

The Use of Mobile Phones and Financial Inclusion: Evidence from the FinScope Survey

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Motivation

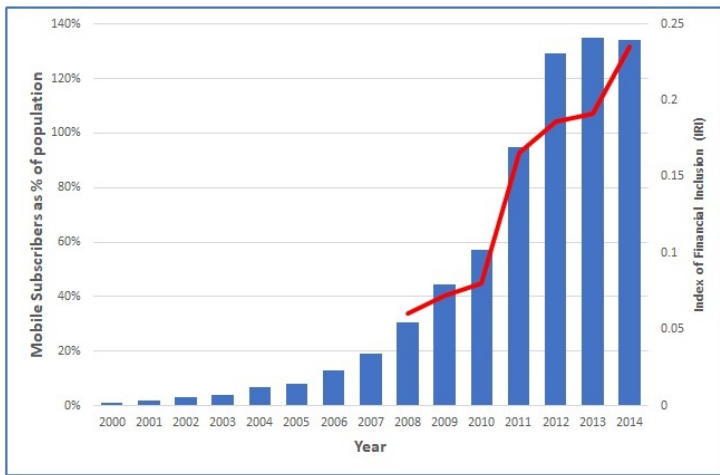
- In the literature of financial development, a large body of evidence shows that an inclusive financial system has a significant effect on economic growth.
- An inclusive financial system allows individuals to obtain funds to finance education and other forms of capital, to save money, and to use other financial products, which results in economic growth and poverty reduction (Beck et al., 2007 ; Bruhn and Love, 2014).
- However, a number of people remain financially excluded due to various barriers such as physical access, affordability and eligibility (Beck et al., 2008).
- To overcome these issues, researchers from the World Bank, CGAP, and IMF suggest 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)

Motivation

- The advancement of mobile technology expands financial platforms of the poor and low income earners as mobile financial services become relatively cheap, secure, reliable, and accessible (Ouma et al., 2017).
- Given this, research concerning the relationship between mobile phones and financial access has received a great deal of attention (see, e.g. Shem et al., 2012; Honohan and King, 2013; Jack and Suri, 2014; Ouma et al., 2017).
- However, to the best knowledge of the author, empirical observation on such relationship has been rare in Cambodia.
- Indeed, Cambodia has achieved high growth rate of economy and its financial inclusion has deepened, where the banking sector has grown strongly and become highly competitive (NBC, 2016).

Motivation

FIGURE 1 – Mobile Cellular Subscribers per Population and IFI



Source : International Telecommunication Union (ITU) and Index of Financial Inclusion from Sarma (2016).

Objectives of the Study and Main Findings

- The objective of the study is to examine whether mobile phones promote the use of formal financial services in Cambodia.
- The study applies a probit model based on FinScope Surveys conducted by FinMark Trust in 2015.
- The findings show that having a mobile phone increases the likelihood of being financially included. The results are statistically significant for all the three indicators of financial inclusion : formal account, saving account and credit account. Furthermore, having a smart phone tends to have a stronger effect on financial inclusion compared to other kinds of mobile phones.

Road Map

- Model Specification
- Data
- Empirical Results
- Policy Implications
- Conclusion

Model Specification

Modified from the probit model of Fungáčová et al. (2016), the model specification is written as follows :

$$FinInc_i = \alpha + \beta * mobile_i + \gamma * income_i + \delta * educ_i + \sigma * age_i + \rho * gender_i + \varepsilon_i \quad (1)$$

where,

- $FinInc_i$ denotes one of three indicators of financial inclusion : formal account, saving account, and loan account with formal financial institutions.
- $mobile_i$: is a dummy variable representing whether individual owns a mobile phone (including non-smart phone and smart phone).

Data

- The study uses the micro-level data from the FinScope Surveys of Cambodia conducted in 2015. The sample size is 3,150.
- The dependent variable *FinInc* is a binary variable defined as those with personal access to formal financial products from formal financial institutions.
 - *Formal account* : individual has or used to have either saving accounts (local or overseas) or loan accounts.
 - *Saving account* : individual saves or used to save money at banks or microfinance institutions.
 - *Loan account* : individual borrowed or used to borrow money from banks or microfinance institutions.

