMEs to access formal financial markets.

In recent years, financial inclusion has been included in key global policy agenda given the fundamental benefits to growth and poverty reduction at both regional and global level. Financial inclusion is theoretically justified for its income-enhancing effects (Beck et al., 2007), and consumption smoothing effects of saving and associated gains in allocative efficiency from capital redistribution (Levine et al., 2005). For example, the improvement in the access to credit allows for greater economic opportunities and can spur entrepreneurship and development. In terms of insurance and other risk-pooling

[1] United Nation Capital Development Fund (n.d.)
[2] Access to formal financial services typically requires that the business is formally registered with relevant authorities, for identification and risk management purposes.

products, financial inclusion has efficiency gains which reduce excessive precautionary saving and mitigate any other adverse impacts on the households.

Yet according to World Bank Global Findex Database, 1.7 billion of adult population worldwide remain unbanked; thus, putting them in a vulnerable position economically and socially (Global Findex, 2017). In the Association of South East Asia Nations (ASEAN), an economic bloc consisting of 10 nations and a combined population of more than 650 million and GDP of USD 3.1 trillion, 46% of the total population are unbanked according to Global Findex 2017 (however the level of financial exclusion is 30% according to the ASEAN member countries reports for the 10th ASEAN Financial Inclusion Working Committee[3]). Closing this gap is an important agenda for ASEAN to achieve its ASEAN Economic Community (AEC) agenda.

Indeed, under the AEC initiative, an integrated economic community is envisioned with single market and production base amongst other cooperation. To further promote trade integration agenda and inclusive growth in the region, financial integration has been recognized as a crucial enabler[4]. Nonetheless, recent study by Ananchoutikul et.al (2015) find that financial integration in ASEAN is limited compared to the level of it trade integration. Restriction on cross border capital flow, informational asymmetries, barriers to foreign banks entries and differences in regulatory and institutional qualities are some of the barriers cited to achieve such regional integration.

However, common consensus is that financial integration should not come at the expense of domestic and regional financial stability. This suggests that financial integration should happen when there is financial stability in the domestic economy. In other words, without strong pillar of stability, financial system could be subject to external shocks and vulnerabilities due to capital account liberalization. But financial stability, at least at the domestic level requires that the system be inclusive (Morgan and Pontines, 2014; Khan, 2011; Hanning and Jansen, 2010; Prasad, 2010; Ahamed and Mallick, 2019). Access to finance by all economic agents ensures that financial intermediation in the economy is done efficiently by allocating excess capital from savings to productive industries activities. For businesses, access to finance means that business understands financial products and services available that can accommodate their business needs. Given the importance of financial stability, then promoting financial

[3] ASEAN member countries reports for the 10th ASEAN Financial Inclusion Working Committee
[4] ASEAN Finance Ministers' and Central Bank Governors' Joint Meeting - ASEAN | ONE VISION ONE IDENTITY ONE COMMUNITY

inclusion (amongst other measures) should be the top priority to achieve financial integration and efficient economic integration. Pursuing financial inclusion and financial integration should go hand in hand. Financial integration through harmonizing regulatory framework and reducing information asymmetry across borders may address the symptom of the lack of integration, but it will not necessarily benefit people and businesses within the region if they are excluded from the financial system in the first place.

However, financial integration and inclusiveness in ASEAN member states remain a challenge. Unlike NAFTA and EU region where the level of financial inclusion is high, ASEAN's state of financial inclusion remains fragmented. Indeed, according to Global Findex (2017), a measurement of financial inclusion in all countries in the world (with few exception) by the World Bank, Singapore is ranked top amongst other member countries with 98% of its adult population having access to finance. In contrast, Cambodia has only 22% of the population having access to finance. A common and major challenge for SMEs in the region is the lack to access to financial services, making it difficult to grow (Yoshino and Hesary, 2016). As SMEs is the backbone of ASEAN's economy, addressing these challenges would allow domestic firms and especially the SMEs to better contribute the overall economy of the region.

## 1.2 Research Objective

The key objectives of the research are to examine the relationship between economic development through open economic policies and financial inclusion in ASEAN countries and ASEAN LDCs such as Cambodia. The objective is to carefully examine the level of financial inclusion in ASEAN member countries and identifies the key gaps and challenges for financial inclusion and integration in the region. The research also focuses on the Cambodian economy, where the level of financial openness of the economy is the highest in the region, but the level of financial inclusion is amongst the lowest.

The key objectives of the research are summarized as:

1. To assess the impact of financial liberalization and financial inclusion on economic development in ASEAN member countries.
2. To empirically observe the determinants of financial inclusion in ASEAN.

3. To examine the financial development and financial inclusion in LDC, particularly focusing on the case study of Cambodia.
4. To examine the importance of financial innovation such as mobile banking on financial development and financial inclusiveness in Cambodia.

To achieve the above objectives, the research examines the level of financial inclusion in the ASEAN region using individual level data for ASEAN Member countries and Cambodia from Global Findex database. In addition, the research provides detailed discussions on financial inclusion in ASEAN in terms of regional financial integration and inclusion. The research also studies the linkages between financial intermediation (financial development) and financial inclusion based on saving behaviour of individuals using micro-level data. Further, the research measures financial inclusion in Cambodia using administrative level data of financial institutions.

There are three main reasons for selecting this region for empirical investigation. Firstly, the level of account ownership in ASEAN has been so much different among its members (Luna-Martínez, 2016). While Singapore, Malaysia, Thailand, and Brunei have achieved high level financial inclusion, the rest of the ASEAN countries ranges from 22% to 34% in terms of financial inclusion suggesting that at least two-thirds of the population do not have a bank account, according to the Global Findex database 2017. Indeed, most ASEAN countries still mainly rely on cash with 71% of workers being paid in cash by their employers (Luna-Martínez, 2016). In this regard, the study contributes to the literature on financial inclusion in ASEAN and Cambodia by examining the determinants of financial inclusion in ASEAN in terms of (a) ownership account at formal financial institutions, (b) individuals holding saving account at formal financial institutions, and (c) the usage of bank credit. Second, financial inclusion is another important driver of growth for ASEAN. As a globally competitive region, ASEAN has been averaging a global growth rate of over 5.4% for the past 3 decades (Loo, 2019). The new growth model for ASEAN is in the technological innovation, where financial innovation such as Fintech could be the new potential growth area, especially in supporting SMEs to access to financial services.[5] As such, in-depth analysis of the role of financial inclusion and Fintech could add critical area of growth and policy discussions to the policy framework

[5] Loo (2019) argues that the fast-emerging economies of Cambodia, Laos, Myanmar, and Vietnam have the highest potential.

in the region. Third, early measurements of financial inclusion from the supply side have been focused on different proxies (Beck et al., 2007; Honohan, 2008; Kendall et al., 2010). However, the use of administrative data to measure for measuring financial inclusion has been rare in ASEAN region. In this regard, it is worth exploring the true measure of financial inclusion using the case study of Cambodia.

The dissertation is divided into 7 chapters (including the introductory chapter). The details of each chapter with a brief summary of the background and motivations are discussed below.

### 1.2.1 Chapter 2: Literature Review

Chapter 2 reviews relevant literatures relating to the financial inclusion. Given its importance, having an inclusive financial system could contribute to achieving the goals of promoting economic growth and reducing poverty and inequality (Honohan, 2004; Beck, Demirgüç-Kunt, and Levine, 2007; Dabla-Norris et al., 2015). Furthermore, financial inclusion could promote financial stability through the enhancement of deposit base during the downturn (Han and Melecky, 2013). The chapter also highlights key gaps and challenges in the Global Findex Database in terms of measuring and identifying the financial inclusion in LDCs.

Although the indicators of financial inclusion have been extensively measured, there has been no consensus on how to construct the index of financial inclusion either from the supply or demand side of the financial sector outreach. Some studies include more than a single indicator taking into account multi-dimensional index, namely using data from demand and supply sides (see, e.g., Cámara and Tuesta, 2014; Sarma, 2008, 2012, 2016). However, the quality of data has been the main constrain for the measurement of financial inclusion index. For example, the data from Financial Access Survey based on the reporting authorities may contain accounts with duplicate account holders.

This chapter is motivated by the lack of consistency in measuring financial inclusion. Based on the existing studies, measuring financial inclusion remains nontrivial and need a better method. The study contributes to the literature by (i) narrating the relevant literature to measure financial inclusion and its index, and (ii) identifying the critical issue in data collection on both demand side (survey data on individuals or household) and supply side (aggregate data obtained from authorities).

### 1.2.2 Chapter 3: Regionalism and Financial Inclusion in ASEAN

Chapter 3 discusses the ASEAN financial integration process and structure in line with regional integration of economic and financial structure. The phenomena of financial integration have significantly intensified during the 1980s and 1990s. The integrations in the (ASEAN) region have increased dramatically, particularly after the global financial crises. Examining progress and prospects of ASEAN financial integration, Almekinders et al. (2015, p.13) stress that financial integration can play key role in the development of financial sector in ASEAN through products innovation. This ultimately promotes growth, employment and financial inclusion in ASEAN. Within the ASEAN financial integration efforts, there are 4 key pillars: (a) harmonization of regulations, (b) financial inclusion, (c) capacity building, and (d) financial stability. Such efforts are met with progress albeit slow. Financial development is rapid, and its contagions can be so fast that regulators are very cautious in its move to liberalize and leave it out of their control.

The study is motivated by adoption of the financial integration as the ultimate objective of ASEAN in order to support the ASEAN Economic Community vision with shared destiny. The promise of AEC ultimately is free flow of goods and services. But when it comes of capital flow, one of the most important production factors, the consensus is to make capital flow more freely, and not completely free. Blueprint for AEC 2025 was later developed to replace the AEC 2015 aiming at making ASEAN members more integrated economically and financially. This study contributes to the literature by providing recommendation on how to include 260 million adult populations who are unbanked and 45 million SMEs that could not access to finance to the formal financial system.

### 1.2.3 Chapter 4: Determinants of Financial Inclusion in ASEAN: An Empirical Analysis Using Micro Data

Chapter 4 contributes to the literature by examining the determinants of financial inclusion in ASEAN countries. Existing studies show that there is a wide disparity of financial inclusion among countries in Asia (Ayyagari and Beck, 2015) and Asia and the Pacific (Jahan et al., 2019) and such disparity tends to persist suggesting that considerable efforts from each country are required to narrow the gaps. Based on the Global Findex database, a significant proportion of unbanked adults lives in developing countries and has primary education or less. A number of studies show that per capita income, good governance, quality of institutions, availability of information and regulatory environment are key factors affecting financial inclusion at country level (Allen et al. 2016; Rojas-Suarez, 2010; Park and Mercado, 2015).

Addressing these factors by, for instance, improving the standard of living of the people and the quality of governance and financial institutions could lead to gradual reduction in the regional gap of the financial inclusion.

The study uses the Global Findex dataset to examine the determinants of financial inclusion in terms of (a) ownership account at formal financial institution, (b) individuals holding saving account at formal financial institution, and (c) usage of bank credit. The Global Findex dataset covers all the ASEAN countries of Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. We used the discrete choice modelling framework and 2017 Global Findex dataset. The results indicate that status of employment and education are two key variables that will promote financial development and inclusion in the ASEAN region. The ability to earn and employability in the labour market seems to be a key determinant for financial market development in the region. This has high correlation to the economic growth and development in the ASEAN countries. The result also indicates that education and educated individuals tend to use the financial services more actively than less educated individuals. There is a need to develop strong financial education for less educated individuals on the usage of formal financial services and its positive impact on their welfare.

The above study also highlights significant institutional and structural barriers of financial inclusion in the region. The key factors for the barriers of financial inclusion are cost, distance, lack of money, lack of documentation and the absence of need of financial services remain significant barriers to access to financial services across ASEAN countries. There is an urgent need to address these institutional and structural barriers of financial inclusion at domestic and regional level. These barriers will have significant impact on regional integration and economic growth of ASEAN.

### 1.2.4 Chapter 5: Financial Development and Inclusion on Saving Behavior: The Case Study of Cambodia

Chapter 5 examines the impact of financial integration, financial development and financial intermediation on financial inclusion using the case study of Cambodia. In the first part, the study examines the linkage between financial sector openness and financial inclusion by comparing Cambodia and Vietnam. In the literature, studies have shown that financial sector openness leads to greater financial inclusion, but the case of Cambodia and Vietnam may have different answers. Cambodia and Vietnam have unique situation. Cambodia's financial sector is one of the most open in ASEAN, yet its level of financial inclusion is amongst the lowest. On the other end, financial sector openness in Vietnam was amongst the most restricted in ASEAN until recently but Vietnam achieves much higher level of financial inclusion.

In the second part, the chapter examines the impact of financial intermediation such as bank deposits, mobile banking, credit cards and debit cards on the saving behavior of individuals in Cambodia. Particularly, we examine if increasing financial intermediation to the vulnerable population at the poorest segment of the society will increase their saving behavior. The results indicate that financial intermediation such as having a bank account or associated with another member with account has positive impact on savings in the economy. This suggest that policies should be directed in increasing individual accounts in the banks that will direct impact on financial intermediation and increasing the saving mobilization in the economy.

### 1.2.5 Chapter 6: Measuring Financial Inclusion in Cambodia: Using Administrative Data

Chapter 6 investigates the level of financial inclusion in Cambodia by providing more detailed discussions and measures of financial inclusion using the administrative level data from Financial Institutions and the Credit Bureau Cambodia. Data sets are represented by 6,310,561 deposit accounts, 3,896,428 borrowers, 2,105,636 payment users, and 838,750 policy holders. The data shows that 7.8 million people in Cambodia have access to and use at least one formal financial service. This represents 78% of the total adult population and it is above the Global Findex database.

The study is motivated by inconsistent measurement of financial inclusion, especially in a small country like Cambodia. The quality of data has been the main constrain for the measurement of financial inclusion index. For instance, the data from Financial Access Survey based on the reporting authorities may contain accounts with duplicate account holders. Furthermore, the Global Findex Database takes into account respondents aged 15 and above, which do not reflect the case of some countries, where the young adults under 18 years of age could not possess formal national identification and thus not eligible to apply for loans from formal financial institution. This could make the estimate of financial inclusion to be downward bias. The issue of self-exclusiveness from financial system should be addressed in the questionnaires in order to capture the real inclusiveness in the financial system.

Given this motivation, this research contributes to the literature by filling in the data gap for measuring financial inclusion in Cambodia. The results from the study provides an important policy implication, given that this is the first study to capture the true level of financial inclusion.

### 1.2.6 Chapter 7: Policy Discussion

Chapter 7 provides the policy discussion. It discusses the key policy options for promoting financial inclusion at both country and regional levels. As shown in previous chapters, financial inclusion is a tool to reduce poverty and promote inclusive growth. However, promoting financial inclusion requires addressing several policy gaps. These gaps include the policymakers’ understanding of financial inclusion, poor regulatory framework and quality, and weak consumer protection.

How best should policy makers address financial inclusion issues at both country as well as regional levels? At country level, it is crucial to consider accommodative policy solutions, develop conducive regulatory framework and promote consumer protection mandates. Also, further discussions will be extended to explore the role of technology in financial inclusion. At regional level, financial integration would help promote financial inclusion especially through cooperation among countries in the areas of capacity building, financial stability coordination, regulatory harmonization and data sharing.

# CHAPTER 2 LITERATURE REVIEW

## 2.1. Introduction

For the past 2 decades, financial inclusion has attracted attention among researchers, policymakers, and other stakeholders; and it has become one of the most discussed topics in policy agenda fsor development and poverty reduction especially for developing countries. Indeed, financial inclusion is an important enabler for poverty reduction according to the United Nations, an indication of economic and social inclusiveness not only in developing countries but also in developed countries (GPFI, 2016). Stated in the 2016 Hangzhou Action Plan, the G20 leaders thus recognized the importance of financial inclusion to empower the lives of the poor (GPFI, 2016). In many countries, financial inclusion is made into a national policy agenda, and one key task to achieve these policy objectives requires policymakers to develop a framework to measure and evaluate the progress of financial inclusion. Critically, the World Bank's Global Findex Database (Global Findex, 2017) reported that 1.7 billion of adult population worldwide remain unbanked; thus, putting them in a vulnerable position economically and socially. In this regard, providing appropriate formal financial services that meet the needs of these people has become a key policy agenda for policymakers in developing countries.

Financial inclusion is defined as "the ease of access, availability and usage of the formal financial system by all members of the economy" (Sarma, 2008). Access to financial services, such as credit, can help individuals to smooth their consumptions over time and better manage their living conditions. Businesses can also smooth out their short- and long-term investments and manage their risk over the business cycles.

In this regards, microfinance institutions and non-bank financial institutions are playing critical roles in developing countries in providing products and services to the under-served segment of the markets (Carmichael and Pomerleano, 2002; Michael, 2004). Rapid development of technology in finance has been the key driver of financial inclusion across the globe, especially developing countries. One example is illustrated through the rapid diffusion of mobile technologies in developing countries, i.e. mobile payment facilitating financial services outreach to the unbanked in the previously unserved areas at an affordable cost. As such the traditional indicators for measuring financial inclusion may no longer be relevant particularly when it comes to the definition of the products and services delivered.

This chapter reviews the literature on the significance of financial inclusion and its measurement. It aims to highlight the important role of financial inclusion in the economy, in particular accelerating growth and reducing poverty. Section 2 of this chapter examines the existing theoretical and empirical studies on the significance of financial inclusion. Section 3 discusses the role of financial inclusion on growth while Section 4 examines the linkages between trade and financial inclusion. Section 5 provides background and aspect of financial inclusion, and Section 6 discusses the role of technology in promoting financial inclusion. Section 7 summarizes the methodologies used to measure financial inclusion. Finally, section 8 concludes with the gaps in the existing literature.

## 2.2. Significance of Financial Inclusion

Financial inclusion has been widely known as the increasing access to formal financial services for all members of an economy. An inclusive financial system has both private and social benefits given that the allocation of productive resources become more efficient, leading to the reduction of cost of investment in capital. In addition, financial inclusion helps to reduce the activities of informal financial sector. Indeed, people at the bottom of the pyramid who lack proper knowledge or documentations found themselves exposed to the informal sector (e.g., loan sharks, money lenders) where the interest rate charged are often exploitative. The rise of microfinance institutions, particularly in developing countries, has increased outreach and the number of branch offices in remote areas, leading to enhancing efficiency and welfare, in particular, by providing avenues for secure and safe saving practices and other financial services.

In general, the increasing access to financial services can contribute to achieving the goals of economic growth. This is in line with the earlier approach by Schumpeter who demonstrated that finance boosts economic growth. Theoretically, Schumpeter (1911) argued that well-developed financial system supported economic growth through the accessibility of capital formation and technological innovation. The services provided by financial sector provide opportunities to individuals to obtain funds to finance education, and businesses to acquire capital, which results in investment and growth. Evidence supporting the Schumpeter approach was demonstrated by King and Levine (1993) who confirmed that financial intermediation had a strong long run growth relationship. Further studies showed strong positive relationship between an inclusive financial system and economic growth (see, e.g., Rajan and Zingales, 1998; Beck et al., 2000; Levine et al., 2000; Khan, 2001; Demirgüç-Kunt et al., 2008).

An increase in access to financial services appears to be associated with poverty reduction. Honohan (2004) extended the study on the relationship between finance and poverty using a cross-sectional data of 70 developing countries. The results suggested that financial depth was negatively associated with headcount poverty, which implies that the depth of financial system is empirically associated with lower poverty ratios. In addition to the financial depth, the paper employs other four key functions of finance including mobilizing savings, allocating of capital, monitoring the use of loanable funds by entrepreneurs, and transforming risks by pooling and packaging them. The uses of these measures in the empirical analysis could fully capture the variations in the degrees and effectiveness of the estimates rather than relying on a single measure of the development of financial system. In addition, Beck, Demirgüç-Kunt, and Levine (2007) observed the relationship between finance and changes in both income distribution and poverty levels. The results revealed the impact of financial development on changes in the distribution of income, which disproportionately boosted incomes of the poorest quintile and reduced income inequality.

However, financial exclusion is still a concern given that barriers to access to and use of financial products and services remain high, especially in developing countries. Allen et al. (2016) explained the difference between voluntary and involuntary exclusion. The voluntary exclusion refers to the decision by individuals not to own an account because of a lack of money, for cultural reasons, or when a family member already has an account. On the other hand, involuntary exclusion happens due to market failure, i.e., barriers to access to financial services such as distance, high cost, documentation requirement and lack of trust. Demirgüç-Kunt and Klapper (2012) conducted a survey of how adults in 148 economies save, borrow, make payments and manage risks. Although more adults had an account at a formal financial institution, at least 35% of them report barriers to access to financial services such as high cost, physical distance, and lack of proper documentation. Beck et al. (2008) identified the extent of barriers to banking services using survey data from 209 banks in 62 countries and found that barriers were likely to happen in countries with more stringent restrictions on bank activities and entry, less disclosure and media freedom, and poorly developed physical infrastructure.

## 2.3. Financial Inclusion and Economic Growth

Studies by King and Levine (1993) confirmed that financial intermediation had a strong long-run growth relationship, particularly there was a strong relationship between an inclusive financial system and economic growth (see, e.g. Rajan and Zingales, 1998; Beck et al., 2000; Levine et al., 2000; Khan, 2001; Demirgüç-Kunt et al., 2008).

Given that a large proportion of the world's population worldwide remains unbanked, researchers have been seeking answers by reflecting on multifaceted nature of financial inclusion. Cull et al, (2009) and Johnston and Morduch (2008) highlighted those costs and returns were highly associated with the expansion and access to financial services, while Lusardi and Mitchell (2014) emphasizing the important role of financial literacy in financial inclusion. Jappelli and Pagano (2002) underscored the importance of information sharing among lenders as an alternative way to reduce adverse selection and moral hazard. In addition, regulatory environment and the nature of financial institution have been discussed in the recent literature. For example, Jahan et al. (2019) raised the stylized fact that indiscriminatory and proper regulatory environment was highly correlated with greater financial inclusion. However, the dominance of either state or private financial institutions could affect incentives in providing financial services (World Bank, 2013, 2014b).

Several papers also highlighted both the complexity of the topic and the dangers of a simplified, prescriptive policy solution. Formal and informal barriers to financial inclusion are present around the world and operate differently across a variety of societal cleavages. Research has documented a variety of restrictions on financial access and usage, based on income, gender, age and rural/urban divides (Aslan et.al, 2017). The policy challenge is complicated by the significant risk of introducing unintended distortions when intervening in the financial system. A case in point is the possibility of having too much finance that can cause financial instability (Panizza, 2012). However, these risks need to be weighed against the macroeconomic evidence of the benefits of financial inclusion.

Existing literature examines the impacts of financial inclusion on three aspects: growth, stability, and inequality. First, Sahay et al. (2015) found that household's access to finance had a strong positive relationship with economic growth. Dabla-Norris et al.

(2015) using general equilibrium model showed that lower costs of access to financial services, relaxing collateral requirements, and thereby increasing firms' access to credit would increase growth. Buera, Kaboski, and Shin (2012) found that microfinance has positive impacts on consumption and output. Studies have shown benefits of financial inclusion and financial development. These include the benefits of stronger growth (Sahay et al., 2015; Rajan et al, 1998); reduction in inequality and poverty (Beck, Demirgüç-Kunt, and Levine, 2007); greater financial services through financial technology (He et al., 2017); better targeted government spending (Loukoianova et al., 2018); enhancing the effectiveness of monetary policies (Mehrotra and Yetman, 2014); and fostering greater financial stability under certain conditions (Han and Melecky, 2013).

However, very few papers in this literature touched on the link between trade and financial inclusion. Beck (2002), for instance, showed that financial development exerted a large causal impact on the level of both exports and the trade balance of manufactured goods.

## 2.4. Trade and Financial Inclusion Linkages

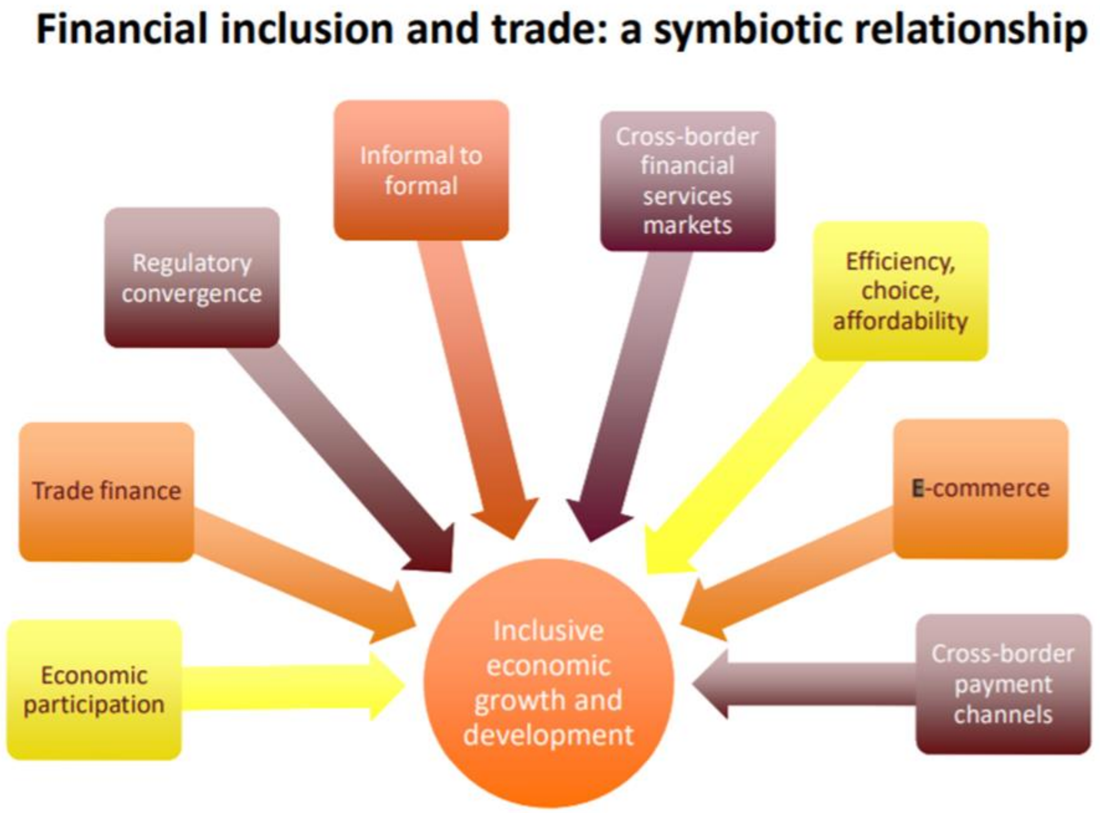
Financial inclusion and trade are widely recognized as important in promoting economic growth and poverty alleviation. Is there a link between trade and financial inclusion?

On the one hand, financial inclusion enables people and firms to participate in the economy, and therefore to trade. Small businesses, which are more likely to lack access to credit can be the growth engines for trade in many regions, especially in a digital era. However, this only works if the SMEs are financially included and actively participate in the financial markets. Financial inclusion is necessary for business growth and is an important mechanism for converting the informal activities to the formal activities. Indeed, formality is essential for businesses to be visible, be able to trade and expand beyond borders. Because businesses need access to formal financial services such as trade finance and other financial products to support their domestic and international trade, they themselves need to be formally registered. Formality also assists in data collection, improving understanding of the effects of trade and possible policy interventions. It can also improve tax and other revenue collection.

On the other hand, trade activities can encourage financial inclusion. First, as cross-border exchanges in goods and services and cross-border payments and investments occur in tandem, this suggests that trade and finance are inextricably linked therefore requiring sophisticated financial instruments, only available from formal financial institutions, to facilitate such transactions. Second, higher trade volume leads to increase demand for investments which incentivizes businesses to look for funding from financial institutions. Third, trade activities generate information on business activities which is useful for banks in providing financial services. Fourth, regulatory rules on trade and trade agreement can affect country policies on financial inclusion. For example, financial integration framework within the context of the trade agreement could help ease of capital mobility across border making it easier for businesses to access affordable financing.

Trade and financial inclusion are linked through several channels to promote inclusive and economic growth. As shown in Figure 2.1, these channels include trade financing, economic participation, regulatory convergence, cross-border payments and cross-border transfers such as remittances. Trade credits and payments, for instance, facilitate imports and exports of goods and services among countries. In addition, strict regulatory rules and unfettered access in trade agreements can affect countries' policies on financial inclusion.

**Figure 2.1: Links between Trade, Finance, and Inclusive Growth.**

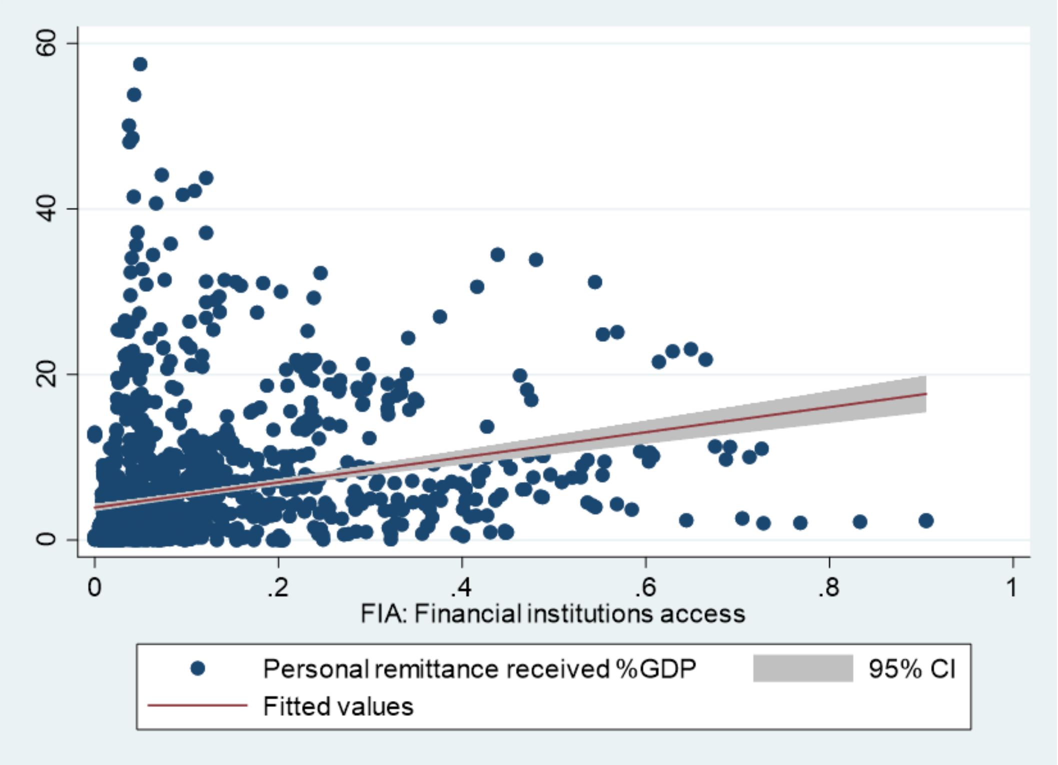



Source: Author

Increased trade in financial services can improve the efficiency, choice and affordability of financial services in a country. Clarke et.al (2006) examined firms in 35 developing countries and concluded that presence of foreign banks improved accessibility of external financing for firms. Indeed, foreign banks bring in cheaper capital and know-how to the country and forge stronger competitive environment amongst local banks, who in turn would have to diversify its customer base to the underserved population in which foreign banks are reluctant to venture into.  Furthermore, importing new and innovative fintech services has the potential to significantly increase financial inclusion. Countries in South East Asia and Africa are already leading the way on fintech solutions that are increasing inclusion and alleviating poverty. The sharing of these technologies and services across borders offers the possibility of leapfrogging to faster and deeper financial inclusion.

Trade can also support financial inclusion in other ways – the movement of people can promote the use of formal financial services for remittances, and therefore increase financial inclusion. Figure 2.2 shows a positive relationship between remittance and financial inclusion in developing countries.

**Figure 2.2: Remittance and Financial Inclusion in Developing Countries**

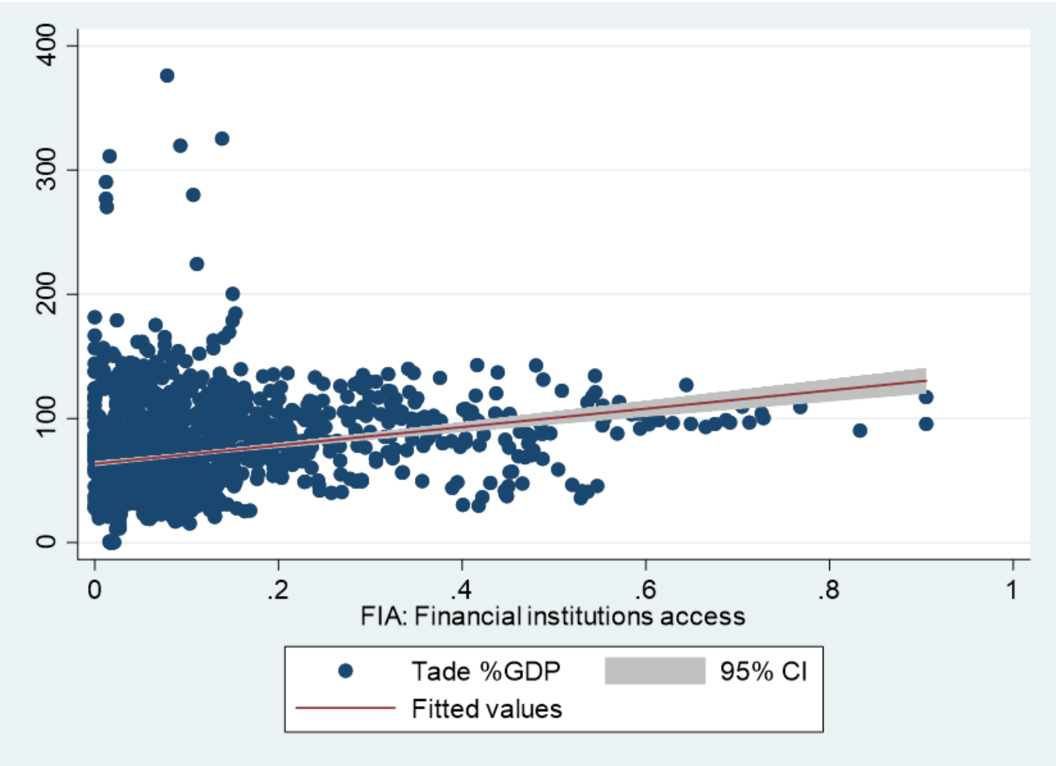



Source: Author’s estimation

To the extent trade supports regulatory convergence and mutual recognition, financial services can become simpler to navigate. Coordination between countries can also open up cross border payment channels, as well as increase the speed and reduce the cost of these payments. In other words, trade can be an important contributor to financial inclusion, though increased services and regulatory harmonization. As can be seen in Figure 2.3, trade has positive correlation with financial inclusion. This, however, does not suggest causation.

In 2016, 80% of global trade transactions required some sort of financial credit or a guarantee (WTO, 2016). This suggests that, to finance 18 trillion dollars in annual flows of trade, there is a need to have a well-functioning trade finance market of about 14 trillion dollars. This is about a quarter of the world's short-term capital movements. Around 9 trillion of this market is served by banks, the rest is inter-companies lending.

**Figure 2.3: Positive Relationship between Trade and Financial Access in Developing Countries**




Source: Author’s estimation

In 2019, the Asian Development Bank estimated that the global gap in trade finance is about $1.5 trillion. This represents the amount of trade finance that has been requested by importers and exporters but rejected by the financial sector. The World Economic

Forum estimates that the trade finance gap could widen further still, reaching 2.5 trillion dollars by 2025 as supply chains move away from China to poorer developing countries.

Such financing gap poses a significant barrier to trade. Surveys suggest that in half of the countries of the world, trade finance represents one of the top three obstacles to exporting. It is of particular concern that this gap affects developing countries and smaller businesses the most. In many developing countries, and especially in the least-developed countries, the alternatives to bank financing are scarce. When rejected by banks, the transactions is abandoned.

In ASEAN, SMEs access to finance is often cited as one of the main obstacles for SMEs development beyond SMEs status. Financing is critical for companies to increase its production, improve its research and development and expand its market beyond border.

## 2.5. Definition and Background of Financial Inclusion

Financial services can drive development by helping people escape poverty through investments in health, education, and businesses. Financial inclusion can help individuals and businesses to smooth their consumptions over time and better manage their lives and business cycles (Sarma, 2008).

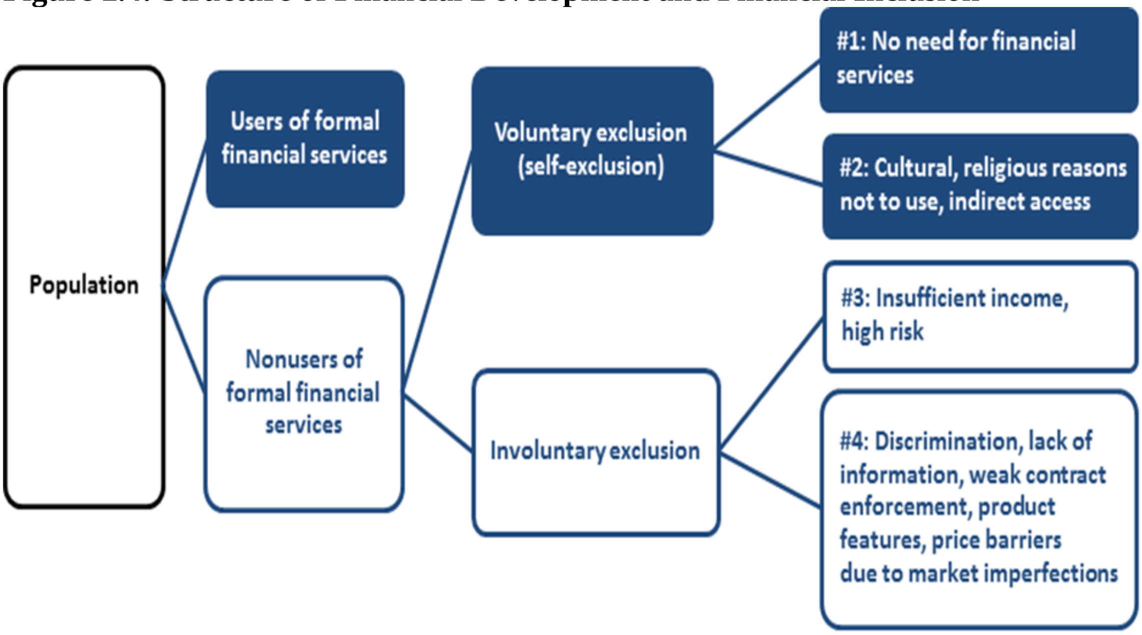
Financial inclusion holds the promise of boosting growth and reducing poverty and inequality, by mobilizing savings and providing households and firms with greater access to resources (Beck et al., 2004). In the United Nations' Sustainable Development Goals, access to financial services was identified as one of the enablers for poverty reduction/eradication. Financial inclusion has been regarded as a core of development process in developing countries and one of the main drivers that could lift the poorest and vulnerable in society out of poverty and reduce inequality. Countries have chosen diverse methods of enhancing financial inclusion with varying degrees of results. The heterogeneity of financial inclusion is particularly striking in many regions as member countries range from those that are at the cutting edge of financial technology such as Singapore to other countries in Asia and Africa that are aiming to provide access to basic financial services.

### 2.5.1. Definition of Financial Inclusion

Financial inclusion encompasses a broad range of financial services, including savings, credit, payments, and insurance, with varying degrees of priority across countries. Nevertheless, practitioners and researchers have used a widely varied definition of financial inclusion. For example, the IMF defines financial inclusion as "access to and use of formal financial services by households and firms" (Sahay et al., 2015).

The World Bank defines financial inclusion as the proportion of individuals and firms that use financial services. As shown in the following Figure 2.4, financial inclusion is typically defined as the broadening of access to and usage of financial services, particularly within segments of the population who have traditionally faced formal or informal restrictions. Following the World Bank definition, this study defines financial inclusion as having access to affordable financial services to meet one's savings, credit and insurance needs. This includes managing money, sending and receiving payments, smoothing incomes over time, borrowing and investing in businesses or education and protecting against unexpected expenses. Formal services give greater access to economic life more generally, are typically safer and often cheaper. In this regards, financial inclusion is not just about accounts – but it is the first point of access and an important indicator.

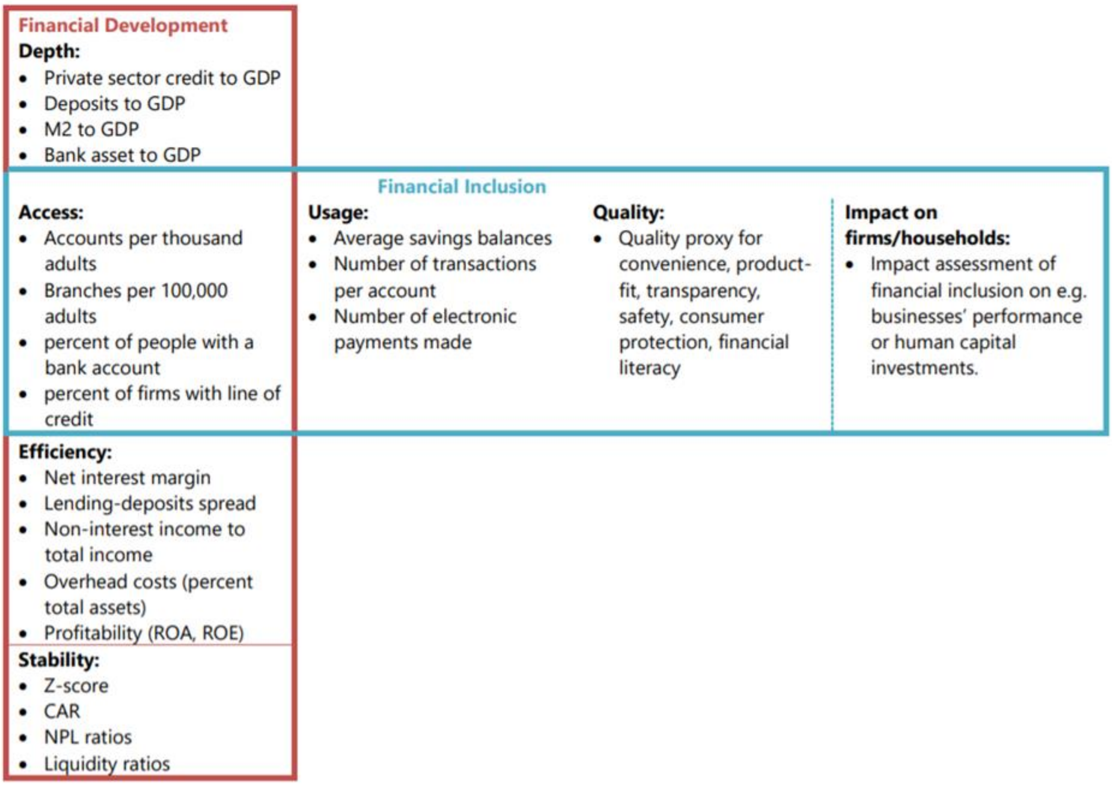
**Figure 2.4: Structure of Financial Development and Financial Inclusion**




Source: World Bank Global Financial Development Report (2014)

It should be noticed that financial inclusion can also overlap with financial development in some dimensions. While financial inclusion and financial development are crucial to economic development, often it is difficult to disentangle the two. They generally share several similarities and could well be complement to each other. Financial development is a vast concept and has several dimensions including depth, access, efficiency, and stability. It is the "access" part that financial development overlaps with financial inclusion. Box 1 illustrates the link between financial inclusion and financial development. This paper focuses on the developments of financial inclusion based on evidence from developing economies.

**Box 1. Financial Inclusion and Financial Development**




Source: World Bank

## 2.6. Technology and Financial Inclusion

The rise of Fintech has been a game changer in the way policymakers are addressing financial inclusion. With the prevalence of the technology and mobile phones, policymakers have brought financial technology to their policy agenda in order to promote financial inclusion. Such proposals have been endorsed by researchers at the World Bank, Consultative Group to Assist the Poor (CGAP), and IMF suggesting banks to make uses of technology such as mobile phones for greater financial access, especially for the poor (Claessens, 2006; Mas and Kumar, 2008; He et al., 2017). The potential for the use of mobile technology in providing financial services has a tremendous effect in transforming the lives of the poor given that it helps to reduce search cost, thereby increasing market efficiency (Aker and Mbiti, 2010; Jack and Suri, 2014).

The case of M-PESA, a mobile phone-based money transfer system in Kenya, has been used to showcase the role of technology in promoting financial inclusion. The study used combined data from a number of sources including micro-level survey data (the FinAccess surveys), transaction data from M-Pesa agents, price data from money transfer companies, and aggregate data from Safaricom and the Central Bank of Kenya, to observe the impact of the growth of mobile phone technology on the quality of life. The results suggested that M-PESA increased frequency of sending transfers and the probability of being banked. The main findings of Mbiti and Weil (2011) was in line with those of Shem et al. (2012), while using a logit model on the data from the 2006 and 2009 national financial access (FinAccess) surveys, to observe factors influencing financial service choices that households make. Shem et al. (2012) concluded that M-PESA services significantly affected financial access in Kenya. In addition, Jack and Suri (2014) who provided recent evidence on the risk smoothing effects of having access to M-PESA found that access to M-PESA improved risk-sharing by reducing transaction costs which implies household consumption was smoothening.

In India, the introduction of a biometric identification system Aadhaar made it easier for financial institutions to verify the identity of their clients therefore opening a bank account, thereby adding 300 million new bank accounts from 2014 to 2017[6]. The pace of such progress could not have been achieved without usage of technology that simplify and reduce the operating cost of both back-end and front-end services of banks.

## 2.7. Measuring Financial Inclusion

Over the past 2 decades, financial inclusion has attracted attention among researchers and policy-makers, and its indicators have been extensively measured.[7] The

[6] https://www.cgap.org/blog/india-moves-toward-universal-financial-inclusion

[7] Financial exclusion in an alternative measure of financial inclusion, where the former is referred to those processes that prevent poor and disadvantaged social groups from gaining access to the financial system (Leyshon and Thrift (1995).

indexes of financial inclusion have been constructed in accordance with how it is defined, and whether it is measured based on the supply or demand sides of the financial sector outreach.[8] On the supply side, financial inclusion often focuses on the number of accounts at formal financial institutions, namely deposit or loan accounts at commercial banks. Beck, Demirgüç-Kunt, and Martinez Peria (2007), in their first attempt, estimate financial inclusion for 99 countries using deposit and loan accounts, and present data on the number of branches and ATMs as indicative of access to financial services by households and enterprises across countries. The proxies for financial inclusion consist of loan or deposit per capita, which refers to the number of loans or deposits per 1,000 people, while the loan- or deposit-income ratio refers to the average size of loans or deposits per GDP per capita. The geographic penetration is proxied by the number of bank branches or bank ATMs per 1,000 $Km^2$, and the demographic penetration is proxied by the number of bank branches or bank ATMs per 100,000 people. However, these estimates mainly focus on the services provided by banks, neglecting financial services provided by other institutions. Honohan (2008) extended the work of Beck et al. (2007) by combining information on account numbers at both formal and semi-formal financial services, namely commercial banks, savings banks and microfinance institutions to econometrically estimate the level of financial inclusion across 160 countries.

