Hello from the other side: Have Myanmar's mobile adoption trends changed over the years?[1]

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This study looks to assess if a demographic shift in new mobile owners occurred with phones diffusing to individuals in small townships and rural areas, or if phones continued to be concentrated in the hands of the wealthy in big cities. It then examines the relationship between the date of purchase of a SIM and different uses of mobile phones. The influence of other factors such as age, gender and socio-economic status are also addressed.

1. Background

Myanmar's political and economic landscape has experienced much change in the recent past. On the economic front, it saw a pivot from a centrally directed system to a market led one. The telecommunications sector too saw much change. In 2013, ninety-one international companies competed for two licenses to operate alongside incumbent MPT; the licenses were eventually awarded to Telenor and Ooredoo. (Oxford Business Group, 2016) A fourth license was issued in 2017 to a consortium led to Viettel to further stimulate competition (Nyunt & Phyo, 2017).

Supply side data indicates rapid growth in mobile subscriptions in Myanmar, increasing from 4.4 million subscriptions in the third quarter of 2013, to over 45.1 million by mid 2016. (Telegeography, 2015; Waring, 2016; Brekke, 2016; Gilmore, 2016)

Table 1 briefly compares the status of Myanmar's telecommunications sector with that of Bangladesh, Cambodia, Sri Lanka and Thailand by looking at some key indicators.

Table 1: Comparative indicators

Country	Myanmar	Bangladesh	Cambodia	Sri Lanka	Thailand
Population (millions)	51.4 (2014)	156.8 (2014)	15.8 (2016)	21.0 (2016)	68.9 (2016)
GDP per capita- current USD (2016)	1275	1359	1270	3835	5908
Number of mobile operators (2017)	3	5	6	5	5
Mobile SIMs per 100	88 (2016)	82.1 (2017)	133 (2015)	124 (2017)	153 (2015)
Internet users per 100 (2015)	22	14	19	30	39
Facebook users per 100 (2017)	33	17	37	26	71

Sources: National Statistical Organizations, World Bank, International Telecommunications Union, UNESCAP, Facebook advertising portal

Despite opening up its telecommunications sector much later than its comparators, Myanmar is catching up. Even with fewer operators and lower per capita incomes, Myanmar's mobile SIMs per 100 is greater than that of Bangladesh. Internet users per 100, as reported by the ITU in 2015, were greater than that of Cambodia. In 2017, Facebook users per 100 in Myanmar were lesser than in Cambodia, but greater than in Sri Lanka. In an international context, Myanmar's late start in liberalization makes the process a unique one. While mobile adoption was a more gradual process in many other countries, take-up in Myanmar has been rapid.

Demand side data from 2016 shows that of the 61 percent of the population aged 15-65 that own mobile phones, 78 percent own smartphones. Hence, the question of adoption, or if and under what conditions people will get connected becomes less relevant. What becomes more relevant is *how* people use their mobiles once connected. Given the array of possibilities to enhance their lives through the use of mobile phones, understanding which factors might influence the use of these services is important.

This paper attempts to understand the impact of the duration of SIM ownership on behavior of mobile owners, using nationally representative demand side data from over 7000 respondents between the ages of 15-65 in 2016.

2. Literature review

Mobile adoption has been widely studied, both theoretically and empirically in various contexts. The Technology Acceptance Model (TAM) (Davis, 1993) and Theory of Planned Behaviour (Azjen, 1991) spells out the theoretical framework for the behavioral aspects of technology adoption. Sanakulov & Karjaluoto (2015) in a review of the existing empirical literature, state that academia has focused largely on the adoption of devices, and that most studies are quantitative in nature and come from Asia.

Recently, research from Myanmar has focussed on factors affecting mobile purchasing decisions using quantitiative and qualitative methods; Quantitiative research shows that secondary and tertiary educational attainment, employment status, household income and gender were amongst the factors influencing the mobile purchasing decsion (Suthaharan, Zainudeen, & Galpaya, 2016). . Qualitative research shows that while income was the largest constraint on getting phones to women, tradtional gender roles also played an important role in determining if and when a female gets a phone of her own (Galpaya and Zainudeen, 2016). Both of these studies were based on 2015 research conducted in a window of 6-12 months from when the new entrants rolled out. The factors that affected the mobile purchasing decision for adopters over time would be a useful follow-up, particularly in Myanmar's rapidly changing ICT space.