Summary Statistics

	N. Obs	Mean	SD	Min	Max
Dependent Variable :					
<i>Formal account</i>	3,150	0.4006	0.4901	0	1
<i>Formal saving</i>	3,150	0.1019	0.3026	0	1
<i>Formal credit</i>	3,150	0.2876	0.4527	0	1
Independent Variable :					
<i>Mobile phone</i>	3,150	0.6870	0.4638	0	1
<i>Non – smartphone</i>	3,150	0.5575	0.4968	0	1
<i>Smart phone</i>	3,150	0.1327	0.3393	0	1
<i>Income – poorest 20%</i>	2,693	0.2859	0.4519	0	1
<i>Income – second 20%</i>	2,693	0.1244	0.3301	0	1
<i>Income – third 20%</i>	2,693	0.2729	0.4455	0	1
<i>Income – fourth 20%</i>	2,693	0.1177	0.3223	0	1
<i>Income – richest 20%</i>	2,693	0.1990	0.3993	0	1
<i>No primary</i>	3,150	0.1705	0.3761	0	1
<i>Primary</i>	3,150	0.4737	0.4994	0	1
<i>Secondary</i>	3,150	0.3267	0.4691	0	1
<i>Tertiary</i>	3,150	0.0292	0.1684	0	1
<i>Age</i>	3,150	43.6705	15.0331	18	97
<i>Female</i>	3,150	0.6254	0.4841	0	1

Impact of Mobile Phones

Variables	Marginal Effects		
	Formal account	Formal saving	Formal credit
<i>Mobile phone</i>	0.0707** (0.0222)	0.0878*** (0.0259)	0.0435** (0.0209)
<i>Income – poorest 20%</i>	-0.0725** (0.0295)	-0.1333*** (0.0275)	0.0210 (0.0283)
<i>Income – second 20%</i>	-0.0616* (0.0340)	-0.1117*** (0.0351)	-0.0111 (0.0330)
<i>Income – third 20%</i>	-0.0151 (0.0268)	-0.0509** (0.0211)	0.0361 (0.0259)
<i>Income – fourth 20%</i>	0.0241 (0.0329)	-0.0131 (0.0248)	-0.0028 (0.0315)
<i>Primary</i>	0.0955*** (0.0276)	0.0891*** (0.0329)	0.0686 (0.0261)
<i>Secondary</i>	0.1069*** (0.0319)	0.1475*** (0.0339)	0.0122 (0.0307)
<i>Tertiary</i>	0.4365*** (0.0665)	0.2795*** (0.0461)	0.0108 (0.0630)
<i>Age</i>	0.0374*** (0.0041)	0.0067* (0.0037)	0.0362*** (0.0042)
<i>Age²</i>	-0.0004*** (0.00004)	-0.00005 (0.00004)	-0.0004*** (0.00004)
<i>Female</i>	-0.0156 (0.0191)	-0.0237 (0.0170)	-0.0013 (0.0182)
Observations	2,625	1,615	2,601

Impact of Non-smart phones

Variables	Marginal Effects		
	Formal account	Formal saving	Formal credit
<i>Non – smart phone</i>	0.0268 (0.0191)	-0.0310* (0.0172)	0.0533*** (0.0182)
<i>Income – poorest 20%</i>	-0.0854*** (0.0292)	-0.1455*** (0.0273)	0.0184 (0.0280)
<i>Income – second 20%</i>	-0.0720** (0.0339)	-0.1264*** (0.0349)	-0.0153 (0.0328)
<i>Income – third 20%</i>	-0.0216 (0.0267)	-0.0518** (0.0212)	0.0326 (0.0258)
<i>Income – fourth 20%</i>	0.0214 (0.0329)	-0.0118 (0.0250)	-0.0058 (0.0315)
<i>Primary</i>	0.0973*** (0.0277)	0.0916*** (0.0328)	0.0679*** (0.0261)
<i>Secondary</i>	0.1166*** (0.0318)	0.1605*** (0.0338)	0.0161 (0.0305)
<i>Tertiary</i>	0.4584*** (0.0670)	0.2833*** (0.0466)	0.0384 (0.0632)
<i>Age</i>	0.0373*** (0.0041)	0.0087** (0.0038)	0.0354*** (0.0042)
<i>Age²</i>	-0.0004*** (0.00004)	-0.00008** (0.00004)	-0.0004*** (0.00005)
<i>Female</i>	-0.0215 (0.0190)	-0.0323* (0.0169)	-0.0030 (0.0181)
Observations	2,625	1,615	2,601