Kendall et al. (2010), on the other hand, built a new dataset from 139 countries across the globe to measure financial access disaggregated by types of financial products and by types of institutions supplying the product—commercial banks, specialized state-run savings and development banks, banks with mutual ownership structure (such as cooperatives), and microfinance institutions. The methodology used to collect data was similar to that of Beck et al. (2007) and World Bank (2009). However, using country level proxies, such as the number of bank accounts per capita as proxies for financial inclusion, in the existing studies could have limitation (Allen et al., 2016). This is due to the fact that individuals may have multiple accounts, and the data collected from the providers of financial services are aggregated; consequently, conclusion on the financial access could be biased. Furthermore, although the information from the supply side of the providers of the financial services is accurate and uncomplicated to estimate, the accounts-based approach does not enable the researchers to capture information about account holders,

[8] For the Global Findex indicators, Demirgüç-Kunt and Klapper (2012) refer the 'access' to financial services to the supply of financial service, while the 'use' of financial service is determined by demand as well as supply.

and thus the real financial inclusion of a country. Therefore, measuring the financial inclusion underpinnings across individuals, especially the demand-driven financial deepening, could provide a better policy implication.

The indicators of financial inclusion constructed from the demand side approach, normally based on the surveys of individuals and households, have become important tools for policy decisions. The surveys have been conducted to find out whether the interviewee is a user or potential user of financial services.[9] The surveys, despite costlier, produce rich datasets and a more detailed portrait of financial access, where researchers could discover other topics such as household expenditure or labour market participation. On the global scale survey, the Global Findex database provides comprehensive datasets through nationally representative surveys of more than 150,000 adults aged 15 and above in 148 economies.[10] Based on the 2011 data from the World Bank's Global Findex database, several studies have been conducted to measure financial inclusion. Among those, Demirgüç-Kunt and Klapper (2013) analyzed the use of financial services in 148 countries by employing three main indicators of financial inclusion: ownership of a bank account, savings on a bank account, and use of bank credit.[11] The findings revealed that about 50 percent of adults worldwide are banked, that is, having an account at a formal financial institution. In a similar vein, the methodology used in this kind of measurement of financial inclusion has been applied in several studies in different countries and regions (see, e.g., Fungáčová and Weill, 2015; Allen et al., 2016; Zins and Weill, 2016).

The other individual level survey is FinScope survey, which is comprehensively designed to examine the role of individual, geographic and national characteristics in influencing the use of financial services. The FinScope survey designed to provide nationally representative information containing significant detail on individuals'

[9] The surveys on the access or the use of financial services are the Global Findex database which provides household level data for over 140 countries, FinScope surveys which has been conducted in over 30 countries across continents, including African, Latin American and Asian countries, and Eurobarometer surveys for the European countries. In addition, there have been other several country-level surveys on the use of financial services conducted in different countries including, Kenya, India, Mexico and so on.

[10] The survey has been conducted by the World Bank with funding from the Bill & Melinda Gates Foundation, and the database has been published every three years since 2011. The Global Findex database for 2011, 2014, and 2017 is publicly available on the World Bank website https://globalfindex.worldbank.org/.

[11] The ownership of an account in a formal financial institution is defined using a survey question: Do you currently have a bank account at a formal financial institution? For saving behavior, the survey question used in this case is: Have you saved or set aside money on a bank account in the past 12 months? For the third indicator concerning formal bank credit, the survey question asks whether an individual has a bank loan: Have you borrowed from a financial institution (bank, credit union or microfinance institution) in the past 12 months?

awareness and usage of different financial products and service providers, and assess whether an individual is formally, informally banked, or financially excluded.[12] By pooling FinScope surveys from eleven sub-Saharan African countries, Honohan and King (2013) examined factors influencing the decision to use formal financial services. The indicators for financial inclusion were determined by asking respondents whether they were currently using a financial product, for up to thirty different such products. Although the FinScope survey provided rich dataset and detailed information about account holders, such survey has to date been conducted in only over 30 countries and may have limitations. One problem of the data obtained from this survey was that answers from most households were mainly based on memory, so that their answers tended to present a downward bias, especially when asking specific values. While using experimental analysis to understand the comparability of financial use data generated under different question formats, Cull and Scott (2010) compared FinScope to LSMS (Living Standards Measurement Study).[13] They found that the rates of use of financial services from household use were almost identical whether the head reported on behalf of the household or whether the answers was tabulated from a full enumeration of household members. However, randomly selected informants provided a less complete picture of household use of financial services than did the other two methods – a full enumeration or household head (Cull and Scott, 2010).

Recently, researchers have challenged the way financial inclusion is measured. The concept of financial inclusion goes beyond single indicators, and multidimensional index should be taken into account (Cámara and Tuesta, 2014; Sarma, 2008, 2012, 2016). The measure of financial inclusion by using the proportion of adult population or proportion of households having access to or using formal financial services, i.e., having a bank account, could not capture all aspects of an inclusive financial system. Sarma (2016) argued that such measure could capture only one aspect (banking penetration) neglecting other important aspects of financial inclusion such as availability, quality and the usage of the financial services.[14] Despite having bank account, underbanked or marginally banked people still could not access to the banking services due to the remoteness of bank branches

[12] The FinScope surveys target respondents aged 18 years and above, while the Global Findex surveys interview adult population aged 15 years and above.
[13] LSMS finance modules track household's use of financial services, while the FinScope survey randomly selects individuals from the population to provide information only on their own use (Cull and Scott, 2010).
[14] This is consistent with Hanning (2010) who defined financial inclusion from different dimensions including access, quality, impact and usage of financial services.

or other barriers (Kempson et al., 2004).[15] Therefore, to capture various dimensions of inclusiveness of a financial system, multidimensionality of the concept of financial inclusion should be taken into account using index-based approach. The methodology to measure financial inclusion index is discussed in Appendix A.

## 2.8. Conclusion and Gaps in the Literature

Financial inclusion has attracted attention among researchers, policymakers, and other stakeholders, and become one of the most discussed topics in the economic development and growth agenda, especially among developing countries. An inclusive financial system has both private and social benefits given that the allocation of productive resources become more efficient, leading to the reduction of the cost of investment in capital and achieving the growth objectives. In addition, an increase in access to financial services also appears to be associated with poverty reduction.

However, financial exclusion is still a concern given that barriers to access to and use of financial products and services remain high, especially in developing countries. On the one hand, the voluntary exclusion, the decision by individuals not to own an account because of a lack of money, for cultural reasons, or when a family member has an account; on the other hand, involuntary that exclusion happens due to market failure, i.e., barriers to access to financial services such as distance, high costs, onerous documentation requirements and lack of trust. Recommendations have been made. With the prevalence of the technology and mobile phones penetration, policymakers have brought financial technology to their policy agendas in order to promote financial inclusion. This is because the potential use of mobile technology in providing financial services has a tremendous effect in transforming the lives of the poor given that it helps reduce search cost, thereby increasing market efficiency.

Given that financial inclusion has attracted attention among researchers and policy-makers, its indicators have been extensively measured. The reviewed studies showed that various forms of measurement have been used ranging from supply to demand sides of financial services provided by commercial banks, microfinance institutions and other financial agencies. Furthermore, recent measurements of financial inclusion focused on

[15] The underbanked or marginally banked people is defined as those who own an account but do not make adequate use of it.

multidimensional index which has been extended to the accessibility, barriers and usage of financial services (Cámara and Tuesta, 2014; Sarma, 2008, 2012, 2016). Recently, Cámara and Tuesta (2017) used supply-and-demand information to measure the extent of financial inclusion. From the demand side, authors estimated usage and barriers based on the Global Findex (2011 and 2014), while on the supply side, the measure of Access relied on the data from the Financial Access Survey (2011 and 2014) which is the annual data collected by country authorities.

However, the quality of data has been the main constrain for the measurement of financial inclusion index. For instance, the data from Financial Access Survey based on the reporting authorities may contain accounts with duplicate account holders. Some people may have more than one account at commercial banks or microfinance intuitions. This could lead to double counting. Furthermore, the Global Findex Database takes into account respondents aged 15 and above, which does not reflect the case of some countries, where the young adults under 18 years of age could not possess formal national identification and thus not eligible to apply for loans from formal financial institution. This could make the estimate of financial inclusion to be downward bias. In addition, some people may choose not to use banking services although they can easily access to those services in their regions. The issue of self-exclusiveness from financial system should be addressed in the questionnaires in order to capture the real inclusiveness in the financial system.

In addition, on the supply side, most of the methodologies that used publicly available data may neglect some of the primary proxies. Traditionally, having a bank account or ATM card, or living closer to the near bank branches were considered financially included (Sarma, 2016). However, in the context of some countries, Point Of Sell machines and payment agents should be accounted for as well to reflect an increase in popularity of electronic payment transactions. Therefore, to capture various dimensions of inclusiveness of a financial system, the aspect of payment system should be taken into account; and the method for data collection should be prudent from both demand and supply sides. Accurate measure of financial inclusion needs to take into account various dimensions including countries' specific characteristic, which are crucial in the pursuit of good policy initiatives.

# CHAPTER 3: REGIONALISM AND FINANCIAL INCLUSION IN ASEAN

## 3.1. Introduction

Economic liberalization has direct impact on economic and inclusive growth in particular through financial inclusion and integration in the domestic economy and region. In return, financial integration and financial inclusive growth have feedback effects on economic integration in enhancing the flow of capital and investments in the region. Financial integration and inclusive growth lead to better allocative efficiency, greater specialization and division of activities and labour, and more efficient risk sharing mechanisms for short-term and long-term capital flows and investments (King and Levine, 1993; Mougani, 2001 and 2006; Obstfeld, 1994; Prasad et al., 2003)

For the past two decades, the new regionalism is driving regional trade and growth (Ethier, 1998). Since 1980s, several countries have negotiated agreements to promote trade and economic cooperation, especially creating regional trade blocs including the ASEAN Economic Community (AEC). For example, the European Union (EU), formed in 1993, was built on the European Economic Community to integrate the nations of Europe into a single market and economic system. The North American Free Trade Agreement (NAFTA) was formed in 1994 to unite the United States, Canada and Mexico in a free-trade zone. On a similar notion, the heads of government of the Association of Southeast Asian Nations (ASEAN), during the meeting in Phnom Penh in November 2002, proposed the creation of an “ASEAN Economic Community - AEC” by 2020 (Plummer, 2006).

Generally speaking, the purpose of regional groupings is to increase the efficiency of exchange of goods and services in the domestic and regional markets. Reducing the barriers to trade will increase the domestic economic activities as domestic factors of production could participate in the open economy’s activities such as trade and investments. However, the domestic economy could not fully participate if there are constrains on domestic resources and lack of access to financial services by domestic investors and SMEs. Financial inclusion in an open economy is important for the domestic economy to effectively participate in open economic activities driven by regionalism.

While NAFTA and EU allow free flow of goods and services amongst its member states (with EU even adopting a common currency to avoid foreign exchange transaction costs making trade even more efficient) with binding agreements, ASEAN's AEC approach is somewhat different. For ASEAN, trade in goods and services are opening up progressively as member states structurally manage the liberalization of their economy. The premise of AEC ultimately is to attain the free flow of goods and services. With regard to capital flows, however, one of the most important production factors, there is a lack of regional consensus for open capital flows and more integrated capital markets across countries. Yet financial integration plays indispensable role in supporting trade integration, as it is one of the main factors of production. In fact, earlier studies show insignificant correlation between economic growth and financial integration (Grilli and Milesi-Ferretti, 1995; Kraay, 1998; Edison et al. (2002b).

Recent study by Ananchoutikul et.al (2015) found that financial integration in ASEAN is limited compared to the level of it trade integration. Restriction on cross border capital flow, informational asymmetries, barriers to foreign banks' entry and differences in regulatory and institutional qualities are some of the barriers cited to achieve such integration. These observations are somewhat in line with the issues that ASEAN Finance Ministers and Central Bank's Governors Meetings are addressing in their Financial Integration Initiatives. Within ASEAN economic community's ambitions, financial integration is one of the major cooperation between the ASEAN's ministries of finance and central banks. Such cooperation started since the endorsement of the Roadmap for Monetary and Financial Integration of ASEAN (RIA-Fin) at the ASEAN Finance Ministers Meeting in Manila in 2003. The roadmap lays out steps with specific timelines on three main areas, namely capital account liberalization, capital market development, and financial service liberalization.

However, common consensus is that domestic and regional financial stability should not be compromised for the sake of financial integration. This seems to suggest that financial integration should happen when there is domestic financial stability. In other word, without strong pillar of stability, financial system could be subject to external shocks and vulnerabilities due to capital account liberalization. But financial stability, at least at the domestic level requires that the system be inclusive (Morgan and Pontines, 2014; Khan, 2011; Hanning and Jansen, 2010; Prasad, 2010; Ahamed and Mallick, 2019). Access to finance by all economic agents ensures that financial intermediation in the economy is done efficiently by allocating excess capital from savings to productive industries needing of capital. For businesses, access to finance means that businesses understand financial products and services available that can accommodate their business needs. So, if it is financial stability that ASEAN is looking to achieve, then promoting financial inclusion (amongst other measures) could help expedite the process of financial integration.

By the same token, one can also argue that financial integration through harmonizing regulatory framework, reducing information asymmetry across borders, may address the symptom of the lack of integration but it will not necessarily make finance works for the people and the businesses within the region.

Integration implies free flow of capital between member states and direct it to those who need it. What if those who need it, don't have access to it? Unlike NAFTA and EU region where the level of financial inclusion is high, ASEAN's state of financial inclusion remains fragmented. According to Global Findex (2017) report, a measurement of financial inclusion in all countries in the world (with few exceptions) by the World Bank, Singapore sits at the top of the ranking with 98% of its adult population having access to finance. On the other end of the scale is Cambodia with only 22% of the population having such access. Indeed, at the micro level, the lack of financial integration could be the limited understanding on the needs of such financial services within the region. A common and major challenge for SMEs in the region is the lack to access to financial services making it difficult to grow (Yoshino and Hesary, 2016). As SMEs are the backbone of the ASEAN economy, addressing this challenge will allow SMEs to better contribute to the overall economy of the region.

This chapter will discuss ASEAN financial integration process and structure in line with regional integration of economic and financial structure. The first section will provide a brief literature review on role of finance in the context of regional integration. The second section will describe the existing institutional arrangements within ASEAN to achieve its financial integration goal. The third section will discuss the importance of financial inclusion in ASEAN in order to maintain financial stability and achieve financial and trade integration in the region. The policy discussions are given at section 4.

## 3.2. Literature review

### 3.2.1. Regionalism, Financial integration and Inclusion

Regionalism initiatives were formed as early as midst seventeenth century when certain provinces in France proposed an arrangement of a customs union in 1664, eventually later in 18th and 19th centuries Austria entered free trade agreements with its five neighboring countries (Schiff and Winters, 2003 p.4). The momentum of regional integration continued as observed by the increase in the number of regional trade agreements, but its pace slowed during the Great Recession when there was tremendous slump in demand. Nonetheless, the interest was renewed with the unprecedented concessions such as equal treatment for all trading partners (nondiscrimination), which formed the fundamental ground that contributed to the rebuilding of Europe through the establishment of Belenux customs union in 1947, the European Coal and Steel Community (ECSC) in 1951 and the European Economic Community (ECC) in 1957. Over the years, several other regional integration successes emerged that included Canada-United States Free Trade Agreements in 1988 later evolved to North America's Free Trade Agreement (NAFTA) in 1994, the Common Market of the South (MERCOSUR) in 1991, the Association of South-East Asian (ASEAN) Free Trade Agreement in 1991, ASEAN+3, ASEAN+6, ASEAN Economic Community (AEC) in 2015 and several others.

**Figure 3.1: Key trading blocs around the globe**


Note: SCO: Shanghai Cooperation Organization; AL: Arab League; AU: African Union; CAIS: Central American Integration System; UNASUR: Union of South American Nations; SAARC: South Asian Association for Regional Cooperation; PIF: Pacific Islands Forum
Source: https://mrshearingbusinessstudies.weebly.com/415-trading-blocs.html

There are multiple underlying motives as to why countries enter regional integration in particular, trade related agreements. For one, regionalism is less risky than surrendering one's economic independence to the global markets made of 150 nations. It allows countries to select trading partners that would maximize economic benefits (Moon, 2000 pp. 263-264). Second, utilizing the regional agreements allows country to benefit in committing domestic policies to better international policies, having more secure access to major international markets, acquiring new technologies and more investment, to attain production efficiency through scale propelled by extended market access and adoption of new technology (Schiff and Winters, 2003 p.6-9).

Regional trade integration has been utilized by many developing countries as a mean to promote growth and reduce poverty and inequality as set out in the United Nations' Sustainable Development Goals (SDGs Targets 17.10, 17.11 and 17.12) (UNCTAD, 2019).

Holding these sets of motivations most countries around the world enter various forms of regional integration agreements, be it bilateral, multilateral, or the world at large. During the last two decades progresses has been made in terms of deepening the agreement to include other areas such as financial sector liberalization and investments by blocs such as the European Community, ASEAN Economic Community (AEC), NAFTA, among others.

It is worth noting that regional trade integration without financial integration, is incomplete as cross-border exchange in goods and services and cross-border payments and investments occur in tandem, which obviously suggests that trade and financial integrations are inextricably linked. Higher trade volume leads to the increase in the demand for investment which incentivizes countries engaging in trade to pursue a more integrated financial system. Ease of capital mobility across borders makes it easy to relocate production base to countries where cost of production is lower. As such financial integration helps smooth the flow of cross-border trade through easier access to necessary financing and risk management tools (DIR, 2015 p.1). As trade increases, so are the use of trade related financing products and services fostering foreign direct investment (FDI) in export-oriented sectors (Rose and Spiegel, 2004).

Contribution of financial integration to long-term economic and inclusive growth remains inconclusive. Studies by Grilli and Milesi-Ferretti (1995), Kraay (1998), and Edison et al. (2002b) found no strong correlation between economic growth and financial integration. In contrast, other studies show that financial integration bring in economic benefits by allowing more financing options and reduce costs of funding to firms (Lucey, 2010).

When discussing stages of economic integration, one usually refers to the theoretical five stages of integration postulated by Balassa (1961). The stages are in order of level of deepening as follows: i) Free Trade Area (FTA) having the aim to remove intra-regional tariffs and quotas; ii) Common Union (CU) aims at creating common external tariffs (CET) set by an established supranational institution; iii) Common Market (CM) having further agenda of abolishing impediments on movements of goods and services; iv) Economic Union (EU) being a CM with some level of harmonization economic policies amongst member states aiming at abolishing discrimination and disparities in member states' policies; and v) the total Economic Integration having a unified monetary, fiscal, social and counter cyclical policies and establishment of a supranational authority that made binding decision for member states to comply (Balassa, 1961 cited in DIR, 2005 p.3). In practice, not all regional trade blocs such as the EU and ASEAN Economic Community (AEC) follow perfectly the theoretical definition of each group of the integration, while the development of financial integration and financial inclusion, also progresses in different stages of economic integration.

Financial integration is a broad term and with no commonly accepted definition and measurement. Financial integration is defined differently depending on specific context. In the ECB's Occasional Paper (Baele et al., 2004), a fully integrated financial market is a market where participants with similar characteristics would deal with a single set of rules, have equal access, and be treated on par when they engaged in financial instruments and/or services in that particular market. In some other literatures, financial integration is defined as the rule based on the law of one price, where financial assets yielding the same cash flow should cost the same regardless of where the transactions take place (Baele et al., 2004).

Although an ideal measurement of financial integration is the bilateral capital flows between countries, data on such bilateral flows are, in most circumstances, not available. Consequently, only indirect data are used to estimate the level of financial integration of the country. According to the literature, three approaches, namely volume-based (country's holding of external assets and liabilities), price-based (cross-border convergence in asset prices) and risk-sharing (country's consumption co-movements with integrating international financial market), of measuring level of international asset cross-holdings are used to evaluate the level of international financial integration of country (DIR, 2005).

Financial integration enhances well beings of firms and households by allowing the smoothening of consumption over times, enabling risk sharing, and improve productivity growth (Papaioannou, Kalemli-Ozcan, & Peydro, 2009). The empirical investigation by Kalemli-Ozcan et al. (2001) also showed that risk sharing across regions as a result of financial integration would increase the diversity and availability of financial instruments as well as the cross-holding of assets, and thus, contribute to enhancing specialization in production as high-risk projects are able to be financed through free capital flow. Moreover, the presence of foreign regional banks increases the efficiency of local banks, create markets segmentation and discipline of local banks whereby increase access to finance. Foreign banks are selective on the type of their customers looking for more profitable and transparent ones.

Similarly, other studies also pointed out that financial integration enables efficient allocation of scarce resources, diversification of risks, technology innovation, increases specialization in production, contributes to the development of the financial system and improves investment rates and boost growth (see, e.g., Edison, Klein, Ricci & Sløk, 2002a, 2000b; Henry, 2000; King and Levine, 1993; Mougani, 2001 and 2006; Obstfeld, 1994; Prasad et al., 2003; Stulz, 1999). The improvement in capital allocation is viewed as the result of the elimination of barriers to trading, clearing and settlement platform which is brought about by financial integration (Baele et al., 2004).

Bagehot (1873) argued that financial system contributes positively to England's industrialization by enabling the mobilization of capital for big projects. Recent studies have validated the positive impact of financial markets liberalization on economic growth (King and Levine, 1993; Thornton, 1994; Gregorio and Guidotti, 1995; Berthelemy and Varoudakis, 1996; Greenwood and Bruce, 1997; Greenwood and Smith, 1997; Blackburn and Hung, 1998; Rajan and Zingales, 1998; Beck et al. 2000; Kirkpatrick, 2000; Fase and Abma, 2003; Beck and Levine, 2004; Craigwell et. al. 2001; Ang, 2008; Fung 2009; Kar et al. 2011; Murinde, 2012; Pradhan, 2013; Hsueh et al. 2013; Herwartz and Walle, 2014; Uddin et al., 2014; Menyah et al., 2014).

The linkage between financial integration and economic growth can be clearly explained through the channel of financial sector development. Giannetti (2002) pointed out that freer flows of funds will induce more competition within less developed countries and therefore deepening their financial markets, improving allocative efficiency in the system, and reducing the intermediation costs. With strong evidence to support the link between financial development and economic growth (Levine, 1997), the contribution of financial integration to greater financial development plays an extremely important role. Financial system plays important role in supporting economic growth through capital and technological accumulation.

Furthermore, financial integration has positive impact on economic growth via increasing intraregional trade (Poonpatpibul et al., 2006). In addition, Shin and Yang (2006) find that financial integration boosts trade integration.

Almerkinders et al. (2015) suggested that a country's financial integration tends to increase with its degree of trade integration. They showed that intra-ASEAN trade went up by about four times between 2000 and 2013, while share of intra-ASEAN trade in total ASEAN trade rose from 21% in 2000 to 23% in 2013. During this period these countries made substantial efforts to liberalize and expand the scope and depth of their financial systems in response to the deepening ASEAN trade integration (Almerkinders et al. 2015), which is also shown in Montanes and Schmukler (2018) for East Asia and the Pacific. It is however important to note that level of financial integration in Asia, as well as East Asia and the Pacific regions, remains lower than its integration with countries outside the regions, which contradicts the trend in trade (Pongsaparn and Unteroberdoerster, 2011; Llvoet, Montanes and Schmukler, 2018).

Despite the increasing trend, Poonpatpibul et al., (2006) argued that financial integration within East Asia lags behind integration with developed economies. Furthermore, based on Asian Development Bank's Asian Economic Integration Report 2018, financial integration still lags far behind trade integration although it continues to increase gradually in the region. Similarly, Rillo (2018) noted that although financial integration has increased over the years trade integration in Asia somehow lagged behind. Indeed, while 60 percent of trade flows in Asia are within the region, only 20 percent of financial transaction flows are directed at the region based on Asian Development Bank's Asian Economic Integration Report 2016. From this argument, it is not clear whether having integrated financial system promotes trade integration or trade integration (economic integration) promotes financial integration.

### 3.2.3. Financial integration and financial inclusion in ASEAN

The phenomena of financial integration have significantly intensified during the 1980s and 1990s. Seen in the Association of Southeast Asian Nations (ASEAN) region, along with other regions such as Central America and the Commonwealth of Independent States, these integrations have increased dramatically, particularly after the global financial crises. A key factor promoting financial integration has been the increased globalization of investments chasing higher yields and diversifying risks. To take advantages from this process, many countries have encouraged capital inflows through

FDIs and other forms of investments by eliminating restrictions, liberalizing domestic financial markets, and improving their economic fundamentals (Agénor, 2003).

In the literature of financial integration, many papers have documented such impact on financial inclusion in the region. The presence of foreign banks is positively linked with financial inclusion at country level. Leon and Zins (2019) in the case study of Africa, find that the presence of foreign banks increase access to financial services for both household and firms and conclude that the presence of regional foreign banks improve financial inclusion in the host country. However, there are two caveats: a) regional banks do not target the poor or opaque segment of the markets, but this strategy creates a market segmentation where we can observe domestic banks shifting their focus on this segment instead, and b) financial inclusion agenda should be cautiously promoted.

Examining progress and prospects of ASEAN financial integration, Almekinders et al. (2015) stressed that financial integration can play key part in the development of financial sector in ASEAN through product innovation which ultimately promotes growth, employment and financial inclusion in ASEAN. Similarly, investigating regional and interregional financial integration in East Asia and the Pacific, Llovet Montanes and Schmukler (2018) found that increasing regional financial integration could promote financial inclusion, specifically in previously underserved segments of the population given that information and transaction costs are lower across the border.

Within the ASEAN financial integration’s effort, there are 4 key pillars: (a) harmonization of regulations, (b) financial inclusion, (c) capacity building, and (d) financial stability. Such efforts are met with progress albeit slow. Financial development is rapid, and its contagions can be so fast that regulators are very cautious in its move to liberalize and leave it out of their control.

Financial services contribute to economic development by helping people escape poverty through investment in health, education, and business. Financial inclusion, defined as access to and use of formal financial services, hold the premise of boosting growth and reducing poverty and inequality, by mobilizing savings and providing households and firms with greater access to scarce resources (Beck et al., 2004). Growing body of studies highlights the many potential development benefits such as risk management and consumption smoothing from the use of digital financial services including mobile money transfer and other financial technology application. In the United Nations’ Sustainable Development Goals, access to financial services was identified as one of the enablers for poverty reduction/eradication.

However, despite the progress over the past decade, 1.7 billion people or about 31% of world adult population are still unbanked, according to the World Bank's Global Findex Database. Such gaps prompted policymakers in more than 60 countries to set formal target for financial inclusion. Defined as access to useful and affordable financial products and services that meet the needs of individuals and businesses – transactions, payments, savings, credit and insurance – delivered in a responsible and sustainable way, financial inclusion is the most recent item to be added explicitly to the social inclusion agenda (World Bank, 2018). For the past decade, the development of national financial inclusion strategies in many countries were observed, along with efforts to regulate microfinance institutions to better protect the users of their services (ADBI, 2014).

Indeed, financial inclusion is becoming an important agenda (if not instrumental) to address a country's economic growth, reduce inequality and decrease overall national poverty rates. Access to finance has become as essential policy for national and global policy makers to enhance economic growth and stability.

Finance and growth go hand in hand. As real economic activities increase, financial sector develops in response to increasing demands for its services. At the same time, finance can also lead to higher growth as it mobilizes saving and intermediation of those savings, reduces information asymmetry, improves resource allocation and risk management (Levine, 2005). Impediments to financial development are likely to hamper growth. By the same token, financial repression limits the amount of savings that could be intermediated to productive investments (McKinnon, 1973; Shaw, 1973).

In empirical studies, establishing the causality from finance to growth has been inconclusive. In a cross-country analysis, King and Levine (1993) found that initial level of financial depth (approximated by credit to GDP), could predict subsequent economic growth rate over extended periods. In the 2000s, the empirical studies further evolved with new method such as dynamic panel techniques, using lagged values of the financial variables as instrument and controlling for other determinants of growth (see, for example, Beck and Levine, 2004). Recent studies suggested that the contribution of financial development to growth vary across regions, countries, and income levels (Barajas et al., 2013; Nili and Rastad, 2007). Higher frequency of banking crises contributed to the weakened finance-growth link (Rousseau and Wachtel, 2011). Several other studies also pointed to the evidence of "too much finance", i.e., there is a point beyond which additional development could actually reduce growth (Arcand et al., 2012). Sahay et al. (2015) found that the effect of financial development on growth is bell-shaped, i.e., the link weakens at higher financial development. They also established that the weakening effect stems from financial deepening (i.e., credit growth) rather than access and efficiency. Based on sector-level data in 41 economies, Aizenman et al. (2015) also showed that finance increases growth but only up to a certain level.

The speed of financial development has important implications for financial stability. When credit growth is excessive, for instance, it can lead to poor quality of credit and thus economic and financial instability (Sahay et al., 2015). Ceccheti and Kharroubi (2015) identified the adverse impacts on resource allocation and on the crowding out of human capital away from the real sector when financial sector expands rapidly. Similarly, Dabla-Norris et al. (2015) showed that before the 2008 global financial crisis, financial resources in advanced economies were being channeled toward the financial sector away from more productive sectors. Rajan (2005) focused on the dangers of financial development that leads to large and complicated financial systems which could lead to a "catastrophic meltdown".

The empirical evidence and views on the link between finance and economic stability are mixed. On the one hand, financial development can reduce volatility by addressing frictions/informational asymmetries (Bernanke et al., 1999). Financial development can also promote risk-sharing, which reduces financial constraints, and improves the ability of firms and household to absorb shocks and smooth consumption and investments. On the other hand, however, finance can increase economic and financial volatility by encouraging greater risk-taking and leverage, especially when the quality of supervision and regulation does not keep up with the speed of financial development.

Recent evidence suggested that economic growth is not as inclusive to large segment of the economy, as certain vulnerable groups such as gender, older workers, SMEs, etc. are not able to participate in the economic development of the economy. It identified financial inclusion as one of the key factors for lack of inclusive growth in domestic economy. With certain vulnerable population being excluded from access to finance, there is a potential loss of deposits or savings, investible funds capable of enhancing credit creation and capital accumulation, which results in loss of capacity of the economy to generate socio-economic development. Eliminating of barriers to financial inclusion can directly affect productivity and GDP growth by facilitating resource allocation and more efficient financial contracting. This in turn can result in more commercial activities and new start-ups that increase aggregate output. But the extent of such impacts greatly depends of the specific country level conditions; as such, in depth understanding of the country's specificity is crucial to maximize the impacts of financial inclusion in formulating policy. Financial service is a mean to an end, therefore financial development must take into account vulnerabilities and avoid possible unintended negative consequences. Access and usage of affordable and efficient financial services can improve people living standard, increase economic activities, and improve efficient delivery of other social benefits and overall enabling the achievement of Sustainable Development Goals 2030 Agenda.

Large body of literature showed the benefits of financial inclusion or access to finance. For instance, having access to savings is associated with increased savings (Aportela, 1999; Ashraf, Karlan and Yin, 2006), increased productive investments and consumption (Dupas and Robinson, 2013) and empowerment of women (Ashraf, Karlan and Yin, 2010). When access is extended to a broader segment of the population, particularly the poor, vulnerable and disadvantaged, these people no longer have to rely on their own sources of finance and face with both common and individual shocks (Demirgüç-Kunt and Klapper, 2013).

Nevertheless, the evidence of the benefits of credit, microcredit in particular, is mixed. Pitt and Khandker (1998) examined the impacts of microcredit provided by three microfinance institutions in Bangladesh and found that microcredit increased household consumption, assets, labor supply and children's schooling. However, Morduch (1998) questioned the paper's empirical strategy. Augsburg et al. (2015) looked at the impact of microcredit in Bosnia and Herzegovina and showed that microcredit increased self-employment activity and business ownership, but reduced consumptions and savings. Along the same line, Banerjee et al. (2015) assessed the group-lending microcredit program to find that the program led to increase in new entrepreneurial activities and profitability of these businesses, but did not increase consumption, education, health or women's empowerment.

With the vision of advancing financial inclusion in the region, ASEAN desires to achieve increased financial access, usage and quality of financial services to all as the outcome, while two quantified objectives have seen identified to reach by 2025, including the reduction of average financial exclusion level for ASEAN region from 44% to 30% and enhanced readiness of financial inclusion infrastructure from 70% to 85%. These objectives could be accomplished through 4 policy actions and key focus areas, such as (1) supporting national financial inclusion strategy & implementation plan, (2) elevating capacity building of ASEAN member states to enhance financial inclusion ecosystem, (3) promoting innovative financial inclusion via digital platforms, and (4) increasing awareness on financial education and consumer protection.

Existing studies showed that there is a wide disparity of financial inclusion among countries in Asia (Ayyagari and Beck, 2015) and Asia and the Pacific (Jahan et al., 2019), and such disparity tends to persist suggesting that considerable efforts from each country are required to narrow the gaps. A number of studies showed that per capita income, good governance, quality of institutions, availability of information and regulatory environment were key factors affecting financial inclusion at country level (Allen et al., 2016; Rojas-Suarez, 2010; Park and Mercado, 2015). Addressing these factors by, for instance, improving the standard of living of the people and the quality of governance and financial institutions could lead to gradual reduction in the regional gap of the financial inclusion. Other factors found to be barriers to access to financial services comprise lack of money, geographic access, fixed cost associated with opening and maintaining an account, dominance of state financial institutions that distort incentives, dominance of private financial institutions that that are driven by short term profit maximization (Ayyagari and Beck, 2015; World Bank, 2013, 2014b).

Studies using micro data at individual level confirmed other determinants of financial inclusion, such as gender, age, education level or literacy rate, income level, and employment status. For instance, Fungáčová and Weil (2016) documented evidence for Asia; Udding et al. (2017) for Bangladesh; Zins and Weill (2016) for 37 African countries; Soumaré et al. (2016) for Central and West Africa; Tuesta et al. (2015) for Argentina; Musa et al. (2015) for Nigeria; Akudugu (2013) for Ghana; and Abel et al. (2018) for Zimbabwe. Additionally, Morgan and Long (2019) used nationally representative survey of adults in 2016 and found that financial literacy was also an important determinant of financial inclusion in Cambodia and Vietnam. Despite a wide array of factors found to influence financial inclusion in Asia and the Pacific, addressing all of them at once in every country does not guaranty the success of countrywide and regional inclusiveness of financial system given the heterogeneity in country-specific factors (Jahan et al., 2019). Therefore, policymakers have to carefully take into account their respective country-specific factors when introducing interventions that aim at tackling those determinants.

## 3.3. ASEAN Financial Integration framework: Foundation for Financial Inclusion

### 3.3.1. Institutional arrangement

Association of South East Asian Nations (ASEAN) was established in 1967 with 5 founding members: Indonesia, Malaysia, Philippines, Singapore and Thailand. This regional grouping eventually grew to include five other members from the South East Asian nations, with Cambodia becoming the last of the 10 members to join in 1999. In 2003, a consensus among ASEAN member on the establishment of ASEAN Economic Community (AEC) by 2020 was reached, while a Blueprint for an integrated AEC by 2015 was agreed by ASEAN leaders in 2007 (Almekinders et al., 2015). Another Blueprint for AEC 2025 was later developed to replace the AEC 2015 aiming at making ASEAN members more integrated economically and financially.

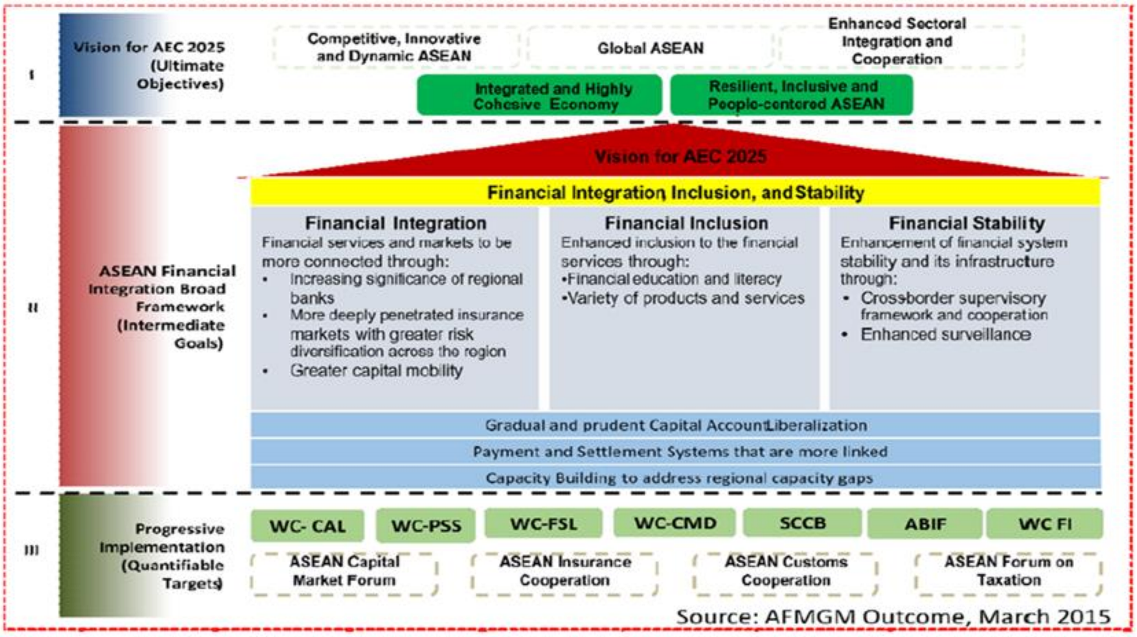
Through the many cooperation that ASEAN has with each other, financial integration is one of the main pillars of AEC: free flow of goods, free flow of services and freer flow of capital. The vision of ASEAN financial integration under the new AEC Blueprint is that ASEAN aims to achieve an integrated regional financial system with highly open capital account and interconnected capital markets.

Under the leadership of respective countries financial regulators many initiatives were established and undertaken. The ASEAN Minister of Finance (AFMM) and ASEAN central bank governors' meetings (ACBM) take place on an annual basis with chairmanship rotating amongst the members. At each meeting the ministers and governors decide on important initiatives with the purpose of integrating the regional financial system proposed by the technical working group. Since 2015, the joint meetings of AFMM and ACBM have been conducted to improve the coordination and effectiveness of the implementations of various initiatives and set comprehensive policies to enhance regional financial integration.

The vision of financial integration is realized through the implementation of three strategic objectives: (a) financial integration, (b) financial inclusion, and (c) financial stability. The objectives of financial integration are targeted over three other cross-cutting areas, namely Capital Account Liberalization, Payment and Settlement Systems, and Capacity Building. Financial integration aims at facilitating intra-ASEAN trade and investment through increase in the role of ASEAN banks and deeper integration of insurance and capital markets, whereas financial inclusion is promoted via increase in outreach of financial products and services to all underserved communities.

Finally, financial stability objective has to be collectively ensured by ASEAN member states through enhanced surveillance and cooperation, especially when in regional financial stress. Strategic action plans of financial integration for 2016-2025 for these three pillars of the financial integration had also been developed and approved by the ASEAN Finance Ministers' and Central Bank Governors' Joint Meeting in April 2016 (ASEAN, 2019c). Key performance indicators had also been developed and endorsed on April 7, 2017 to monitor progress of implementation, impacts and outcomes.

**Figure 3.2 AEC 2025 vision on Financial Integration**




Source: Adapted from AFMGM Outcome (2015)

ASEAN Central Bank Senior Level Committee (SLC) which was established in 2011 is comprised of deputy central bank governors or senior central bank officials and chair or co-chair and is in charge of planning and guiding the implementation of ASEAN Financial Integration Framework (AFIF). Currently, the National Bank of Cambodia and Central Bank of Malaysia are co-chairs of this committee. The committee consists of six Working Committees (WC) and one Steering Committee for Capacity Building (SCCB). The working committees are on i) Financial Service Liberalization (WC-FSL), ii) Capital Market Development (WC-CMD), iii) Capital Account Liberalization (WC-CAL), iv) Payment and Settlement Systems (WC-PSS), and v) ASEAN Banking Integration Framework (ABIF), vi) Financial Inclusion (WC-FI).

***a. Working Committee on Capital Account Liberalization (WC-CAL)***

WC-CAL monitors the implementation of priority actions to achieve freer capital flow in the region by gradually eliminating restrictions in the current account, foreign direct investments, portfolio investments and other flows as set out in the ASEAN Economic Community (AEC) Blueprint. Policy dialogue within the working committee allows members to monitor the trend in capital flow and exchange experiences on capital flow management, with the goal of assisting members in formulating policies to maintain financial stability in the region. The areas covered by the WC-CAL includes define and refine capital account safeguards measures for the region, encouraging local currency settlement amongst member countries. Some existing initiative include ASEAN Bond Market Initiative (ABMI).

***b. Working Committee on Payment and Settlement System (WC-PSS)***

WC-PSS endorsed by ASEAN central bank governors in April 2010 to focus on policy, legal frameworks, instruments, institutions, and market infrastructure. Its primary objective is to arrive at ASEAN "payment system that is safe, innovative, competitive, efficient and more interconnected through adoption of international standards, bilateral/multilateral payment system linkages as well as developing settlement infrastructure for cross-border trade, remittance, retail payment system and capital market"[16]. The working group also serves as a capacity development platform for ASEAN member states (AMS) in order to narrow gap in payment system capacity among ASEAN members.

***c. Working Committee on ASEAN Banking Integration Framework (WC-ABIF)***

WC-ABIF endorsed by ASEAN central bank governors aims to achieve liberalization of banking sector within ASEAN by 2020. It facilitates banking integration process in ASEAN and outlines initiatives to harmonize the banking industry regulatory framework and cooperation and financial stability arrangement. In this regards the status of Qualified ASEAN Banks (QABs) was created with specific criteria agreed by member countries. The creation of QABs aim to provide qualified institutions with equal treatment as domestic institutions by the host countries as mutually agreed between a host and home

[16] www.asean.org

country under the bilateral reciprocal arrangements under the ABIF. The working committee provides also the opportunity to AMS to monitor and report progress of all arrangements under the ABIF and to share their respective key performance indicators (KPIs) of financial institutions to track KPIs of financial stability in the region. The dialogue also reduces the Basel Core Principles (BCPs) which are necessary for the establishment of QABs. Collective efforts on surveying financial institutions on supervisory and crisis management recovery and resolution arrangements is also a core task of the working group, which is important for AMS to prepare for any unanticipated shocks that may arise.

***d. Working Committee on Financial Services Liberalization (WC-FSL)***

The mandate of WC-FSL is more extended than ABIF as focuses on liberalization not only banking but also insurance sectors. The working group negotiates commitments on Financial Services under ASEAN Agreement on Services (AFAS) and ASEAN Trade in Services Framework Agreement on Services (ATISA). It facilitates the progressive elimination of barriers on ASEAN banks, insurance companies and investment companies that provide financial services in ASEAN. Representatives meet and negotiate on type of financial services and time frame for liberalization. The negotiation also takes into account the readiness of the member country. In banking sector, QABs investing in a host country shall be treated equally as domestic banks in this host country. To expedite the liberalization process of insurance, initiatives such as ASEAN Insurance Forum (AIFo) and ASEAN Immigration Intelligence Forum (AIIF) have been established in recent years.

***e. Working Committee on Capital Market Development (WC-CMD)***

WC-CMD aims to enable ASEAN issuers and investors to access cross-border ASEAN equity and bond markets through integrated access, clearing, custody, and settlement systems and arrangements[17]. Through this committee ASEAN Bond Market Development Scorecard has been developed as a mechanism to monitor bond market development and regulatory regimes, while other contributions to the ASEAN capital market development include the provision of bond market benchmarks at regular intervals, post-trade bond prices and retail investor access to purchase government bonds and the adoption of ASEAN Debt Securities Standards. This dialogue process also allows for the

[17] Finance Ministers' joint statement at 19th ASEAN Finance Ministers' Meeting (AFMM)

establishment of the working groups on sustainable (green) finance and infrastructure finance to support infrastructure finance in ASEAN.

***f. Working Committee on Financial Inclusion (WC-FI)***

WC-FI was endorsed by the ASEAN Finance Ministers and Central Bank Governors in April 2016. Its primary objective is to promote and advance financial inclusion agenda in ASEAN. The ASEAN Financial Inclusion Framework was adopted in 2016 with four objectives: 1) support national financial inclusion strategy and implementation plan; 2) elevate capacity building of members to enhance financial inclusion ecosystem; 3) promote innovative financial inclusion through digital platforms; 4) and increase awareness on financial inclusion and consumer protection. Additionally, two guidance notes, i.e. Digital Financial Service and Financial Education & Consumer Protection, have been developed by the working committee in order to operationalize the ASEAN Financial Inclusion Framework. Equipped with the guidance notes, some ASMs, including Cambodia, have already produced their national financial inclusion strategy or blueprint. Importantly, in addition to the continued capacity building programs provided to AMS, knowledge repository portal on financial inclusion (www.aseanwcfinc.com) has also been developed.

***g. Steering Committee for Capacity Building (SCCB)***

SCCB provides guide on the implementation of capacity building to member nations, particularly Brunei Darussalam, Cambodia, Lao PDR, Myanmar and Vietnam (BCLMV), to narrow development gaps among AMS and better implement the AFIF together. It coordinates the matching of capacity building needs and possible suppliers (e.g. subject matter experts/speakers); development of learning programs for specific financial integration areas; and identification of funding needs. The Asian Development Bank (ADB) and the South East Asian Central Banks (SEACEN) Research and Training Center are key supporters in both expertise and funding, and they currently co-chair the committee.

The working committees' dialogue based on end goals, policy actions, targets, milestones and time frame set out in the AEC Strategic Action Plans for Financial Integration 2016-2025. In order to enhance and deepen the integration process ASEAN also has its surveillance process (ASEAN Surveillance Process: ASP) in order to regularly monitor progress, impacts and outcomes of the implementation. Such surveillance mechanism started in 1999 and provided opportunity to senior central bank and finance officers and finance ministers to review and exchange views on recent economic developments and policy issues in ASEAN. In May 2010 high-level finance and macroeconomic surveillance office was established at ASEAN Secretariat and was known as Macroeconomic and Finance Surveillance Office (MFSO), which started its operation in June 2010. The office was later renamed as the ASEAN Integration Monitoring Office (AIMO) on April 8, 2011.

## 3.4. Policy Discussion: Financial Inclusion, Financial Stability and Financial integration in ASEAN

Financial integration is the ultimate objective of ASEAN in order to support the ASEAN Economic Community's vision with shared destiny. However, to achieve this objective, ASEAN financial system on a regional level as well as at the household level, needs to be stable to facilitate the flow of the capital across the border while limiting contagion effect. But stability could be achieved when the financial system is inclusive. In ASEAN, about 260 million adult populations are unbanked and 45 million SMEs could not access to finance due to diverse reasons (Global Findex, 2014; Malaysia's Financial Inclusion Demand Side Survey). In order to accelerate the financial integration, financial inclusion within the region has been on the top agenda for the ASEAN policymakers. In this context, AFMM and ACBM meeting in 2015 approved the establishment of a working committee to deliberate and coordinate initiatives to enhance financial inclusion in the region.