As mobile penetration increases, how people use mobiles in their lives becomes the issue of interest. The uses of mobile phones by different categories of users following adoption is thus an area of interest, particularly in the context of smartphones becoming the primary point of access to the Internet to many.

In 2014, 62 percent of American smartphone owners had used their smartphones to get information about a health condition, and 57 percent to do online banking (Pew Research, 2014). Research from Indonesia, Malaysia, Philippines, Singapore and Thailand, indicates that the most popular application in all countries but Singapore and Thailand are those that enable social networking. Messaging applications were most popular in Singapore, while gaming applications were most popular in Thailand (Deloitte , 2017). In Myanmar, mobile use is more nascent. In 2016, mobile phones were most used to make calls (through their mobile operator's network), followed by missed calls and text messages. The use of chat or instant messaging applications, and Facebook, which would necessitate them to connect to the Internet, followed (LIRNEasia, 2016).

The length use of the mobile device has been found to have an impact on business outcomes such as business growth (Chew, Levy, & Ilavarasan, 2011) Similarly, it can also have an effect on individual uses of mobile phones. This is documented by Rice & Katz (2003), who identify three types of digital divides that occur for mobile and Internet users: user/non-user, veteran/recent, and continuing/dropout. The study found that while veteran mobile phone users were older, veteren internet users were younger. With mobile phones being used as the primary device to access the Internet for many, this distinction may be more blurred. In the presentation of data, Rice & Katz categorizeed veterans as those who adopted the technology prior to 1997 and recents as those who adopted after 1998. Rogers (1962), on the other hand, categorized adopters as innovators, early adopters, early majority, late majority, and laggards, depending on one's placement on a normal distribution curve. (Figure 1).

Figure 1: Adopter categorization in Rogers (1962)

Source: Rogers (1962)

3. Data and method

This paper uses demand side data from a nationally representative household survey on ICT use and information needs in Myanmar. The fieldwork was conducted between June and August 2016, by utilizing computer aided personal interviewing (CAPI). The survey was conducted among 7204 respondents between the ages of 15 and 65. The survey is representative of 97% of households and 96.3% of the population aged 16-69.[2] The survey data was weighted according to 2014 national census data to accurately reflect population proportions (Department of Population, Ministry of Immigration and Population: The Republic of the Union of Myanmar, 2015).

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[2] The target population of the survey excludes the population living in institutions and non-conventional housing, as well as those living in 32 (out of 330) townships which were excluded from the sample frame due to security concerns and extreme difficulty in access.

Mobile owners are defined as those owning both a mobile device and an active SIM. Given the complementary nature of the two goods, we will assume that individuals who bought mobile SIMs, also bought phones at the same time, and started using them in tandem. Those who state they purchased a SIM before 2000 are excluded for the analysis, because there were less than 5 cases.

The prices of SIMs over time, and changes in the telecommunications landscape in Myanmar were examined. Using data on when respondents got connected, we classify mobile owners into four categories for the purpose by linking to changes in the telecommunications landscape. These four categories, termed adoption categories in this paper, will be elaborated on in section 4. Correlations between the factors that could affect the length of use, and factors, which the length of use could affect, are determined. The authors then run a binary logistical regression to single out the effect of the time of purchase of the SIM on selected uses of phones.

Results
4. Prices and purchases of SIMs

In this section, authors have looked at changes in the telecommunications landscape in Myanmar. The prices of SIMs over time have been examined in relation to these changes. [3]
Based on these changes, mobile owners have been classifed into four categories.-innovators, early adopters, late adopters and late adopters. Though the terminology for the categorization is borrowed from Rogers (1962), the limits for categorization are not. While this piece of literature categorizes individuals more clearly according to a predermined criteria, the categories were based on the users' placement on a normally disturbuted function. The distribution in the case of Myanmar is heavily left skewed given the rapid uptake. Hence, a more context dependent approach akin to Rice & Katz (2003) was adopted.