Impact of Smart phones

Variables	Marginal Effects		
	Formal account	Formal saving	Formal credit
<i>Smart phone</i>	0.0873*** (0.0313)	0.1245*** (0.0215)	-0.0442 (0.0310)
<i>Income – poorest 20%</i>	-0.0805*** (0.0292)	-0.1241*** (0.0272)	0.0072 (0.0281)
<i>Income – second 20%</i>	-0.0628* (0.0341)	-0.0998*** (0.0346)	-0.0226 (0.0330)
<i>Income – third 20%</i>	-0.0138 (0.0269)	-0.0357* (0.0211)	0.0281 (0.0259)
<i>Income – fourth 20%</i>	0.0281 (0.0330)	-0.0062 (0.0248)	-0.0069 (0.0316)
<i>Primary</i>	0.0984*** (0.0276)	0.0917*** (0.0323)	0.0699*** (0.0261)
<i>Secondary</i>	0.1077*** (0.0320)	0.1433*** (0.0334)	0.0229 (0.0307)
<i>Tertiary</i>	0.3997*** (0.0688)	0.2389*** (0.0463)	0.0427 (0.0653)
<i>Age</i>	0.0390*** (0.0041)	0.0110*** (0.0038)	0.0360*** (0.0042)
<i>Age²</i>	-0.0004*** (0.00004)	-0.0001** (0.00004)	-0.0004*** (0.00005)
<i>Female</i>	-0.0183 (0.0191)	-0.0194 (0.0168)	-0.0079 (0.0182)
Observations	2,625	1,615	2,601

Policy Implications

Overall, the empirical findings in this paper underline the importance of mobile phones in promoting financial inclusion in Cambodia. From this findings, policies that have potential to boost the access to financial services should promoted through the ITC.

- First, there should be a call centre, where people can access to financial information about banks, microfinance institutions, interest rates, credit, and so on. This will help to improve their information about the markets. The information provided will assist households in making a better decision given the available financial products or services in the market.
- Second, as the trend of using smart phone is increasing, we should encourage developers to develop apps that provide information of financial knowledge and financial sector, particularly information relating to financial products and services.

Policy Implications

- Third, mobile operators should consider a new service, probably be called 'financial information', about which customers can call in to get information about products or services offered by different banks or microfinance institutions. Currently, some mobile operators provide services such as horoscope, sport news, beauty tips, market news, money tips, job alert, family tips and many more. But financial news or information about financial institutions and their products or services are relatively scarce. Such services could attract more mobile subscribers given that the financial sector in Cambodia is booming.

Conclusion

- This study investigates the relationship between mobile phones and financial inclusion in Cambodia using the micro-level data from the FinScope Surveys of Cambodia conducted by FinMark Trust in 2015.
- Financial inclusion is measured using three indicators : formal account, saving account, and loan account at formal financial institutions. On the RHS, mobile phones are distinguished between smart phones and non-smart phones.
- The findings suggest that having a mobile phone increases the probability of financial inclusion. The coefficients are statistically significant for the three indicators of financial inclusion : formal account, saving account and credit.
- More importantly, the results suggest that having a smart phone tends to have a stronger effect on financial inclusion compared to other kinds of mobile phones.

Conclusion

Despite the robustness of the empirical results, it is not possible to have a paper that is without limitations.

- The questionnaires of the survey does not contain questions asking whether respondents chooses to self-exclude themselves from using formal bank accounts, given the availability of financial products in their region locations.
- The questionnaires of the survey does not address the direct question whether the respondent own smart phones.

Thank you for your kind attention !