Indeed, financial inclusion is considered as one of the key catalysts of financial integration as it enhances access to cross-border remittances to support regional labour mobility, while enabling better access to finance for SMEs to grow. Indeed, financing is often cited as one of the main barriers to SMEs development. While an open market where goods and services are flowing freely across borders broadens market access, SMEs without access to or adequate funding could find themselves out of competition.

Furthermore, financial inclusion promotes financial integration through financial stability as the later would enhance the resilience of financial system and thus provides comfort for member countries to increase openness of the financial sector. Numerous studies showed positive relationship between financial inclusion and financial stability. According to Khan (2011) financial stability could not be achieve without financial inclusion. This is due to the fact that inclusive financial system breaks the concentration of deposit base and credit from certain groups and industries to wider economic agents both at households and firm level. A wider customer base allows greater diversification of risks and renders financial system more resilience to shocks.  Han and Melecky (2013) showed that wider customers' deposit-base tends to be less volatile during economic downturns, effectively enhancing the resilience of bank funding. They found that a 10 percent increase in the share of people that have access to bank deposits can reduce the drop of deposit growth (or deposit withdrawal rates) by 3 to 8 percentage points.

However, the positive effects of financial inclusion on financial stability are not automatic. It requires other catalysts such as financial literacy, credit information sharing and customer protection mechanism. Čihák, Mare and Melecky (2016) argued that financial literacy plays important role in promoting responsible use and provision of financial services that could in turn contributes to strengthening financial stability. In addition, the role of an efficient credit information sharing system is important in managing and mitigating financial sector's credit risks.

ASEAN is a grouping of 10 nations with wide disparity in term of populations size, economic development and financial sector development. In term of financial inclusion, member countries achieve different level of inclusion. Achieving financial integration that will support ASEAN's Economic Community ambition requires member countries to be cautious in its approach. Capital account liberalization can put the country financial stability vulnerable to external shock. In this regard, consideration to financial stability should also be emphasized. In turn, an inclusive financial system a least at the domestic level can contribute to financial stability.  Although further studies are needed to assess the sequencing amongst financial inclusion, financial stability and financial integration, giving priority to financial inclusion - at least at the domestic - clearly stand out for the poverty reduction and inclusive growth purposes.

Achieving inclusive system for all member ASEAN member countries needs concerted efforts. Experience sharing and capacity building of the least developed member countries are important elements. Standardization and equivalence of talents in financial sector should also be focused in order to lift the human resource standard of the regions. Cross border data flow would also allow better assessment of credit worthiness of migrant workers within the region and allow them to access to formal financial services regardless of their country of residence.

# CHAPTER 4: DETERMINANTS OF FINANCIAL INCLUSION IN ASEAN: AN EMPIRICAL ANALYSIS USING MICRO DATA

## 4.1. Introduction

In recent years, financial inclusion is becoming an important global policies agenda, especially among developing countries for poverty reduction and also as an indication of economic and social inclusiveness not only in developing countries but also in developed countries. Stated in the 2016 Hangzhou Action Plan, the G20 leaders thus recognized the importance of financial inclusion to empower the lives of the poor (Global Partnership for Financial Inclusion, 2016).

It has been widely accepted in literature that access to financial services can improve income. In effect, financial inclusion is associated with consumption smoothing and efficient capital redistribution (Levine., 2005). Additional benefits are also derived from access to credit, especially for individuals and firms in order to finance education and expand businesses. Financial inclusion helps reduce the activities of informal financial sector. Indeed, it is the vulnerable people at the bottom of the pyramid, who lack proper knowledge or documentations that found themselves exposed to the informal sector (e.g., loan sharks, money lenders) where the rates charged are often exploitative. Lastly, insurance and other risk-pooling products provide benefits to consumers so that they can reduce excessive precautionary savings and reduce other potential risks, including climate change. The rise of microfinance institutions, particularly in developing countries, has also increased the outreach and the number of branch offices in remote areas, leading to enhancing efficiency and welfare, in particular, by providing avenues for secure and safe saving practices and other financial services.

However, about 1.7 billion adult population remain excluded from financial services (Demirgüç-Kunt et al., 2018). According to the World Bank's Business Survey, about one thirds of firms in developing countries face financial constraints. Against this background, financial inclusion strategies have been taken into account and reforms have been pursued, aimed at improving livelihoods, reducing poverty and inequality, promoting entrepreneurship and boosting economic development. Emergence of fully fledged national financial inclusion strategies have contributed positively to the increase in financial inclusion. Despite its significance, few cross-country studies on financial inclusion and trade were done, particularly, the link and the channels through which financial inclusion affects trade and vice versa.

This paper contributes to the literature by examining the determinants of financial inclusion in selected ASEAN countries. It uses the Global Findex dataset to examine the determinants of financial inclusion in terms of (a) ownership account at formal financial institution, (b) individuals holding saving account at formal financial institution, and (c) usage of bank credit. The Global Findex dataset covers all the ASEAN countries of Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam. The paper also adopts the discrete choice modelling framework and 2017 Global Findex dataset.

The rest of the chapter is organized as followings. Section 2 provides the key trends of financial inclusion on Asia. Section 3 provides the empirical framework for the determinants of financial inclusion in selected ASEAN countries. Section 4 discusses the results of the empirical model. The policy conclusion is given at section 5.

## 4.2. Key trends of Financial Inclusion in ASEAN

The global financial inclusion dataset measures financial inclusion in 3 dimensions: (i) access to financial services; (ii) usage of financial services; and (iii) the quality and affordability of the products and the service delivery. There are several measures of financial inclusions. Among these indicators, the IMF Financial Access Survey and the World Bank' Global Findex stands out given their wide coverage.

The IMF financial Access Survey (FAS) provides a picture of financial inclusion from supply-side dataset of 189 jurisdictions with more than 150 indicators on financial access and use. The IMF also produces a global financial development index. The sub-index (financial access) of the IMF Financial Development Index also captures the financial inclusion provided by banks.

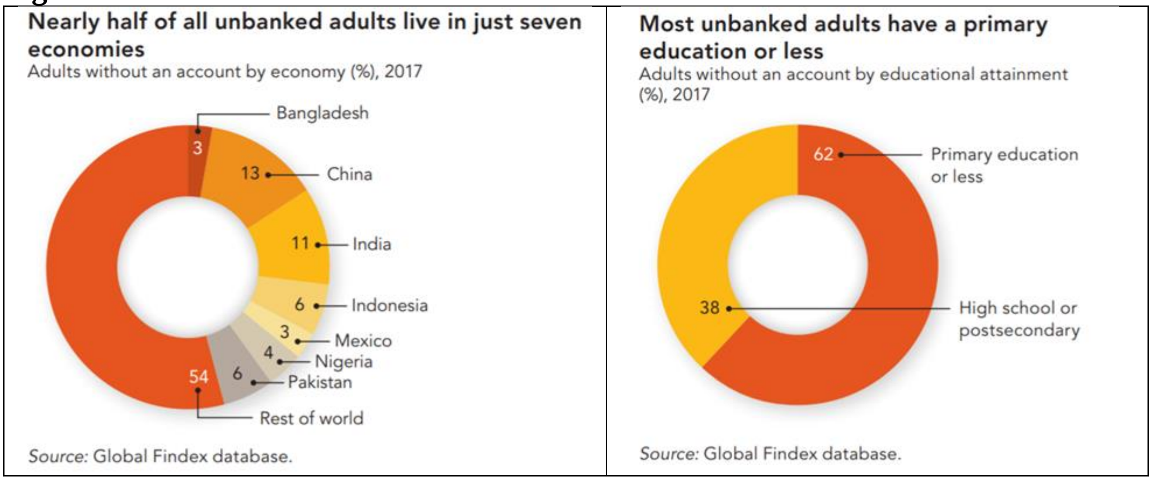
On the other hand, the 'use of financial services' is different from 'access to financial services' as the later refers to the supply of services, while the former is determined by both demand and supply. The World Bank's Global Findex indicators measure the use of financial services such as the behavior of adults aged 15 an above on saving, borrowing, making payments, and managing risks in 148 countries. The survey which was conducted 2011, 2014, and 2017 was based on the random interviews with more than 150,000 nationally representative individuals.

The Global Findex has four set of important indicators: (i) the use and purpose of formal account, (ii) saving behavior, (iii) source and purpose of borrowing, and (iv) the use of credit card and insurance products for healthcare and agriculture.

Since the concept of financial inclusion is multi-faceted, a single indicator may not be used as a representative of financial inclusion. Therefore, the study focuses on a wide array of databases and conducts robustness checks by comparing and cross-checking various variables across the different databases. Most data on financial inclusion are primarily drawn from and the World Bank's Global Findex. The study also uses other sources such as the IMF's Financial Access Survey (FAS), IMF's Financial Inclusion Toolkit 2017.

Existing studies show that there is a wide disparity of financial inclusion among countries in Asia (Ayagari and Beck, 2015) and Asia and the Pacific (Jahan et al., 2019) and such disparity tend to persist suggesting that considerable efforts from each country are required to narrow the gaps. As shown in Figure 4.1, as of 2017 significant proportion of unbanked adults live in developing countries and have primary education or less.

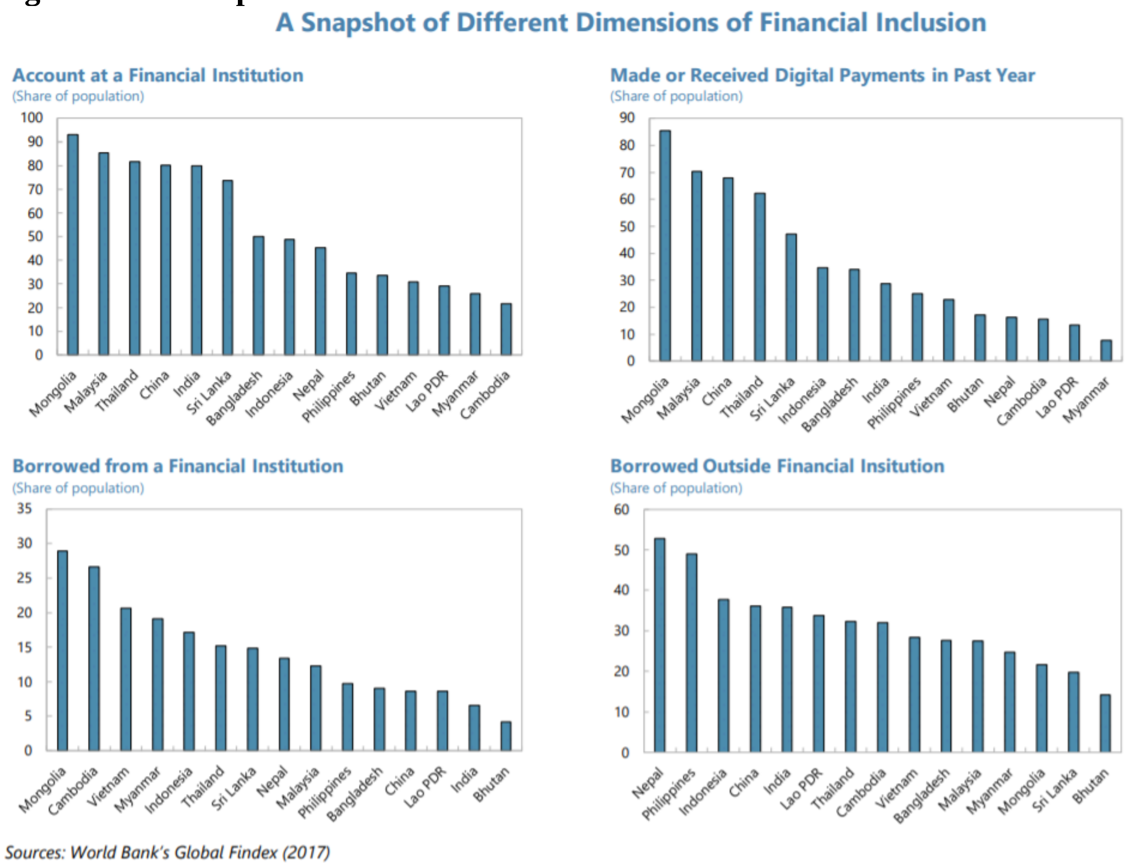
**Figure 4.1: Who are financial excluded?**




According to the World Bank's Global Findex, in 2017, the unbanked adult population in low- and middle-income countries accounts for about 39%, of which more than half were in Asia, while the loan accounts constitute of only 9 percent. To illustrate the landscape of financial inclusion in Asia, Figure 4.2 provides a snapshot of financial inclusion on different dimensions. Panel 1 and 2 in the Figure 4.2 shows that countries such as China, Malaysia, and Thailand have a relatively higher level of financial inclusion in terms of both traditional and digital banking.[18] Households in these countries do not only have a banking account, but also actively use banks for saving and borrowing and frequently use mobile phones to make payments.

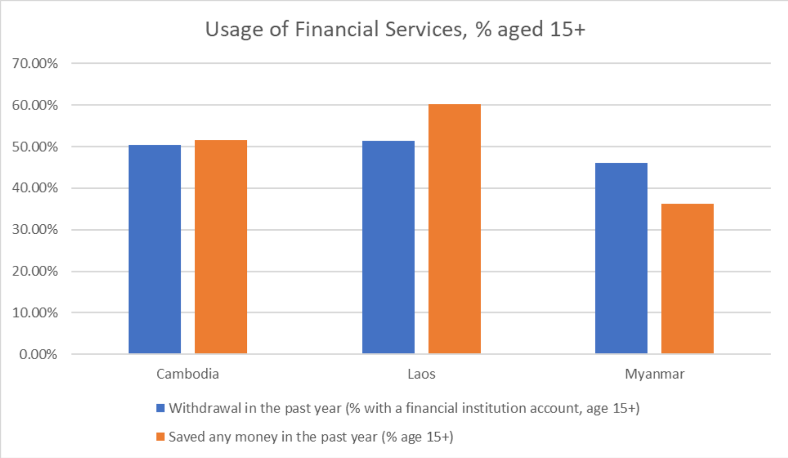
On the other hand, panel 3 and 4 in the Figure 4.2 show that households in developing countries such as Cambodia or Nepal, where less than 40 percent have bank account, rely more on informal sources of financing. India has made significant progress in improving access financial services with more than half of the population having a bank account. However, when it comes to usage only 20% of the population transact from a bank account. In Cambodia, Laos and Myanmar the number is slightly higher where around 50% of account owners make withdrawal and deposit within the previous year (figure. 4.3). It is understood that a large proportion of the population relies heavily on the informal sector and use formal accounts to only received transfer and immediately withdraw the fund. This explains partly the big number of dormant accounts.

**Figure 4.2: A Snapshot of Different Dimension of financial Inclusion in Asia**




[18] Traditional banking is basically measured by account at a financial institution, while digital banking is measured through making and receiving digital payment.

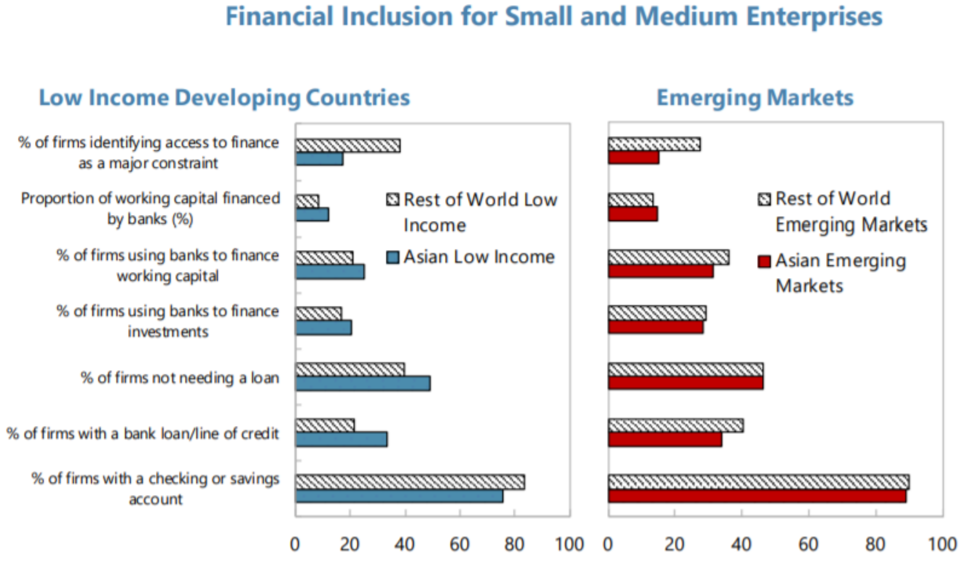
**Figure 4.3: Usage of financial services**




Source: Global Findex 2017, World Bank

For firms, Asian countries tend to perform well in terms of financial access although it remains a constraint in several countries. As seen in Figure 4.3, firms in Asian developing and emerging countries have access to checking or savings accounts and use the banking channel to perform financial transactions. Despite higher requirement for collaterals, firms in Asian economies still manage to access to credit from the formal sector. For example, based on an enterprise survey conducted by the World Bank, loan to value ratios for low-income Asian countries is only about 42 percent while the global average for the other low-income countries is 52 percent. Based on the World Bank's Enterprise Survey, Nepal, Mongolia and Sri Lanka were among the top 40 percent of the world-wide respondents that raise access to credit as main constraint although access to credit in these countries stand at above regional average. In Cambodia, according to the World Bank's Enterprise Survey, only 17 percent of the enterprises surveyed see access to financing as a major constraint.

**Figure 4.4: Financial Inclusion for SMEs in Asia**




*Source: World Bank Enterprise Surveys (2017)*

## 4.3. Financial inclusion in ASEAN and Cambodia

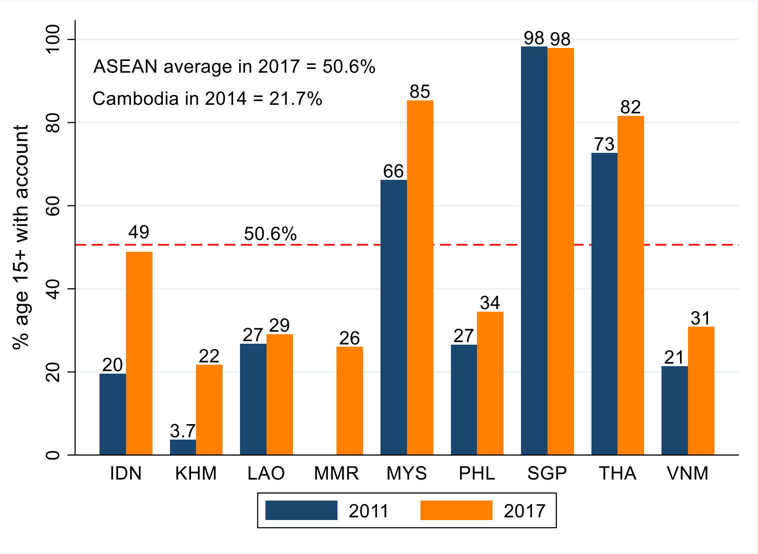
ASEAN has the vision of achieving a free trade zone that would bring equitable growth and prosperity to its 600 million people. During the AFMM and ACBM meeting in 2015, financial inclusion was recognized as crucial efforts towards achieving financial integration and ultimately contribute the AEC vision.

In this section we provide the discussions of the development of financial inclusion in ASEAN and Cambodia.

### 4.3.1. Ownership of Financial accounts

Figure 4.4 shows the share of adults with bank accounts in ASEAN. Singapore, Thailand and Malaysia started at considerably higher rate of adults aged 15 and above having account at financial institutions, relative to other ASEAN countries in 2011, while Cambodia was ranked last in the bloc in that year. Nevertheless, Cambodia shows a remarkable increase in proportion of adults aged 15 and above having account at financial institutions between 2011 and 2017. Similarly, Indonesia and Malaysia were two other ASEAN countries that had attained similar pace of increase during the period.

**Figure 4.5: Proportion of adults aged 15+ with financial account in 2011 and 2017 (%)**




Source: World Bank's Global Findex data 2011 and 2017

Although the level of financial inclusion in Cambodia remained lowest in ASEAN in 2017, twice as low as the ASEAN average of 50.6%, the rate did not lag far behind some of its regional peers such as Myanmar (26%), Lao PDR (29%), Vietnam (31%) and the Philippines (34%). It is however important to note that no improvement of account ownership among adults aged 15 and above in Cambodia between 2014 and 2017. Similar experience is also observed in the Philippines (31.3% in 2014) and Vietnam (30.9% in 2014).

In 2017, account ownership among adult men and women in Cambodia is lowest in ASEAN with less than one-fourth of adult men and women in Cambodia had account with financial institutions (Table 4.1). Gap in account ownership between men and women in Cambodia is almost negligible in the same year, while similar situation is also observed in Myanmar, Singapore and Vietnam. Interestingly, in the Philippines, Lao PDR and Indonesia women are more likely than men to have bank accounts in 2017. In the other countries, although larger proportion of male adults had accounts than female adults did, the gap was not large.

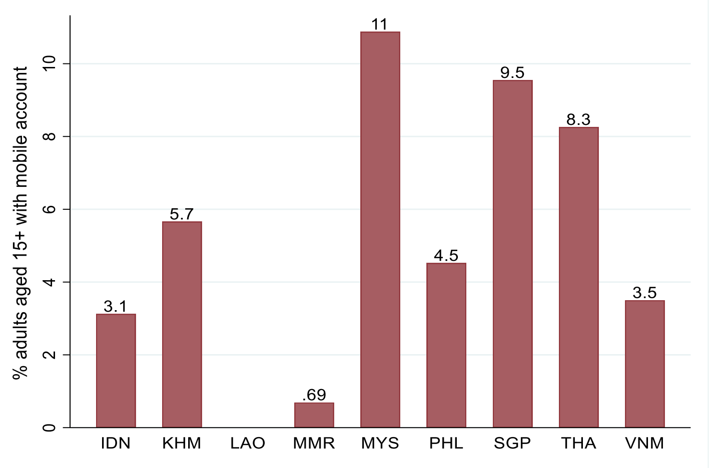
**Table 4.1: Adults' ownership of account by gender, wealth statuses and rural areas in 2017**

| Indicators | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
|---|---|---|---|---|---|---|---|---|---|
| Female adults | 51.4 | 21.5 | 31.9 | 26.0 | 82.5 | 38.9 | 96.3 | 79.8 | 30.4 |
| Male adults | 46.2 | 21.8 | 26.1 | 26.0 | 87.9 | 30.0 | 99.7 | 83.7 | 31.2 |
| Ratio female/male | **1.11** | **0.99** | **1.22** | **1.00** | **0.94** | **1.29** | **0.97** | **0.95** | **0.97** |
| Adults belonging to the poorest 40% | 36.6 | 14.3 | 17.4 | 22.5 | 80.5 | 18.0 | 96.4 | 77.5 | 20.3 |
| Adults belonging to the richest 60% | 57.0 | 26.6 | 36.8 | 28.3 | 88.5 | 45.4 | 99.0 | 84.3 | 37.8 |
| Ratio 40%/60% | **0.64** | **0.54** | **0.47** | **0.80** | **0.91** | **0.40** | **0.97** | **0.92** | **0.54** |
| Adult living rural areas | 47.0 | 19.2 | 22.4 | 25.0 | 81.0 | 27.4 | 100.0 | 80.7 | 25.2 |

Source: World Bank's Global Findex data 2017

Across the income groups, the proportions of adults in the poorest 40% and the richest 60% with account are both bottom in ASEAN in 2017 (Table 4.1). Although ranked bottom, proportion of adults in the poorest 40% with account in Cambodia lag far behind those in Lao PDR (17.4%), the Philippines (18%), Vietnam (20.3%) and Myanmar (22.5%). Furthermore, proportion of adults in the richest 60% in Cambodia was by the far the lowest in ASEAN. In terms of poor-rich gap in account ownership Cambodia fared better than only two countries, namely the Philippines and Lao PDR. Share of adults in rural Cambodia with account was also lowest in ASEAN in 2017. It is therefore apparent that much more efforts and resources need to be put in place in order to push the current state of account ownership among adults by gender, wealth status and region (rural-urban) in Cambodia to the level comparable with other countries in ASEAN.

**Figure 4.6: Proportion of adults with mobile money account in 2017**




Source: World Bank's Global Findex data 2017

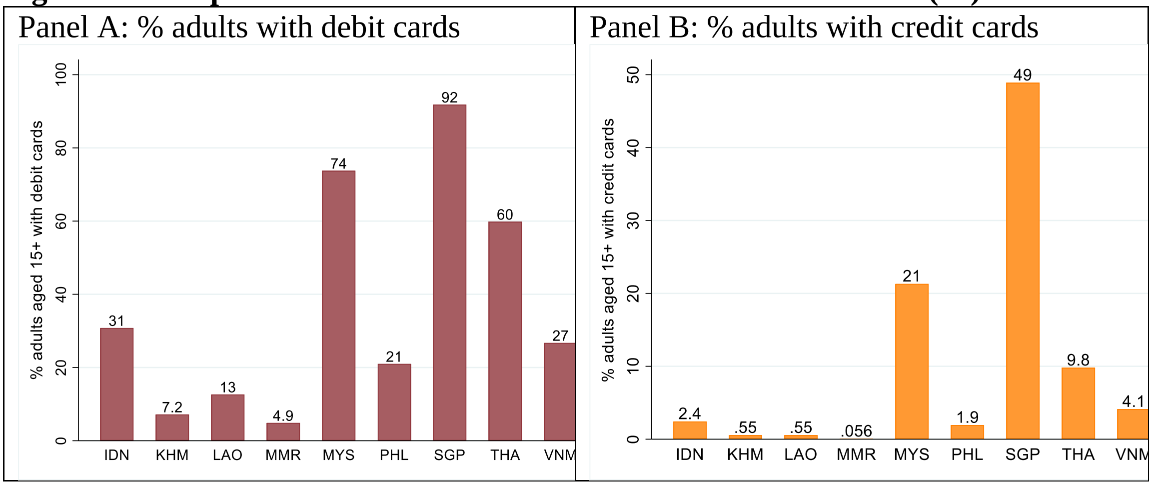
Although the ownership of account among the adults in Cambodia lagged significantly behind other ASEAN countries in 2017, the ownership of mobile money account in Cambodia fared much better as compared to other ASEAN countries, except

Malaysia, Singapore and Thailand (see Figure 4.5). It is interesting to observe that the proportion of Cambodian adults with mobile money account was almost twice as high as those of Indonesian and Vietnamese adults in 2017, which may suggest the crucial role of mobile phone ownership in promoting financial inclusion in Cambodia. In contrast, enthusiasm among adults toward owning mobile money account in ASEAN remains limited as highest proportion of adults with the mobile money account was in Malaysia with just 11%. In Singapore where bank account ownership is the highest in ASEAN at 98%, only 9.5% of the adults have a mobile money account.

### 4.3.2. Use of credit card accounts

As indicated in Figure 4.5, Singapore, Malaysia and Thailand were leading countries in terms of adult's ownership of debit and credit cards in ASEAN in 2017. The use of debit card was more common than the used of credit card among adults aged 15 and above. For Cambodia, the proportion of adults owning debit cards was only ahead of Myanmar in 2017 but lagged behind the rest of the ASEAN countries. The figure for Cambodia was almost twice as low as that of Lao PDR and almost four times as low as that of Vietnam. The use of credit card in Cambodia was extremely low, and so was it in other countries such as Myanmar, Lao PDR, the Philippines, Indonesia and Vietnam.

**Figure 4.7: Proportion of adults with debit and credit cards in 2017 (%)**




Source: World Bank's Global Findex data 2017

### 4.3.3. Use of financial payment services

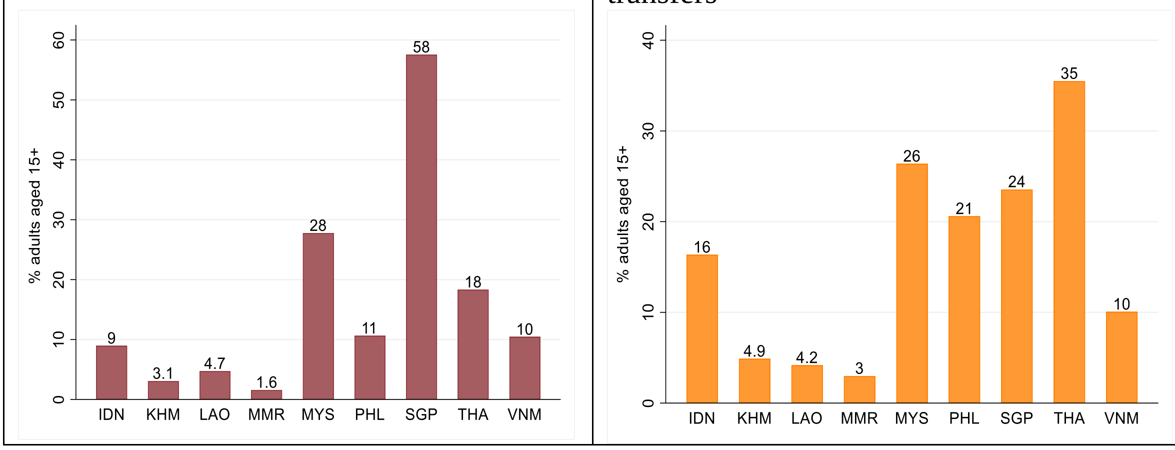
Figure 4.7 shows substantial gaps in proportion of adults using account to receive wages and public transfers in ASEAN in 2017. Proportion of adults using account to receive wages in ASEAN in 2017 was considered low. Panel A shows that Singapore was top in terms of share of adults using account to receive wages in 2017 (58%), followed by Malaysia (28%) and Thailand (18%). Generally, the proportion of adults in ASEAN countries using their accounts to receive wages is relatively low even in countries where account ownership is high.

For the proportion of adults using account to receive transfers in ASEAN in 2017, we observe three different levels (Panel B). Countries that show highest proportion of adults using account to receive transfers include Thailand, Malaysia, Singapore and the Philippines, while the runner-up countries comprise Indonesia and Vietnam. Cambodia, Lao PDR and Myanmar were the last group with extremely low level of proportion of adults using account to receive public transfers.

**Figure 4.8: Proportion of adults using account in the past year, 2017**

Panel A: Use of account to receive wages

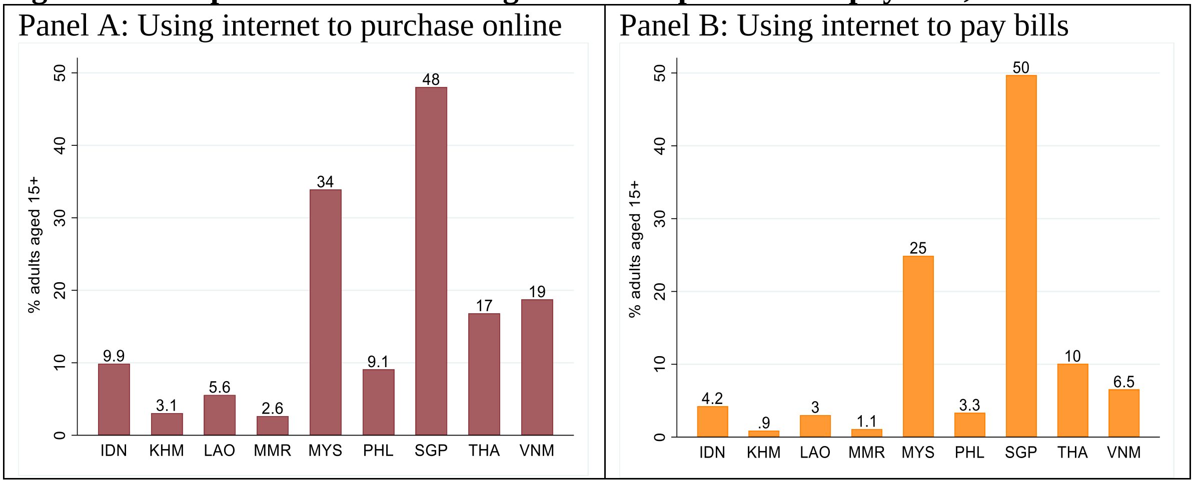
Panel B: Use of account to receive public transfers




Source: World Bank's Global Findex data 2017

Large gaps in share of adults using internet to purchase or pay bills among ASEAN countries in 2017 was also evident in 2017 (Figure 4.8). Panel A shows that Singapore and Malaysia were far ahead of other countries in terms of share of adults using internet to purchase online. The rate for Vietnam and Thailand were 19% and 17%, respectively, while Indonesia and the Philippines were about twice as low as the indicators for Vietnam and Thailand. Cambodia, Lao PDR and Myanmar were the countries with substantially low share of adults using internet to purchase online suggesting that internet has not been effectively harnessed as a mean of payment to promote financial inclusion in these countries.

**Figure 4.9: Proportion of adults using internet to purchase or pay bills, 2017**




Source: World Bank's Global Findex data 2017

Similarly, share of adults using internet to pay bills in Singapore was 50% in 2017, which was twice as high as that in Malaysia. The rate for the rest of the ASEAN countries were generally very low. For instance, indicators for Thailand and Vietnam were 10% and 6.5%, respectively, while those for Cambodia and Lao PDR were 0.9% and 3%. While the convenience of paying bills through internet could be an incentive for account opening and usage, the result of adult population using this channel remains small in ASEAN indicating further room for improvement.

Table 4.2 shows that there is a substantial variation in percentage of individual senders and receivers of domestic remittances through financial institutions, mobile phone and money transfer operators in ASEAN in 2017.

**Table 4.2: Sending and receiving domestic remittances in past years, 2017**

| Indicators | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
|---|---|---|---|---|---|---|---|---|---|
| Sent remittances via Financial institutions (% senders) | 46.6 | 22.5 | 40.6 | - | 68.5 | 23.5 | 55.0 | 63.5 | 40.0 |
| Sent remittances via mobile phone (% senders) | 6.1 | 11.6 | 2.3 | - | 20.4 | 9.7 | 9.2 | 15.0 | 8.5 |
| Sent remittances via money transfer operator (% senders) | 9.2 | **37.2** | 7.4 | - | 6.0 | **39.3** | 5.4 | 7.7 | 15.4 |
| Received remittances via Financial institutions (% recipients) | 60.0 | 29.1 | 39.1 | - | 77.1 | 29.0 | 58.7 | 77.0 | 60.7 |
| Received remittances via mobile phone (% recipients) | 11.4 | 10.0 | 2.7 | - | 28.7 | 13.7 | 15.4 | 21.9 | 8.5 |
| Received remittances via money transfer operator (% recipients) | 5.9 | **46.6** | 6.7 | - | 5.3 | **46.6** | 3.0 | 4.5 | 9.2 |

Source: World Bank's Global Findex data 2017

Two interesting phenomena emerge from Table 4.2. First, although Cambodia exhibited the lowest proportion of remittance senders through financial institutions in

ASEAN in 2017, it experienced the second highest proportion of remittance senders through money transfer operators. Similar pattern of the mean of sending domestic remittances is also observed in the Philippines

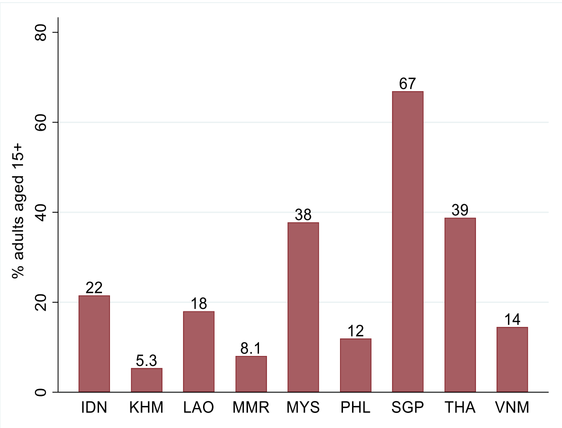
The other phenomenon is that proportion of remittance senders through mobile phone in Cambodia was relatively high in ASEAN and was the third after Malaysia and Thailand. This suggests that using money transfer operators, as well as mobile phones, to remit income domestically is a promising mean to include wider population into the financial system in Cambodia by expanding both coverage and scope of activities of the money transfer operators.

### 4.3.4. Savings, credit and financial resilience

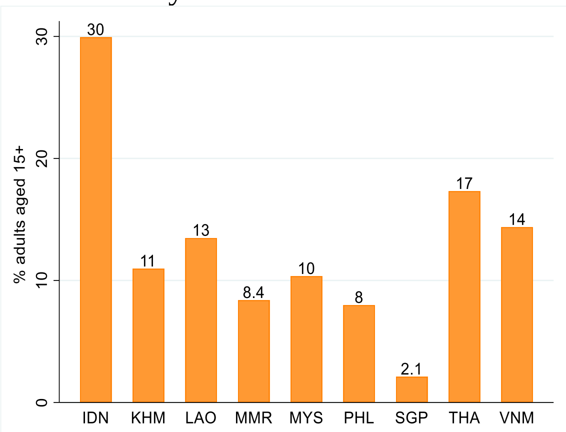
Share of adults saving at financial institutions in Cambodia was lowest at 5.3% in ASEAN in 2017, which was slightly below that in Myanmar but three to four times as low as those in Vietnam, Lao PDR and Indonesia (Panel A, Figure 4.9). The indicator for Singapore was 67%, higher than the 38% and 39% in Malaysia and Thailand, respectively. This is apparent that majority of adults in most ASEAN countries do not use financial institutions as a shelter of their saving. Share of adults saving with saving clubs and people outside family in Cambodia was higher than those in a number of other ASEAN countries, but slightly below few countries such as Lao PDR, Vietnam and Thailand (Panel B, Figure 4.9). Indonesia showed the largest share of adults saving with saving clubs or people outside family amongst ASEAN countries in 2017, suggesting that there is a strong community bond relative to other ASEAN members.

**Figure 4.10: Proportion of adults saving at financial institution and saving clubs, 2017**

Panel A: Saving with financial institutions




Panel B: Saving with saving clubs or people outside family

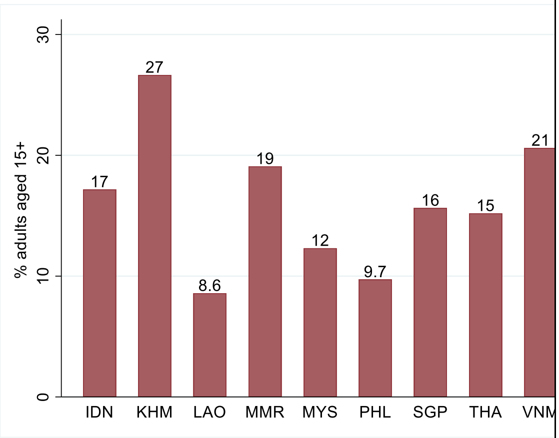



Source: World Bank's Global Findex data 2017

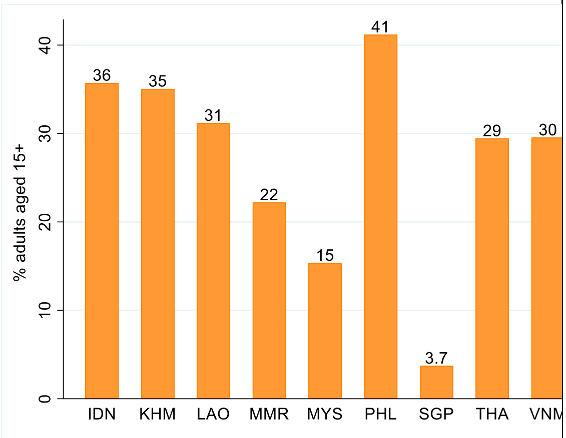
Share of adults using financial institution as main source of borrowing in Cambodia is highest in ASEAN in 2017 (Panel A, Figure 4.10). The Philippines and Lao had the smallest share of adults borrowing from financial institutions. This might suggest that Cambodia was not as financially constrained as its ASEAN peers. Adults' borrowing from family and friends in ASEAN except for Singapore was more common than adults' borrowing from financial institutions in 2017 (Panel B, Figure 4.10). Cambodia ranked third in this indicator among ASEAN member nations. Cambodia seems to do well relative to other countries in ASEAN when it comes to borrowing from formal financial institutions, which could be explained by the dominance of regulated microfinance institutions in rural area across the country.

**Figure 4.11: Proportion of adults borrowing from financial institutions and family or friends, 2017**

Panel A: Borrowing from financial institutions




Panel B: Borrowing from family or friends




Source: World Bank's Global Findex data 2017

## 4.4. Barriers of financial inclusion in Cambodia and ASEAN

Financial inclusion is understood to be mean to improve people living standard, reduces poverty and promotes economic growth. With certain vulnerable population being excluded from access to finance, there is a potential loss of deposits or savings, investible funds capable of enhancing credit creation and capital accumulation, which results in loss of capacity of the economy to generate socio-economic development.

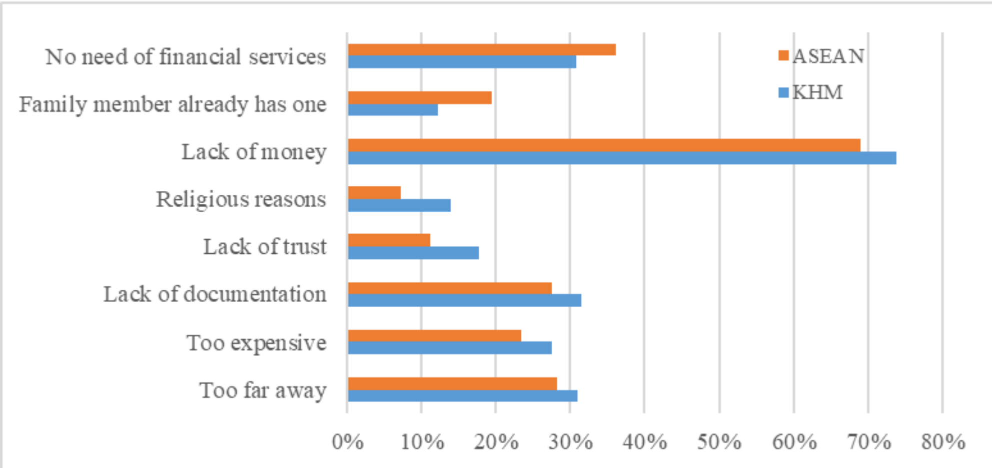
Therefore, elimination of blockages to financial inclusion has significant direct impacts on productivity and GDP growth through smarter allocation of resources and more efficient financial contracting; resulting in stronger entrepreneurial activities and new business start-ups that increase aggregate output.

Using World Bank Global Findex data in 2017, key factors affecting financial inclusion in ASEAN are examined such as individuals' characteristics that include income, education level, age and employment status as well as key barriers to financial inclusion that include formal account ownership, saving account and borrowing in a discrete choice empirical framework.

### 4.4.1. Reasons of having no accounts in ASEAN

Figure 4.12 shows the reasons the adults aged 15 and above consider as the key barriers to their access to financial services in Cambodia and ASEAN in 2017. Among the main reasons, the "lack of money" stood out as the most significant reason that constrained ASEAN adults from utilizing available financial services. Approximately 69% (Cambodia is around 74%) of ASEAN adults who did not have access to financial services regarded this as the main barrier. This might suggest that minimum level of household income might be a major hindrance to use of financial services among ASEAN and Cambodian adults.

**Figure 4.12: Reasons for not having account at financial institution in Cambodia, 2017**




Source: Author's estimation from World Bank's Global Findex data in 2017

It is also quite astounding that 35% of ASEAN (31% of Cambodian) adults without formal account responded that they do not need financial services, suggesting the need for further expansion of financial literacy program and campaign nationwide. More importantly, lack of document, cost of access and distance to formal financial institution remain key barriers to access to financial services across the ASEAN countries. Approximately a third of Cambodian adults without formal financial account regard them also as main hindrance. Interestingly, only 18% of them confirmed that they did not have account with formal financial institutions because of lack of trust, while 14% was because of religious reason.

Table 4.3 provides a clearer picture of barriers of access to financial service in ASEAN countries. An interesting observation emerges as distance is not a main barrier in Singapore and Vietnam given their low rate of response, but it remains a constraint in other countries as the response rate among adults without formal account was around 30% in 2017. Cost is still a barrier in Cambodia, Indonesia, Myanmar and Malaysia, but it does not seem to be in Singapore, the Philippines, Vietnam, Thailand and Lao PDR. Lack of documentation in Cambodia is a barrier, which is not different other ASEAN countries except Thailand and Vietnam.

Lack of trust and religious reason were not extreme barriers in Cambodia as well as in the rest of the ASEAN countries. However, the issue of lack of money is the main barrier not only in Cambodia, but also in other ASEAN countries. Response rate in most countries, except for Singapore (29%) varies from 45% to 78%, which is notably high suggesting that poverty might be a constraint for access to financial services in ASEAN. Response rate for “no need of financial services” in Cambodia was high at 31%, but lower than most ASEAN countries except Indonesia (27%) and the Philippines (28%). Since response rate of this reason in other countries was high and ranged from 36% to 64% this might suggest that there was low rate of financial literacy in ASEAN.

**Table 4.3: Reasons of not having account at formal financial institution in ASEAN in 2017**

| Reasons | KHM | IDN | LAO | MMR | PHL | MYS | SGP | THA | VNM | ASEAN |
|---|---|---|---|---|---|---|---|---|---|---|
| Too far away | **31%** | 33% | 32% | 33% | 21% | 41% | 0% | 31% | 13% | 28% |
| Too expensive | **28%** | 32% | 17% | 40% | 8% | 54% | 8% | 16% | 11% | 23% |
| Lack of documentation | **31%** | 24% | 22% | 25% | 30% | 45% | 25% | 13% | 12% | 27% |
| Lack of trust | 18% | 9% | 7% | 27% | 2% | 21% | 13% | 7% | 8% | 11% |
| Religious reasons | 14% | 6% | 3% | 13% | 3% | 14% | 0% | 2% | 0% | 7% |
| Lack of money | **74%** | 72% | 78% | 47% | 76% | 70% | 29% | 58% | 45% | 69% |
| Family member already has one | 12% | 31% | 17% | 52% | 8% | 26% | 71% | 50% | 21% | 19% |
| No need of financial services | **31%** | 27% | 41% | 48% | 28% | 40% | 58% | 64% | 47% | 36% |

Source: Author’s estimation using World Bank’s Global Findex data 2017
Note: Figures are percentage of responses of all adults without account at formal financial institutions.

Overall, the key factors for the barriers of financial inclusion are cost, distance, lack of money, lack of documentation and the absence of need of financial services remain significant barriers to access to financial services across ASEAN countries, while lack of trust and religion is not a critical barrier although response rate among Cambodian adults for that reason is somewhat higher than those in ASEAN countries, except for Myanmar and Malaysia.

## 4.5. Empirical Analysis of the determinants of financial inclusion in ASEAN

We further investigate determinants of financial inclusion using discrete-choice econometric specification model as below.

$$Y_i = \alpha_0 + \alpha_1 female_i + \alpha_2 age_i + \alpha_3 agesquare_i + \alpha_4 employment_i + \alpha_5 education_i + \alpha_6 income_i + \varepsilon_i \quad (4.1)$$

where $Y_i$ is dependent variable of individual $i$. Following Demirgüç-Kunt and Klepper (2013), we use three dependent variables capturing level of financial inclusion: (a) ownership of account at formal financial institution, which is captured by the survey question: “Do you currently have a bank account at a formal financial institution?”; (b) individuals as having saving account at formal financial institution which is acquired from survey question: “Have you saved money using an account at a bank, credit union or microfinance institution in the past 12 months?”; and (c) the last outcome is about usage of bank credit, which is captured by the survey question: “Have you borrowed any money from a financial institution (bank, credit union or microfinance institution) in the past 12 months?”