The mobile owners who bought their SIM card before 2010 were termed innovators. This limit was reached based on data from Aye & Zin (2013), who indicate that the prices of mobile SIMs began dropping three years prior to 2013. The price of a SIM ranged from USD 1500 to 5000 (Myanmar Eleven, 2014).

Those who bought SIMs between (inclusive of) January 2010 and March 2013 are termed early adopters. The price of a SIM had fallen considerably to between USD 200 and 500 in this period (Min, Fife, & Bohlin, 2014). The price of the SIM being approximately a tenth of that at the beginning of the millennium necessitated a new category.

The third category, early majority, represents the group that bought SIMs once MPT started lowering the prices of the SIMs to USD 1.5. International operators Telenor and Ooredoo were yet to enter the market, but one could argue that these cuts were made in anticipation of competition. Though SIMs were sold at

USD 1.5 during this period, they were only available through a lucky draw, where 350,000 SIMs were sold each month. (Nyunt A. K., 2013)

The last category of mobile owners, those who first purchased a SIM in or after August 2014, are termed late adopters. This limit was reached as Ooredoo launched in Myanmar in mid August, and Telenor in late September. Given that the question asked was when the SIM was first purchased, it gives a small window to allow for operators to have issued SIMs prior to launching operators. MPT in September 2014 discontinued the lottery system and sold their SIMs freely like the other operators.

Table 2 shows an incremental increase in mobile SIM purchases in each adoption category.

Table 2: SIM purchase by adoption category

Category	Period of adoption	Price of SIM	Proportion of adopters (%)
Innovators	Jan 2000-Dec 2009	USD 1500-USD 5000	4.3
Early adopters	Jan 2010-Mar 2013	USD 200-USD 500	23.9
Early majority	Apr 2013-Jul 2014	USD 1.5	28.6
Late majority	Aug 2014-Aug 2016	USD 1.5	43.2

Source: Authors based on LIRNEasia baseline survey,

The largest increase in purchases occurred following the increase in supply of SIMs in August/September 2014, suggesting that there was significant unmet demand following the price cut in the previous period.

5. Socio-economic context of mobile adoption

In mid 2016, mobile ownership in Myanmar stood at 61 percent, up from 39 percent in 2015; the proportion of mobile owners and non-owners had reversed within a year and three months. While the previous section looked at the differing trends in SIM purchase, and thus mobile adoption, this one looks at the demographic profiles of each adoption category.

Seventy nine percent of the population in urban areas and 53 percent in rural areas owned a mobile phone as at mid 2016. Seventy two percent of males owned phones, while the corresponding statistic for females was twenty percentage points lower at 52 percent. Despite these gaps, the data indicates that the mobile phone has spread beyond the groups it initially populated.

The characteristics of all mobile owners are reported Table 3 before categorizing them by mobile adoption categories.

Table 3: Profile of population, and mobile owners by mobile adoption categories (%)

		Total profile (%)	All mobile owners (%)	Mobile adoption category (%)			
				Innovators	Early adopters	Early majority	Late adopters
Urban/rural	Urban	32	41.8	62.8	54.5	44.3	31.0
	Rural	68	58.2	37.2	45.5	55.7	69.0
Second level strata [4]	BC	16	20.2	43.6	27.6	22.6	12.1
	OMC	29	31.7	20.8	33.5	32.1	29.3
	ST	57	49.1	35.6	38.9	45.3	58.5
Gender	Male	47	54.5	68.1	58.4	53.2	51.9
	Female	53	45.2	31.9	41.6	46.8	48.1
Age group (years)	15 - 24	25	27.2	10.1	19.9	22.0	36.4
	25 - 34	22	24.2	19.0	29.2	24.8	21.6
	35 - 44	20	20.9	23.1	21.2	24.9	17.9
	45 - 54	19	16.5	29.2	17.9	16.3	14.6
	55 - 65	14	11.2	18.6	11.7	12.0	9.6
SEC	A	5.2	6.9	17.3	9.3	6.1	5.2
	B	9.8	12.6	20.8	15.6	13.0	9.9
	C1	14.2	17.6	25.9	20.9	17.4	15.0
	C2	26.9	27.2	17.1	28.5	27.3	27.2
	D	18.4	16.4	12.7	12.8	17.3	16.4
	E	25.6	19.4	6.2	12.9	18.0	24.6

Source: Authors based on data from LIRNEasia 2016 survey

Urban areas are those classified by the Government as wards. Department of Population, Ministry of Immigration and Population: The Republic of the Union of Myanmar, (2015) state that these areas generally have an increased density of building structures, population and better infrastructural development. Rural areas, on the other hand, are those classified by the GAD as village tracts. Generally these are areas with low population density and land use, which is predominantly agricultural.