We included individual characteristics as control variables ($X_i$) that included gender, age, non-linear effects of age (age-squared), education, income and employment status of individuals. Education comprises dummy variables for secondary education and tertiary education, while the comparison or benchmark group refers to individuals with primary education or less. Income comprises dummy variables for individuals in the second, third, fourth-, and fifth-income quintile (richest), while individuals in the first income quintile (poorest) are benchmark group. Employment dummy takes the value of 1 if individuals are in the labour force, and zero if otherwise.

The discrete choice model takes the form of probit regressions on equation (4.1) above to account for non-linearity of the dependent variables. Our primary interest is to obtain sign of the coefficients ($\alpha$) for all independent variables as they are useful for policy to promote financial inclusion. Due to the diverse level of institutional arrangement, economic development as well as the level of financial inclusion of ASEAN member countries, we decided examine the regression analysis for each country separately to understand the changing behaviour of the aforementioned determinants across ASEAN countries.

Table 4.4 provides a summary statistic of dependent and independent variables included in the estimation. Cambodia ranked the lowest in terms of ownership of account (19%) and saving account (5%) but topped the list in terms of having borrowed from formal financial institutions. Overall, level of financial inclusion varies across countries, which is due primarily to differences in per capita income as suggested in Demirgüç-Kunt and Klepper (2013). Using World Bank's Findex database for 12 Asian countries in 2011, Fungáčová and Weill (2016) qualitatively showed that countries with higher per capita income tend to better include their adult population in the formal financial market in terms of account ownership and ownership of saving account.

Around two third of adults in the sample for Cambodia are female and average age of adults in the sample is around 41. Adults in other ASEAN countries are also around their late 30s and early 40s and between half and two thirds of them are female. Labour force participation in ASEAN countries is between 70 and 80 percent. Level of education of Cambodian adults is relatively lower than those in other ASEAN countries as majority of them could only complete primary school.

The results of the probit model are given at Table 4.5 for individuals having formal account at financial institutions. The effects of gender tend to vary across the ASEAN countries. In some ASEAN LDCs and developing ASEANs, females are more likely to own formal account at financial institutions relative to males. The gender coefficients for Lao PDR and the Philippines are positive and statistically significant at 5% and 1%, respectively. This implies that females in Lao PDR and the Philippines are more likely to be included in the formal financial market than their male counterparts. However, the gender coefficient for Singapore is negative and statistically significant at 1%, which means that females in Singapore have a lower probability to hold an account in financial institutions as compared to males. The higher share of gender gap between males and females in terms of holding a financial account are also observed in other developed countries such as France (gender gap of 6%), Spain (gender gap of 4%), and Italy (gender gap of 5%) (The Global Findex Database, 2017). Several East Asian countries also have a gender gap such as Malaysia (gender gap of 5%), China (gender gap of 8%) and India (gender gap of 6%). The gender gap in holding a financial account could be explained by the differences in institutional and cultural factors, other than educational background of individuals, in the respective countries under study.

Our results also show a positive relationship between financial inclusion and age of adults tend to have non-linear effects in the majority of the sampled countries (i.e. Cambodia, Myanmar, the Philippines, Singapore, Thailand and Vietnam). This suggests that there is a threshold effect of age on adults in terms of financial inclusion, where the financial inclusion effects decline after certain threshold, thereby increasing the vulnerability of older people to financial activities in the domestic economy. The effects of age on the financial inclusion are critical for developing and aging societies. The threshold effects of age on the participation in the financial system is undertaken with the estimated coefficients for *'age'* and '*age-squares'*. The simulation of the threshold age effect for (a) holding account in financial institutions and (b) borrowing from financial institutions are given at Annex for selected ASEAN countries. We observe the developing countries of Cambodia, Lao PDR and Myanmar has lower age threshold in terms of holding an account in financial institutions, where Cambodia has a peak of 42 years, Lao PDR has a peak of 47 years and Myanmar has a peak of 47 years respectively. The developed ASEAN countries have a higher age threshold of around 57 years before the probability of holding account in financial institutions declines. The age threshold for Indonesia is 50 years, Philippines is 59 years, Singapore is 57 years, and Thailand is 52 years respectively. The higher age threshold for developed ASEAN countries reflects the more established financial markets and greater participation of the older workers in formal labour market activities.

We also explore the age effects on borrowing from financial institutions. As compared to age threshold for holding of account in financial institutions, we observe higher age threshold for most of the ASEAN countries except for Cambodia where the age threshold is at 39 years. The age threshold for Cambodia is 42, Lao PDR is 49 years, Myanmar is 55 years, Philippines is 52 years, Singapore is 48 years, and Thailand is 54 years (see APPENDIX C). The differences in the age threshold effect are interesting and it should be part of future research agenda for our work.

The coefficients for labour force participation are positive and statistically significant for most countries except for Myanmar and Vietnam suggesting that individuals who are active in the labour market are more likely to own formal account at financial institutions. This implies that financial inclusion could be enhanced as formal wage and salary payments requires payments through formal accounts with financial institutions.

For education level, our results show that better educated individuals are more likely to own formal account as coefficients of secondary and tertiary education are positive and statistically significant for all countries except for Singapore. In terms of distribution of income by quintile, we find positive relationship between income level and the probability of having a formal account at financial institutions for all countries except for Singapore as the higher quintile tend to be positive and statistically significant.

We now turn to determinants of having saving account at formal financial institutions as shown at Table 4.6. The results indicate positive impact of gender for Vietnam in terms of holding a saving accounts. However, we find positive and statistically significant effect of age on the probability of saving in majority of the countries except for Indonesia, the Philippines, Thailand and Vietnam. We also find positive effect of labour participation on saving account only in Malaysia, Singapore and Thailand. Additionally, the effects of education level on saving account for all countries are also consistent with those on formal account shown above. We also observe positive relationship between income level and the probability of having saving account in most countries except for Myanmar.

Table 4.7 shows results of the determinants of formal borrowing in ASEAN countries. The effects of gender on borrowing are less obvious than those on formal account and saving account as the effect is observed only for Cambodia. This can be explained by the conjuncture of 2 phenomenon: culture and history. Culturally women in Cambodia manage the family finances. This explains why women take more initiatives in requesting loans. It is interesting to mention however that such observation only applies in the microfinance sector where loan size is small and loan purpose is usually for “personal” use. In the conventional banking sector, gender gap remains, and requires further efforts from all stakeholders. On the historical factor, it is important to note that as a post-war country, Cambodia received many humanitarian aids from all over the world in the 1990s. Many non-governmental organizations (NGOs) provided resettlement loans for returning war-refugees. The majority of the NGOs favor women borrowers who tend to be more honest and are more likely to spend money on family welfare. These NGOs eventually transform into regulated MFIs and, recently, banks. This finding is consistent with that of Doneys et al. (2020) who find that women play key role in the family by managing family and children, and allocating money. The non-linear effect of age on borrowing is found in all ASEAN countries which is consistent with results for formal account and saving account. Moreover, we also find positive relationship between being participant in the labour market and borrowing in all ASEAN countries suggesting that employment status, namely waged income, serves as guaranty for individual to have access to credit.

We find negative relationship between education and borrowing in Cambodia, Lao PDR, Myanmar, Thailand and Malaysia. Interestingly, the findings show that better educated individuals are less likely to borrow than the lower educated in Cambodia and Myanmar, but the better educated are more likely to borrow than the lower educated in Indonesia, Lao PDR, Malaysia and Thailand. However, income has both positive and negative association with borrowing in many countries in the sample. For instance, richer individuals in Cambodia, Malaysia, the Philippines and Singapore tend to seek formal credit than poorer ones, but poorer individuals in Myanmar and Vietnam are more likely to get formal credit than richer ones. This suggests that country specific characteristics drive borrowing behaviour of individuals in each country.

**Table 4.4: Summary statistics of dependent and independent variables**

| Variables | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
|---|---|---|---|---|---|---|---|---|---|
| **Dependent variables** | | | | | | | | | |
| Account (1=having formal account) | 0.53 | 0.19 | 0.33 | 0.27 | 0.86 | 0.34 | 0.98 | 0.81 | 0.33 |
| Saving (1=having formal saving) | 0.25 | 0.05 | 0.20 | 0.09 | 0.41 | 0.13 | 0.67 | 0.37 | 0.16 |
| Borrowing (1=borrowing financial institutions) | 0.19 | 0.29 | 0.10 | 0.20 | 0.14 | 0.10 | 0.20 | 0.17 | 0.20 |
| **Independent variables** | | | | | | | | | |
| Gender (1=female) | 0.61 | 0.67 | 0.58 | 0.64 | 0.49 | 0.56 | 0.57 | 0.63 | 0.57 |
| Age | 38.3 | 41.0 | 38.2 | 42.0 | 36.7 | 40.5 | 46.9 | 49.4 | 42.4 |
| Employment (1=in the labour force) | 0.64 | 0.69 | 0.81 | 0.70 | 0.71 | 0.65 | 0.69 | 0.74 | 0.74 |
| Primary education or less (=1) | 0.34 | 0.93 | 0.59 | 0.70 | 0.15 | 0.29 | 0.18 | 0.60 | 0.35 |
| Secondary education (=1) | 0.63 | 0.06 | 0.32 | 0.26 | 0.48 | 0.59 | 0.58 | 0.33 | 0.50 |
| Tertiary education (=1) | 0.03 | 0.02 | 0.09 | 0.04 | 0.37 | 0.11 | 0.24 | 0.08 | 0.14 |
| Bottom quintile - income (1=poorest) | 0.17 | 0.20 | 0.17 | 0.19 | 0.20 | 0.19 | 0.20 | 0.20 | 0.18 |
| 2nd quintile – income | 0.18 | 0.20 | 0.17 | 0.18 | 0.17 | 0.17 | 0.19 | 0.20 | 0.18 |
| 3rd quintile – income | 0.19 | 0.19 | 0.20 | 0.20 | 0.18 | 0.20 | 0.20 | 0.19 | 0.19 |
| 4th quintile – income | 0.20 | 0.19 | 0.20 | 0.19 | 0.21 | 0.21 | 0.23 | 0.19 | 0.21 |
| 5th quintile - income (1=Richest) | 0.27 | 0.22 | 0.26 | 0.23 | 0.24 | 0.23 | 0.18 | 0.22 | 0.25 |
| **Total number of observations** | 1000 | 1600 | 1000 | 1600 | 1000 | 1000 | 1000 | 1000 | 1002 |

Note: Figures in each cell are mean value of each variable for each respective country. Last row of the table is the total number of observations for each country.

**Table 4.5: Determinants of having account at formal financial institution**

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
| Gender (1=female) | 0.1431 | 0.0730 | 0.2185** | -0.0356 | -0.0985 | 0.3050*** | -0.6272*** | -0.0899 | 0.0282 |
| | (0.0887) | (0.0828) | (0.0896) | (0.0730) | (0.1105) | (0.0912) | (0.2425) | (0.0999) | (0.0907) |
| Age | 0.0190 | 0.0255** | 0.0097 | 0.0532*** | 0.0033 | 0.0219* | 0.0549** | 0.0382** | 0.0462** |
| | (0.0152) | (0.0127) | (0.0149) | (0.0120) | (0.0180) | (0.0130) | (0.0272) | (0.0161) | (0.0182) |
| Age squares | -0.0002 | -0.0003** | -0.0000 | -0.0004*** | 0.0000 | -0.0001 | -0.0005* | -0.0004** | -0.0007*** |
| | (0.0002) | (0.0001) | (0.0002) | (0.0001) | (0.0002) | (0.0001) | (0.0003) | (0.0002) | (0.0002) |
| Employment (1=in labour market) | 0.2419*** | 0.2726*** | 0.3770*** | 0.0587 | 0.4805*** | 0.2122** | 0.4240* | 0.2962*** | 0.1453 |
| | (0.0916) | (0.0898) | (0.1191) | (0.0833) | (0.1173) | (0.0983) | (0.2439) | (0.1120) | (0.1170) |
| Secondary education | 0.6017*** | 0.8111*** | 0.4669*** | 0.2908*** | 0.5698*** | 0.3979*** | 0.3271 | 0.2740** | 0.7321*** |
| | (0.0936) | (0.1462) | (0.1020) | (0.0848) | (0.1306) | (0.1113) | (0.2744) | (0.1373) | (0.1133) |
| Tertiary education | 1.3433*** | 1.7495*** | 1.3035*** | 0.7674*** | 1.3598*** | 1.1116*** | -0.0595 | 0.7453*** | 1.6065*** |
| | (0.3021) | (0.2832) | (0.1737) | (0.1625) | (0.1696) | (0.1615) | (0.3222) | (0.2783) | (0.1527) |
| 2nd quintile income (poorer) | 0.1434 | 0.2298* | 0.1607 | -0.1058 | 0.0613 | 0.2073 | 0.3259 | 0.0816 | 0.0960 |
| | (0.1424) | (0.1346) | (0.1611) | (0.1154) | (0.1586) | (0.1554) | (0.2725) | (0.1414) | (0.1613) |
| 3rd quintile income (poor) | 0.4715*** | 0.3954*** | 0.2898* | -0.0883 | 0.3139* | 0.3221** | 0.2489 | -0.0029 | 0.1436 |
| | (0.1398) | (0.1331) | (0.1535) | (0.1129) | (0.1703) | (0.1471) | (0.3045) | (0.1481) | (0.1601) |
| 4th quintile income (richer) | 0.4572*** | 0.3747*** | 0.4684*** | 0.0355 | 0.2800* | 0.3743*** | 0.4018 | 0.0274 | 0.2477 |
| | (0.1400) | (0.1328) | (0.1519) | (0.1122) | (0.1701) | (0.1438) | (0.3057) | (0.1508) | (0.1553) |
| 5th quintile income (richest) | 0.7465*** | 0.8123*** | 0.7819*** | 0.2477** | 0.2410 | 0.9034*** | 0.6768 | 0.3481** | 0.3810** |
| | (0.1341) | (0.1243) | (0.1474) | (0.1073) | (0.1605) | (0.1439) | (0.4817) | (0.1649) | (0.1515) |
| Constant | -1.3086*** | -2.1247*** | -1.9268*** | -2.1725*** | -0.1432 | -2.1560*** | 0.5899 | -0.3970 | -2.0727*** |
| | (0.3209) | (0.2739) | (0.3233) | (0.2611) | (0.3911) | (0.2944) | (0.5634) | (0.4053) | (0.3849) |
| Observations | 1,000 | 1,600 | 1,000 | 1,600 | 1,004 | 1,000 | 1,000 | 1,000 | 1,000 |
| Pseudo R-squared | 0.103 | 0.114 | 0.134 | 0.0522 | 0.140 | 0.137 | 0.146 | 0.0492 | 0.183 |
| Log Likelihood | -620.5 | -686.8 | -550 | -883.6 | -345.8 | -553.5 | -87.04 | -463.7 | -516.9 |

Note: *** significant at 1%; ** significant at 5%; * significant at 10%.

**Table 4.6: Determinants of having saving account at formal financial institutions**

| Probit regression | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
| Gender (1=female) | 0.1267 | -0.0689 | 0.1075 | 0.0920 | -0.1280 | 0.1719 | -0.0766 | -0.0334 | 0.1807* |
| | (0.0983) | (0.1131) | (0.0957) | (0.0989) | (0.0845) | (0.1124) | (0.0901) | (0.0892) | (0.1036) |
| Age | 0.0126 | 0.0432** | 0.0435*** | 0.0885*** | 0.0175 | 0.0090 | 0.0470*** | 0.0095 | 0.0113 |
| | (0.0176) | (0.0200) | (0.0168) | (0.0175) | (0.0152) | (0.0166) | (0.0144) | (0.0150) | (0.0181) |
| Age squares | -0.0002 | -0.0005** | -0.0004** | -0.0009*** | -0.0003* | -0.0000 | -0.0005*** | -0.0001 | -0.0001 |
| | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) | (0.0002) |
| Employment (1=in labour market) | 0.1155 | 0.1595 | 0.0122 | -0.1195 | 0.3244*** | 0.1148 | 0.4544*** | 0.3864*** | 0.0611 |
| | (0.1038) | (0.1295) | (0.1249) | (0.1071) | (0.0990) | (0.1251) | (0.1072) | (0.1080) | (0.1288) |
| Secondary education | 0.6503*** | 0.2224 | 0.4065*** | 0.4066*** | 0.3752*** | 0.2293 | 0.3071** | 0.2691** | 0.7276*** |
| | (0.1115) | (0.1977) | (0.1091) | (0.1056) | (0.1338) | (0.1498) | (0.1299) | (0.1108) | (0.1401) |
| Tertiary education | 1.2263*** | 0.8256*** | 0.7957*** | 0.5705*** | 0.8482*** | 0.8898*** | 0.2710* | 0.6491*** | 1.0181*** |
| | (0.2539) | (0.2676) | (0.1652) | (0.1827) | (0.1390) | (0.1809) | (0.1612) | (0.1816) | (0.1757) |
| 2nd quintile income (poorer) | 0.0267 | 0.3398 | 0.0556 | 0.0354 | -0.0978 | 0.1604 | 0.2091 | 0.0825 | 0.3102 |
| | (0.1784) | (0.2216) | (0.1818) | (0.1553) | (0.1404) | (0.2300) | (0.1366) | (0.1433) | (0.1967) |
| 3rd quintile income (poor) | 0.3272* | 0.4732** | 0.2992* | -0.1487 | 0.0357 | 0.3739* | 0.6389*** | 0.4361*** | 0.2596 |
| | (0.1691) | (0.2168) | (0.1670) | (0.1579) | (0.1370) | (0.2045) | (0.1448) | (0.1443) | (0.2058) |
| 4th quintile income (richer) | 0.4759*** | 0.6007*** | 0.3406** | 0.0261 | 0.1403 | 0.3447* | 0.4955*** | 0.4447*** | 0.4736** |
| | (0.1661) | (0.2089) | (0.1670) | (0.1485) | (0.1340) | (0.2066) | (0.1386) | (0.1423) | (0.1944) |
| 5th quintile income (richest) | 0.7805*** | 0.7575*** | 0.5270*** | 0.2270 | 0.2201* | 1.0093*** | 0.6367*** | 0.6952*** | 0.7225*** |
| | (0.1562) | (0.2011) | (0.1617) | (0.1406) | (0.1318) | (0.1865) | (0.1517) | (0.1437) | (0.1864) |
| Constant | -1.8575*** | -3.0126*** | -2.3998*** | -3.3865*** | -1.1244*** | -2.4472*** | -1.4881*** | -1.3157*** | -2.3774*** |
| | (0.3691) | (0.4466) | (0.3402) | (0.3741) | (0.3230) | (0.3959) | (0.3134) | (0.3605) | (0.4205) |
| Observations | 1,000 | 1,600 | 1,000 | 1,600 | 1,004 | 1,000 | 1,000 | 1,000 | 1,000 |
| Pseudo R-squared | 0.113 | 0.0702 | 0.0729 | 0.0583 | 0.0880 | 0.158 | 0.108 | 0.0840 | 0.107 |
| Log Likelihood | -499.9 | -314.2 | -469 | -460.2 | -618.8 | -325.4 | -564.1 | -601.6 | -395.6 |

Note: *** significant at 1%; ** significant at 5%; * significant at 10%.

**Table 4.7: Determinants of borrowing from formal financial institutions**

| Probit regression | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| VARIABLES | IDN | KHM | LAO | MMR | MYS | PHL | SGP | THA | VNM |
| Gender (1=female) | 0.0926 | 0.2033*** | -0.1341 | 0.0884 | -0.1388 | 0.1821 | -0.0290 | 0.0793 | -0.0149 |
| | (0.1013) | (0.0750) | (0.1136) | (0.0774) | (0.1036) | (0.1209) | (0.0998) | (0.1022) | (0.0938) |
| Age | 0.1010*** | 0.0799*** | 0.0789*** | 0.0759*** | 0.0426* | 0.0811*** | 0.1659*** | 0.1299*** | 0.0534*** |
| | (0.0224) | (0.0132) | (0.0241) | (0.0139) | (0.0223) | (0.0189) | (0.0509) | (0.0240) | (0.0172) |
| Age squares | -0.0012*** | -0.0010*** | -0.0008*** | -0.0007*** | -0.0007** | -0.0008*** | -0.0018*** | -0.0012*** | -0.0006*** |
| | (0.0003) | (0.0002) | (0.0003) | (0.0002) | (0.0003) | (0.0002) | (0.0006) | (0.0002) | (0.0002) |
| Employment (1=in labour market) | 0.2866*** | 0.1786** | 0.3575** | 0.2079** | 0.2579** | 0.3548** | 0.5684*** | 0.1983 | 0.3464*** |
| | (0.1097) | (0.0788) | (0.1687) | (0.0919) | (0.1306) | (0.1461) | (0.1441) | (0.1246) | (0.1268) |
| Secondary education | 0.2788** | -0.2625* | 0.3314** | -0.2188** | 0.0227 | 0.1149 | 0.2708 | -0.0297 | -0.1648 |
| | (0.1133) | (0.1589) | (0.1309) | (0.0965) | (0.1758) | (0.1467) | (0.1770) | (0.1307) | (0.1094) |
| Tertiary education | 0.4155 | -0.4493* | -0.0342 | -0.5148** | 0.3736** | 0.2653 | 0.2835 | 0.3914* | -0.0371 |
| | (0.2566) | (0.2709) | (0.2238) | (0.2146) | (0.1774) | (0.1940) | (0.2017) | (0.2076) | (0.1570) |
| 2nd quintile income (poorer) | -0.1475 | 0.1864* | 0.1779 | -0.0687 | 0.3845** | 0.3498 | 0.4256** | 0.2305 | -0.2313 |
| | (0.1780) | (0.1121) | (0.1999) | (0.1147) | (0.1928) | (0.2302) | (0.1953) | (0.1558) | (0.1511) |
| 3rd quintile income (poor) | 0.2124 | 0.2393** | 0.0461 | -0.3145*** | 0.1751 | 0.4984** | 0.5477*** | -0.1792 | -0.2108 |
| | (0.1587) | (0.1126) | (0.1973) | (0.1165) | (0.1941) | (0.2151) | (0.1880) | (0.1672) | (0.1495) |
| 4th quintile income (richer) | 0.2451 | 0.3478*** | 0.1491 | -0.3080** | 0.5673*** | 0.4144* | 0.6964*** | -0.1425 | -0.3040** |
| | (0.1604) | (0.1112) | (0.1925) | (0.1196) | (0.1793) | (0.2125) | (0.1825) | (0.1684) | (0.1444) |
| 5th quintile income (richest) | 0.0684 | 0.3879*** | 0.2076 | -0.1528 | 0.6629*** | 0.6474*** | 0.3793* | 0.0561 | -0.4712*** |
| | (0.1539) | (0.1098) | (0.1847) | (0.1133) | (0.1756) | (0.2076) | (0.1963) | (0.1715) | (0.1505) |
| Constant | -3.3719*** | -2.4658*** | -3.5144*** | -2.5859*** | -2.3666*** | -3.9427*** | -5.5567*** | -4.3151*** | -1.7201*** |
| | (0.4390) | (0.2768) | (0.5203) | (0.3066) | (0.4365) | (0.4395) | (1.1025) | (0.5860) | (0.3746) |
| Observations | 1,000 | 1,600 | 1,000 | 1,600 | 1,004 | 1,000 | 1,000 | 1,000 | 1,000 |
| Pseudo R-squared | 0.0614 | 0.0493 | 0.0538 | 0.0567 | 0.0871 | 0.0849 | 0.164 | 0.0672 | 0.0411 |
| Log Likelihood | -452.3 | -909.9 | -297.1 | -760.5 | -365.2 | -287.3 | -420.5 | -425.3 | -479.9 |

Note: *** significant at 1%; ** significant at 5%; * significant at 10%

## 4.6. Conclusion

The chapter examines the importance of financial inclusion on economic development and growth in ASEAN region. We examined the importance of financial inclusion on 3 key financial variables: (a) ownership of account in formal financial institutions, (b) individual saving account at formal financial institution, and (c) borrowing from formal financial institutions.

The results indicate that status of employment and education are two key variables that will promote financial inclusion in the ASEAN region. The ability to earn and retain in the labour market seems to a key determinant for financial market development in the region. This has high correlation to the economic growth and development in the ASEAN countries. The result also indicates that education and educated individuals tend to use the financial services more actively than less educated individuals. There is a need to develop strong financial education to less educated individuals to use more of financial services that will have positive impact on their welfare.

Overall, the association between each determinant and the three indicators of financial inclusion are quite consistent across countries in ASEAN. For ASEAN LDCs and particularly Cambodia, we found positive association between financial inclusion and its determinants for most cases. The impact of gender in our analysis varies across the respective countries under study. The gender gap of male to female in terms of holding financial accounts is affected by various domestic factors such as institutions, culture and level of education. It is clear from our study that the importance of females in promoting and driving financial inclusion is critical as they tend to play an important role in the household dynamics and welfare. Targeting older individuals by bringing financial services to them through financial technology is a promising option to promote financial inclusion. Bringing poor and lower-educated individuals as well as those not in the labour force into formal financial market is also indispensable if unbanked population is to be reduced

The above study also highlights significant institutional and structural barriers of financial inclusion in the region. The key factors for the barriers of financial inclusion are cost, distance, lack of money, lack of documentation and the absence of need of financial services remain significant barriers to access to financial services across ASEAN countries. There is an urgent need to address these institutional and structural barriers of financial inclusion at domestic and regional level. There barriers will have significant impact on regional integration and economic growth of ASEAN.

# CHAPTER 5: FINANCIAL DEVELOPMENT AND INCLUSION ON SAVING BAHAVIOUR: THE CASE STUDY OF CAMBODIA

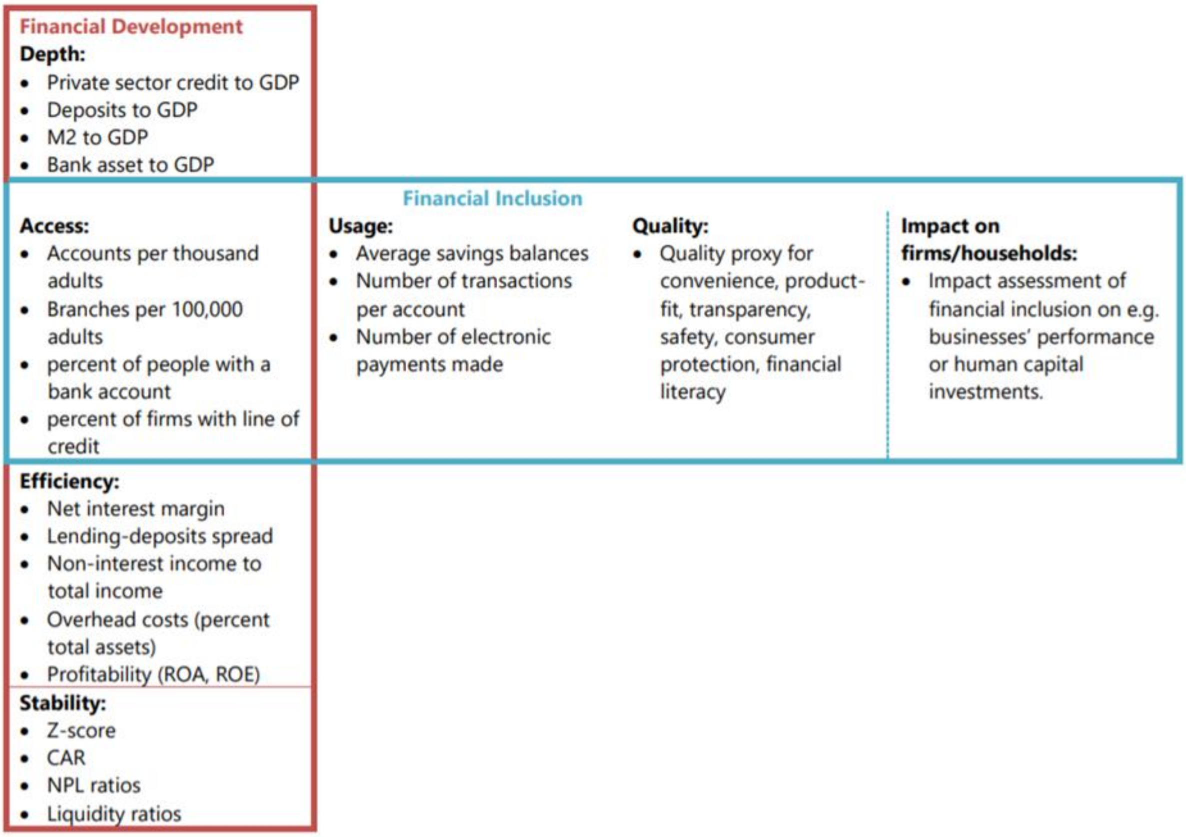
## 5.1. Introduction

Financial development and financial inclusion are an integral part of economic development and growth in terms of mobilizing key economics resources for efficient economic activities (Schumpeter, 1911; King and Levine, 1993). The mobilization of resources through financial intermediation creates allocative efficiency (direct resources to most productive investment and activities) and also promotes efficiency (investment in new innovations and technologies). Recent studies also highlight strong relationship between financial intermediation and economic growth (see, e.g., Rajan and Zingales, 1998; Beck et al., 2000; Levine et al., 2000; Khan, 2001 and Demirgüç-Kunt et al., 2008).

Financial inclusion and financial development directly play key roles in economic development and are intricately linked. Financial inclusion can overlap with financial development in some economic and social dimensions and could complement each other well. However, financial development tends to have a broader concept with several economic dimensions such as depth, access, efficiency, and stability. The "access" to financial market is the key component that financial development overlaps with financial inclusion. Box 1 illustrates the link between financial inclusion and financial development.

Financial inclusion, which is defined as the access and usage of formal financial services to all people in the economy especially the vulnerable population, is critical to alleviate poverty and promote inclusive wealth-creation in the economy. For example, the development of microfinance institutions and non-bank financial institutions in developing countries increase financial participation of vulnerable population in the economy by providing products and services to the under-served segment of the population (Carmichael and Pomerleano, 2002; Michael, 2004). Sahay et al. (2015) find that household's access to formal financial services has a strong positive relationship with economic growth. Dabla et al. (2015) using general equilibrium model show that lower costs of access to financial services, relaxing collateral requirement, and thereby increasing firms’ access to credit would increase growth. Buera, Kaboski, and Shin (2012) find that microfinance has positive impacts on consumption and output.

**Box 5.1: Financial Inclusion and Financial Development**




Source: World Bank

Financial intermediation is the overlapping part of financial development and financial inclusion. It is defined as the mobilization of savings from the informal to the formal sector by allocating scare resource (savings) to productive investments in the economy. The formal financial sector also allows effective transmission mechanism of monetary policy, creating the desired money multiplier effect in the economy. Financial intermediation and particularly financial inclusion are an important enabler for poverty reduction according to United Nations, an indication of economic and social inclusiveness not only in developing countries but also in developed countries. The access to financial services and mobilization of resources through savings and intermediation are critical dimensions of creating efficiency through financial institutions such as the banks (Honohan, 2004; Beck, Demirgüç-Kunt, and Levine, 2007).

In this chapter, we explore the impact of financial development and financial intermediation on financial inclusion of the Cambodian economy. It is understood that most of the savings in developing economies are not done through the financial markets but through informal saving mechanisms (Aliber, 2015). As such, the impact of financial inclusion in terms of shift from informal to formal savings and investment through financial institutions will have strong positive consequences on resource mobilization of productive investments in the domestic economy. The increase in formal savings will positively impact on the wealth creation for the vulnerable population in terms of access to more financial products. It will also reduce the asymmetric information issues with regards to bank borrowing by increasing their credit worthiness. The increase in formal savings through financial institutions also increases the effectiveness of the monetary policies on the domestic economy. As the economy formalizes, the conduct of monetary policy through better control over money supply and fiscal collection, becomes much more efficient.

This chapter also examines the impact of financial intermediation such as bank deposits, mobile banking, credit cards and debit cards on the saving and borrowing behavior of individuals in Cambodian economy using data from Global Findex database in 2017. Particularly, we examine if increasing financial intermediation to the vulnerable population at the poorest segment of the society would increase their formal saving behavior. Our study is close to the study by Beck, Demirgüç-Kunt, and Levine (2007) in terms of the impact of financial development on changes in the distribution of income, which disproportionately boosts incomes of the poorest quintile and reduces income inequality. This study is the first study to examine the effects of financial intermediation on the formal saving behavior in developing countries such as Cambodia.

Financial inclusion has become instrumental to addressing country's economic growth, reduce inequality and reduces overall national poverty rates. Access to finance has become an essential policy tool for national and global policymakers to improve economic growth and stability. With a certain portion of the population being excluded from access to finance, there is a potential loss of deposits or savings, investible funds capable of enhancing credit creation and capital accumulation, which result in loss of capacity of the economy to generate socio-economic development. Elimination of blockages to financial inclusion has significant direct impacts on productivity and GDP growth through smarter allocation of resources and more efficient financial contracting; resulting in stronger entrepreneurial activities and new business start-ups that increase aggregate output.

The paper is organized as follows. Section 2 provides the discussion on the impacts of financial integration on financial inclusion in Cambodia and Vietnam. In Section 3, we provide the analysis on the relation between financial development and financial inclusion. Section 4 examines the effect of financial literacy on financial inclusion. The data and empirical model discussions are given at Section 5. Policy conclusion is given at Section 6.

## 5.2. Financial Integration and Inclusion in Cambodia

After Asian financial crisis in 1997 countries in the region took steps collaboratively to make the region more resilient and less prone to future possible negative shocks. Benefits from deeper regional financial integration including improved productivity and living standards, better allocation of savings and investment across countries (particularly, from aging population countries to emerging economy countries), and promotion of financial inclusion were also underlying motive of the integration efforts/initiatives (IMF, 2015). The initiatives comprise of capital account liberalization, financial service liberalization, capital market development, Chiang Mai Initiative Multilateralization, the Asian Bond Market Initiative, Joint Meeting of Minister of Finance and Central Bank Governors, ASEAN+3 and the Executives' Meeting of East Asia-Pacific Central Bankers, etc.

Empirical evidence on the relationship between financial integration and financial inclusion is sparse. Recent cross-country study by the IMF in 2015 suggests that there is a positive association between cross-border banking (financial) integration and financial inclusion, but the association is only confirmed in middle- and high-income countries not in low-income ones (April 2015 *Regional Economic Outlook: Asia and Pacific).* The study uses cross-border banking integration—the size of cross-border bank assets and liabilities in percent of GDP—as a measure of financial integration and number of ATMs (Automated teller machine) per 100,000 adults as a measure of financial inclusion. It also adds other covariates with one-year lag, including indicators of quality of financial infrastructure, measures of financial depth (bank-to-credit-to-GDP ratio), banks' stability, banking concentration and competition (the Herfindahl index and Boone indicator), and level of education (a proxy for financial literacy). Sample spans over 2001-2012 period and covers 150 countries. The analysis also highlights the importance of the possibility of the threshold effect of financial integration on financial inclusion since the coefficient of the interaction term between financial integration, financial development and financial literacy is positive and statistically significant. This implies that the relationship between financial integration and financial inclusion emerges only after financial sector development and financial literacy is above a certain level. The study continues further to show the positive effect of regional financial integration on financial inclusion in middle- and high-income Asia but did not include developing Asia due primarily to data availability. Overall, levels of financial development and financial literacy of a country is critically important for promoting financial inclusion of that particular country when undertaking regional financial integration.

The section below analyzes the relationship between financial integration and financial inclusion in Cambodia relative to other countries in Asia Pacific particularly Vietnam.

Cambodia is a member of ASEAN with an economy of 26 billion USD and a population of 16 million (as of 2019). The country has tumulus history of civil war for decades. It organized its first general election in 1993 with the assistance for the United Nations. For the past 20 years growth averaged around 7.5% per annum. This robust economic growth has transformed Cambodia into a lower-middle income country in 2016. With this shift, the government is focusing on social and economic structure changes and has also increased the budget for capital expenditure. Cambodia financial sector has also developed significantly. Considering that the country has been through a period where money was non-existent (1975-1979) replaced by a barter system, to a period of high inflation and depreciation of its national currency (late 1980s and early 1990s). Overall confidence in the banking system was lacking and United States dollars have dominated the economy as the key currency. It is worth noting that dollarization played a critical role in the early stage of rebuilding the nation bringing in stability and trust to the economy. But continuing to rely on dollars is not sustainable as the economy grows and monetary policy independence is needed. Dollarization limits the role of the central bank as a monetary policy authority since its ability to influence money supply and the role of the central bank as lender of last resort is constraint by the high dollarization in the economy. Such limitation can slowdown the financial market development which is an important condition for financial inclusion. From Cambodia’s experience however direct impact of dollarization on financial inclusion is not clear. Although microfinancing is mostly prevalent amongst the rural and lower segment of the markets whose income are mostly in local currency (Khmer Riel), the majority of loan portfolios are denominated in United

States Dollars. Under normal circumstance, such mismatch in currency would be a big burden for poor customers. However, USD-KHR exchange rate has been relatively stable (moving within 1% band) for the past 20 years and such mismatch risk has been minimal. Further study on the impact of dollarization on financial inclusion is needed.

Recognizing the critical role of the financial sector to rebuild and further develop the economy, the Royal Government of Cambodia put in place a Financial Sector Blueprint[19] 2001-2010 with rollover updating every five years. The Strategy was largely driven by the National Bank of Cambodia where 90% of the financial sector is under its supervision and regulation, and regularly updated to reflect new development and directions. In the Strategy, financial inclusion was recognized as an important factor to further develop financial sector.

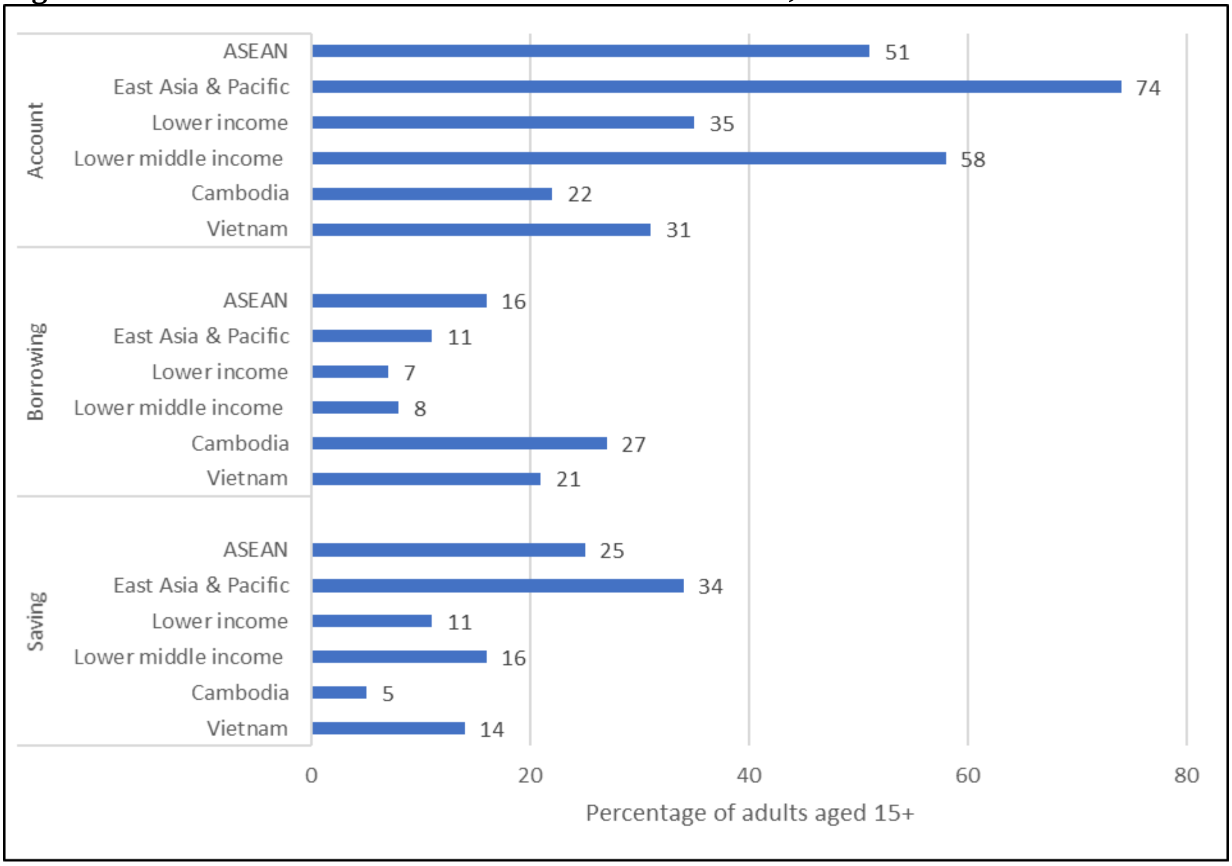
Among the Cambodia, Lao PDR, Myanmar and Vietnam (CLMV) countries, Viet Nam has the most developed financial sector, making it the model of transitional economic development among its less-developed neighbors. Since its Doi Moi (renovation) policy was launched in 1986, the country has been transitioning from a centrally planned economy to a socialist-oriented market economy. State-owned enterprises (SOEs) account for roughly 40% of GDP. In the Financial sector, State owned financial institutions account for more than half of the total financial sector assets (Nguyen, 2019) which act as policy banks for the government subsidized lending to priority sectors. Between 2008 and 2011, Vietnam's managed currency, the dong, was devalued by more than 20%. Government economic policy in recent years has swung back and forth from a growth-oriented strategy to one that focuses on fostering macroeconomic stability. Vietnam reported that 40% of its adult population have a bank account and most of economic transaction are cash based[20]. In January 2020, Vietnam government approved its National Financial Inclusion Strategy until 2030. The strategy aimed at having 85% of its adult population included in the formal financial sector as well as having more micro and SMEs accessing credit.

Despite significant progress, access to finance in Cambodia remains limited. Three indicators of financial inclusion, namely adults' (aged 15+) having at formal financial institutions [Account], having savings at formal financial institutions [Saving] and taking loan from financial institutions [Borrowing], acquired from the World Bank's Global

[19] The name was subsequently changed to National Strategy for Financial Sector Development.
[20] https://vietnamnet.vn/en/business/vietnam-pm-approves-national-strategy-for-financial-inclusion-until-2025-611649.html

Findex database in 2017 are used for the case study of Cambodia. Figure 5.1 below shows that Cambodia exhibits the rates of having account and saving at financial institution considerably lower than average rates for ASEAN, East Asia and the Pacific, lower income and lower middle-income economies. Nevertheless, percentage of adults taking out loan from financial institution in Cambodia is higher than the average rates of the same indicator in the aforementioned country groups. By comparison the proportion of adult aged 15-year-old and above having an account with financial institutions in Vietnam is lower than ASEAN average but higher than Cambodia. Nevertheless, percentage of adults taking out loan from financial institution in Cambodia is higher than the average rates of the same indicator in the aforementioned country groups.

**Figure 5.1: Financial inclusion in Cambodia and Vietnam, 2017**

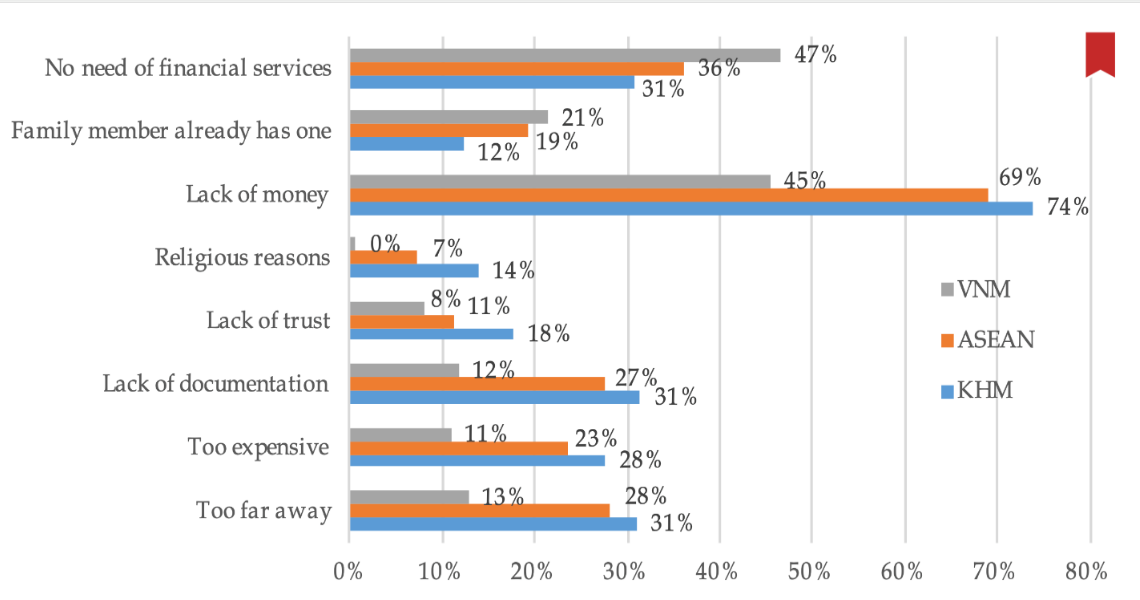



Source: World Bank's Global Findex data, 2017

In Cambodia, the key barrier to financial inclusion has been the low level of awareness and financial literacy. The ability to engage with information on financial services is an important precursor to effective usage of financial services. Majority of the population (75%) earn less than USD 245 per month implying low disposable income for financial services costs. Furthermore, despite Micro-Finance Deposit Taking Institutions

(MDIs) and Micro-Finance Institutions (MFIs) playing a significant role in expanding the reach and promoting usage of financial products there are still gaps in terms of access to more rural (commune and village level) and limited products offered by these institutions. It is worth mentioning that Cambodia's financial sector is segmented into banks dominating urban scene and microfinance institutions dominating the rural scenes. Unlike banks, MFI are not allowed to take deposits from the public but can only disburse credit. In order to encourage usage, the financial products need to be further customized to address the target segment's socio-economic status and needs. This gap has led to the population not served by the formal institutions to use informal channels or otherwise remain unserved.

**Figure 5.2: Reasons for not having account at financial institution in Cambodia and Vietnam, 2017**




Source: Author's estimation from World Bank's Global Findex data in 2017

Cambodia's National financial inclusion strategy was adopted in 2019 and used as roadmap to consolidate efforts currently being carried out by the government, development partners and private sector players focusing on areas that need immediate intervention. The National Bank of Cambodia, Ministry of Economy and Finance, Ministry of Posts and Telecommunications, and Ministry of Interior, as leading institutions, are coordinating on the action plan implementation and ensure the cooperation among all stakeholders to achieve the goals of financial inclusion. Key objectives aim to increase access to quality formal financial services and reduce gender inequality, particularly to reduce the financial exclusion of women by half from 27% to 13%, and increase usage of formal financial services from 59% to 70% by 2025. Various priority activities have been identified to achieve the goals, including (1) encourage savings in formal financial institutions, (2) promote innovative credit products for SMEs, (3) enable the expansion of payment system capabilities, (4) increase broader insurance products, (5) strengthen the capacity of the financial sector regulators and (6) increase consumer empowerment and financial sector transparency, which are classified in different categories, such as banking sector, non-banking sector, cross-cutting policies and sector coordination, consumer empowerment, and regulators institutional capacities.

Interestingly, despite low financial inclusion, Cambodia financial sector is very open and integrated in the region. On the other hand, with a lower level of financial sector openness and integration, Vietnam's level of financial inclusion is higher than Cambodia. This seems to contradict certain literatures that found that financial integration promotes financial inclusion as integration allows for more and cheaper capital available to the underserved segments of the population (Montanes, 2018).

We use Chinn-Ito index[21], a measure of the extent of openness in capital account transaction, and percentage of consolidated foreign claims of Bank of International Settlements (BIS) reporting banks to GDP, a measure of financial integration, to present status of financial openness in Cambodia relative to ASEAN average as shown in Figure 5.3 below. While the latter measure is straightforward, the former comprises a set of capital controls policies and regulations based on information in the IMF's Annual Report of Exchange Arrangements and Exchange Restrictions (AREAER). The Chinn-Ito index of capital account openness is the first component of the combined dummy variables of four major categories on the restrictions of external accounts, namely the presence of multiple exchange rates; restriction on current account transactions; restriction on capital account transaction; and the requirement of the surrender of export proceeds.

As indicated in Panel A in Figure 5.3 below, Cambodia's capital account is extremely open with the maximum capital account openness index of 1.0, twice as high as that of the ASEAN average. Among ASEAN member states, only Singapore exhibited similar score of 1.0, while the index for Vietnam were only 0.4. There are number of incentives set out in the Cambodian financial legal framework that makes Cambodia quite unique relative to other countries in the region. The incentives include: no restriction on foreign ownership, no local joint venture requirement, liberalization of interest rate, free

[21] http://web.pdx.edu/~ito/Chinn-Ito_website.htm

repatriation of benefits, and no exchange control (Youdy, 2019). Latest data from the National Bank of Cambodia shows that share of foreign-owned bank in Cambodian banking sector in 2018 was 50.1%, which was notably higher than shares in other countries in the region (National Bank of Cambodia, 2018). Moreover, there is two state-owned commercial banks[22], Agricultural and Rural Development Bank (ARDB) and SME bank, which have a small market share in the banking system, suggesting a marginal involvement of the state in the financial system. In contrast, Vietnam's financial sector is dominated by the state-owned financial institutions,

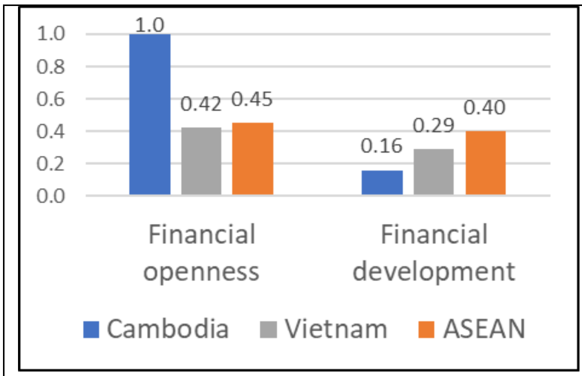
On the financial integration side, Cambodia's cross-border banking integration is also relatively high as it is close to ASEAN average and lags behind only Singapore (143%), Malaysia (50%) and Thailand (34%) (IMF, 2019).

Nevertheless, the level of financial development in Cambodia remains relatively low, which is twice as low as ASEAN average as shown in Panel A in Figure 5.3 below. The level is also substantially lower than level in its neighboring countries, such as Vietnam (0.29) and Thailand (0.70). It is important to note that the financial development index is constructed from indexes of financial institution and financial market, each of which captures three financial aspects, namely financial depth, financial access and financial efficiency (IMF, 2019). This, in effect, is very interesting because Cambodia shows extremely high index of capital account openness and relatively high cross-border banking integration, its rate of financial inclusion is considerably lower than ASEAN average of 51% and its neighboring peers, e.g., Vietnam (31%).

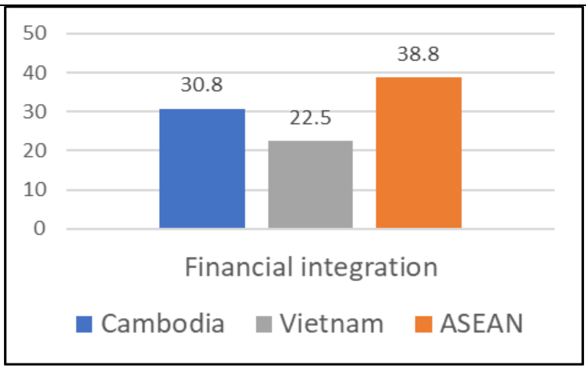
[22] The Government has established another state-owned specialized bank named Small and Medium Enterprises Bank (SME bank). This bank is operating in September 2020.

**Figure 5.3: Financial openness, development and integration in Cambodia, Vietnam and ASEAN**

Panel A: Financial openness and development




Panel B: Cross-border integration in 2016



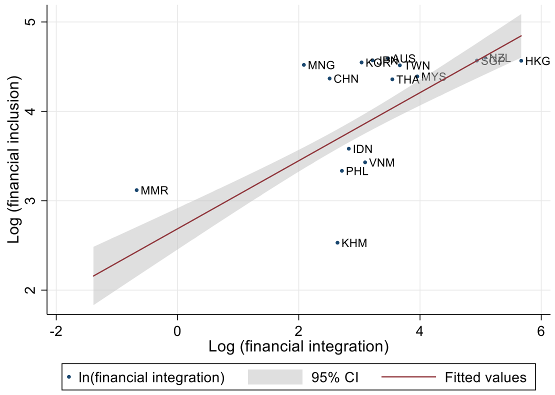

Source: Openness is from Chinn-Ito Index, 2019; financial sector development index and financial integration are from IMF's International Financial Statistics, 2019. Note: Openness index and financial development index are normalized to be between zero and one. Financial integration (cross-border banking integration) is measured by percentage of consolidated foreign claims of Bank of International Settlement reporting banks to GDP.

The observation above implies high level of financial openness and integration does not necessarily translate into higher level of financial inclusion as in the case of Cambodia. Furthermore, we also observe that Vietnam has a much lower level of financial openness than Cambodia, but its level of financial inclusion is higher. This observation gives to understand that many more factors than financial openness and integration contribute to promoting financial inclusion and may include the level of financial sector development.

Below, we look into the relationship between cross border banking integration and financial inclusion using data from 150 countries. Using percentage of adults having an account and saving account at formal financial institutions as measure of financial inclusion and percentage of consolidated foreign claims of BIS's reporting banks to GDP as a measure of cross-border banking integration, we show that there is positive association between cross-border banking integration and financial inclusion for a sample of 150 countries. Consistently, the relationship is also evident at East Asia and the Pacific region as indicated in Figure 5.4 below. These results also corroborate with findings shown in the IMF report above.

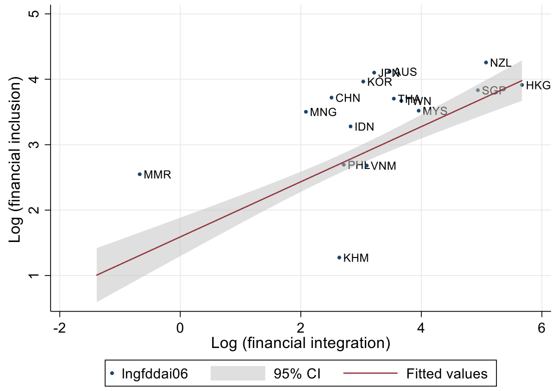
**Figure 5.4: Cross-border banking integration and financial inclusion in East Asia and the Pacific**

Panel A: Cross-border banking integration and financial inclusion in East Asia & the Pacific in 2014




Note: Financial inclusion: (%) of adults with account at formal financial institutions; financial integration: (%) Consolidated foreign claims of BIS's reporting banks to GDP

Panel B: Cross-border banking integration and financial inclusion in East Asia & the Pacific in 2014




Note: Financial inclusion: (%) of adults with saving at formal financial institutions; financial integration: (%) Consolidated foreign claims of Bank of International Settlement reporting banks to GDP

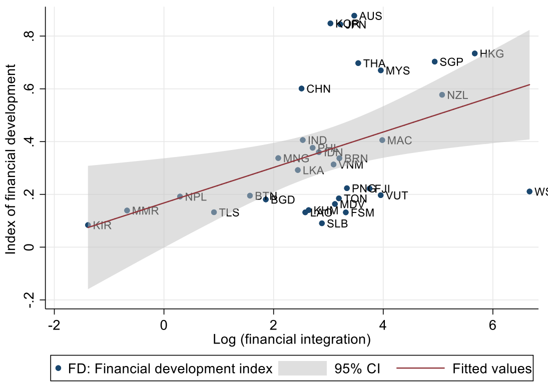
Source: World Bank's Global Financial Development database 2018; Global Findex database 2014

It is interesting to note that the state of Cambodia financial integration did not lag far behind from Vietnam, as well as few other countries such as the Philippines, Indonesia and China; nevertheless, its financial inclusion level stood quite far behind that of those countries as shown in Figure 5.1. This suggests that other factors that influence financial inclusion are likely to be important. And some of the factors may include levels of financial development and financial literacy as indicated in the IMF's report above.

Figure 5.5 below shows that the relationship between financial integration and financial inclusion in Asia Pacific is likely mediated by level of financial development within the domestic economy. Such relationship is also evident on the global level when all countries in the sample are included, but results are not shown here. As indicated in Panel A, the level of financial development in Cambodia was much lower than that in Vietnam, while level of financial institution access in Cambodia was also lower than that in Vietnam as shown in Panel B.

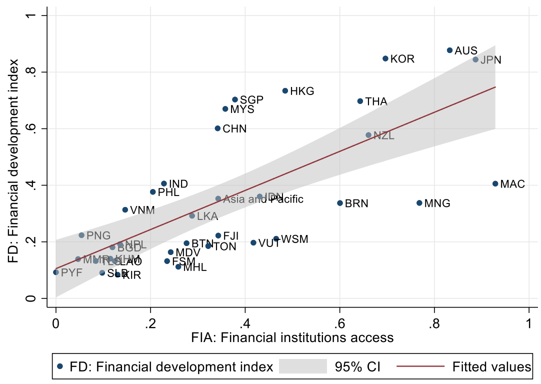
**Figure 5.5: Financial integration, development and inclusion in Asia Pacific**

Panel A: Cross-border banking integration and financial development




Note: Financial integration: (%) Consolidated foreign claims of Bank of International Settlement reporting banks to GDP

Panel B: Financial development and financial institution access




Note: Financial institution access is an index of combined number of commercial bank branches per 100,000 adults and ATMs per 100,000 adults.

Source: WB financial development database 2018 and BIS

## 5.3. Financial Development and Financial Inclusion

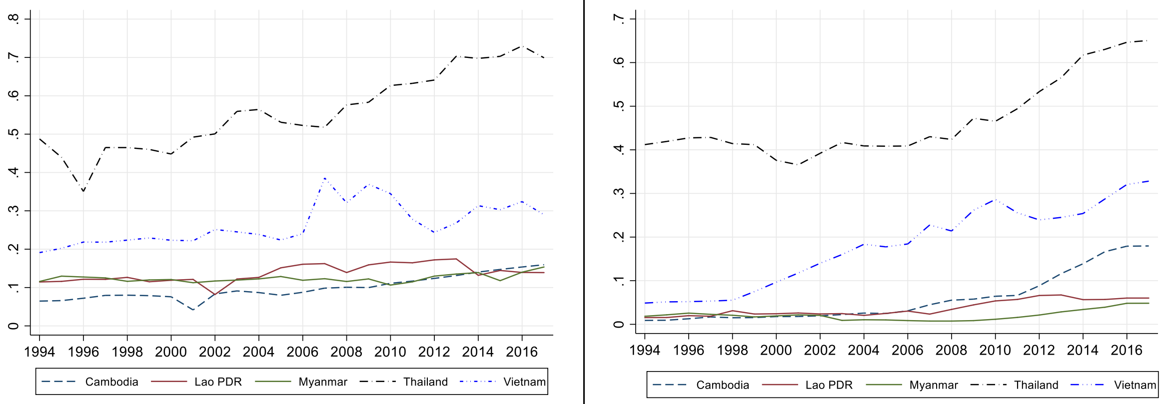
Financial development as seen earlier is recognized as vital factors to improve financial inclusion. To develop a deeper understand of this relationship, we examine the evolution of financial sector development and financial institution depth in Cambodia and Vietnam by using different databased such as the Financial Development dataset prepared by the IMF, World Bank Global Financial Development Database and World Bank FinStats, IMF's Financial Access Survey, Dealogic corporate debt database, and Bank for International Settlement (BIS) debt securities database. The financial development index contains two broad aspects of the financial system, namely financial institutions and financial markets, each of which covers their respective depth, access, and efficiency.

Figure 5.6 shows evolution of financial sector development in selected ASEAN countries during the last two decades. Panel A shows that among the selected countries, Thailand and Vietnam started at high base in mid 1990s and continued to gradually become more developed until recent years, while Cambodia, Lao PDR and Myanmar started at very low bases and showed slow advancement in their financial system during the last two decades. Interestingly, financial development in Thailand exhibited much faster pace of development than those in other countries and is considerably more advanced than other countries in the sample, which could be attributed to size and sophistication of financial market in Thailand relative those in Vietnam, Myanmar, Lao PDR and Cambodia. The level of financial development in Vietnam dropped quite substantially few years after the global financial crisis, however, it improved quite remarkably in the last couple years. Nonetheless, the level of development in Vietnam remains considerably higher than that in Cambodia despite its continued improvement during the last 6 years.

**Figure 5.6: Index of financial sector development & financial institution depth in selected ASEAN countries**

Panel A: Index of financial sector development

Panel B: Index of financial institution depth



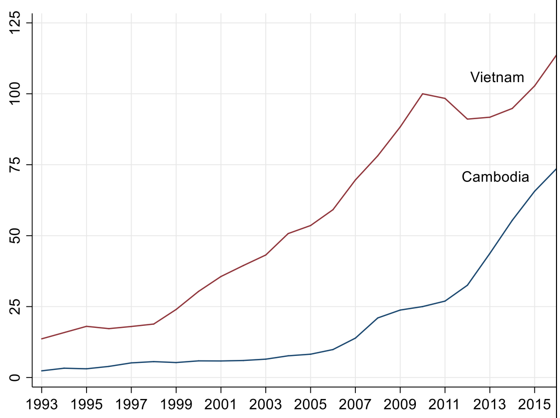

Source: IMF's Financial Development Index database 2019

Similar pattern of the index of financial development during the last two decades is also observed for the index of financial institution depth as indicated in Panel B in Figure 5.6 below. Nevertheless, depth of financial institution for Cambodia rose steeply during the last couple years suggesting room for Cambodia to catch up its neighbouring peer Vietnam.

We further examine other financial depth indicators for Cambodia relative to those for Vietnam to see whether there exists indicator exhibiting any relatively unique pattern (see Figure 5.7). Among the six depth indicators shown in Figure 5.7, the share of financial system deposit to GDP shows a completely different pattern from others. Unlike other depth indicators which put Cambodia in a considerably lower position than Vietnam, the share of financial system deposit to GDP for Cambodia has been substantially higher than that for Vietnam during the last half of decade. This clearly shows that considerable efforts and resources are needed for Cambodia catch up with its neighbouring peer Vietnam.

Figure 5.8 further confirms the supply-side measures of inclusion or access above; however, we observe an interesting pattern which deserves some discussion. As indicated in earlier section, the level of financial inclusion - as measured by whether an adult has an account at formal financial institution, has a saving account at financial institution, and takes loan from financial institution - in Vietnam was significantly higher than that in Cambodia in 2014 and 2017. Panel B in Figure 5.8 below also tends to confirm this inclusion pattern since number of ATM per 100,000 adults in Vietnam has been extremely higher than that in Cambodia during the last decade. By contrast, Panel A in Figure 5.8 below paints a contradicting picture as the number of banks ‘branches per 100,000 adults in Cambodia was considerably larger than that in Vietnam. This may suggest that the financial constraints are likely from the demand side. Those constraints could be education level, income, document, trust, religious reason, the need for financial services, and others which have been shown in the earlier section. Figure 5.8, Panel A below suggests that operational costs of financial institutions in Cambodia could be higher than that in Vietnam given the fact that operating a branch with full time staff is more expensive than operating an ATM machine.

**Figure 5.7: Financial depth in Cambodia and Vietnam, 1993-2016**

<table>
<tr>
<td>Panel A: Private credit by deposit money banks to GDP<br>

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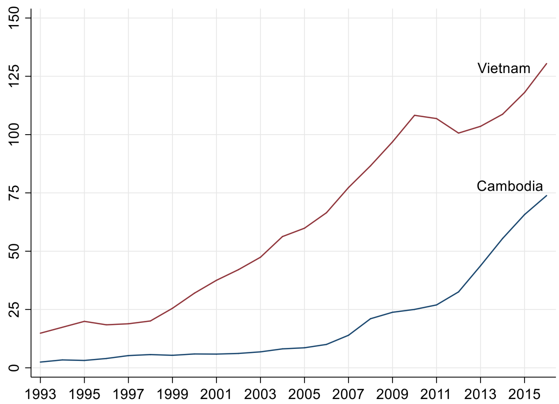
<td>Panel B: Deposit money banks’ asset to GDP (%)<br>

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<tr>
<td>Panel C: Liquid liabilities to GDP (%)</td>
<td>Panel D: Financial system deposit to GDP (%)</td>
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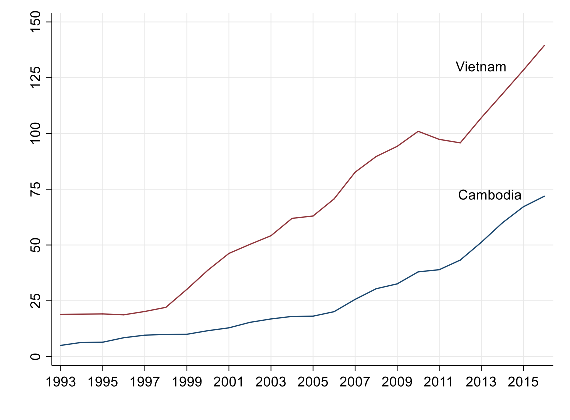
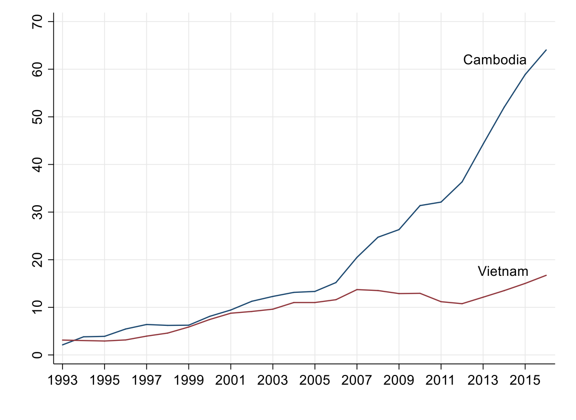
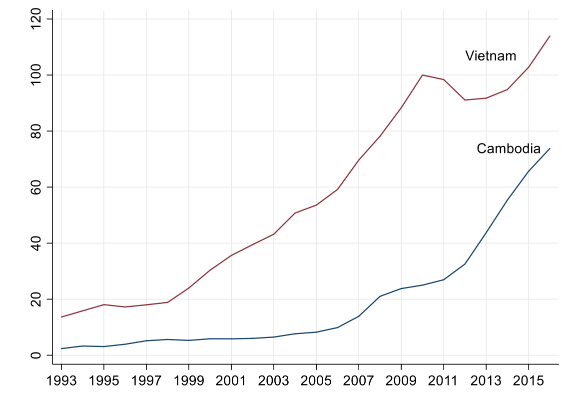
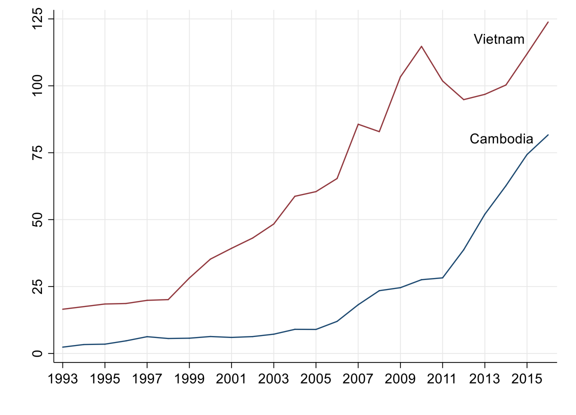



| Panel E: Private credit by deposit banks & other financial institutions to GDP (%) | Panel F: Domestic credit to private sector to GDP (%) |
|---|---|

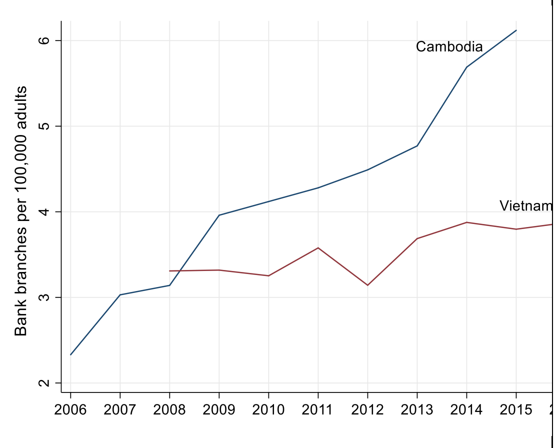


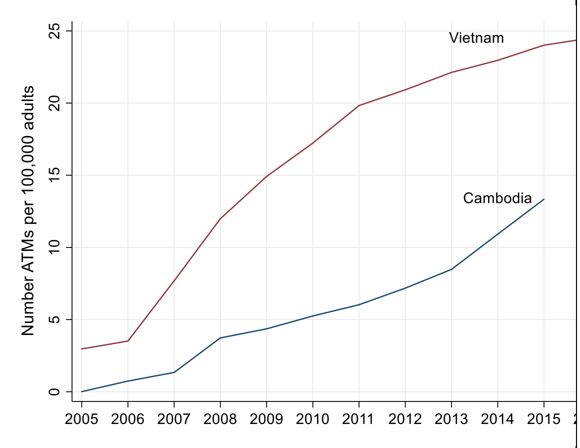




Source: IMF's Global Financial Development database 2018

**Figure 5.8: Financial institution access in Cambodia and Vietnam**

| Panel A: Number of branches per 100,000 adults | Panel B: Number of ATMs per 100,000 adults |
|---|---|




Source: Global Financial Development Database 2018

Overall, financial sector development in Cambodia is lower than that in Vietnam, despite its higher rating on financial integration. This could explain the reasons why

Cambodia's financial inclusion is lower than that of Vietnam. In addition to that there would also other factors, especially financial literacy, that could promote financial inclusion.

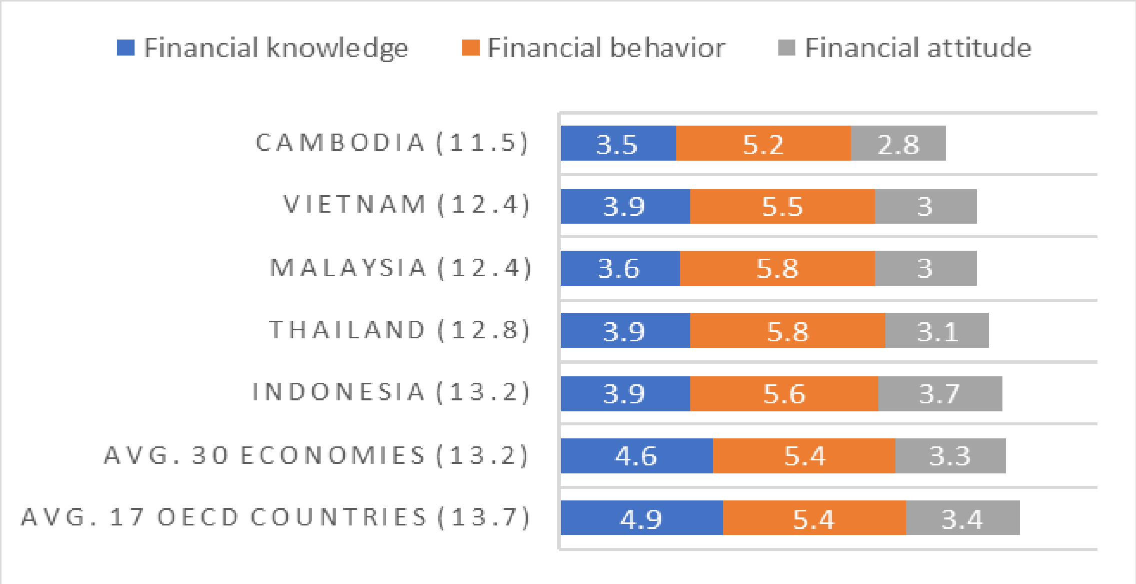
## 5.4. Financial literacy in Cambodia and Vietnam

Given the rapid advancement of financial technologies and innovations new sophisticated financial products and services, which likely carried risks along, it is critically important that consumers are well informed of the sophistication, as well as risk born by the financial products and services. Therefore, lack of financial education may put consumers at much higher risk than ever and may in some ways discourage individuals from using financial products. Using cross-country dataset of 143 countries, Grohmann et al. (2018) show a positive association between financial literacy and financial inclusion, which is also in support of results shown in Lusardi and Mitchell (2014). It is also worth noting that making financial services inclusive is imperative, but rapidly bringing individual into the formal financial system when significant proportion of the adult population lacks proper and sufficient financial education could be problematic. More importantly, financial education should be regarded as a complement, but not a substitute to appropriate consumer protection, financial regulation and supervision (OECD, 2018).

OECD (2018) uses cross-country comparable survey data collected by the International Network on Financial Education (OECD/INFE) and shows that financial literacy, measured by summing scores of financial knowledge, financial behavior and financial attitude[23], among selected five ASEAN countries (i.e., Cambodia, Vietnam, Malaysia, Thailand and Indonesia). In 2015, it is relative lower than the average score of 17 OECD countries, as well as the average score of all 30 survey participants (see Figure 5.9 below).

[23] Financial knowledge is measured based on questions related to time value of money, simple and compound interest rate, risk and return, inflation and diversification, while financial behavior is based on questions related to budgeting, researching before purchasing financial products, paying bills on time and saving/borrowing to make ends meet. For the last measure, financial attitude is measured based on questions related to preferences towards the long term.

**Figure 5.9: Financial literacy in five ASEAN countries, 2015**

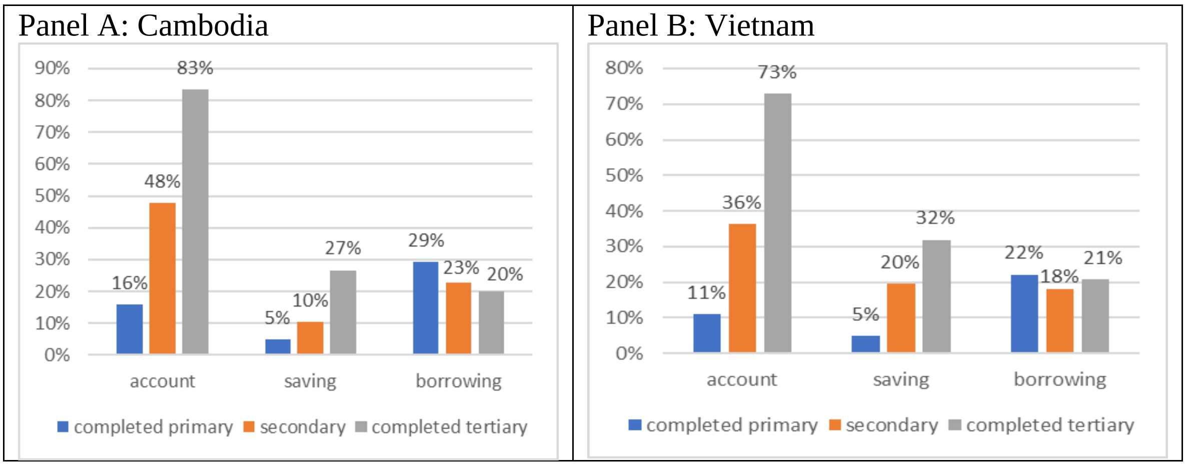



Source: Adapted from OECD (2018, p.13)
Note: The maximum score for the financial literacy is 21 (higher, better).

Cambodia exhibited the lowest financial literacy score, but not considerably far below that of Vietnam. Moreover, scores for the three components of financial literacy in Cambodia are lower than those in Vietnam and other selected ASEAN member states. This clearly suggests that Cambodia and Vietnam urgently need to promote financial education among adult population in their respective countries so as to effectively promote their financial inclusion, while Cambodia has to do much more and inject more resources in its financial education interventions.

Promoting financial literacy could in some ways be conducted indirectly through improving level education, income and employment status of adult population, which are found in Morgan and Long (2019) to be significant drivers of financial literacy in Cambodia and Vietnam. Positive relationship between financial literacy and level of education of adult population is also confirmed by OECD (2018) for 17 OECD economies, 5 selected ASEAN economies or 30 OECD/INFE participating countries. Figure 5.10 below shows a clear pattern of positive association between level education and financial inclusion measures, for example, whether adults have account at formal financial institutions and adults have saving account at financial institutions, in both Cambodia and Vietnam.

**Figure 5.10: Financial inclusion by education level of adults in Cambodia and Vietnam, 2017**




Source: Author's calculation from World Bank's Global Findex dataset 2017

## 5.5. Empirical Framework: Financial Inclusion and Saving Behaviors in Cambodia

The effects of financial technologies such as mobile banking and innovation of financial products such as credit and debit cards will have important implications for the participation of vulnerable population in the financial market activities. It is expected that increasing and improving the financial access of the vulnerable population to financial intermediation (deposition creation function), financial products, and mobile banking will increase their access and participation in the formal financial markets.

In this section, we carefully examined the impact of financial inclusion on the formal saving behavior in Cambodia using the individual data from World Bank Global Findex data in 2017. As opposed to Chapter 4, the analysis in this chapter examines the impact of (a) financial intermediation such as opening of formal accounts, (b) technologies such as mobile banking; (c) financial innovation such as credits cards, debit cards and insurance products; and (d) impact of formal employment on the financial inclusiveness in terms of saving behaviors in the Cambodian economy. The study also carefully examined the impact of financial technologies and innovation of financial products on the saving behaviors of the poor and middle income in the Cambodian economy. The summary of the data used from Global Findex data is given at Table 5.1 below.

The World Bank's Global Findex indicators measure the use of financial services such as measure the behavior of adults aged 15 an above on saving, borrowing, making payments, and managing risks in 148 countries. The survey which was conducted 2011, 2014, and 2017 was based on the random interviews with more than 150,000 nationally representative

In this study, we used the following key variables from Global Findex database for Cambodian economy: (a) the use and purpose of formal account, (b) saving behavior, (c) source and purpose of borrowing, (d) the use of credit card and insurance products for healthcare and agriculture, and (e) individuals having a mobile account with a bank or any financial institutions. In order to examine the impact of financial technologies and financial product innovation on saving behaviors in the Cambodian economy, the dependent variables in the empirical model are dummy variables taking the value of 1 for (a) overall saving behavior and (b) saving with financial account in the Cambodian economy.

**Table 5.1: List of Variables from Global Findex Data for Cambodia**

| Variables | Obs | Descriptions | Remarks |
|---|---|---|---|
| Account | 1,600 | Individuals having account including themselves and with other members at any financial institutions (account = 1, 0 otherwise) | |
| Account_Fin | 1,600 | Individuals having account with a bank or any financial institution (account = 1, 0 otherwise) | Resource mobilization variable through financial institution |
| Account_Mob | 1,600 | Individuals having a mobile account with a bank or any financial institution (account = 1, 0 otherwise) | Formal saving and technology-based mobilization variable |
| Saved | 1,600 | Individuals reported to have saved for past 12 months (including formal and informal) (saving = 1, 0 otherwise) | Dependent variable |
| Saved_Fin | 1,600 | Individuals reported to have saved for past 12 months at bank or any financial institution (saving = 1, 0 otherwise) | Formal saving and resource mobilization variable through financial institution |

| | | | |
|---|---|---|---|
| | | | Dependent variable |
| CreditCard | 1,600 | Individuals reported to having a credit card | Financial innovation |
| DebitCard | 1,600 | Individuals reported to having a debit card | Financial innovation |
| Wage_Account | 1,600 | Individuals reported to have received wages through account at bank or financial institution | Financial innovation |
| Gender | 1,600 | Dummy variable to capture gender (male =1, female = 0) | |
| Employment | 1,600 | Individuals reported to have been employed for past 12 months (employment = 1, 0 otherwise) | |
| Age | 1,600 | Age of reported individual | |
| Education | 1,600 | Education attainment of reported individual: completed primary or less; secondary; completed tertiary or more | |
| Income | 1,600 | Reported individual in income quintile: lowest-quintile (poor), second-quintile, middle-quintile, fourth-quintile, highest-quintile (richest) | The quintiles are captured by dummy variables (not by ordered ranking) that allows for direct interpretation of the results. The ordered ranking will require us to drop one of the quintiles in the regression analysis. |

Source: Global Findex Database

The empirical model to explore the impact of financial intermediation and financial inclusiveness on savings behaviors is implemented using discrete-choice econometric specification model of probit estimation as given below.

$$
\begin{aligned}
Y_i = \alpha_0 + \alpha_1 Gender_i + \alpha_2 Age_i + \alpha_3 Education_i + \alpha_4 Employment \\
+ \alpha_5 Income_i + \alpha_6 Account_i + \alpha_7 Account_{Fin_i} \\
+ \alpha_8 Account_{Mob_i} + \alpha_8 CreditCard_i + \alpha_9 DebitCard_i \\
+ \alpha_{10} Wage_{Account_i} + \varepsilon_i
\end{aligned}
\tag{5.1}
$$

where $Y_i$ is the dependent variable of capturing the saving behaviors of individuals in the economy taking a value of 1 for individuals with (a) overall saving that includes formal and informal savings, (b) saving account in financial institutions, and 0 otherwise. The empirical model includes individual characteristics of gender, age, employment status and education status. We also control for the income level of individuals (by dummy variables) in terms of income quintiles of lowest-quintile (poor), second-quintile, middle-quintile, fourth-quintile, and high-quintile (richest)[24].

We also included the financial intermediation variable in terms of account at financial institution or bank ($Account\_Fin_i$), which is the key variable to capture the formal mobilization of resources in the economy through financial institutions. We also included financial innovation variables of credit card ($CreditCard_i$), debit card ($Debitcard_i$), mobile account ($Account\_Mob_i$), and wage account with financial institutions ($Wage\_Account_i$).

The baseline regression results for saving and saving at financial institutions or banks are given at Tables 5.2 and 5.3, respectively. The results of the overall saving behavior that includes formal and informal is given at Table 5.2. The impacts of financial intermediation and the access to formal financial accounts including formal financial accounts and mobile banking are given from columns (1) to (3). The impacts of financial product innovation such as credit card, debit card, and wage accounts are given from columns (4) to (6).

We also explore the impact of financial intermediation (deposit creation) of having an account and financial innovation of mobile banking, debit card and credit card on the overall saving behavior of individuals in our sample. The results at Table 5.2 indicate that financial intermediation such as having a bank account or associated with another member with account has positive impact on savings in the economy (columns 1 and 2). However, if the individual has a direct account with a bank or financial institution (*Account_Fin$_i$*), it

[24] We also estimated the model by dropping one of the income quintiles to avoid multicollinearity impacts in our estimation. The results on the income quintiles did not change with the dropping one of the quintiles.

has a higher impact on their savings (column 2). We also observe positive impact of financial intermediation such as mobile bank account (*Account_Mob*$_i$) on overall savings in the economy, however, it is much lower as compared to direct account with a bank or financial institution. We also observe that having a wage account has little impact on the overall saving behavior in the Cambodian economy as the coefficient is not statistically significant.

**Table 5.2: Regression Results for Overall Saving (*Saved*$_i$) for Cambodia**

| | Financial Intermediation | | | Financial Innovation | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $Gender_i$ | 0.186** (0.070) | 0.186** (0.070) | 0.177** (0.070) | 0.182** (0.070) | 0.188** (0.070) | 0.181** (0.070) |
| $Age_i$ | -0.009*** (0.002) | -0.009*** (0.002) | -0.009*** (0.002) | -0.009*** (0.002) | -0.010*** (0.002) | -0.009*** (0.002) |
| $Education_i$ | 0.129 (0.092) | 0.123 (0.092) | 0.207** (0.090) | 0.124 (0.096) | 0.159* (0.094) | 0.138 (0.094) |
| $Employment_i$ | 0.294*** (0.071) | 0.294*** (0.071) | 0.315*** (0.315) | 0.308*** (0.071) | 0.302*** (0.071) | 0.311*** (0.071) |
| $poor_i$ | 4.018*** (0.234) | 4.026*** (0.234) | 4.064*** (0.235) | 4.058*** (0.234) | 4.050*** (0.234) | 4.056*** (0.233) |
| $Second\_Quintile_i$ | 4.207*** (0.234) | 4.224*** (0.236) | 4.268*** (0.235) | 4.267*** (0.235) | 4.263*** (0.234) | 4.265*** (0.234) |
| $Middle\_Quintile_i$ | 4.430*** (0.235) | 4.436*** (0.235) | 4.497*** (0.236) | 4.485*** (0.235) | 4.483*** (0.235) | 4.486*** (0.235) |
| $Fourth\_Quintile_i$ | 4.541*** (0.234) | 4.551*** (0.235) | 4.608*** (0.235) | 4.599*** (0.234) | 4.602*** (0.234) | 4.597*** (0.234) |
| $Richest_i$ | 4.528*** (0.235) | 4.540*** (0.236) | 4.640*** (0.235) | 4.611*** (0.235) | 4.619*** (0.234) | 4.612*** (0.234) |
| $Account_i$ | 0.362** (0.081) | - | - | - | - | - |
| $Account\_Fin_i$ | - | 0.373*** (0.089) | - | - | - | - |
| $Account\_Mob_i$ | - | - | 0.233* (0.141) | - | - | - |
| $CreditCard_i$ | - | - | - | - | 0.523 (0.390) | - |
| $DebitCard_i$ | - | - | - | 0.257* (0.142) | - | 0.301** (0.133) |
| $Wage\_Account_i$ | | - | - | 0.167 (0.205) | 0.294 (0.190) | - |
| $Constant$ | -4.435*** (0.282) | -4.437*** (0.283) | -4.557*** (0.283) | -4.453*** (0.285) | -4.474*** (0.284) | -4.469*** (0.283) |
| $Observations$ | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| R-Square | 0.074 | 0.072 | 0.066 | 0.067 | 0.068 | 0.067 |
| Likelihood ratio | -1027.14 | -1028.11 | -1035.68 | -1034.22 | -1034.83 | -1034.56 |

Statistical Significance: *-10%, **-5%, ***- 1%

The results in Table 5.2 also indicate that gender has a positive impact on savings reflecting males save more than females in the Cambodian economy. We also observe that older individuals experience less probability to save as compared to younger ones. Employment seems to be critical for savings and employed individuals tend to save more as indicated by the positive coefficient. Furthermore, the impact of education on the overall savings in Cambodia is positive and statistically significant

The results are very robust and statistically significant in terms of the impact of different income quintiles. The coefficient for the lower incomes quintiles is smaller as compared to higher incomes quintiles. This indicates that poor individuals have a lower probability of savings as compared to higher income individuals.

**Table 5.3: Regression Results for Saving at Bank or Financial Institution (*$Saved\_Fin_i$*) for Cambodia**

| | Financial Intermediation | | | Financial Innovation | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $Gender_i$ | 0.131<br>(0.132) | 0.143<br>(0.133) | 0.030<br>(0.113) | 0.036<br>(0.117) | 0.052<br>(0.114) | 0.037<br>(0.117) |
| $Age_i$ | 0.002<br>(0.038) | 0.001<br>(0.003) | 0.001<br>(0.003) | -0.001<br>(0.003) | -0.004<br>(0.003) | -0.001<br>(0.003) |
| $Education_i$ | 0.090<br>(0.116) | 0.025<br>(0.119) | 0.388**<br>(0.112) | 0.005<br>(0.140) | 0.227*<br>(0.127) | 0.019<br>(0.134) |
| $Employment_i$ | 0.129<br>(0.151) | 0.099<br>(0.153) | 0.239*<br>(0.127) | 0.202<br>(0.137) | 0.196<br>(0.129) | 0.205<br>(0.136) |
| $poor_i$ | 2.002***<br>(0.329) | 1.969***<br>(0.324) | 2.315***<br>(0.299) | 2.604***<br>(0.285) | 2.333***<br>(0.299) | 2.606***<br>(0.285) |
| $Second\_Quintile_i$ | 2.237***<br>(0.281) | 2.248***<br>(0.281) | 2.655***<br>(0.272) | 3.001***<br>(0.258) | 2.698***<br>(0.271) | 3.002***<br>(0.257) |
| $Middle\_Quintile_i$ | 2.375***<br>(0.278) | 2.316***<br>(0.283) | 2.787***<br>(0.269) | 3.104***<br>(0.258) | 2.798***<br>(0.267) | 3.108***<br>(0.258) |
| $Fourth\_Quintile_i$ | 2.493***<br>(0.270) | 2.445***<br>(0.269) | 2.898***<br>(0.260) | 3.176***<br>(0.246) | 2.933***<br>(0.258) | 3.176***<br>(0.245) |
| $Richest_i$ | 2.466***<br>(0.288) | 2.396***<br>(0.288) | 3.037***<br>(0.259) | 3.235***<br>(0.250) | 3.028***<br>(0.258) | 3.240***<br>(0.249) |
| $Account_i$ | 1.486***<br>(0.138) | - | - | - | - | - |
| $Account\_Fin_i$ | - | 1.581***<br>(0.137) | - | - | - | - |
| $Account\_Mob_i$ | - | - | 0.389**<br>(0.191) | - | - | - |
| $CreditCard_i$ | - | - | - | - | 0.572<br>(0.420) | - |
| $DebitCard_i$ | - | - | - | 1.163**<br>(0.172) | - | 1.185***<br>(0.159) |
| $Wage\_Account_i$ | | - | - | 0.090<br>(0.250) | 0.674**<br>(0.216) | - |
| $Constant$ | -<br>5.026***<br>(0.383) | -<br>4.798***<br>(0.387) | -<br>5.103***<br>(0.349) | -<br>5.034***<br>(0.365) | -<br>4.878***<br>(0.363) | -<br>5.055***<br>(0.359) |
| *Observations* | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| R-Square | 0.273 | 0.297 | 0.071 | 0.151 | 0.082 | 0.158 |
| Likelihood ratio | -245.42 | -237.38 | -313.68 | -285.51 | -309.91 | -285.59 |

Statistical Significance: *-10%, **-5%, ***- 1%

We also explore the impact of financial intermediation and financial innovation on saving behavior at the banks and financial institutions, which is critical to formalize savings and mobilize key resources to productive investments. The results are given at Table 5.3. The savings behavior at financial institutions and banks seems to be different from the overall saving behavior of individuals in Cambodia. The key individual characteristics of gender, age and education does not have statistically significant impact on saving at banks and financial institutions.

As with the overall saving behavior, we also observe the positive and statistically significant impact of financial account ($Account\_Fin_i$) and mobile banking account ($Account\_Mob_i$) on the savings of individuals at the financial institutions. We also observe larger impact of access to financial account on the saving behavior of individuals in the financial institutions compared to mobile banking account. This shows the different impact of the financial innovation such as having formal banking account and mobile banking account, where mobile banking is likely to be used for more for transactional activities such as e-commerce.

The saving behavior at the banks and financial institutions in Cambodia is driven by the level and distribution of income in the Cambodian economy. The results indicate that poor segment of the economy tend to experience lower probability to save at banks and financial institutions compared to higher income groups. In our results, all income quintiles have positive impact on saving at the banks and financial institutions, however the probability is smaller (lower coefficient) compared to overall savings results given at Table 5.2 and 5.3. This indicates that there is a higher probability for the individuals in lower income quintile to undertake informal savings (such as saving clubs, etc.) compared to formal saving. This is likely to be higher for the poor segment of the economy.

The impact of financial intermediation and financial innovation are positive and statistically significant with regard to saving at the bank and financial institution. Firstly, the higher income quintiles have a higher probability of saving in a bank and financial institutions as compared to lower income quintiles. Both $Account_i$ and $Account\_Fin_i$ are positive and statistically significant, thereby showing higher coefficients for higher income quintiles. Secondly, even controlling for income quintiles, we observe positive probability of saving in a bank and financial institution for both $Account_i$ and $Account\_Fin_i$ indicating that financial intermediation policies have positive impact on financial inclusion in the financial market in Cambodia.

Thirdly, as in overall savings, the probability of saving at a bank and financial institution is higher for individual that has a direct account with a bank or financial institution (*Account_Fin*$_i$) compared to those with an account or associated with a member with an account at the bank and financial institution. This indicates that policies to increase individual bank account has greater impact on saving mobilization in the domestic economy. Fourthly, financial innovation such as debit card has positive impact on savings, however, having a wage payment account and credit card has no statistically significant impact on saving behavior at the bank and financial institution.

The results at Tables 5.2 and 5.3 only indicates the level and degree of saving behavior from financial intermediation and innovation. It does not indicate the level of financial inclusion in terms of impact on the formal saving behavior of individuals at lower income segment. To capture the impact of financial inclusion on individual saving behavior, we interact the lower income quintiles of lowest, second and middle with financial intermediation variables of *Account*$_i$ and *Account_Fin*$_i$, and also financial innovation variable of mobile banking, *Account_Mob*$_i$. The results are given at Table 5.4.

The key variables capturing the individual characteristics are similar to the results at Tables 5.2 and 5.3. However, the education variable is positive and statistically significant for the regions with saving at bank and financial institutions. The interactive terms indicate that higher income has a higher probability of overall saving behavior and also saving at the bank and financial institutions. We also observe that financial intermediation increases the overall saving behavior of poor (lowest and second income quintiles), indicating the positive impact of financial market policies and financial inclusion on poor segment of population. The impact of direct account at bank and financial institution (*Account_Fin*$_i$) on probability of saving is higher for poor and second income quintiles compared to the impact of *Account*$_i$. We observed this result in both in the overall saving and saving at bank and financial institute regressions. This suggests that policies should be directed in increasing individual accounts in the banks that will direct impact on financial intermediation and increasing the saving mobilization in the economy.

The results of the impact of financial intermediation through access to formal financial account and mobile banking account on the saving behavior of the poor and lower income is given at Table 5.4. Column (1) indicates the impact of access to financial account on the saving behavior of individuals in Cambodia. The results indicate that access to financial account has positive and statistically significant impact on the overall saving behavior of individuals. We also observe a greater positive impact of financial accounts on higher income quintiles than on the poor individuals in the Cambodian economy (columns 2 and 3). We also observe positive impact of mobile bank accounts on the overall saving behavior of individuals. However, the impact is only statistically significant for second and higher income quintiles than on the poor individuals. Overall, the mobile banking has little impact on the savings behavior of poor individuals in Cambodia.