As at mid 2016, 52 percent of those in rural areas had mobile phones, in contrast to the 79 percent in urban areas. Mobile adoption began in urban areas, accounting for nearly two-thirds of adoption amongst innovators. However, the data shows a reversal in this trend, with the fall in mobile/SIM prices and the introduction of competition: nearly 70 percent of late adopters were from rural regions.

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[4] BC: big cities, OMC: other major cities, ST: smaller townships

The areas were subdivided into three sub strata according to the population size of the cities or townships, the third level administrative unit in Myanmar. The sub strata are big cities (BC): population over 1 million; other major cities (OMC): population between 0.25 and 1 million; and smaller townships (ST): population less than 0.25 million. Although nearly half of mobile owners (49%) lived in smaller townships at the time of the survey, this was not always the case. 43% of innovators resided in the big cities of Yangon, Mandalay and Nay Pyi Taw.

Sixty eight percent of innovators were male. The discrepancy is less stark for subsequent adopters, but the proportion of male adopters continued to outnumber their female counterparts. The gender gap[5] (GSMA Connected Women, 2015) therefore still persists, even in the case of newer adopters.

Mobile adoption is also increasingly more prevalent amongst younger demographics. As at mid 2016, 27.2% of mobile phones were concentrated in the hands of the youth (15-24 cohort), despite them accounting for a quarter of the sample. This was not always the case though; almost 70 percent of innovators were aged 35 or above.

Socio-economic class, in this case, is defined taking into consideration the reported per capita monthly household income and the urbanization status of the area (Yangon or Mandalay vs. other areas in Myanmar). The first adopters were from the higher socio-economic groups; nearly 65 percent of innovators belonged to upper and upper-middle income households (SEC A, B, C1), despite accounting for less than 30 percent of the population. At the time of fieldwork, over a quarter of mobile owners belonged to SEC E. If living in Yangon or Mandalay, those belonging to SEC E have a monthly household income of less than USD 33; if living outside of Yangon or Mandalay, SEC E accounts for those with a monthly household income of less than USD 25. This suggests that mobile adoption has picked up even among the lowest income strata.

6. Uses of mobile phones

The paper then focuses its attention to the different uses of the mobile phones according to the time they started using their phones. Table 4 will, for example, first look at the percentage of mobile owners using their phones to make network calls at the time of the survey, and then look at how it change amongst the different adoption categories.

Table 4: Uses of mobile phones by adoption category (%)

	Users as a % of total mobile owners	Mobile adoption category (%)			
		Innovators	Early adopters	Early majority	Late adopters

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[5] Gender gap: (males owning mobile phones- females owning mobile phones/ males owning mobile phones)*100

Network calls	72.8	65.7	74.4	73.3	72.2
Missed calls	62.4	53.3	62.5	61.1	64.0
Text message via network provider	48.4	52.1	51.2	47.6	47.1
Chat/IM apps	35.9	52.8	42.3	33.6	32.3
Facebook	35.4	54.7	46.9	34.5	27.7
Internet calls	29.4	43.1	34.4	28.6	25.9
Send/share pictures	29.5	44.8	35.1	27.6	26.1
Play games offline	25.3	26.3	28.4	23.4	24.7
Search for information	23.0	32.9	29.1	19.3	21.0
Download pictures/videos	15.0	18.5	19.9	15.9	11.3
Stream music/videos	15.0	25.3	18.0	15.3	12.0
Download apps	10.7	13.9	14.8	9.1	9.1
Updates such as breaking news	10.2	15.0	15.0	8.8	7.9
Play games online	8.9	17.7	8.5	9.3	8.1
Email	6.2	18.9	8.6	6.4	3.4
Online government services	3.7	4.7	5.9	3.5	2.6
Wikipedia	2.3	2.9	3.9	1.9	1.7
Mobile money or banking services	2.2	2.4	3.3	1.4	2.0