**Table 5.4: Regression Results for Saving and Financial Inclusion for Cambodia**

| | Saving ($Saved_i$) | | | Saving Financial Institute and Bank ($Saved\_Fin_i$) | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| $Gender_i$ | 0.193** (0.070) | 0.190** (0.070) | 0.183** (0.070) | 0.119 (0.121) | 0.120 (0.121) | 0.042 (0.113) |
| $Age_i$ | -0.010*** (0.002) | -0.010*** (0.002) | -0.009*** (0.002) | -0.011 (0.003) | -0.010 (0.003) | 0.001 (0.003) |
| $Education_i$ | 0.179** (0.090) | 0.177* (0.091) | 0.211** (0.090) | 0.316** (0.113) | 0.298* (0.114) | 0.387** (0.119) |
| $Employment_i$ | 0.295*** (0.071) | 0.295*** (0.071) | 0.315*** (0.071) | 0.178 (0.139) | 0.154 (0.139) | 0.232* (0.128) |
| $poor_i$ | 4.027*** (0.237) | 4.034*** (0.235) | 4.075*** (0.235) | 2.061*** (0.407) | 1.948*** (0.409) | 2.322*** (0.128) |
| $Second\_Quintile_i$ | 4.192*** (0.238) | 4.229*** (0.235) | 4.262*** (0.236) | 2.085*** (0.391) | 2.198*** (0.331) | 2.676*** (0.275) |
| $Middle\_Quintile_i$ | 4.379*** (0.238) | 4.412*** (0.237) | 4.488*** (0.237) | 2.317*** (0.332) | 2.371*** (0.310) | 2.789*** (0.272) |
| $Fourth\_Quintile_i$ | 4.621*** (0.235) | 4.622*** (0.233) | 4.632*** (0.235) | 3.187*** (0.250) | 3.089*** (0.253) | 2.965*** (0.257) |
| $Richest_i$ | 4.664*** (0.234) | 4.665*** (0.233) | 4.670*** (0.235) | 3.352*** (0.247) | 3.258*** (0.251) | 3.118*** (0.255) |
| $(Account_i)$ $*(poor_i)$ | 0.364* (0.224) | - | - | 1.447** (0.434) | - | - |
| $(Account_i)$ $*(Second\_Quintile_i)$ | 0.483** (0.187) | | | 1.712*** (0.382) | - | - |
| $(Account_i)$ $*(Middle\_Quintile_i)$ | 0.639** (0.194) | | | 1.588*** (0.313) | - | - |
| $(Account\_Fin_i)$ $*(poor_i)$ | - | 0.423* (0.261) | - | - | 1.660*** (0.448) | - |
| $(Account\_Fin_i)$ $*(Second\_Quintile_i)$ | - | 0.409* (0.219) | - | - | 1.650*** (0.332) | - |
| $(Account\_Fin_i)$ $*(Middle\_Quinitle_i)$ | - | 0.577** (0.209) | - | - | 1.480*** (0.294) | - |
| $(Account\_Mob_i)$ $*(poor_i)$ | - | - | 0.289 (0.336) | - | - | 0.756 (0.543) |
| $(Account\_Mob_i)$ $*(Second\_Quintile_i)$ | - | - | 0.490* (0.297) | - | - | 0.594 (0.408) |
| $(Account\_Mob_i)$ $*(Middle\_Quintile_i)$ | - | - | 0.587* (0.353) | - | - | 0.736* (0.395) |
| $Constant$ | -4.504*** (0.284) | -4.501*** (0.282) | -4.566*** (0.283) | -5.186*** (0.360) | -5.037*** (0.363) | -5.107*** (0.351) |
| Observations | 1600 | 1600 | 1600 | 1600 | 1600 | 1600 |
| R-Square | 0.074 | 0.071 | 0.067 | 0.174 | 0.172 | 0.075 |
| Likelihood ratio | -1026.26 | -1029.68 | -1033.62 | -279.10 | -279.79 | -312.43 |

Statistical Significance: *-10%, **-5%, ***- 1%

## 5.6. Policy Conclusion

In this chapter, we explore the impacts of financial integration, financial intermediation and financial inclusiveness on saving behavior of developing economy such as Cambodia using individual data from Global Findex database in 2017. The results indicate that financial intermediation has positive impact on the overall saving and also saving at the bank and financial institutions. Particularly, we observed that individuals having a direct account with a bank and financial institution increases the probability of saving at the bank and financial institution. We also observed that financial innovation such as debit cards has positive impact on the probability of saving in the economy. However, we do not observe mobile banking, credit cards and wage payments though bank account have any positive impact on the saving behavior in the economy.

We also observe that financial policies such as financial intermediation has positive impact on financial inclusion in terms of increasing the saving of the poor segment of the economy. The lowest (poor) quintile experiences positive probability on saving at the bank if they have direct account in the bank and financial institution. We also observed that mobile banking has little impact on the banking saving behavior of the poor.

There are several observations from our study on financial development and financial inclusion for Cambodia. A large share of savings is undertaken in terms of informal savings such as saving clubs and saving cooperatives. This leads to large leakage of funds for productive investments. This will also have important implications for wealth creation for the poor in domestic economy in terms of providing several wealth creating low-risk based financial products to the poor to diversify their wealth. It is fundamental to increase the formal savings in the economy through the banks and financial institutions that create efficiency in wealth creation in the domestic economy in terms of reducing the asymmetric information faced in the informal financial markets.

In this chapter, we also compared the financial market development of Cambodia and Vietnam. It was observed that Cambodia has high degree of openness in its financial markets as compared to Vietnam. This indicates that high financial integration is not necessary for observing high financial inclusion in the domestic economy as domestic factors such as the level of financial development is more critical for creating more financial inclusion in the economy. Vietnam also has a higher level of financial inclusiveness compared to Cambodia. It is very clear from our study that the financial intermediation is higher in Vietnam compared to Cambodia, which creates positive impact on the probability of savings for the vulnerable population and mobilize the savings for productive investments. The impact of financial intermediation is robust with respect to financial inclusion and this is critical for Cambodia to increase the level financial intermediation in terms of poor segment of the society having a bank account in the domestic economy. The government needs to consider both the cost of opening the bank account as well as the cost of maintaining the bank account.

The financial intermediation is also important to increase the effectiveness of monetary policy in the Cambodian economy as the level of deposit creation increases through the banks. This extra monetary tool, with the well-regulated banks and financial markets, will assist in managing economic shocks in line with fiscal policies in the domestic economy.

We observed that effective financial intermediation (deposit creation) tends to increase financial inclusion and increase the saving of the poor segment in the Cambodian economy. The key for effective monetary policy is a well-regulated financial market, effective financial intermediation that creates economies of scale and reduce transaction cost, and increase the mobilization of formal savings through financial markets.

# CHAPTER 6: MEASURING FINANCIAL INCLUSION IN CAMBODIA

## 6.1. Introduction

Financial inclusion is defined as "the ease of access, availability and usage of the formal financial system by all members of the economy" (Sarma 2008). The United Nations Capital Development Fund – UNCDF (2020) recognizes "financial inclusion as enablers for eight out of seventeen sustainable development goals". Recognizing the importance of financial inclusion to empower the poor and vulnerable population, the G20 leaders adopted the Financial Inclusion Action Plan and established the Global Partnership for Financial Inclusion (GPFI) in 2010 to enhance the financial access program (GPFI, 2020). Moreover, the finance ministers of the economies of Asia-Pacific Economic Cooperation (APEC) demonstrate that financial inclusion plays a crucial role for inclusive growth and development by enabling individuals and businesses to access affordable financial products that meet their needs, accumulating saving, sharing prosperity and reducing poverty (APEC, 2018). Further, Morgan, Zhang, and Kydyrbayev (2018) observed that the implementation of the Association of Southeast Asian Nations (ASEAN) Framework on Equitable Economic Development has made the elevation of financial inclusion as one of its key objectives. Moreover, ASEAN member states have also adopted financial inclusion strategies as an imperative and essential part of their national strategy to achieve inclusive growth in the domestic economy.

According to the World Bank Global Findex Database (2018), 1.7 billion of adult population worldwide remain unbanked, putting them in a vulnerable economic position in the domestic economy. Despite its obvious benefits, promoting financial inclusion through private sector credit poses serious consequences and challenges as some researchers warning on the risk of "too much finance" and its implications on the stability of the financial system (Arcand et al., 2015). Christine Lagarde, managing director of the IMF, in her speech in Mexico in 2014 highlighted the importance of access to credit to "empower individuals and families to cultivate economic opportunities" and achieve inclusive economic growth, but warned of the danger of too much credit if not well managed (Lagarde, 2014). Khan (2011) states that the increase in the financial inclusion could lead to negative effect on financial stability, if for example, expanding the pool of borrowers results in relaxing lending standards, or in the case of the microfinance sector, if proper regulations are not in place. In addition, the use of new technologies in the financial markets may pose some level of risk, particularly give rise to operational risks if they are not well understood by both users and supervisors of the financial markets (CGAP, 2012).

Hence, it is critical for policymakers to understand the true extend of financial inclusions and its individual benefits. Rapid development of technology in finance has been the key driver of financial inclusion across the globe, especially in developing countries. One example is illustrated through the rapid diffusion of mobile technologies in developing countries, i.e., mobile payments facilitate financial services outreach to the unbanked in the previously unserved areas at an affordable cost. As such the traditional indicators for measuring financial inclusion may no longer be relevant particularly when it comes to the definition of the financial products and services delivered.

There are several key challenges in measuring financial inclusion within the domestic economy. Chapter 2 provided the overview of the indicators of financial inclusion and its construction in terms of demand-side and supply-side measurements in the World Bank's Global Findex database and FinScope database. It also highlights the key gaps to the measurements (see Beck, Demirgüç-Kunt, and Martinez Peria, 2007; Honohan, 2008; Kendall et al., 2010). Different from the World Bank's Global Findex database, the FinScope database is comprehensively designed to examine the role of individual, geographic and national characteristics in influencing the use of financial services. Although the FinScope survey provide rich dataset and detailed information about account holders, such survey has to date been conducted in only over 30 countries and may have several limitations.

Inclusion is a strategic term evoked in almost all poverty elimination strategies across the globe. Particularly in financial sector, financial inclusion is an effective and sustainable tool to fight poverty (World Bank, 2015). Demirguc-Kunt, Klapper and Singer (2017) demonstrated that financial inclusion could help people invest in the future, smooth their consumption, and manage financial risks which then reduce poverty and inequality. Access to formal financial services allows people to make financial transactions more efficiently and safely and helps poor people climb out of poverty by making it possible to invest in education and business. The poverty reduction policy in Cambodia focuses on the efforts to increase employment in the rural area as well as to increase the income at the local or community level, where education and skills needed for jobs and agriculture remain a challenge (World Bank, 2019). In addition, the World Bank (2020) reported that for about 90% of Cambodian living in rural area, inclusive policy is no doubt a significant factor to benefit these people. Considering how financial inclusion could contribute to poverty reduction efforts in Cambodia, a strategic policy in promoting financial inclusion is crucial. Therefore, proper measurement and indicators of financial inclusion are essential to develop effective financial inclusion policies. Understanding the existing level of financial inclusion in the country and the challenges in accessing to financial services in the economy are necessary steps for policymakers to develop right tools and efficient measures to create sustainable and inclusive growth, as well as reduce poverty in Cambodia.

This chapter addresses some of weakness of the above highlighted financial inclusion database by providing more detail discussion and robust measures of financial inclusion using the administrative data. The level of financial inclusion is measured by using the supply-side data collected from financial services providers that includes Credit Bureau Cambodia, on access and usage of formal financial services (credit, savings, insurance, e-wallet) by adult population in Cambodia. The dataset used in this study is the first set of administrative data that was collected and applied to the Cambodian economy. Rather than using the sample size to represent the population, the paper employs the actual data from all financial institutions. Collected from the Credit Bureau Cambodia and other financial institutions, population data sets are represented by 6,310,561 deposit accounts, 3,896,428 borrowers, 2,105,636 payment users, and 838,750 policy holders. Based on the total figures from all financial intuitions, one could clearly understand that an individual may have more than one account or use more than one financial service. Therefore, the traditional measure of financial inclusion from current survey data adopted by international organizations may lead to an overestimation. To accurately measure the exact number of users of financial services in Cambodia, the study applies duplication screening techniques, which would eliminate multiple counting of the same individual who might likely to have multiple bank accounts or uses multiple financial services. By filtering for the unique owner of accounts whether he/she access to one or more types of financial services, namely credit, deposit, e-wallet and insurance policy, the findings suggest that the level of access to formal financial services is relatively moderate at 73%, as oppose to the World Bank's Global Findex data of 22% in 2017. The differences of the two methodologies are explained in the Appendix.

The paper is organized as follows. Section 2 highlights the overview of financial inclusion development in Cambodia, following by Section 3 that provides the methodology on data collection and construction for financial inclusion indicators analysis. In section 4, we discuss the results of the level of financial inclusion with a critical review on the usage of financial services including saving, credit, payment and insurance. Policy conclusion and recommendations for enhancing financial inclusion are given in section 5.

## 6.2. Overview of Financial Inclusion in Cambodia

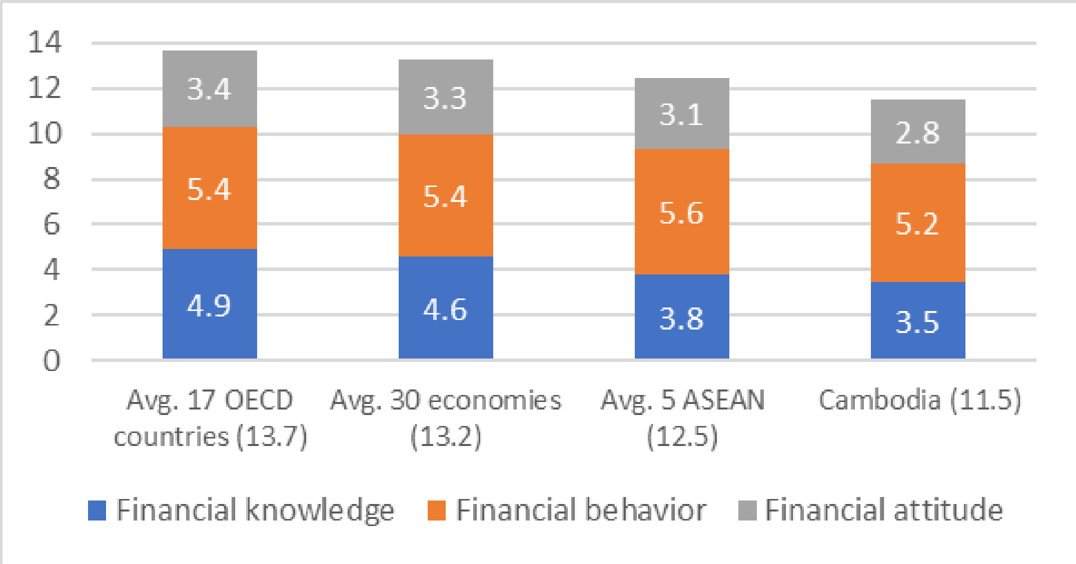
Although, the detailed discussion of financial inclusion is given in Chapter 4, this section summarizes the development of financial inclusion in Cambodia. Financial inclusion is access to and usage of formal financial services in a timely manner, based on needs with affordable cost and legal protection. Financial inclusion plays a crucial role in poverty reduction and economic development by improving the livelihood and increasing the employment rate. Therefore, enhancing financial inclusion is the key priority of the Royal Government of Cambodia.

With technical assistance from development partners and the cooperation of related ministries, the National Financial Inclusion Strategy (NFIS) 2019-2025 was developed and adopted by the Council of Ministers in the Plenary Session on July 12, 2019, as a roadmap in guiding the priority action plans to achieve the vision of the Royal Government of Cambodia (RGC, 2019). The roadmap consolidates efforts being carried out by the government, development partners and private sector players focusing on areas that need further intervention and coordination. The National Bank of Cambodia, Ministry of Economy and Finance, Ministry of Posts and Telecommunications, Ministry of Commerce and Ministry of Interior, as leading institutions, will co-ordinate on the action plan's implementation and ensure the cooperation among all stakeholders to achieve the goals of financial inclusion, which is to increase access to quality formal financial services, reduce the financial exclusion of women by half (from 27% to 13%), and increase usage of formal financial services from 59% to 70% by 2025, as well as improve household welfare and support economic growth. Various priority activities have been identified to achieve the goals, including (1) encourage savings in formal financial institutions, (2) promote innovative credit products for SMEs, (3) enable the expansion of payment system capabilities, (4) improve broader access to insurance, (5) strengthen the capacity of the financial sector regulators and (6) increase consumer empowerment and protection and financial sector transparency, which are classified in different categories, such as banking sector, non-banking sector, cross-cutting policies and sector coordination, consumer empowerment and protection, and regulators institutional capacities.

Financial literacy is also recognized as critical component in promoting the access to finance. In this regard, various initiatives have been introduced by the National Bank of Cambodia (NBC). The 'Let's Talk Money Campaign' was launched in 2017 to educated young public about money matters such as saving, borrowing, bargaining, etc. The campaign objectives are to encourage people to ask questions to their financial service providers to provide key information on their products, as well as educating consumers on the various financial products available to them. Various microfinance seminars have been organized by the NBC in both provincial level and district level, participated by local residents and authorities, the representative of the Royal Academy of Cambodia, banks and financial institutions, and Cambodia Microfinance Association (CMA).

With collaboration from related ministries and stakeholders, a number of MoU have also been signed to incorporate financial literacy into school curriculum from grade 1 to 12, and to promote financial inclusion through raising awareness of financial literacy for women and women entrepreneurs. For instance, the National Bank of Cambodia (NBC), Ministry of Women's Affairs (MoWA) and VISA Company have jointly organized a workshop on "Financial Literacy in Cambodia" to promote financial inclusion through providing financial literacy to women and women entrepreneur at local community, and also in improving the entrepreneurship for female adults at primary and secondary school in order to provide basic knowledge for their livelihood. Figure 6.1 shows a low level of financial knowledge in Cambodia relative to other selected country groups in 2015.

**Figure 6.1: Financial literacy in Cambodia and other selected country groups in 2015**




Source: Adapted from OECD (2018, p.13)
Note: The maximum score for the financial literacy is 21 (higher, better).

To protect consumers' rights and interests and build public confidence on the banking system, the NBC has issued and enforced the implementation of Prakas (regulation) on Resolution of Consumer Complaints and has set up hotlines for handling consumer complaints and inquiries with 5 hotlines at the head office and 21 hotlines at the provincial branches. (NBC, 2020).

According to the National Bank of Cambodia's Semi-Annual Report (2020), access to finance reached 69% of the adult population, a significant stride from 6.5% in 2005. As one of the last ASEAN countries to open up the financial markets, Cambodia is well positioned to benefit from the latest technologies available to further its poverty reduction and economic development goals. To date, it has showed its ability to leapfrog from the conventional technology to the latest technologies such as mobile banking. According to the World Bank, mobile phone subscription in Cambodia reached 126 per 100 people in 2016. Access to such technology makes Cambodia a good candidate to further reap the benefits of technological advancement in the financial sector development. The entry of mobile money service providers was able to penetrate remote areas where the microfinance sector and conventional banking sector are lacking (Fang, 2014). The mobile money service provides cost efficient way for consumers to transfer money and make payments. These mobile payment service providers are also able to capture many transactional and behavioral data previously nonexistent and provide policymakers a better understanding of its policy transmission mechanism and impact on the community.

## 6.3. Data and Methodology

### 6.3.1. Data

The data in this study representing all users and account owners (aged 18 and above) at the end of 2019 were obtained from several financial institutions in Cambodia. Credit data, both consumer and business loans, were collected from the Credit Bureau of Cambodia[25]; and the deposit data were collected from commercial banks and microfinance deposit taking institutions, while insurance policy holder data is collected from banks and financial institutions. In order to reflect the “usage” of the accounts, accounts that are dormant over a period of one year (as defined by the National Bank of Cambodia) were not included in this sample. Due to the confidentiality, the dataset only captures basic information of the individuals such as name, address, place of birth, date of birth, type of identity document, identity document number, resident/non-resident, and type of business. As of 2019, the population data sets are represented by 6,310,561 deposit accounts, 3,896,428 borrowers, 2,105,636 payment accounts, and 838,750 policy holders.[26]

Data relating to the country’s total population, urban and rural distribution and age are collected from the National Institute of Statistic, Kingdom of Cambodia, from their latest available census.

### 6.3.2. Methodology

To accurately measure the exact numbers of users of financial services in Cambodia, firstly the applied duplication screening techniques was adopted, which would eliminate multiple counting of the same individual who has multiple bank accounts or uses multiple financial services. The usual financial inclusion measurement using the survey data leads to double-counting, since each borrower, depositor and insurance policy holder might use one or more financial service with single or multiple financial institutions. For example, a person that may have two accounts at a commercial bank, represents only a

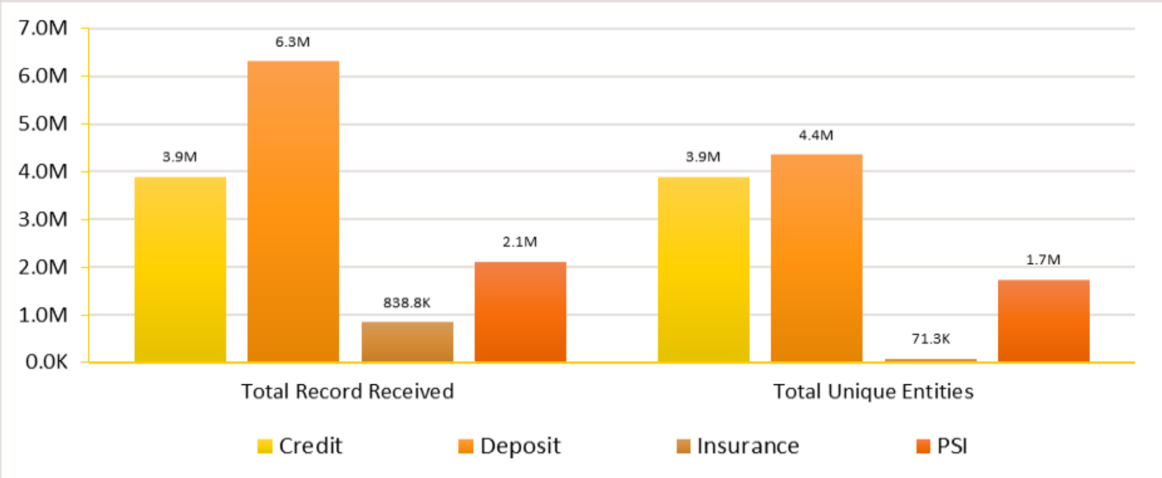
25 Credit Bureau Cambodia (CBC) is the leading provider of financial information, analytical solutions, and credit reporting services to financial institutions and consumers in the Kingdom of Cambodia.
26 For the purpose of consumer’s confidentiality, the data is kept confidential and verified by the researchers of the chapter.

single financial service user. In addition, there is also another possibility that the same person might have accounts at two different commercial banks and/or holds an insurance policy. Hence, where an individual accesses multiple financial services, from a financial inclusion perspective, it should be counted as only one individual rather than double or triple counting the number of accounts of the same individual.

To establish the robustness of our dataset, the validation for unique account ownership were performed by using a matching logic software that would match simultaneously different fields of information instead of just the name of individual to increase accuracy of our matching. As such various information of an individual, including address, place of birth, date of birth, type of identity document, identity document number, resident/non-resident, and type of business, were used for verification as a unique person/account. The data are used to filter and identify the unique owners of accounts whether they access to one or more types of financial services, namely credit, deposit and insurance policy. Records across all data files were checked to match these criteria to identify unique account owners and subsequently, assigned as exact match, near match or different. To open an account at banks or financial institutions, customers are required to provide identity documents. However, in absence of national electronic ID, customers can use various identity documents for account opening, such as regular national ID card, passport, family book, residential book and so on. Therefore, the validation method is conducted in two ways - firstly, validation based on account opening data by using national ID or passport and secondly, validation based on account opening data by using other forms of identity document.

With the overall data, matching is first applied to identify unique entity in each category, namely credit, deposit, e-wallet, and insurance policy holder. The same process is applied to commercial depositor or commercial borrowers such as legal entities, banks and financial institutions. The process is then rolled out to identify unique insurance policy holders. Finally, the data on unique owners of deposit accounts, unique owner of loan accounts and unique owners of insurance policy holders are combined and subsequently, checked to identify unique owners from the three categories.

**Figure 6.2: Individuals Access to Financial Services by Type in Cambodia**




Source: Banks and Financial Institutions and author's calculation

## 6.4. Results

Financial inclusion became a national policy agenda since 2019 upon the endorsement of the National Financial Inclusion Strategy (NFIS) 2019-2025 that called for all stakeholders to join the efforts to promote financial inclusion in Cambodia. The result of the chapter would provide important inputs for policymakers in designing and finetuning their action plans as it would give more granular understanding of financial inclusion in Cambodia: by type of products access, usage, gender and age range amongst others. The data inputs were received from Credit Bureau Cambodia, deposit taking institutions, and payment service institutions, including credit data, deposit data and insurance policy holder data. The study focuses on Cambodian adults (aged 18+ years) and their interaction with four financial products, such as savings, payments, credit and insurance.

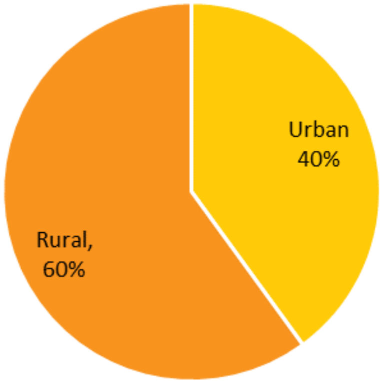
Table A and B at the Appendix provides the summary of the comparison of the financial inclusion measures under Global Findex survey and financial market administrative data from this paper. From the data collected, 7,785,097 people or 73% of the adult population aged 18 and above, have access to at least one of the formal financial services (either a deposit account, e-wallet, credit or insurance policy). This number is far higher than the estimate done by Global Findex survey 2017 which put Cambodia access to finance at 22% of the adult population aged 15 and above. It is important to highlight that the legal age in Cambodia is 18-year-old and no one below the age of 18 can have a contractual relationship with a financial institution.

| **Box 6.1: The Financial Access Strand** |
|---|
| The Financial Access Strand is used to enable comparison of levels of financial inclusion across countries or market segments. The calculation of the access strand is depicted as follows:<br><br>a) **Banked:** The percentage of adults who have/use financial services provided by commercial banks and specialized banks regulated by the National Bank of Cambodia. These individuals do not exclusively use financial services provided by banks, but they could also be using financial products from other formal financial institutions.<br>b) **Other formal institutions:** The percentage of adults who use financial services provided by other regulated financial institutions. These institutions are Microfinance Deposit taking Institutions (MDIs), Microfinance Institutions (non-deposit taking institutions), leasing companies, rural credit institutions, payment service institutions and insurance companies (both life and general insurance). These individuals could also use other financial services provided by banks and other formal financial institutions.<br>c) **Excluded:** The percentage of adults who do not use financial services provided by neither banks nor other formal financial institutions.<br><br>*** Individuals who use financial services provided by banks and other formal financial institutions are classified as using formal financial services or formal channel. The access strand does not show overlaps between the various categories. |

As Cambodia financial sector landscape is marked by the banking sector dominating urban areas and the regulated microfinance sector dominating the rural area, it is important to note that of out of the 73% access to some form of financial services, it is observed that nearly 30.6% have an account with a bank, while 42.43% have an account with other formal financial institutions. Of these 7.8 million populations having access to financial services, 60% lives in the rural area. This finding is in line with the country demographic distribution where the majority of Cambodian people live in the rural areas.

Overall, 27.3% of those who have access to financial services live in the capital city Phnom Penh, followed by 7.2% in Kandal Province and 5.3% in Kampong Speu Province, both neighboring provinces to the capital city.

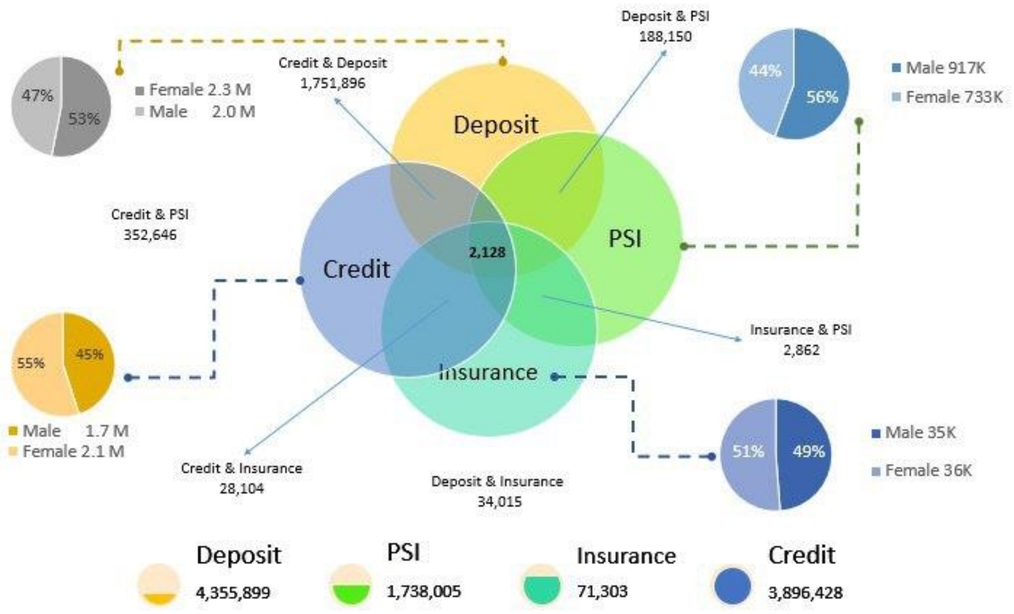
**Figure 6.3: Access Distribution by urban and rural**




Source: Banks and Financial Institutions, NIS and Author's Calculation

The Figure 6.4 provides the phase diagram of the results of financial inclusion dataset. The data also shows that of the 7,785,097 population have access to financial services, 50% have access to credit, 56% have a deposit account, 22% have an E-wallet account and 1% have an insurance policy. Furthermore, it is noted that some individuals do not use only one type of financial service, but multi financial services. The data shows that among the 7,785,097 financial service users, 22.3% use both credit and deposit, 4.5% use both credit and payment, 2.4% of adults use both deposit and payment, 0.4% of adults use deposit and insurance, 0.04% of adults use payment and insurance. However, there is only 0.03% of adults using all four types of financial services. A small proportion of the population uses insurance services suggesting a need for more policy measures to increase usage of this product particularly amongst the low-income households as insurance can be an efficient tool to protect them against unexpected adverse circumstances.

**Figure 6.4: Access to financial services by type of services**

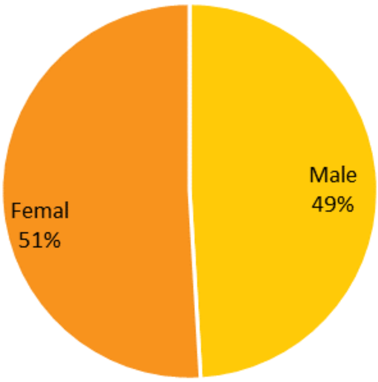



Source: Banks and Financial Institutions and author's calculation

Recent observation highlights that mobile phone penetration is high in Cambodia with more than 20 million mobile subscriptions for a total population of 16 million. As such promoting access to financial services through mobile phones could help to fast track the country's financial inclusion agenda. One quarter of those who have access to financial services have a mobile E-wallet account. This number is considered high given that mobile E-wallet is a recent global phenomenon with Kenya and Cambodia amongst the earlier adopters. In Cambodia, the first E-wallet service was introduced in 2009 but did not really pick up until 2014. This rapid pace of adoption of E-wallet to transfer and conduct payments can help financial institutions to better understand their customers' financial behaviors, and therefore help speed up the credit underwriting process and access to credit in general. Conducive policies that were enacted to develop stable and reliable digital connectivity infrastructure in rural area and to provide affordable access to internet, and possible consideration on a tax policy that promotes affordable access to smartphones, would further provide the opportunities for financial institutions to introduce new products that can better cater to the needs of the rural population.

From gender perspective, Cambodia fares relatively well as women tend to be more included in the formal financial sector, Figure 6.5. In term of savings, 53% of the accounts are held by women compared to only 47% by men. In term of credit, 55% of the credit accounts belong to women. However, in term of access to e-wallet, men seem to dominate with a share of 56% of total E-wallet accounts. The high share of E-wallet accounts for male could be explained by the fact that usage of E-wallet requires certain level digital literacy where men tend to do better than women.

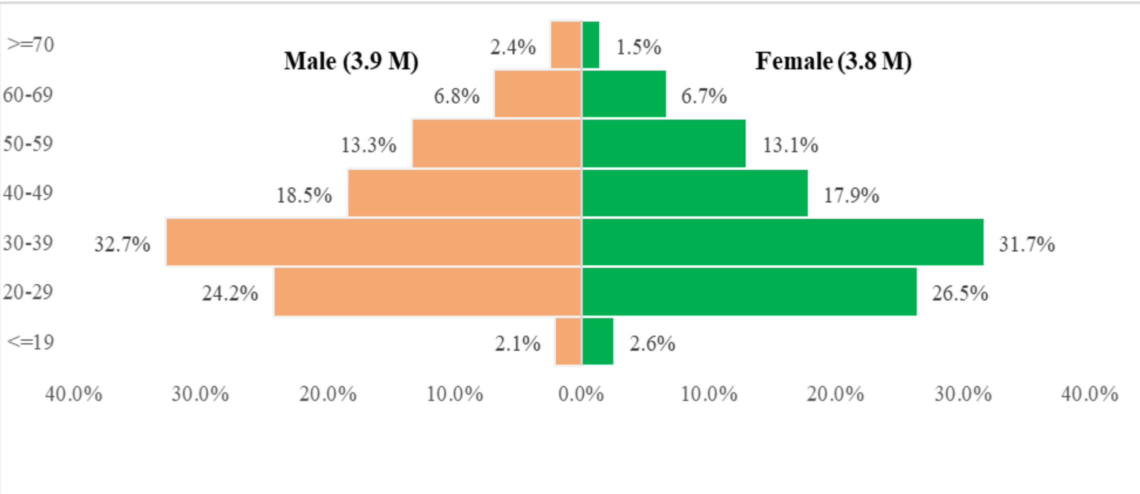
**Figure 6.5: Access to finance by Gender**




Source: Banks and Financial Institutions, NIS and Author's Calculation

It is crucial to consider the needs for financial services at varying stages of life to achieve sustainable financial inclusion. From our findings, older generation age 50 and above tend to face more challenges to access and usage of financial services. In our results, three quarter of the population have access to financial services are between 20 to 49 years old and this age group tend to be more digital literate than others as explained by the high usage rate of mobile e-wallet of 89%.

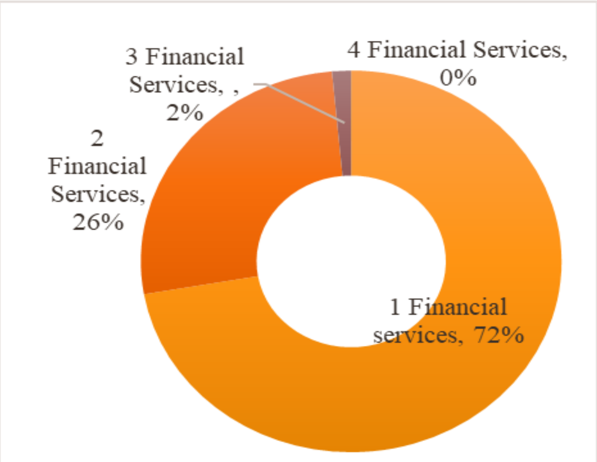
**Figure 6.6: Age groups of individual access to financial services**




Source: Banks and Financial Institutions and author's calculation

With regard to the understanding of the level of financial inclusion and financial products, it is also important to understand the type of products vulnerable people are excluded from. From a policymaker's perspective, efforts should be made to ensure that the population is able to access to all kind of financial services because each has distinct benefits of its own. The depth of financial products access, usage of different financial products, is limited in Cambodia. The majority of Cambodian adult population makes use of only one or two types financial services. 72.3% of adults use only one type of financial service, 26.3% use two types of financial service and 1.4% use 3 types of financial service. There are less than 1% of the population that use all types of financial product. Access to one type of financial service is considered a good indication that eventually will help people develop better understanding of the benefits of using formal financial services and expand their usage to other types. It is important to highlight that access to credit can help smooth consumptions over time and allows small businesses to expand their operation, increase employment and improve the living standard of their communities. But access to credit alone is not enough. Having a saving account and be able to transact electronically from these accounts or an E-wallet would also help financial institutions to better understand the financial management behaviors of the customers, therefore facilitate their credit underwriting process. Thus, customers with good financial management behaviors may receive better terms and conditions. Insurance products are also essentials to help households and businesses to manage economic shocks and other risks such as climate change risks. In this regard, Cambodia has a relatively good foundation to develop and benefit from financial sector, however several challenges exist.

**Figure 6.7: Depth of access to financial services**

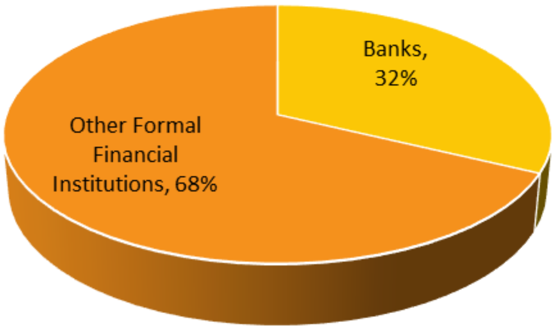



Source: Banks and Financial Institutions and author's calculation

### 6.4.1. Credit

We also observe that around 39% of Cambodian adults have access to formal credit, of which 13% take up credit from banks and 26% access credit from microfinance institutions. The total domestic credit provided by the financial sector (banks and other formal financial institution) has grown annually around 32% during the period 2010-2015, but it has slowed down to around 25% in the last two years. By the end of 2019, the total credit as a percentage of GDP stood at 123.2% (NBC, 2020) owing to consistent high growth of the economy around 7% annually.

**Figure 6.8: Credit by banks and Other formal financial institutions**



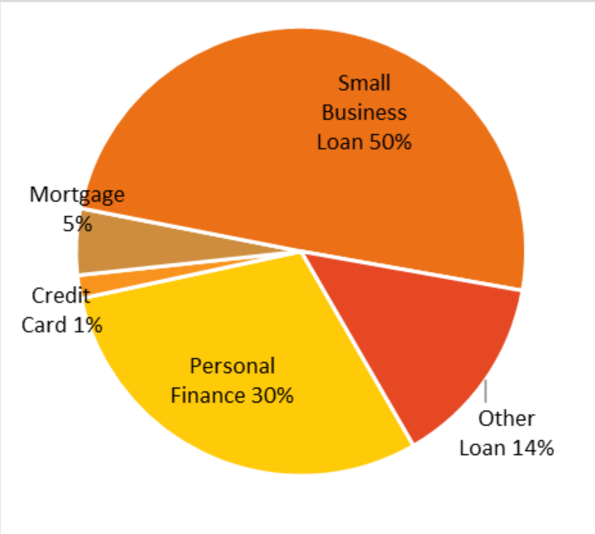

Source: Banks and Financial Institutions and author's calculation

The rapid growth of credit to private sector prompted the NBC to monitor closely loan quality and its implication on financial stability. In 2019, the NBC published its first ever Financial Stability Review providing analysis on the financial sector performance and risks. The report highlighted the concerns over rapid credit growth in the microfinance sector. Data obtained from the Credit Bureau Cambodia showed that the numbers of borrowing accounts in this sector rose 18.7%. Although microfinance sector constitutes only 20% of the total credit in the entire financial sector, the number of the people having access to credit through these institutions by far exceeds those having credit with the banks. From our finding, 68% of the borrowers borrow from a microfinance institution (Figure 6.8). This number implies that the loan size in this sector is relatively small compared to loan size in the banking sector. Microfinance channels are often preferred because their loan application/approval process is easier and more efficient than that of banks.

In term of the purpose of credit use, our finding indicates that 50% of the credit are for small businesses, 30% for personal finance, 5% are mortgage (Figure 6.9). It also noted that 91% of the borrowers from banks and other formal financial institutions are between 20 - 59 years old with, of which age between 30-39 years old is the highest rate with 34%

(Figure 6.10). Only one-fourth of these borrowers live in urban area, while three-fourth live in rural area (76%).

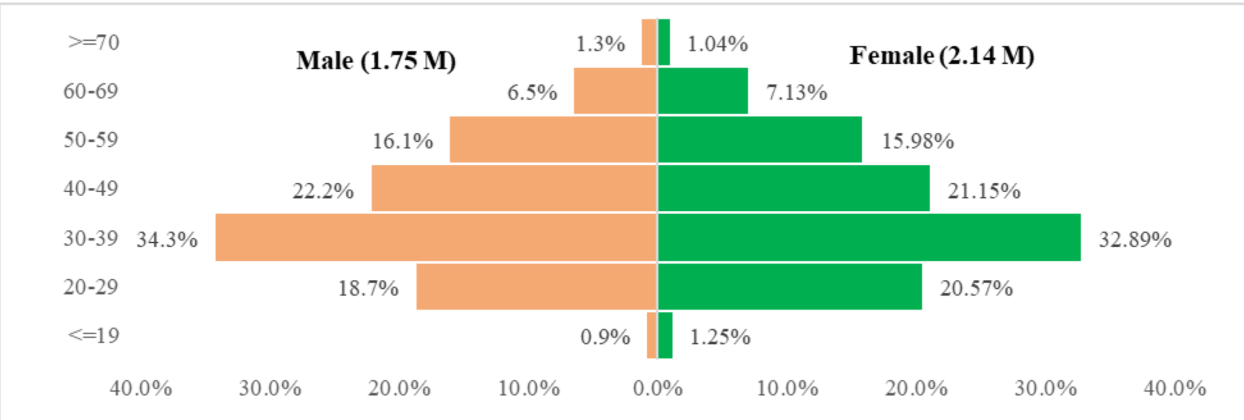
**Figure 6.9: Credit by types of products**




Source: Banks and Financial Institutions and author's calculation

In term of gender, 55% of the borrowers are females and 45% are male. Female adults have better access to informal credit. One possible explanation could be the cultural factor, where women in the household are usually deemed to be the finance keepers in the family. In the microfinance sector, the share of women borrowers is even higher standing at 57%, of which 84% are from the rural areas. This means that of the USD 7.4 billion total loan portfolio in MFIs, 56% was held by women.

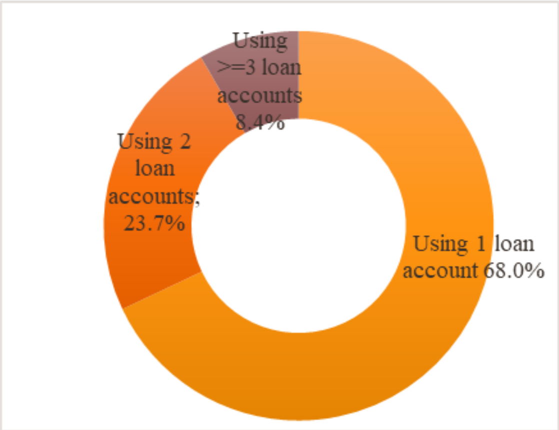
**Figure 6.10: Age groups of individuals having access to credit**




Source: Banks and Financial Institutions and author's calculation

To further understand the extent of the usage of credit by Cambodians, this study also examined the number of loans per borrowers. One of the key challenges highlighted in the literature with regard to the access to finance is where the customers knowingly or unknowingly put themselves in a position where they can no longer service their debts. This often occurs in financial markets with the absence of a monitoring mechanism, where the borrowers would borrow from one MFI to repay the other. From our findings 68% of the borrowers have only one credit account, 24% have 2 credit accounts, while 8% have more than 3 credit accounts. This figure alarmed MFI industry into better manage their credit underwriting. In July 2017, the Cambodian Microfinance Association issues an Industry Code of Conducts where members commit not to provide credit to a customer who already has more than 2 active credit accounts with other financial institution.

**Figure 6.11: Number of Loan per Borrower**




Source: Credit Bureau Cambodia

In this regards the role of Credit Bureau Cambodia (CBC), in monitoring and mitigating credit risk and over-indebtedness is crucial. CBC was established in March 2012 as the intermediary to collect and distribute information to member institutions based on rules of reciprocity. The Credit Bureau plays an important role in promoting and improving access to finance, especially for Cambodian people in rural areas. The credit reports provide useful information of the borrowers, both negative and positive, credit history data to banking and financial institutions, especially to analyze credit profiles and credit worthiness of their customers in relation to credit or loan applications.

### 6.4.2. Deposit

Cambodia has seen very encouraging growth and penetration in the financial sector; however, the level of savings mobilization was relatively low in comparison with that of other Association of Southeast Asian Nations (ASEAN) countries (see Chapter 4 on the comparison of Cambodia and Vietnam). The comparison of the Gross Savings as a percentage of GDP with other ASEAN countries for the year 2018 is showed in table 6.1 below.

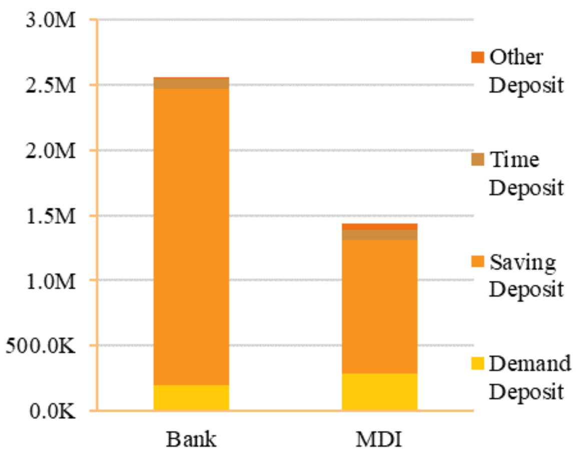
**Table 6.1: Gross Saving in ASEAN (% of GDP)**

| | |
|---|---|
| Brunei Darussalam | 54% |
| Singapore | 46% |
| Philippines | 42% |
| Indonesia | 32% |
| Thailand | 32% |
| Myanmar | 29% |
| Malaysia | 26% |
| Cambodia | 25% |
| Vietnam | 23% |
| Laos | 18% |

Source: https://data.worldbank.org/indicator/NY.GNS.ICTR.ZS

Cambodia's banking system continues growing both scope and scale, with total deposit increased by 17% Y-o-Y to KHR 119.3 trillion (USD 29.3 billion) in 2019. In the last five years, the banking sector, the annual deposit growth rate average around 23%. According to the finding there are 3.9 million active depositors while 0.6 million depositors have dormant account, i.e., not active for more than 1 year.

**Figure 6.12: Deposit at banks and MDIs**

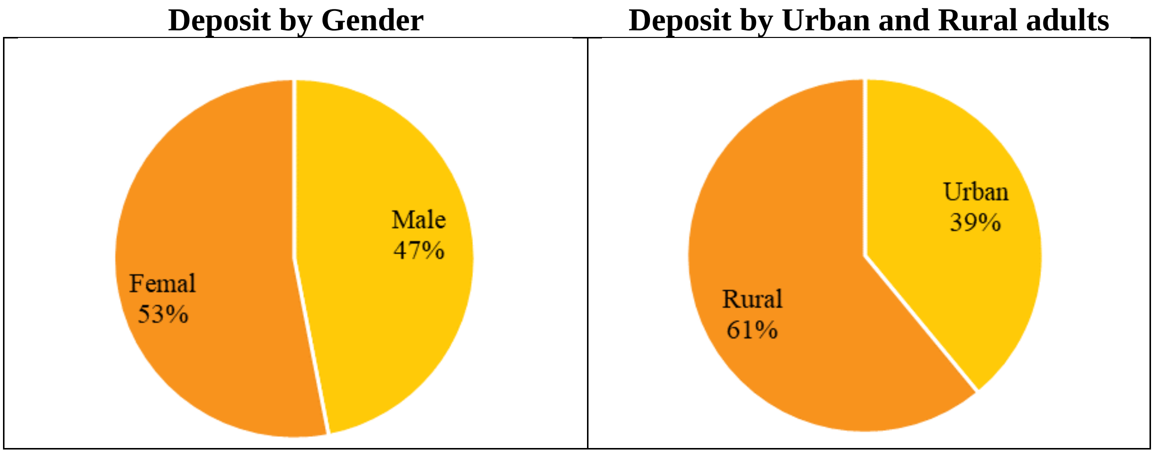



Source: Banks and Financial Institutions and author's calculation

Among the active users of financial services, most of them deposit in saving account (82%) following by demand deposit (12%), and the rest are time deposit and other deposit. This implies that usage of bank account as a source of payment is very low. Saving accounts are less flexible than check accounts which are opened for transaction purposes. The trend observes here shows that deposit accounts are used mostly for saving. Another interesting observation from this study is that despite MDIs offering higher rate on savings, 67% of the depositors would prefer opening an account with a bank instead. This may suggest that perception that banks is more trustworthy than MDIs.

The number of women having a deposit account is higher than men with 53% of women having formal deposit account. This could be attributed to the fact that in Cambodian culture, women are in charge of household finance. Women tend to use more saving products than men suggesting a better understanding of the characteristic of the different products available. In the database, there were about 1.5 million of urban adults save compared to 2.4 million rural adults.

**Figure 6.13: Deposit by Gender and Urban and Rural**



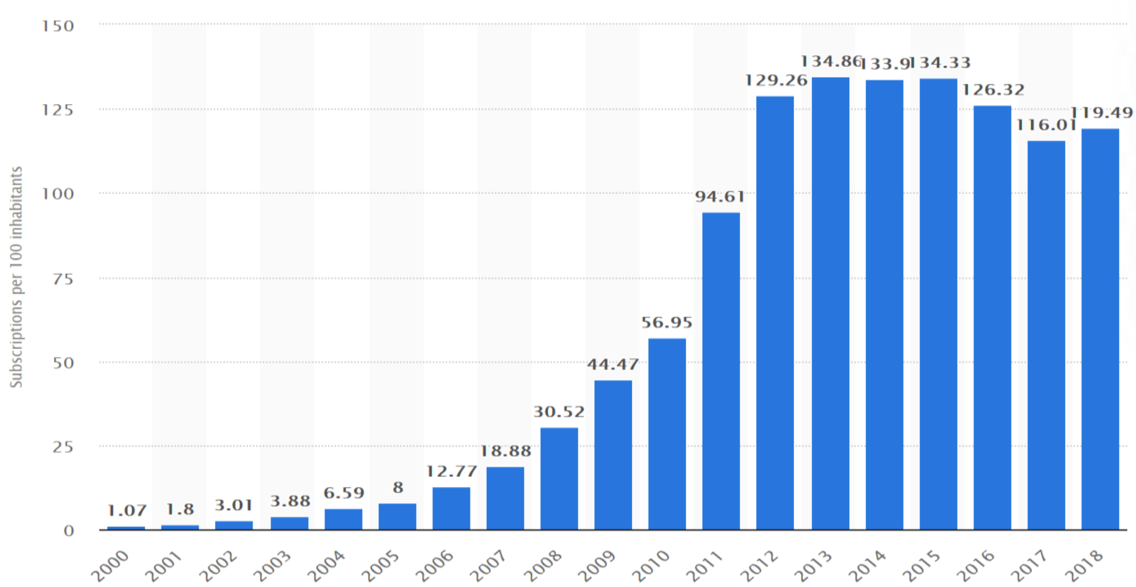

Source: Banks and Financial Institutions and author's calculation

### 6.4.3. Wallet and Remittance

As the central bank, NBC has the role to oversee and regulate payment products and institutions to ensure safe, secure and efficient payment system in the country. For financial inclusion purposes, usage of formal payment services is a first step to further usage of other services. Most often, access to mobile e-wallet, or use of FinTech, is considered as a great accelerator to financial inclusion agenda. Mobile remittance and payments are not only a first step into the formal sector, but also allow bank and financial institutions to better understand the financial behavior of their potential customers through the usage data available. In recent years, the mobile money in Cambodia was facilitated by high penetration of mobile phone in the country 19.4 million subscriptions.

There are 21 Payment Service Institutions (PSIs) in Cambodia that are operating through 27,974 payment and settlement agents and 15,037 merchant locations across the country. By end of 2019, the total balance of the e-wallet of PSIs was KHR 232.4 billion (USD 58.1 million) spreading over 1.8 million accounts equivalent to 11% of the adult population. The number of payment transactions was 58,015,528 amounted to KHR 32.1 trillion (USD 8.0 billion) (NBC, 2020). While payment transactions directly through bank accounts remain limited (due to small number of cheque accounts opened), transaction through e-wallet increases significantly over the years, reinforcing the belief that e-wallet is the best mean to promote financial inclusion agenda in developing country. One explanation to this phenomenon could be that opening an e-wallet account is easier than banking account. E-wallet is not considered saving account and there is a cap of the amount that can be stored or transact per day. For this reason, Know Your Customer (KYC) requirement to open a wallet account is much less stringent than for opening a bank account. One number to notice, however is the fact that 56% of all mobile transaction happen in the capital city, Phnom Penh.

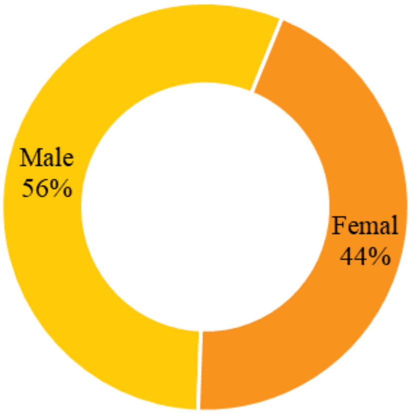
**Figure 6.14: Number of mobile cellular subscriptions in Cambodia**




Source: https://www.statista.com/statistics/501971/mobile-cellular-subscriptions-per-100-inhabitants-in-cambodia/ (30/06/2020)

From gender perspective, we observed more men have e-wallet account than women. Of those who have a mobile wallet account, 56% are men. This could be explained that men are more digitally literate than women.

**Figure 6.15: Remittance by gender**




Source: Banks and Financial Institutions and author's calculation

### 6.4.4. Insurance

The overall uptake of various insurance products is much lower than the uptake of other financial products as savings, credit, and bank payments. Data show that only 1% of adults access to insurance coverage, of which 90% hold life insurance and 10% hold general insurance.

Among the two types of insurance policy, Cambodian adults mostly hold life insurance rather than general insurance. Furthermore, almost all of the insurance policy holders carry only one insurance policy either life insurance or general insurance, and only 0.3% of adults hold both policies.

**Figure 6.16: Utilization of Insurance Products**

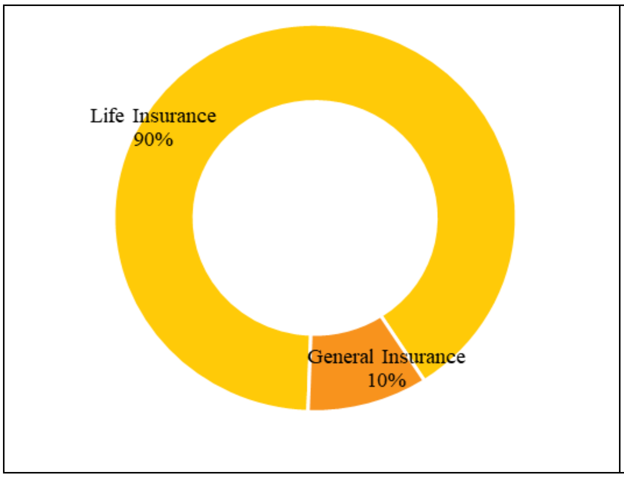
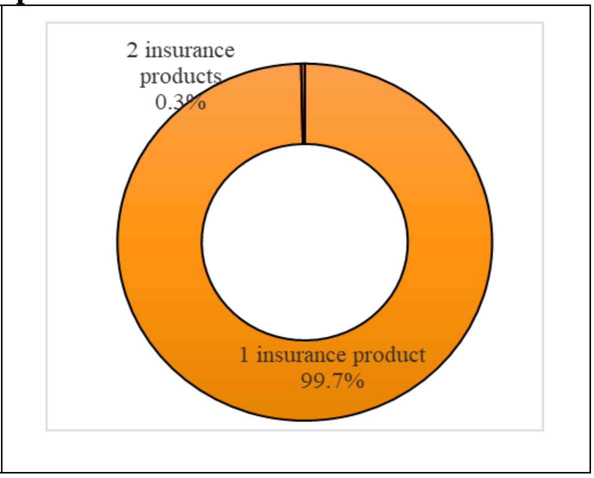



**Figure 6.17: Depth of access to insurance products**




Source: Banks and Financial Institutions and author's calculation

In term of gender, women tend to be more risk averse as reflected in our findings, where of all insurance policy holders 68% are women. In term of urban-rural distribution, it is interesting to note that, 56% of insurance policy holders live in the rural area. Higher level of insurance in rural areas is mostly driven by low cost of micro insurance and group-based insurance products.

**Figure 6.18: Insurance utilization by gender**

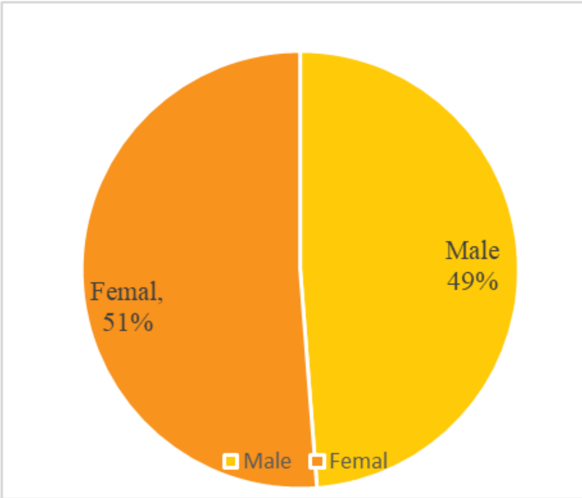
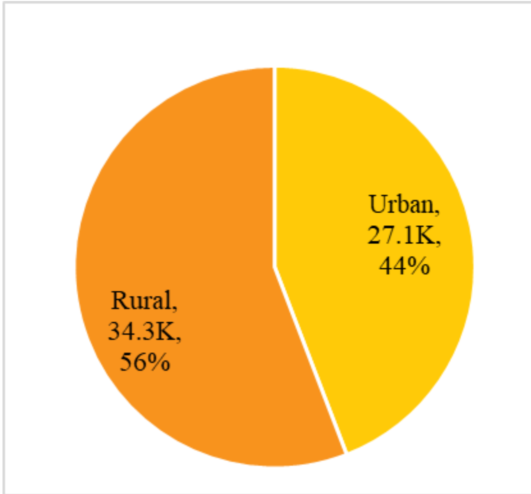



**Figure 6.19: Usage of insurance in rural and urban area**




Source: Banks and Financial Institutions and author's calculation

## 6.5. Conclusion

Many studies confirmed the positive impact of financial inclusion on poverty reduction and income inequality. Greater access to financial services could help individual to better save and allows for efficient consumption smoothing for individuals over time. It also allows SMEs to have more opportunities in growing their businesses, create jobs and ultimately contribute to poverty reduction and equitable economic growth. However, researches have also cautioned about too much financing and the risks it may pose on the stability of the financial system, but more importantly the adverse impacts it may have on the people who have too much credit and increasing credit risks in the domestic economy. The high bad-loans could create a vicious cycle of over indebtedness and poverty. As such it is important for policymakers to fully understand the extent of financial inclusion in their country and design effective polices accordingly.

This chapter examined the development of financial inclusion in Cambodia using administrative individual data from the financial institutions as oppose to dataset from financial surveys. The analysis using individual administrative data is the first to be undertaken for the Cambodian economy. This methodology is expected to complement exiting financial inclusion measurements in term absolute level of financial access but does not capture people behaviors or other qualitative factors. Indeed, current financial inclusion database based on survey is based on derivation and use of proxies. Those measurements, might be sufficient for cross-country comparison, however it does not provide the clear development and gaps in the financial inclusion in the domestic economy.

The results of the study indicated that the financial inclusion in Cambodia is limited to two basic products: credit and savings. This indicates further policy measures to encourage access to insurance products which is particularly crucial to provide safety nets for low-income households. It is noted that various forms of insurance products are also crucial for the stability of financial systems mainly because there are growing links between insurers and banks and because insurers are safeguarding the financial stability of households and firms by insuring their risks. Further, microfinance institutions play an important role in financial inclusion effort, however not all MFI in Cambodia are allowed to take deposits as only 7 MFIs are allowed, while the rest can only provide credit. It is therefore paramount to ensure that financial services offered in the rural area and particularly low educated segment of the population, does not limit to credit as this can lead to abuse and misuse. When it comes to savings, a challenge might be that savings products are not suitable or rewarding enough for those wanting to save small sums.

Therefore, to enhance financial inclusion in Cambodia, various activities should be considered including promoting savings through developing suitable and convenience saving products. Savings are crucial in building financial resilience, helping people to meet urgent financial needs, and limiting the need for borrowing. At the same time, promoting insurance is also essential for the population which required for insurance products and profitability awareness, including facilitate financial support and reduce uncertainties in business and human life, and provide safety and security against particular event, which it not only protects individuals against risks and uncertainties but also offering an investment channel. As the world is moving toward digitalization, banks and financial institutions could easier reach to individual through mobile-based banking services, allowing the ‘unbanked’ to become ‘bankable’. While promoting financial inclusion, it is crucial to note that consumer protection mechanism and financial literacy must be in place and prioritized. The results indicated the role of women in Cambodia seems to be important, and their financial inclusion is critical to develop stable and resilient financial sector. One should note however that the study does not shed light on anecdotal cases where women are used to as main account holder but don't actually have the authority over the actual use of the funds. This has important policy implications and create moral hazard, where men would force or encourage their female relative or spouse to take on a loan or open an account

In term of financial stability, financial inclusion is the key to inclusive growth with its motto of empowerment of poor, underprivileged and low income/skilled rural/urban households, and it is proved that financial inclusion and the pursuit of financial stability are no longer policy options, but policy priorities. Financial inclusion work within the framework of financial stability given an enabling regulatory environment. A combination of viable business strategies targeted towards the population at the bottom of the pyramid, lower transactions costs with technological innovations, consumer protections policy, financial literacy enhancement, and appropriate regulatory environment have helped foster greater financial inclusion with stability. In the future, to understand the full picture of the Cambodia financial inclusion landscape, more data is required on both demand-side and supply side. This would help open other side of the financial inclusion, especially the challenges in access to financial services. At the same time, enhancing trust and confident of public in using financial services should be done through enhancing the implementation of the law on consumer protection and promoting the financial literacy.

# CHAPTER 7: POLICY DISCUSSION

## 7.1. Introduction

This chapter aims to summarize the key research findings of the thesis. It also provides key policy recommendations for promoting financial inclusion at both domestic and regional levels. The policy discussion will also include the challenges and importance of financial inclusion in the post pandemic.

The chapter is organized as follows: Section 2 provides summary of the thesis and Section 3 discusses policy gaps and consequences. Section 4 suggests ways to address those policy gaps at country and regional levels. Section 5 provides discussion of the financial inclusion during the time of Covid 19, and Section 6 concludes.

## 7.2 Key Objectives of the PhD Research

The key motivations of the thesis are to examine the impact of financial liberalization and financial inclusion on economic development in ASEAN countries, particularly the regional economic cooperation in driving and deepening financial inclusion. This thesis provides a careful review of financial development and inclusion in ASEAN member countries, as well as the regional economic cooperation of ASEAN with regard to financial development and cooperation. The thesis carefully examines the development of financial inclusion from the regional perspective by studying the ASEAN framework for developing regional policies and coordination for financial inclusion in ASEAN member countries.

The other key objective of the thesis is to examine the financial development and financial inclusion of developing countries such as the ASEAN LDC of Cambodia. The thesis examines the importance of both financial inclusion and financial intermediation as necessary and sufficient conditions for the development of financial markets, and also for sustainable and inclusive growth in developing countries. The key focus is to examine the impact of economic liberalization concurrently with the development of financial institutions and financial inclusion in a developing country such as Cambodia. Thus, the thesis carefully examines the impact of financial inclusion on inclusive growth and poverty reduction in ASEAN and particularly in a less developed country of Cambodia. In this thesis, we also carefully study the measurements of financial inclusion and develop a more detailed measurement of financial inclusion using administrative data from the Credit Bureau Cambodia (CBC).

Chapter 1 provides an introduction to the topic of the thesis, its motivation and the summary of the key findings of the PhD research.

In Chapter 2, we review the literature on the significance of financial inclusion and its measurement. It highlighted the important role of financial inclusion in mobilizing and formalizing key economic resources for economic activities in the domestic economy, particularly accelerating growth and reducing poverty. Financial inclusion has been widely known as the increasing access to formal financial services for all members of an economy. An inclusive financial system has both economic and social benefits given that the allocation of productive resources become more efficient, leading to the reduction of the costs of capital and increasing the returns to domestic investment. The rise of Fintech has been a game changer in the way policymakers are addressing financial inclusion. With the prevalence of the digital technology and mobile phones, policymakers have brought financial technology to their policy agenda in order to fast track financial inclusion. However, data gap for the estimation of financial inclusion remains a key constraint and challenge.

Chapter 3 discusses ASEAN financial integration process and structure in line with regional integration of economic and financial structure. Given that millions of adults in the region are unbanked and many SMEs have difficulties obtaining finances, the awareness on the importance of financial inclusion in ASEAN has been amplified. Financial inclusion provides all segments of the society with equal opportunities to access formal financial services enabling vulnerable households to elevate themselves out of poverty, and for SMEs to expand and generate higher income. Furthermore, financial inclusion will also be one of the key catalysts of financial integration in the ASEAN region. For instance, enhancing access to cross border remittances supports regional labour mobility, while enhancing SME financing for trade and cross border investments enables domestic firms to benefit from greater access to markets. This chapter also describes the existing institutional arrangement within ASEAN to achieve its financial integration objectives, as well as discusses the importance of financial inclusion in ASEAN in order to maintain financial stability and achieve financial and trade integration in the region.

The comparative analysis of financial inclusion at the regional level is discussed in chapter 4. It highlights the different levels of financial inclusion in ASEAN member countries and the need for stronger regional cooperation to further promote financial inclusion. The chapter highlights the importance of financial inclusion in promoting financial integration by reenforcing financial stability, as the later would enhance the resilience of financial system and thus provides comfort for member countries to increase openness of the financial sector. It would also contribute to a better transmission of monetary policy, which ultimately contributes to greater policy coordination across the ASEAN member countries and hence maintaining the financial stability in the region. However, cost, distance, lack of money, lack of documentation and limited variety of financial services to cater for the needs of customers remain significant barriers to access to finance within and between ASEAN member countries.

Chapter 5 examines the impact of the financial development and financial inclusion on saving in the Cambodian economy. In Cambodia, a large share of household savings is undertaken in terms of informal savings such as saving clubs and saving cooperatives. This leads to large leakage of funds out of productive investment in the domestic economy. The results highlighting the growth of informal saving sector, have important implications for wealth creation for the poor in domestic economy in terms of providing several wealth creating low-risk financial products to the poor to diversify their wealth. It is fundamental to increase the formal savings activities in the economy through banks and financial institutions that create efficiency in wealth creation in the domestic economy in terms of reducing the asymmetric information associated with the informal financial markets. As a result, financial policies such as financial intermediation have positive impact on financial inclusion in terms of increasing the formal savings of the poor segment of the economy.

Chapter 6 investigates the level of financial inclusion in Cambodia using administrative data collected from banks and financial institutions in the economy. Data sets are represented by 6,310,561 deposit accounts, 3,896,428 borrowers, 2,105,636 payment users, and 838,750 policy holders. The data shows that 7.8 million people in Cambodia have access to and use at least one formal financial service. The number represents 78% of the total adult population, which is above the Global Findex database. While saving and credit are widely used, insurance and e-wallet usage remain limited in the economy. The results indicate that e-wallets tend to have more penetration in the rural areas as initially expected, indicating that there needs to be further policy flexibilities to deepen the e-wallets and mobile banking adoption in the economy.

## 7.3 Policy Gaps and Consequences

As shown in previous chapters, financial inclusion is a tool to reduce poverty and promote inclusive growth. However, promoting financial inclusion requires addressing several policy gaps. These gaps include the limited understanding of concepts and tools of financial inclusion for the key stakeholders and policy makers, poor regulatory framework and quality, and weak consumer protection.

### 7.3.1 Policymakers' Understanding of Financial Inclusion

Financial inclusion can have different meanings in different context. International organizations such as the IMF, World Bank and UN have their respective definition. Although the definition is broadly in line with each other, on a country level, policy needs to be more specific on what it intends to achieve based on the challenges and development of the domestic economy. While it is agreed that financial inclusion is the access, usage of affordable formal financial services, country specific context requires a sequencing of the policies to achieve the desired outcome at the respective country level. In India, the successful implementation of Aadhaar, a national unique identification system, added 300 million bank accounts within 2014 and 2017 (Raman, 2018). While the usage (transaction within the accounts) is limited, one could argue that the access is the first stage to better understand the behavior of the population and further design the policies accordingly.

Another specificity that local policymakers need to consider is the appropriate age a person should start using formal financial services. Saving culture starts at very young age and thus many studies suggest that an early childhood education on money matters (Sherraden et al., 2011). The World Bank, for instance, in its GlobalFindex survey implies that anyone above the age of 15 should have access to financial services. Although this could be the ideal age, it is not realistic for some countries to implement. Legal age differs from one country to another. In Cambodia, while the GlobalFindex survey accounts for the number of the population above the age of 15 having access to financial services, the reality on the ground is somewhat different as the legal age in Cambodia is 18 years old, when the individual is allowed to enter into a contractual agreement. For Cambodia, the legal age implication would hinder financial inclusion from reaching to the population below the age of 18 years.

Furthermore, using standardized tools to measure financial inclusion has some limitations. Many attempts have been made to improve the measurement of financial inclusion, however, there are some inadequacies and loopholes especially in taking into account the local context and local understandings of financial inclusion. This directly affects the measurement especially in developing countries as cultural and local issues affect the participation in financial activities. The reviewed studies showed that various forms of measurement have been used ranging from supply to demand sides of financial services provided by commercial banks, microfinance institutions and other financial agencies (see, e.g. Beck, Demirgüç-Kunt, and Martinez Peria, 2007; Honohan, 2008; Kendall et al., 2010). Moreover, existing measurements of financial inclusion focus on multidimensional index, in which the index has been extended to the accessibility, barriers and usage of financial services (Cámara and Tuesta, 2014).

Moreover, attempts to address financial inclusion without understanding the true extent of financial exclusion and the reasons of such exclusion, can be counterproductive. This will affect the policy framework for establishing robust financial inclusion policies at developing countries. For example, over indebtedness is a common issue within the lower and poor segment of the economy. In most cases, policy focus has been on the supply side: making financial service more affordable and more convenient. Addressing the supply side of the equation creates imbalances in developing the expected outcome for financial inclusion of individuals. People who have access to those financial services, however affordable or convenient they are (FinTech is often believed to address this issue), may not use the fund for the right purpose risking over-indebtedness that can create instability in the financial markets. The key is the development of basic financial literacy skill of the general population. In this regards, financial inclusion has to be properly understood by both the general public as well as the policy makers before the designing and implementation of policies.

The above challenges also require collective and coordinated efforts from different government agencies to accommodate and achieve financial inclusion goals. It is not the sole responsibility of a single agency nor financial regulators due to the cross-cutting issues of financial literacy and consumer protection as it becomes prominent. Equally, this should also fall under the responsibility of education agencies. Financial inclusion should also be accompanied with the development of entrepreneurship in order for small businesses to fully benefit from the access to finance. Again, financial regulators should target financial inclusion in a way that it provides synergy and complements to its core mission and mandate, and it also requires the collaboration and coordination with relevant agencies, such as those responsible for trade promotion.

Globally, FinTech has been hailed as a solution to promote and expedite financial inclusion agenda. As a result, billions of dollars of grants and subsidies have been poured into FinTech startups. However, one should not forget that financial inclusion is not the end goal, but a mean to an end, and that end is poverty reduction and equitable growth. Various studies have showed that by bringing the poor into the formal financial services, there is better chance for them to be lifted out of poverty (Mecha, 2017).

Although studies show that FinTech introduced so far did make financial inclusion more convenient and affordable, but it is still inconclusive whether such inclusion has led to poverty reduction. Demirgüç-Kunt et al. (2018) suggested that introduction of technology has, in fact, excluded more people especially women population. Indeed, technology literacy remains low, especially amongst the low, unbanked and women segment of the market in which FinTech is supposed to target. Furthermore, in many developing countries, basic infrastructure for FinTech to thrive is still lacking such as the internet connection, affordable smart phones and in most cases access to electricity. Digital literacy is also a barrier to many low income and less educated segments of the market. Therefore, the premise of FinTech to address financial inclusion agenda remains limited.

### 7.3.2 Regulations and Financial Inclusion

Regulations can be both a deterrent as well as an enabler for financial inclusion. Indeed, banking industry is amongst the most regulated industry in world. However, the degree of regulation must be commensurate to the risks of the financial activities. Since the Global Financial crisis, the Basel Committee on Banking Supervision has advocated for risk-based supervision, where the intensity of prudential supervision on financial institutions must be proportional to the risks they represent to the entire financial system. It tends to advise against pro-cyclical approach where measures are relaxed during good time while tightened during bad time, risking to further amplifying the situation.

Until recently, imposing regulation of microfinance institutions seems not to be the norm, with Cambodia standing out amongst the first countries in the world to do so. Indeed, microfinancing is usually small in size and tends to pose less systemic risk to the system, economically speaking. In some jurisdictions with limited resources, this may be the reason to justify the absence of regulation on the MFI sector. Nonetheless, microfinance institutions are generally dealing with the most vulnerable groups in the society, mainly low-income households and therefore deserve special consideration. Microfinance sector can be a powerful tool to enhance financial inclusion and needs proper rules and regulations not only to enable its development but also to protect the most vulnerable in the society.

However, the key questions are the following: (a) how much regulation is enough for this sector? (b) What should be the specific focus?

The numerous benefits of financial inclusion have already been raised earlier in this thesis, and there is no doubt that access to formal financial services should be promoted. Access to financial services is limited in most developing countries and more specifically the low-income segment of their population.

Before the breakthrough of Financial Technology or FinTech, conventional banking institutions found it costly to serve the low-income segment of the market and those living in remote areas (Dang & Vu, 2020). Some banks go to the extent of requiring a minimum balance with the institutions or a maintenance fee would be charged. For low-income households such requirement is economically not convenient or impossible to comply with and they would rather choose not to have a saving account at all. The setting up of brick-and-mortar branches is costly especially if the branches were to be in remote areas of the country where poor public infrastructure means that banking institutions need to spend more for access to electricity, transportation, staffing etc.

Adding to this logistical cost, there is also regulatory compliance cost to providing banking activities in rural areas. In many developing countries, including Cambodia, people living in rural areas and those with low income in urban areas do not have access to proper identification documentation (Ayyagari and Beck, 2015). Since September 11, 2001 companies around the globe are strengthening their due diligence procedures on their customers to comply with regulators' efforts to prevent money laundering and financing of terrorism. But as with many policies, there often are unintended side effects, and in this case, the strict know-your-customers (KYC) procedures imposed on regulated financial institutions make it difficult for the low-income segment of the markets to comply with.

Once a proper identification is established with the financial institutions, the usage of financial services and positive impact on financial inclusion are expected. According the Global Findex survey, usage of financial services seems to be the most challenging part in promoting financial inclusion. This means that beyond access, people need to be able to use financial services to fulfill its role of alleviating poverty. Here again regulation contributes to this problem. Basic financial services include access to saving accounts, payment instruments, credit and insurance. Using any of the four services first requires proper due diligent. While the reasons for limited usage of financial services for those who have access can be diverse, the key focus here is on the regulatory gaps that make usage difficult for low-income segment of the markets.

Banks are intermediaries that take money from the public and lend it to those in need of funding. If the deposits are misused and the banks pass all the risks of investment to the depositors and public, there is a greater probability for the public to lose their savings in deposits. This highlights the need for banks to be regulated to ensure that the deposited money is protected and properly used and managed. One key dimension is that proper credit worthiness assessment is required on borrowers. This includes the proof of income for individual loans, and proof of business registration, balance sheets, and income statements for business loans. While this is taken for granted for individuals and small businesses in developed countries, in developing countries where informal economy is prevalent, these sorts of documentations are nearly impossible to obtain leaving very few options for this group but to seek informal lenders or loan sharks who are charging exorbitant rates and fees.

International best practice on bank regulation can also be unfavorable to the financial inclusion agenda. Basel 2 and Basel 3 of the Basel Committee for Banking Supervision (BCBS) of the Bank for International Settlement (BIS), a golden standard for banking supervision practices, require banks not to exceed a certain threshold of their net worth relative to the risk they are taking. This is often referred to Capital Adequacy Ratio (CAR). To calculate this ratio, banks must weight their loans portfolios according to their risks and divide by the total net worth. As loans to small businesses and low-income segment of the market are generally considered risky due to the lack of documentation, banks are therefore reluctant to lend to this segment fearing it would drag down their ratios. For example, loans to a sovereign (through government bonds etc.) are considered risk free, therefore would count as zero risk and will not be included in the risk-weighted assets to be divided by the total net worth of the banks. Loans to companies with BBB+ credit ratings or with strong collaterals would be counted as, for example, 20% risky with only 20% of the total value to this segment counted in the risk weighted assets, whereas loans to small businesses and low-income segment are considered as risky and could be weighted at 100% or more. The more loans are given to this group, the less the banks could lend. This problem has often been raised by Basel critics and demanded for a more pragmatic approach to address.

The regulatory gaps raised above do not imply that there should not be any regulation on loans to this segment. Indeed, preserving the health of the financial system through proper regulations is necessary and critical. The experience from the previous global financial crisis showed that banking crisis can negatively affect the entire economy and is very contagious to the rest of world. Regulatory compliance is costly, a cost that is eventually passed on to consumers. As microfinance sector weights the credit risk they are facing, having to deal with the poorer segment of the market, it needs to also consider the cost incurred in complying with relevant laws and regulations. Once again this is a cost that is passed onto consumers.

### 7.3.3 Consumer Protection

Consumer protection is a major factor often not well addressed with regard to financial inclusion. Financial inclusion is targeted to the most vulnerable group of the society, i.e., low-income people, women, small and medium businesses. This group is likely less educated and prone to abuse. This is the main reason why it needs proper protection from regulators. While access to formal financial services is made difficult partly due to strict Know Your Customer (KYC) procedures and documentation requirement, access to informal money lenders is much simpler albeit more expensive. People with little education are more likely to choose the easier path, i.e., engage in a relationship with moneylenders who are easy on documentation without being aware of the risks that entail. Most informal businesses and low-income people have little or no knowledge of the legal implication on a loan contract. In some of the complains received by National Bank of Cambodia through its helplines relate to customers losing their collateralized properties without possible recourse to the court of justice. Investigation found that these people are victims of misinformation/abuse by the informal money lenders and loan sharks. Loan contracts, if any, are one-sided, putting customers at great disadvantage. Another problem often arise is the complains by customers on penalties imposed by formal financial service providers, mostly on early repayment. It goes against their common sense that early repayment should be penalized instead of encouraged. Most do not understand a loan agreement or have not been properly explained by financial institutions on the terms and conditions. Interest rate calculation methodology can also be confusing for the customers in terms of flat rate interest calculation instead of declining rate calculation. In this regard, regulators play an important role in fostering transparency and fair lending practices amongst microfinance institutions. In Cambodia, MFIs are required to disclose all terms and conditions of a loan offer into a standardized format where customers can easily understand but most importantly can easily compare across different institutions and bargain for the most affordable.

Another key pillar of consumer protection is financial literacy. Financial literacy, although found to be critical in promoting financial inclusion, is often neglected, mainly because of the difficulty to implement and the effectiveness of the measures. The importance of financial literacy is regularly raised but the implementation remains weak and sporadic. Long term solutions and more impactful implementation such as including financial literacy within the general education framework are rare efforts and found in few countries such as Fiji and Cambodia. However, financial literacy does not yield immediate results; it takes time and efforts. This is the reason why many development partners although being aware of the benefits often shy away from projects. Indeed, financial literacy is not always quantifiable which is key to assessing the efficiency of a project, and more often than not, can take many years to show concrete results on people behaviors: understanding between revenue and expenditure, opportunity cost, interest calculation (flat and declining) etc. take time. Besides, projects funding has limited time frame and requires concrete and measurable results.

In some cases, financial capability development is instead adopted where behavioral change would be the main key performance indicator. With coaching and training on basic knowledge, the development partners would look for behavioral changes of the groups, i.e., saving and spending habit.

Access to formal financial services without knowing the proper usage can be detrimental. In fact, usage of financial services for the right purpose is far more important than access and usage for the sake of access and usage. This demand-side factor of financial inclusion is often not well addressed in the literature and also in the data. First, the customers must understand not only their rights but also their responsibility, i.e. money borrowed must be repaid and in a timely manner. Borrowers need to understand that missing their debt repayment can result in bad credit scoring, which could affect their borrowings in the future. Second, in order to be able to repay the debt, customers must understand what they are using the money borrowed for and whether they have the capacity to pay back. This requires a person to have basic knowledge of their financial situation and management. One of the main reasons of over-indebtedness occurs, is misuse of the fund, i.e., borrowing beyond ones' ability to repay.

Financial literacy is a crucial part in financial inclusion policy and need to be addressed early on because it takes longer to bear fruits. In the context of developing countries, the role of financial literacy on financial inclusion has been observed using either survey data or randomized controlled trials. Grohmann et al. (2018) employing cross-country data from the S&P Global Finlit survey found that financial literacy has a positive effect on the use of financial services. Using a comprehensive measurement of financial literacy, Morgan and Long (2019) observed positive effects of financial literacy on financial inclusion and saving behaviors in Cambodia and Vietnam. Furthermore, studies based on randomized controlled trials confirmed that higher financial literacy is positively related to financial inclusion in developed countries (see, e.g., Cohen and Nelson, 2011; Klapper et al., 2013; Landerretche & Martínez, 2013).

As more and more technology will be used, it is important for the regulators to properly balance its benefits and risks. Cybersecurity is an inherent risk from the use of technology related products and services. It is important that appropriate rules are in place to ensure that financial institutions put in place cybersecurity protection protocol. Furthermore, as data will be widely used, privacy and confidentiality rules should also be in place to avoid abusive use of customers' data without their consent. In such instance, the concept of "consent" would need to be properly discussed as to the form and the substance (how consent is obtained, the limitation of such consent etc.).

## 7.4 Policy Discussions and Conclusion

### 7.4.1 Addressing Policy Gaps

Undeniably, according to empirical studies, access to finance has proven to be an effective tool to lift people out of poverty and ultimately improve a country economic development (Honohan, 2004; Beck, Demirgüç-Kunt, and Levine, 2007; Dabla-Norris et al., 2015, Omar, and Inaba, 2020). In the United Nations' Millennium Development Goals, access to financial services was identified as one of the enablers for poverty reduction/eradication.

Financial inclusion holds the promise of boosting growth and reducing poverty and inequality, notably by mobilizing savings and providing households and firms with greater access to resources (Beck, Demirguc-Kunt, and Levine, 2004). The benefits of financial inclusion could be particularly pronounced in countries where growth is modest and volatile, poverty and inequality remain high, savings and investments are low, and informality is rampant. Indeed, inclusive financial system is understood to provide better opportunities for economic agents to better manage their cash flows, smooth spending overtime and potentially grow existing businesses which eventually graduate from a small enterprise to a large one. For low-income segment, access to financial services can improve their living standard, lift them out of poverty and provide better education and health care for their families. Nonetheless, financial inclusion remains a challenge in many countries due to regulatory barriers, limited financial literacy, and inefficiency banking system (World Bank 2014). Research and policy debate on how countries should promote financial inclusion remain essential. Several key issues have to be addressed.

### 7.4.2 Domestic Policy Reforms

First, strengthening domestic regulatory and institutional qualities are essential to promote financial inclusion. Recent literature has emphasized that governance and the quality of institutions are key elements in enhancing financial inclusion (see, e.g., Barry and Tacneng, 2014; Zulkhibri and Ghazal, 2017). Regulators play an important role in instilling trust and confidence; therefore, good governance and institutions positively influence people to open formal bank accounts for savings (Zulkhibri and Ghazal, 2017). In developing countries, regulators should have deep understanding on these factors because without such considerable policy relevance, it may result in poor policy designs. In this regard, it is vital to take into account the increasing transparent legal framework, enhancing fair administration, and removing corruption.

Although finance can be used as a tool to combat poverty and social exclusion and to increase economic growth, it is important to stress that the main foundation of central bank is monetary and financial stability. Any policy design should be properly taken into account various dimensions as most central banks' mandate is to keep prices stable and to maintain confidence in the currency. Furthermore, financial inclusion may contribute negatively to financial stability (Khan, 2011). This could happen when financial institutions try to increase the number of borrowers by loosening the lending standards. The most obvious example to describe this episode is the "sub-prime" crisis in the United States. In developing countries, where microfinance institutions play important roles in lending in rural areas, a reduction in lending standards could negatively affect the institution's reputation. Consequently, it may affect the overall effectiveness of regulation in the economy when the financial system risks accelerate.

Second, policymakers need to adopt conducive regulation on a risk-based approach. Regulation should be commensurate the risk profile of the institutions. In Cambodia, regulated microfinance institutions are not allowed to take public deposits to avoid spill over risks on the public. In return, regulations on microfinance are less stringent than on deposit taking institutions and tiered according to the size of their portfolio to avoid unnecessary regulatory compliance cost. Furthermore, regulating micro credit operators provides trust and confidence to investors. A well-regulated entity is more likely to attract investors than those who are not. Some institutionalized investors, including development funds, would come in not just with fund but also capacity building and best governance practices.

Third, regulations on consumer protection are also important for the consumers to be well informed of the level and type of fees charged by the financial institutions. This allows consumers not only to select most proper and optimal alternative financial services, but also to better understand risks attached to financial services. In particular, transparency of pricing is important. Low educated micro borrowers are prone to abuse by money lenders and even micro finance operators. A mechanism to make sure that these lenders hold best practices and ethical one is crucial to instill that needed trust. Consumer protection mechanism can be enforced on financial institutions through rules and regulations such as those on transparent disclosure and responsible lending practice where the customer wellbeing is prioritized over the institutions' target and bottom line. Consumer protection can also be introduced with longer lasting effect through educating and informing consumers about their rights and responsibilities when it comes to financial matters. This is often the most difficult part to address and it is the reason why many countries opt for focusing on regulating the suppliers i.e., financial institutions.

### 7.4.3 Technology

Technology has often been hailed as critical in expediting financial inclusion agenda. Policy gaps could be filled by harnessing technology, improving human capital, strengthening regulations and institutions, and promoting connectivity. The fast-evolving financial technology can help promote financial inclusion on several dimensions such as payment, account opening, due diligence, risk-information sharing, and consumer protection. For example, E-KYC is an important infrastructure to have in place as banks are dealing with faceless customers. Another example is the electronic transactions which are becoming fast, cheap, and secured.

#### *7.4.3.1 Know Your Customer*

Part of the reasons many low-income segments or informal businesses are not targeted by banks is the cost of serving these segments and also the lack of understanding. Know your customer process is an important basis to allow the on-boarding of the unbanked part of the customer base. Reaching out to remote areas in developing countries is challenging due to lack of physical infrastructure (roads and bridges). Technology can also help financial access, especially in remote areas where access to bank branches can be costly. In particular, account opening through digital devices: simple saving account opening is a hassle for many low -income segments of the population. Providing proof of identity and residence is not always obvious. Yet, saving is a powerful tool to help household better manage their finances in time of needs. In many countries, national identity system is inexistent. Financial institutions therefore must rely on alternative proof of ID such as driving license or other utility bills with proven addresses. Data sharing amongst financial institutions that have previously run a KYC process on a customer can be shared to other institutions to ease identification steps. Furthermore, technology can bring information from different sources and use a matching logic to better identify customers. In countries like India, the introduction of government Aadhar identification program facilitated account opening in the country, with account number increasing by 300 million accounts within 3 years of introduction (Nilekani, 2018). Although the usage of such accounts is still a debate, the fact that people have a bank account to receive government social welfare distribution alone can make a great impact on the socio-economic wellbeing of the families and local economy. Unofficial leakages through the cash channels are thus mitigated. In Bangladesh, biometric identification that sits on government owned platform has also better helped financial institutions to better do the KYC on their customers and ease account opening process. (AFI, 2018).

But in a time where anti-money laundering and counter financing terrorism rules are increasingly stricter by the years, financial institutions have no choice but to comply. While this has a well-intended objective, it may have unintended consequence on financial inclusion. There must therefore be a balancing act for policymakers to make on this. The ‘Know Your Customers’ (KYC) scheme is sometime adopted, where small value ticket transactions require less rigorous KYC procedures. Sophisticated technology can capture suspicious activities and help mitigate the abuse of such practice.

#### *7.4.3.2 Credit Underwriting*

Access to credit is an important part of access to financing. Credit allows individuals to smooth their consumption over time. However, for businesses, it allows them to better manage their cash flows and possibly expand their businesses. Many studies have found that access to finance is the most prevalent obstacles for SMEs. Because banks are intermediaries of customers deposits, they need to do proper due diligent on their customers before a credit line is issued. This exercise requires an understanding of the customer behavior and willingness to repay as much as the ability to repay. Most often those characteristics are difficult to gather, but with technology and sophisticated psychometric and credit rating algorithm, this can be done in a matter of minutes.

Another key example is the role of technology in registering collaterals and thus reducing risks. While possessing title deeds or official recognized ownership to ones' property is taken for granted in a developed country, it is not the case in most developing countries. Procuring a title deed involves cost. Title deeds must follow the hypothec principles where a lender risk appetite can be taking into account. For instance, a land that cost 100,000USD pledged with an institution can only fetch 5000 USD in facilities, but that is because of the institutions risk appetite. This limits the ability of the borrowers to use the full potential of their assets. There must be a mechanism where the borrowers can take the title deeds and go to a second lender who risk appetite is higher and can provide more loans, all these while considering the repayment ability of the borrowers.

Here, technology can help with a proper centralized system that can share information amongst lenders on the title deeds that have been pledged and the facilities against which they have been pledged for. As such, the role of a credit bureau is crucial, not just any kind of credit bureau but a positive credit bureau that help lenders not to just identify bad borrowers, but also helps them identify good borrowers. A bureau that is comprehensive. In some countries, fragmented bureau between the micro finance segment, bank segment and SME segment makes it difficult for financial institutions to make fully informed decisions. Clients graduate from one segment to the other. If information is not centralized, then one segment may lose information when the customers were with the other segment. However, credit rating tools offered by credit agencies can be both an advantage and a deterrent to financial inclusion. Data bias is often cited as the culprit. Indeed, someone who never has a credit facility before would be difficult to rate. In this case, financial institutions with rigid credit policy basing their decision on the credit rating (this often happens for small loan size in order to speed decision process) may reject the application without further consideration. This will exacerbate the borrowers' ability to access other finances. In some countries, government services can help. Someone without a credit facility before can still provide a behavioral info on her payment habit through the payment patterns of her utility bills. Payment information is helpful to access the credit worthiness of potential borrowers.

E-payment and the oversight of the system are essential to allow businesses to adapt to the new normal where contactless transactions are favored. As many central banks are announcing measures to cleanse and quarantine their banknotes, alternative payment such as e-payment is essential, but this also means that proper oversight is needed to be in place to make sure that proper KYC procedures are in place, that the system and the fund is secured, and most importantly to have proper consumer protection mechanism in place to gain trust and confidence from users.

### 7.4.4 Human Capital (Financial Literacy)

Government involvement in financial education and other government services are essential to promote financial inclusion. Financial literacy is important because it equips borrowers with the knowledge and skills, they need to manage their wealth and money effectively. Without it, borrowers' financial decisions and the actions they take—or don't take—lack a solid foundation for success, and this can have dire consequences in the form of over-indebtedness, moral hazard, misuse of the loans, and thus resource misallocation.

Financial literacy can be promoted through various channels. First, financial literacy can be promoted through formal education. The financial matters and education can be incorporated into the school curriculums for young students and adults. The practices have been applied in different countries including developing and developed countries. Second, education materials related to financial education should be publicized to the people. Given the widespread usage of smartphones, internet-based information should be developed and widely promoted. Third, the government could choose private sector as partners to promote financial literacy through different campaigns to spread the information to the public.

### 7.4.5 Regulations and Institutions

Despite the benefits of financial inclusion, recent studies cautioned about the trade-offs that it could entail particularly on financial stability (see for example, Dabla-Norris et al., 2015). Deepening financial inclusion is often accompanied by concerns about the implication for systemic stability (Arcand et al., 2012). For instance, excessive leverage and risk-taking can lead to increased economic and financial volatility with potential negative consequences for long-term development, especially if regulation and supervision are inadequate (IMF, 2003; Reinhard and Rogoff, 2011; Sahay et al., 2015). Moreover, extending credit to unproductive projects or unfit clients can expose lenders to higher risks and expose ill-informed borrowers to increased risk of debt distress.

Promoting financial inclusion while mitigating risks is where regulations and supervision play their roles. Durable and efficient financial inclusion requires a balance of innovation with safeguards for financial soundness. That means helping consumers, especially the most vulnerable, to benefit from access without diving deeper into debts. Well-designed financial regulations—including strong prudential oversight—can ensure that loans are channeled to the most productive uses (Cerutti et al., 2015). Nonetheless, the literature on the effectiveness of regulation and measures remains to be explored based on country-specific challenges.

Balancing financial inclusion and financial stability has been studied on a global level by international institutions like the International Monetary Fund whose main agenda is to maintain global monetary stability, Bank for International Settlement who has a Financial Stability Board that provides recommendations to BIS member countries on measures and policies to maintain financial stability, and the World Bank whose role is to promote development and reduce poverty. Finding the right balance is important. Cambodia began regulating and supervising its microfinance institutions in 1999, after the promulgation of the Law on Banking and Financial Institutions. The Law lays out clauses that would bring the "rural credit operators" under the National Bank of Cambodia umbrella. While banks are regulated in a conventional regulation and supervision process, credit operators are divided into two different classes depending on their sizes and volumes. Credit operators with borrowers less than 100 and credit outstanding less than 100 million riels are required to register with the National Bank of Cambodia. The operators would also be required to report their simplified financial statement and number of clients on a quarterly basis. No prudential regulations are imposed on such category of credit operators. This of course lessens the burden on small NGOs who provide small loans as part of their humanitarian works. Nevertheless, to avoid abuse and protect the consumers, the regulators require periodic updates and can conduct spot checks if necessary. Any operation above the threshold mentioned earlier would require MFIs to get proper licensing from the NBC. Such licensing will entail proper governance framework from the operators, regular reporting and compliance with some prudential ratio and consumer protection mechanism. Still, given that MFIs are not allowed to take deposits from the public, prudential ratios that they need to comply with are much less stringent than banks who collect deposits from the public. This supervision and regulation framework on microfinance sector allow MFIs to flourish in the country receiving investment from big financial institutions and development funds from the Europe and elsewhere.

### 7.4.6 Regional Policy and Reforms

Financial inclusion should be promoted to speed up financial integration and contribute to equitable growth. Financial integration without financial inclusion can hinder equitable economic growth where small domestic SMEs will not be able to grow and compete with big companies and multinational ones. In an open trade regime, SMEs have the opportunities to grow their businesses beyond their borders. Nonetheless, this is easier done for SMEs in countries where access to finance is readily available. For countries where SMEs have difficulties in accessing finance, they may find themselves penalized and unable to compete with neighboring SMEs products flowing into their usual markets, due to lack of capitals. In a context of regional integration and prosperity for all as in the case of ASEAN, it is important for respective local SMEs to have access to adequate financing, and this requires regulators to coordinate such an effort.

As such, we observe collective efforts under the financial integration framework of the ASEAN finance ministries and central banks with particular consideration to member countries' different levels of development. The ASEAN Banking Integration Framework (ABIF) constitutes an important pillar within the overall ASEAN financial integration framework that was endorsed by the ASEAN central bank governors in 2011. In line with the ASEAN spirit to accelerate banking integration, the objective of ABIF is to provide greater Market Access and Operational Flexibility for Qualified ASEAN Banks (hereinafter collectively referred to as "QABs" or singularly as "QAB") in the host country. It is envisaged that by 2020, QABs will have a greater role in facilitating intra-ASEAN trade and investment. Market access is defined as the ability to provide banking services in the territory of an ASEAN member state with the removal of one or more of the form of limitations or restrictions to market access described in paragraph 2 of Article XVI of the General Agreement on Trade in Services.

Access to affordable financial services implies competition and efficiency by financial providers. This, in turn, requires a conducive regulatory environment. While ASEAN member countries aim to open their domestic markets to regional financial institutions, certain preferential treatments remain, which renders competition less meaningful. In some ASEAN member countries, foreign ownership, services, and branches restrictions are examples of the rules that make it difficult for regional financial institutions to enter each other markets, therefore limiting competition. Besides, it also limits the sharing of best practices across the borders. Understandably, the restrictions stem from the concern for the host country's financial stability as well as some internal politics that favor national financial institutions over foreign ones. For that, clear and achievable harmonized rules and regulatory framework need to be in place. For the application and enforcement of such rules, capacity building should be focused not only for regulators, but also private sector players. Attempts for mutual recognition of banking professionals within the region have been made but the implementation remains slow. Indeed, in the spirit of integration and labour mobility within the region, a regional standard on certain crucial skillsets within the financial sector would ensure that regional financial sector is in safe hands.

Robust financial infrastructure is linked to financial integration. To achieve this objective, capital account liberalization is required so that banks and nonbank intermediaries alike would be able to finance cheaper infrastructure. A recent study by Ananchoutikul et.al (2015) found that financial integration in ASEAN is limited compared to the level of its trade integration. This is because of some barriers such as restrictions on cross border capital flows, information asymmetries, barriers to foreign bank entries, and institutional qualities. These observations are somewhat in line with the issues that ASEAN finance ministers and central banks' governors are addressing in their financial integration initiatives. Within ASEAN economic community ambition, financial integration is one of the major cooperation between the ASEAN ministries of finance and central banks[27]. It, however, should be noticed that domestic and regional financial

[27] Indeed, such cooperation started since the endorsement of the Roadmap for Monetary and Financial Integration of ASEAN (RIA-Fin) at the ASEAN Finance Ministers Meeting in Manila in 2003.

stability should not be compromised for the sake of financial integration. In other words, financial integration should happen when there is domestic financial stability.

In the new era, Fintech has been a new policy tool to address financial inclusion. The new paradigm has been endorsed by the World Bank, CGAP, and the IMF suggesting banks to make uses of technology such as mobile phones for greater financial access, especially for the poor (Claessens, 2006; Mas and Kumar, 2008; He et al., 2017). Providing financial products and services using digital technology such as mobile phone and/or online with the electronic instruments such as cards, mobile phones, or internet, can help make accounts accessible remotely and overcome the barriers of reaching people in remote areas. Based on the ASEAN Secretariat, mobile phones have been considered as one of the important tools in daily lives of the people accounting for 967 per 1,000 population. With this potential, using mobile technology to provide financial services could have a significant positive impact, especially in reducing costs. ASEAN should work closely together to regulate and embrace digital technology. Given the fast speed of technology adoption, regulatory framework to enhance innovative financial services, namely Fintech, should be developed in line with the financial integration framework of the ASEAN finance ministry and central banks. These technologies will not only be used for innovative financial services, provide a conducive environment for start-up firms and foster innovative solutions, but also be applied to enhance financial and digital literacy, especially in the low-income segment. More importantly, harmonizing financial regulation on technology would allow easier cross border provision of financial services and induce fair and transparent competition.

Financial infrastructure should be expanded. Given that financial inclusion in ASEAN member countries is at different stages, it is vital to increase the efficiency or inter-operability of their basic infrastructures, especially in payment and remittance space. Such inter-operability would render cross border remittances for migrant workers in the region more affordable, make payments for regional tourists more efficient, and promote regional domestic consumption.

### 7.4.7 Data Sharing

Data sharing and information protocol across countries are becoming crucial for financial integration which has important implications for financial inclusion driven at the regional level. However, should it be a government-driven platform or privately managed platform? Government driven initiatives tend to be more prudent as reputation risk is at stake. Connectivity between national payment gateway is certainly the most efficient way; however, it could be a time-consuming process as many considerations need to be taken into account all at once. As such, private solution tends to be more practical and less time consuming. How to get the private sector together over its respective conflict of interest is another question.

In the age of technology, data is critical for information sharing and developing strong financial infrastructure across countries. Although the Policies and Guidelines on Data Sharing, Confidentiality and Dissemination of ASEAN Statistics are in place, micro level data remains unavailable. While countries may be cautious on sharing certain type of data for reasons of national security, non-critical types of data should be allowed for cross border sharing. Such action can be done by having a robust mechanism on lawful, fair and transparent cross border data sharing mechanism amongst member countries. Data classification, rules of the ownership of data, data sovereignty and security are important.

As people move within the region for better job opportunities, it is difficult to start over again in a different country. Credit information of a person does not necessarily follow the person when he/she moves to a different country. This can make it difficult for the individual to access financial services. Migrant workers in particular are vulnerable to the lack of such mechanism. Going forward, creating an enabling regulatory framework for FinTech players could speed up the financial inclusion agenda of the countries. Under the ASEAN initiative APIX, the biggest FinTech market platform in the world was launched in 2018. This platform is a matchmaking platform for FinTech startups and established financial institutions to discover each other based on the demand and supply match.

### 7.4.8 Payment Interoperability

Payments are essential for day-to-day transactions for both individuals and businesses. At individual level, access to electronic payments should be considered as level 1 entry to formal financial services. Financial services mainly include four main services: credit, savings, payments and insurance. While not everyone is in need of a credit, has excess income to save or understands complex insurance policies, everyone makes payment transactions on a daily basis. As such, bringing access to electronic payment services is the first step to access to financial services, Digitalization of payment allows a clearer understanding of customers' payment behaviors, assessment of their needs and ultimately designing of more customized services for each category of customers. But for people to turn to the usage of electronic payments, the service must be reliable, efficient and affordable. While it is understood that private players want to increase their customer base by ringfencing their customers and not allowing payment transaction to competitors, such action is detrimental to the adoption of electronic payment and development of the industry. Interoperability amongst different players (i.e., allowing users to make payment transactions across different platforms) would make electronic payments more efficient and seamless. Payment interoperability is important both at the domestic and cross border level. Migrant workers are currently facing exorbitant fees when they remit funds back to their home countries. Allowing a seamless interoperability of national payment gateways would reduce such fees and ultimately improve the livelihood of migrant workers and their families. Such initiative has been spelt out with the ASEAN financial integration framework under the Payment and Settlement System Working Group.

At the domestic level, Cambodia has been introducing Bakong Project, a backbone payment system using Distributed Ledger Technology (APPENDIX D.). Bakong Project has been referred as one of the first Central Bank Digital Currency in the world although the National Bank of Cambodia maintains the project as a payment system. Upon a year of its official introduction, Bakong was able to bring 25 different payment providers in the country on the same platform, with more than 28 others are at different stages of interface before going live. Customers of payment providers (regardless of their licensing categories) who are members of Bakong are able to make seamless and affordable fund transfer and payments to each other. Currently the National Bank of Cambodia, the project owner, is also exploring the usage of Bakong for cross border remittance for its migrant workers. A Memorandum of Understanding between NBC and Maybank Berhad, the biggest commercial bank in Malaysia was signed in November 2019 to explore such linkages. In February 2020, the NBC and the Bank of Thailand also inaugurated cross border QR code payment between the two countries.

### 7.4.9 Danger of too Fast Financial Inclusion

Amid the potential benefits of financial inclusion and the policy discussions so far, the thesis also proposes some caveats on the danger of too fast financial inclusion. As financial inclusion encompasses many financial services and in countries like Cambodia, access to credit, despite the remarkable progress, may also pose risks to consumer protection and financial stability.

Too easy access to credit could lead to unhealthy competition amongst institutions. In a country like Cambodia, the microfinance sector has been successful. Although started as humanitarian non-governmental institutions, most eventually transformed themselves into successful profitable microfinance institutions. Their pro-poor mottos have attracted many institutional investors from the West to join hand. Most come with funding and knowhow as well as governance and transparency practices. This reputation has undoubtedly led to many more interests in the industry with no or limited barriers to entry despite being regulated entities. Villages with low-income population become the battleground for microfinance institutions, competing for customer base. Each offered even more attractive terms to their customers than their competitors. People without proper understanding of concepts like credit and interest payment now have access to credit facilities one after the other. While those credit facilities helped many improve their living standard, for others they become unsurpassable burdens, leading to borrowing from one to repay another. This practice if not addressed could became a source of financial and social instability. Although there is no conclusive study on the true impact and the extent of such practices, the practices themselves do exist in many villages.

However, common consensus is that domestic and regional financial stability should not be compromised for the sake of financial integration. This seems to suggest that financial integration should happen when there is domestic financial stability. In other word, without strong pillar of stability, financial system could be subject to external shocks and vulnerabilities due to capital account liberalization. But financial stability, at least at the domestic level, requires that the system be inclusive (Morgan and Pontines, 2014; Khan, 2011; Hannig and Jansen, 2010; Prasad, 2010; Ahamed and Mallick, 2019). Access to finance by all economic agents ensures that financial intermediation in the economy is done efficiently by allocating excess capital from savings to productive industries needing of capitals. For businesses access to finance means that business must also understand financial products and services available that can accommodate their business needs. So, if it is financial stability that ASEAN is looking to achieve, then promoting financial inclusion (amongst other measures) could help expedite the process of financial integration.

The speed of financial development has implication for financial stability. When credit growth is excessive, for instance, it can lead to poor quality of credit and thus economic and financial instability (Sahay et al., 2015). Ceccheti and Kharroubi (2015) identified the negative effects on allocative efficiency and on the crowding out of human capital away from the real sector when financial sector expanded rapidly. Similarly, Dabla-Norris et al. (2015) showed that before the 2008 global financial crisis, financial resources in advanced economies were being channeled toward the financial sector away from more productive sectors. Rajan (2005) focused on the dangers of financial development that led to large and complicated financial systems which could ultimately lead to a "catastrophic meltdown".

The empirical evidence and views on the link between finance and economic stability are mixed. On the one hand, financial development can reduce volatility by addressing frictions/informational asymmetries (Bernanke et al., 1999). Financial development can also promote risk-sharing, which reduces financial constraints, and improve the ability of firms and households to absorb shocks and smooth consumption and investment. On the other hand, finance can increase economic and financial volatility by encouraging greater risk-taking and leverage, especially when the quality of supervision and regulation do not keep up with the speed of financial development.

### 7.4.10 Financial Inclusion and Economic and Pandemic Shocks

The key for financial inclusion is to create a sustainable and inclusive growth for all members of a society in the domestic economy. The impacts of economic shocks such as Asian Financial Crisis, Global Financial Crisis and recent pandemic shocks tend to deepen the economic divide and increase the vulnerability of people, particularly limiting their access to key resources to sustain basic living conditions and business activities. One possible explanation to the limited access to finance, is the higher risk of lending to vulnerable population such as unskilled, SMEs with small collaterals, women entrepreneurs, and older workers. This intensifies significantly during economic shocks and increases the vulnerability and also the number of vulnerable populations. Given the significant number of people already not having access to financial markets and activities, the financial issues become not only critical during the economic and pandemic shocks, but also in the recovery process in the post-recovery and post pandemic period. It is expected that countries with strong institutions and policies directed at financial inclusion tend to mitigate economic shocks and also be able to mobilize efficient economic resources for economic recovery during post recovery period. There are several important policy considerations in terms of financial inclusion during economic and pandemic shocks.

Financial inclusion driven by technology such an e-wallet and mobile banking will help mitigate the economic shocks. Most governments respond to economic shocks by providing relief packages and most of the time it is targeted at formal sectors and working population through direct transfer via the domestic banks. However, greater number of vulnerable populations are living in rural areas, do not have to access to banking activities or bank accounts. Thus, countries with better financial inclusion policies in terms of increasing bank accounts and mobile banking for vulnerable population will have greater access to the distribution the relief packages to vulnerable population in the domestic economy. Further, this will be an excellent opportunity to increase the participation of vulnerable populations in electronic and mobile banking, thereby increasing the financial inclusion in the economy. We could also expect electronic and mobile banking to be a safer mechanism to manage the exchange in the economy. In the case of COVID-19 pandemic, electronic payment could also help ease the usage of bank notes and reduce cross contamination of the virus.

Countries with better mobile and internet banking are able to reach the vulnerable populations more effectively. In addition, the internet and e-banking service providers also become another means to reach out to the vulnerable populations together with the banks. In time of crisis, low-income segments of the population are the most vulnerable. Informal sectors and small businesses remain dominant in Cambodian economy. Many workers are daily wage earners and rely on their daily income to survive. With the slowdown in the economy, particularly in tourism and construction sector where most daily wage earners are employed, the impact on these people’s livelihood is significant and requires almost immediate assistance from the government. Due to a social safety net system, people are classified by their monthly incomes with those in the lower ranks eligible to receive different supports from the government including free health care. The government has a clear database of those who are in need, but unfortunately not many have access to a bank account. With significant budgets earmarked to provide cash assistance to this segment, the challenge is focused on an efficient and transparent delivery channel. In the case of Cambodia, due to its unique financial sector landscape, where payment service providers or e-wallet providers have better outreach than banks, the government has now turned to these institutions to deliver the assistance which could be implemented rapidly. Cash disbursement through this channel does not necessarily require a wallet account. Anyone can receive the money through a payment agent with just a phone number and ID card.

From this experience, the important lesson learnt is that access to a bank account could have better assisted the government in getting its relief measures directly to the people and avoid leakages and time-consuming processes. While the urgency of the situation to provide timely assistance to the destitute justifies the fastest possible channel, coordinated efforts amongst different government agencies should be in place to promote access to a bank account or a formal e-wallet account where better data on spending behavior could assist financial institutions to better understand their customers and provide needed credit facilities in time of crisis.

Indeed, in the time of technology, data management becomes very critical during economic and pandemic shocks. Countries with better financial data management tend to manage and mitigate the economic and pandemic shocks. Policymaker with better access to financial and financial inclusive data will be able to track the economic and financial impacts of Covid-19 and have real-time and high frequency information on businesses and households, especially on their daily economic transactions such as deposits or cash withdrawals, loan repayments, and so on.

During the pandemic, many businesses especially SMEs and entrepreneurs from rural areas will lack the funding to sustain their business activities. Unfortunately, many banks will be reluctant to lend funds to these vulnerable groups due to the increasing risks in lending during economic and pandemic crisis. Thus, it becomes very imperative that government policies could be targeted at the vulnerable groups to have access to key funds for their operations. In most cases, the bigger companies and educated entrepreneurs will have better access to private and public relief packages targeted at companies. There is a need for government to use this opportunity to increase the financial inclusion and increase the financial access to vulnerable businesses, especially in the rural sectors.

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# APPENDIX A

### Methodology used in measuring financial inclusion

Measuring financial inclusion index comprises two commonly used approached – non-parametric and parametric methods. The non-parametric approach involves exogenous construction of an index by assigning weighs. Such kinds methodology found in the works of Sarma (2008, 2012, 2016), Chakravarty and Pal (2010), and Amidžić et al. (2014) includes usage and access indicators from supply-side country level data set to estimate financial inclusion index. In the early work to develop the index of financial inclusion (IFI), Sarma (2008, 2012) uses three basic dimensions of financial inclusion, banking penetration (BP), availability of non-banking services (BS) and usage of the banking system (BU), where each index is calculated using the following formula.[28]

$$d_i = w_i \frac{A_i - m_i}{M_i - m_i} \quad (2.1)$$

where,

$w_i$ = weight attached to the dimension *i*, $0 \leq w_i \leq 1$

$d_i$ = dimension *i* of financial inclusion

$A_i$ = actual value of dimension *i*

$m_i$ = minimum value of dimension *i*

$M_i$ = maximum value of dimension *i*

Formula (2.1) authenticates that $0 \leq d_i \leq 1$ and the value of $d_i$ determines the country's achievement in dimension *i*. A weight $w_i$ is attached to dimension *i*, indicating the relative importance of the dimension *i* in quantifying the inclusiveness of financial system. If *n*-dimensions of financial inclusion are considered, a country *i* will be represented by a point $D_i = (d_1, d_2, d_3, \ldots, d_n)$ on the *n*-dimensional Cartesina space. Point $0 = (0, 0, 0, \ldots, 0)$ represents the point indicating the worst situation, and the highest achievement is represented by the point $I = (1, 1, 1, \ldots, 1)$. The index of financial inclusion for country *i*

[28] Sarma (2008) suggested an index of financial inclusion using the United Nations Development Program (UNDP) approach, which is used to compute some well-known indexes such as Human Development Index (HDI), Human Poverty Index (HPI), Gender Development Index (GDI), and so on.

can be measured by the normalized inverse Euclidean distance of the point $D_i$ from the ideal point $I = (1, 1, 1, \ldots, 1)$ as follows:

$$FI_i = 1 - \frac{\sqrt{(1-d_1)^2 + (1-d_2)^2 + \cdots + (1-d_n)^2}}{\sqrt{n}} \qquad (2.2)$$

In formula (2.2), subtracting by 1 to obtain the inverse normalized distance. The numerator of the second component is the Euclidean distance of $D_i$ from the ideal point $I = (1, 1, 1, \ldots, 1)$, normalizing it by $\sqrt{n}$.

In measuring the index of financial inclusion, Sarma (2008) consider three basic dimensions of an inclusive financial system: banking penetration, availability of the banking services, and usage of banking system. The banking penetration measures accessibility proxied by the number of bank account per 1,000 people, while the availability is measured by the number of bank branches and number of ATMs per 100,000 people. To measure the usage dimension, the author uses the volume of credit plus deposit relative to the GDP (as percentage of GDP). Following the next step, the availability dimension is divided into two indexes – bank branch index and ATM index, and a weighted average of two-third (2/3) weight is assigned to the bank branch index and one-third (1/3) weight for ATM index. In the last step after estimating the dimension indexes, the following weights are assigned: 1 for the index of accessibility (penetration), 0.5 for the index of availability and 0.5 for the index of usage.

In addition, other studies apply this non-parametric method to measure index of financial inclusion. Among those, Chakravarty and Pal (2010) use the minimum-maximum rule and followed an axiomatic approach in index construction. The axiomatic approach developed in the human development literature allows the breakdown of dimension-wise components for calculating the individual percentage contributions of different dimensions to the overall achievement. The index overcomes the limitations of that of Sarma (2008, 2012, 2016) by way of incorporating an axiomatic structure and calculation of contribution of each dimension in the index. However, this kind of non-parametric method allows the weights to be assigned exogenously; therefore, a slight change in weight assignment could have a huge impact on the results (Lockwood, 2004).

The parametric method, on the other hand, assign weights endogenously. In other word, the method takes into account the importance of indicators based on the information structure of sample indicators. In the literature of indexing, there are two parametric analyses – Common Factor Analysis (CFA) and Principle Component Analysis (PCA).

Applying the former one, Amidžić et al. (2014) leverages the IMF's Financial Access Survey (FAS) database to construct a financial inclusion indicator as a composite indicator of variables pertaining to three dimensions of financial service – outreach, usage, and quality.[29] Based on the CFA, Amidžić et al. (2014) identifies financial inclusion dimensions and assign weights, making it possible to be less arbitrary in the identification of financial inclusion dimensions and allow for proper weight assignment. The authors overcome the shortcomings of the works Sarma (2008, 2012, 2016) and Chakravarty and Pal (2010) who assume that all dimensions have the same impact on financial inclusion by assigning equal weights to all variables and dimensions. Therefore, Amidžić et al. (2014) propose CFA to calculate the index of financial inclusion. However, Cámara and Tuesta (2017) argue that the indicators used to define financial inclusion only include limited supply-side information at country level, and PCA perform better than CFA in terms of indexing strategy from an empirical point of view.

Cámara and Tuesta (2017) determine the financial inclusion using two-stage PCA. In the first stage PCA, the follow linear estimation:

$$FI_i = \omega_1 Y_i^u + \omega_2 Y_i^b + \omega_3 Y_i^a \tag{2.3}$$

where $Y_i^u$, $Y_i^b$, and $Y_i^a$ respectively capture the usage, barrier and access dimension in country $i$. In the first stage estimate of dimensions, the three unobserved endogenous variables ($Y_i^u$, $Y_i^b$, $Y_i^a$) can be estimated with the follow equation system:

$$Y_i^u = \beta_1 acount_i + \beta_2 savings_i + \beta_3 loan_i + u_i \tag{2.4}$$

$$Y_i^b = \theta_1 distance_i + \theta_2 affordability_i + \theta_3 documents_i + \theta_4 trust_i + \epsilon_i \tag{2.5}$$

$$Y_i^a = \gamma_1 ATM_{popi} + \gamma_2 branch_{popi} + v_i \tag{2.6}$$

where $account_i$, $savings_i$, and $loan_i$ represent individuals who have at least of the financial products, save at and borrows from the formal financial system respectively as shown in equation (4). In the estimate in equation (5), $distance_i$, $affordability_i$, and $documents_i$ represent the percentage of individuals who do not have a bank account because they perceive that the access points are too far away, owning bank accounts are too expensive and they do not have necessary documents, respectively; while $trust_i$ is the percentage of unbanked who do not have a bank account due to the lack of trust in the

[29] The outreach refers to the geographic and demographic penetration, while the usage refers to deposit and lending. The quality measures disclosure requirement, dispute resolution and cost of usage.

formal financial system. From equation (4) to equation (6), the unobserved endogenous variables need to be estimated jointly with the parameters: $\beta$, $\theta$, and $\gamma$.

Let $R_p$ be the correlation matrix of the $p$ standardize indicators for each dimension and denote $\lambda j(j = 1, \ldots, p)$ as the $j-th$ eigenvalue, subscript $j$ refers to the number of principal components ($j$ coincides with $p$; ($\lambda 1 > \lambda 2 > \cdots > \lambda p$). Denote $P_k(k = 1, \ldots, p)$ as the $k-th$ principle component. The corresponding estimator of each dimension can be obtained according to the following weighted averages:

$$Y_i^u = \frac{\sum_{j,k=1}^{p} \lambda_j^u P_{ki}^u}{\sum_{j=1}^{p} \lambda_j^u} \tag{2.7}$$

$$Y_i^b = \frac{\sum_{j,k=1}^{p} \lambda_j^b P_{ki}^b}{\sum_{j=1}^{p} \lambda_j^b} \tag{2.8}$$

$$Y_i^a = \frac{\sum_{j,k=1}^{p} \lambda_j^a P_{ki}^a}{\sum_{j=1}^{p} \lambda_j^a} \tag{2.9}$$

In the second stage PCA, the financial inclusion is estimating by replacing $Y_i^u$, $Y_i^b$, and $Y_i^a$ in equation (3).

$$FI_i = \frac{\sum_{j,k=1}^{p} \lambda_i P_{ki}}{\sum_{j=1}^{p} \lambda_j} \tag{2.10}$$

The highest weight, $\lambda_1$, is attached to the first principal component because it accounts for the largest proportion of the total variation in all causal variables, and the similar procedure applies to $\lambda_2$ and so on. After some straightforward algebra, we can write each component, $P_k$ of equation (10) as a linear combination of the three sub-indices ($p = 3$) and the eigenvectors of the respective correlation matrices represented by $\varphi$:

$$P_{1i} = \varphi_{11} Y_i^u + \varphi_{12} Y_i^b + \varphi_{13} Y_i^a \tag{2.11}$$

$$P_{2i} = \varphi_{21} Y_i^u + \varphi_{22} Y_i^b + \varphi_{23} Y_i^a \tag{2.12}$$

$$P_{3i} = \varphi_{31} Y_i^u + \varphi_{32} Y_i^b + \varphi_{33} Y_i^a \tag{2.13}$$

The financial inclusion index can then be expressed as follows:

$$FI_i = \frac{\sum_{j=1}^{3} \lambda_i (\varphi_{j1} Y_i^u + \varphi_{j2} Y_i^b + \varphi_{j3} Y_i^a)}{\sum_{j=1}^{3} \lambda_j} \tag{2.14}$$

Cámara and Tuesta (2017) use supply-and-demand information to measure the extent of financial inclusion at the country level for 132 countries. From a two-stage Principal Component Analysis, the authors compile an even more comprehensive index of financial inclusion form three dimensions – usage, barriers and access to the financial system. The method proposed by Cámara and Tuesta (2017) has two advantages compared to the previous ones to estimate financial inclusion.[30] First, it solves the problem of weighting assignment determined exogenously. Second, the financial inclusion is estimated from combining information of 20 indicators from both demand and supply sides data set, and from two perspectives: banked and unbanked population. The demand side data for the usage and barriers of financial services is obtained from the Global Index (2011 and 2014) and the supply side data is based on annual data of the Financial Access Survey (2011 and 2014) collected by the country authorities.

[30] Cámara and Tuesta (2017) define an inclusive financial system as one that maximizes usage and access, while minimizing involuntary financial exclusion.

# APPENDIX B

**Comparison of Financial Inclusion Variables between Global Findex and Administrative Data**

**Table A. Comparison of FI Indicators between Global Findex and Admin Data**

| **Variables** | **Global Findex (2017)** | **Administrative Data (2019)** | **Note on Administrative Data** |
|---|---|---|---|
| Overall Index | 22% | 73% | Deposits, loans and mobile money account with mobile money providers Deposits, loans, mobile money with mobile money providers and insurance accounts |
| Account (% women, age 15+) | 22% | 51% | Percentage of female account holders out of total account holders |
| Account, rural (% age 15+) | 19% | 60% | Percentage of total account holders living in rural area out of total account holders |
| Saved at a financial institution (% age 15+) | 5% | 56% | Percentage of saving accounts out of total accounts |
| Saved at a financial institution, female (% age 15+) | 5% | 53% | Percentage of female owned saving accounts out of total account holders |
| Saved at a financial institution, rural (% age 15+) | 5% | 60% | Percentage of total saving account holders living in |

| | | | |
|---|---|---|---|
| | | | rural area out of total saving account holders |
| Outstanding housing loan (% age 15+) | 16% | 15% | Percentage of outstanding mortgage out of total outstanding loans |
| Credit card ownership (% age 15+) | 1% | 2% | Percentage of credit card ownership out total credit account holders. |
| Borrowed from a financial institution (% age 15+) | 27% | 50% | Percentage of loan accounts out of total accounts |
| Borrowed from a financial institution, female (% age 15+) | 30% | 55% | Percentage of female loan accounts out of total loan accounts |
| Borrowed from a financial institution, rural (% age 15+) | 27% | 76% | Percentage of total loan account holders living in rural area out of total loan account holders |
| Mobile money account (% age 15+) | 6% | 22% | Percentage of mobile money accounts out of total accounts |
| Mobile money account, female (% age 15+) | 5% | 45% | Percentage of female mobile money accounts out of total mobile money accounts |
| Mobile money account, rural (% age 15+) | 5% | 16% | Percentage of mobile money account holders living in rural area out of total mobile money account holders |

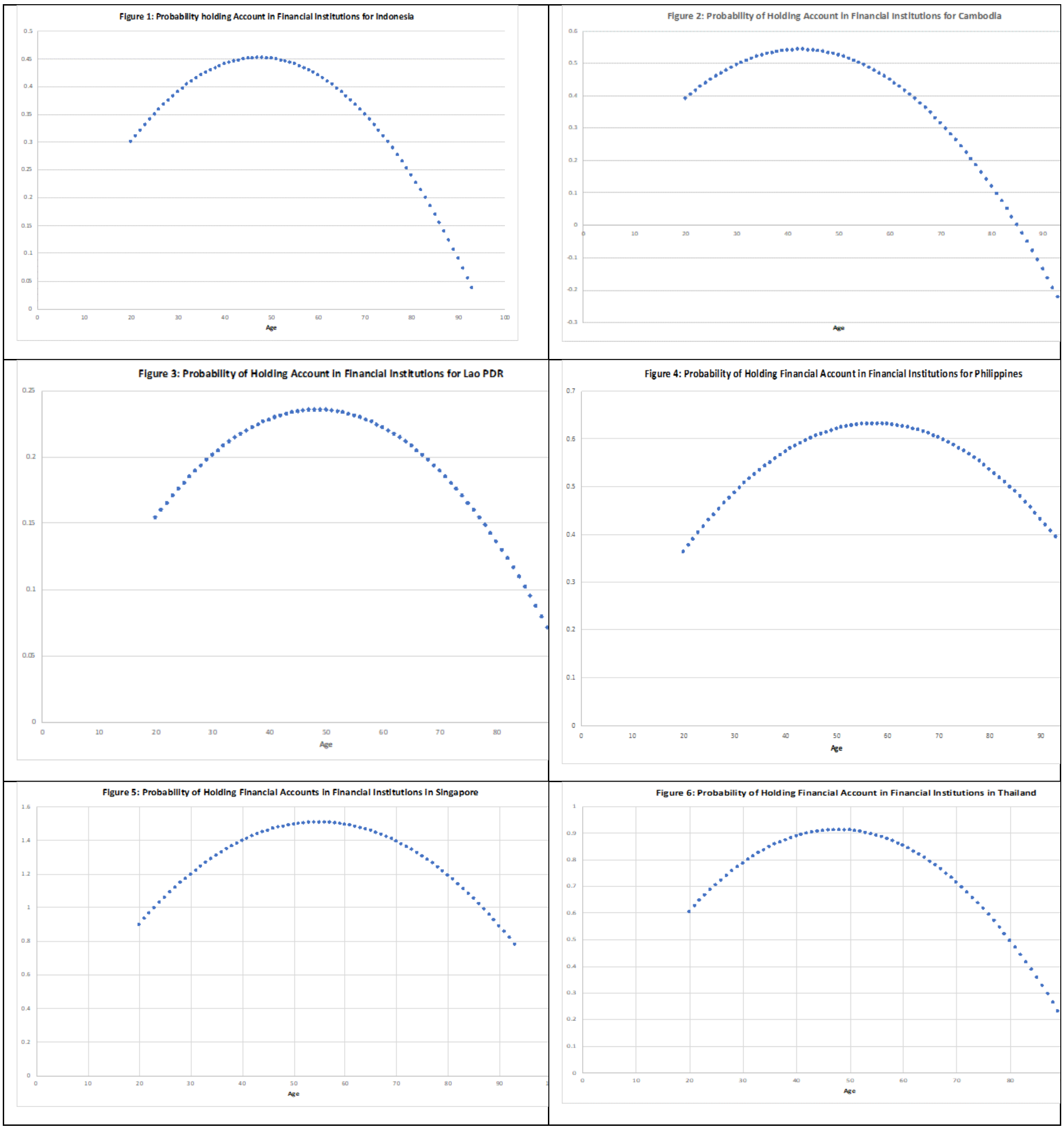
Note: It is important to note that the definition and criteria used of measuring access to financial services slightly differ between the 2 methodologies. Despite the different cut-off date, age group or definition of accounts, the gap between the 2 measurements is too big to allow policymakers a clear understanding of the figure and take appropriate policy measures to address. This is a reason why understanding local context and having a national level measurement is important. This is an aspect also acknowledged by GlobalFindex's authors.

**Table B. Comparison of Global Findex and Admin Data**

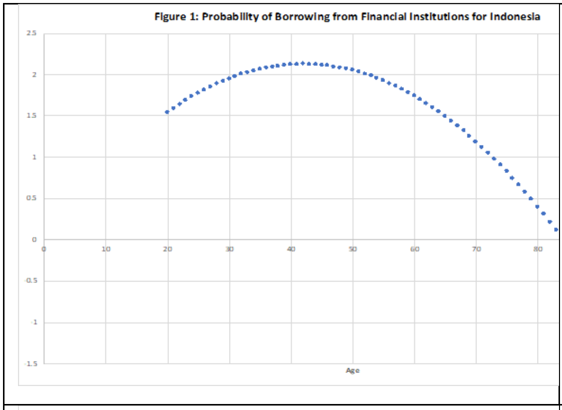
| | **Global Findex** | **Author's calculation** |
|---|---|---|
| *Methodology* | Survey based | administrative data |
| *Sample size* | 1,600 respondents | +6.3 million accounts |
| *Cut-off date* | 2017 | 2019 |
| *Age group* | 15+ | 18+ |
| *Accounts definition* | Deposits, loans and mobile money account with mobile money providers | Deposits, loans, mobile money with mobile money providers and insurance accounts |

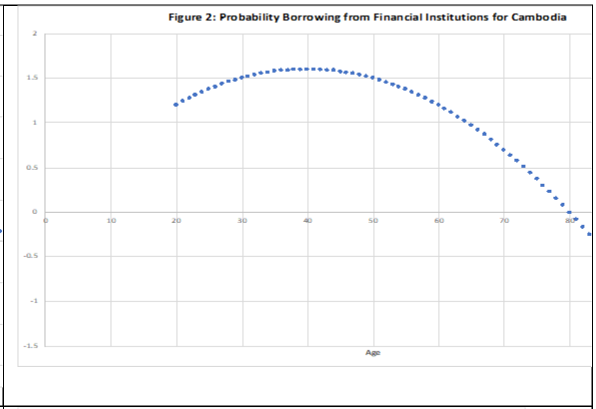
# APPENDIX C

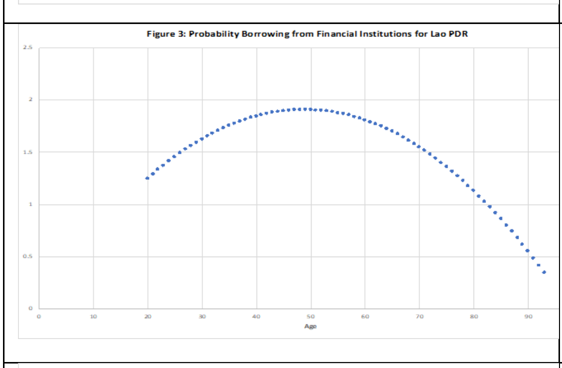
The threshold effects of age on the probability of holding of accounts in financial institutions, Selected ASEAN Countries

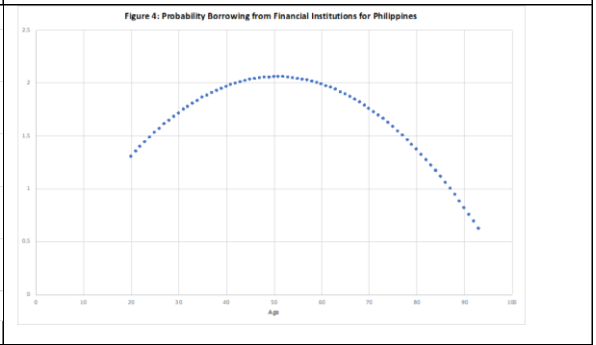


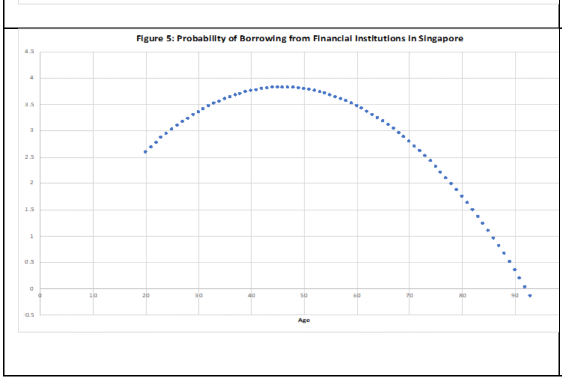
The threshold effects of age on the probability of borrowing from financial institutions, Selected ASEAN Countries

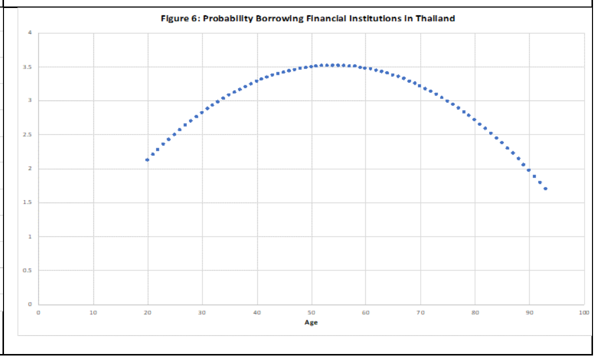


# APPENDIX D

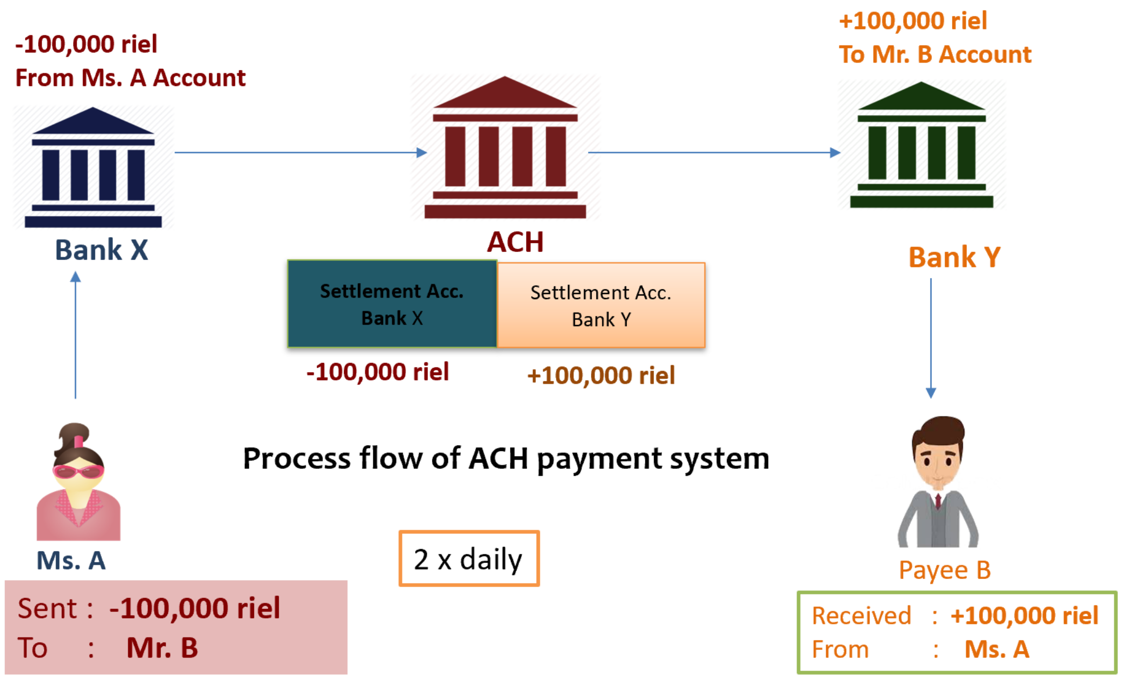
**Bakong Project**

Bakong is a flagship backbone payment system introduced by the National Bank of Cambodia in October 2020. The NBC team has been studying blockchain technology since 2016, introduced a pilot run in the real environment in 2019 before the official launch in 2020.

To date Cambodia counts more than 20 payment service providers providing e-wallets that can be used to remit fund within and across the border and payments for various services. The opening of e-wallets account is relative easier than opening a bank account therefore allowing a rapid uptake across the country to all segment of the population, mostly rural population. However, there are some limitations. Payments and transfer can only be made within the customers of the same service providers. This is akin to being able to call one's family members and friends only if they use the same service provider even if this service provider doesn't have the plan suitable to their specific needs. Although the electronic payment landscape overall was booming, it creates small and isolated pockets of ecosystem that was inefficient and costly for users. Those whose transactions are limited withing payment service providers industry may never have a relationship with a bank and access to banking services such as credit and saving accounts. Adding to the challenges, are the mobile payment provided by banking institutions who served more affluent and urban population. The lack of connectivity or interoperability between those who use e-wallets provided by payment service providers and those provided by banking institution unconsciously create a social divide between the urban and rural. Someone from the urban wanting to transfer fund to someone in the rural may face more difficulties (more expensive but possible). Attempt to cooperate between banks and payments service providers to allow their respective customers to cross transact were taking place but at a slow pace. Seeing this challenge, the National Bank of Cambodia embarked on a mission to bring all players into one platform and create an interoperability amongst the different players. It is worth noting that payment service providers are regulated as technology companies and can't do financial intermediation, unlike banks who are more strictly regulated.

To connect everyone together API can solve the technology part. But there must be a place where fund is exchanged and settled amongst the players. This is the most difficult part of interconnectivity. Traditionally, when banks do interbank settlement and clearing (as a result of their respective customers transacting with each other), all transactions pass through the central bank, acting as central clearing house (ACH) for all members. All member banks must maintain a certain liquidity level in their settlement account with the central bank in order to participate. In case any bank has shortage of liquidity, the central bank will provide an overdraft facility to the said bank at a penalty rate, with collaterals in the form of low-risk financial instruments. In Cambodia, the existing central clearing house only settle 2 times daily resulting in inefficiency and credit risk, unlike in many advance economies where central clearing house in done in real time, often refer to Real Time Gross Settlement System or RTGS. In short interbank clearing is complicated and risky exercise and potentially has systemic risk.

**Figure A: Traditional Payment System Flow of National Clearing House System in Cambodia**

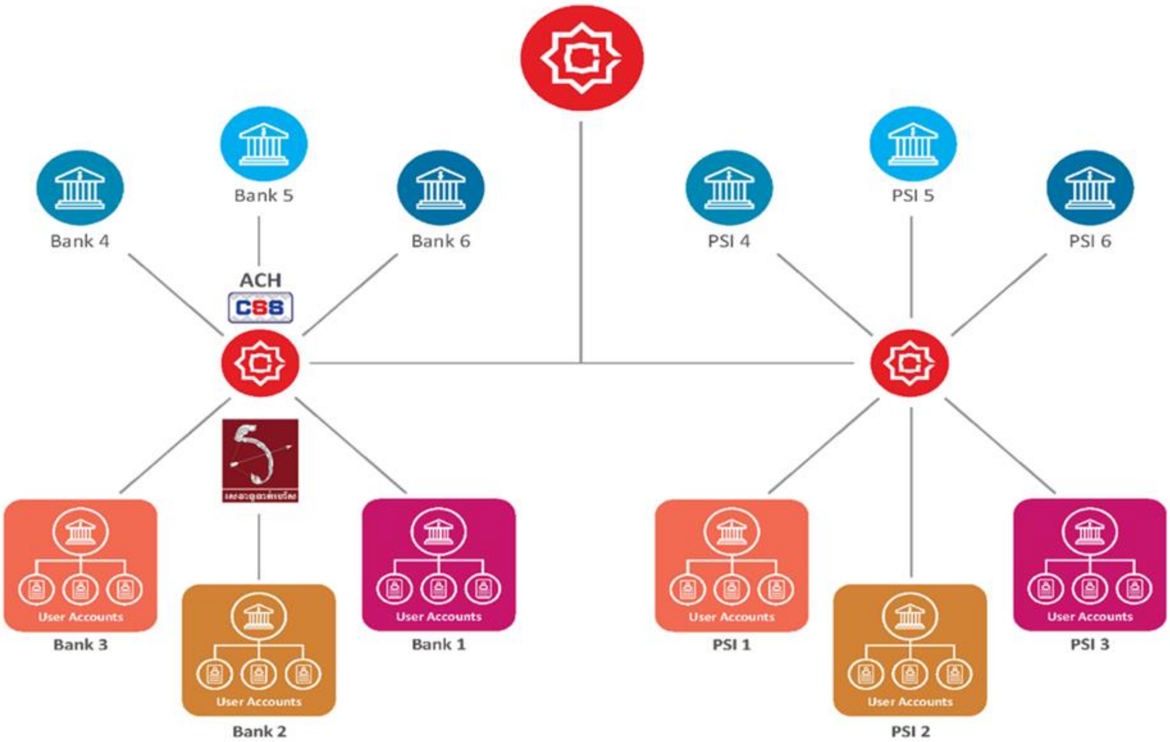


Payment service providers can join this central clearing house and follow the same liquidity management rules as banks. But it would be counter-productive as payment services are regulated as technology company with fewer prudential rules than bank. Complying to the banks liquidity management procedure means more regulatory cost which would eventually pass down to end users. Furthermore, it would unnecessarily add additional liquidity risk to the central clearing house.
The choice of technology in the case of Bakong is also worth describing. The NBC selected Hyperledger Iroha to solve the problem in term of creating interoperability amongst different players without disrupting the interbank central clearing house.

How does Bakong work? All players, banks and payment service providers must first possess digital money issued by the National Bank of Cambodia in exchange for their fiat money. In this case NBC is not creating new money in the digital form, but merely exchanging the fiat into the digital one. Money supply remains therefore the same. Because Cambodia is a heavily dollarized economy, the currency issued are both in Khmer Riel and USD. Banks and payment services providers can then deposit the digital money into their digital vaults maintained by the NBC, powered by Hyperledger. The NBC then introduce a universal mobile application available to download by anyone. But when registered, user must select one of the participating FI, who upon being selected would be responsible to do the necessary KYC on that said user. Once downloaded, user can top up its wallet by withdrawing from their existing bank account or wallet account with payment service providers, or simply cash in with authorized agents. Once money is in the Bakong wallet, it can be transferred to users from any participating bank and payment service providers free of charge with immediate finality. Bakong to bakong wallet transactions are also free of charge.

By creating the Bakong backbone payment platform, we brought all players on one platform and allow interoperability amongst those players without disrupting the existing central clearing house and add unnecessary risks thanks to the peer-to-peer nature of the technology used. For payment services providers, they don’t have to worry about liquidity management with the central bank, they can issue Bakong backed fund to their customers as long as they have them in their vault. As for the customers, they can only transfer if they have money in their own wallets.

**Figure B. Bakong Interoperability**




Source: National Bank of Cambodia
ACH: national clearing house
PSI: payment service institutions