Source: Authors based on data from LIRNEasia 2016 survey

Forty nine percent of mobile owners engaged in activities that necessitated them to connect to the Internet. Those who purchased SIMs earlier were more likely to use their phones to access Facebook, check email, make internet calls and stream music. Innovators, for instance, were 5 times as likely as late adopters to use email. There were a few exeptions however. The use of networked calls[6], missed calls and text messages via network provider were most used by late adopters, unlike most other cases. There were also a few exceptions. The proportion of mobile owners who played offline games remained relatively constant across adoption categories

7. Factors influencing mobile use
Those belonging to different adoption categories used their phones for different purposes. However, the descriptive statistics alone do not indicate that the time of adoption was a factor that determined the differential use of phones. One could hypothesize that one's socio economic category, gender or age that could have been a deciding factor in the decision to buy a phone, thus making the time of purchase of a SIM insignificant. We aim to examine this problem with the use of binary logistic regression, which will separate out the effects of the different

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I.e., calls using the operator's voice network, as opposed to data calls made via over-the-top, or OTT voice applications (e.g., Viber, Skype etc).

variables.

The different uses of phones will be regressed on the variables shown in table 5, with the exception of those that show a high degree of multicollinearity with other variables.

Table 5: Influential variables for mobile use

Variable	Explanation
Age	Continuous variable. Ages 15-65
Digital literacy	Index. An index of digital literacy was computed using data on the respondent's ability to: (1) Search for information or other content on the Internet/online; (2) Install an application ('app'); (3) Create log-in details (user) and a password to use a particular service or website; (4) Locate and adjust settings on an application or service; and (5) Post any information on the Internet/Online. Those who were able to engage in the said activity by themselves were rated higher than those who could engage with the help of another.
Electricity in household	Categorical variable. Have electricity in household (regardless of power source, government or private)= 1, else, 0
Gender	Categorical variable. Male=1. Female= 0
Keep up with trends	Continuous variable, based on a likert scale from 1 to 5. On one end, those who claimed to want to keep up with trends and constantly buy new things were ranked 1, while those who did not want to keep up with trends and were satisfied with what they had, were ranked 5.
Network effects	Continuous variable, based on a likert scale from 1 to 10. The scale was based on respondents' perceptions of the proportion of their family, friends and business acquaintance that used an online social network at the time of the survey.
Ownership of TV	Categorical variable. Resides in a household that owns a TV=1. Resides in a household that does not own a TV=0.
Primary education	Categorical variable. Those whose maximum level of education is between grade 1-5=1, Else=0
SEC	Categorical variable. See section 3.1 for further explanation on SEC
Secondary education	Categorical variable. Those whose maximum level of education is between grade 6-11=1, Else=0
SIM purchase year	Categorical variable. Based on the month/year in which the respondent first bought a mobile SIM. Four categories- innovator, early adopter, early majority, late adopter
Tertiary education	Categorical variable. Those whose maximum level of education comprises of diplomas, vocational training, Bachelors/Masters degrees, and PhDs, =1, Else=0

Urban/rural	Categorical variable. See section 5 for further explanation on the definition of an urban area and of a rural area.

Source: Authors

Logistic regression is a type of generalized linear model, used for cases where the dependent variable is dichotomous, taking one of two values (Eg: Mobile use=1, Non use of mobiles=0). This kind of model uses a cumulative logistic distribution function and ensures that the predicted values of the dependent variable are bounded by one and zero. Binary logistic regression is typically used when the dependent variable is dichotomous and the independent variables are either continuous or categorical variables. (Andersen, n.d.)

The function for the model is as below:

$$\text{Probability } (Y) = \frac{1}{1+e^{-(\beta_1+\sum_{i=2}^{n}\beta_i x_i)}}$$

Where Y is the dependent variable, which in in the first case denotes Internet use, with 1 denoting that the respondent uses the Internet and 0 otherwise. The explanatory variables (1 through n) that are denoted by x_i are the factors influencing Internet use. β_i denotes the logistic coefficients for the explanatory variables (2 through n) and β_1 is the regression constant (De Silva, Ratnadiwakara, & Zainudeen, 2009)

Table 6 below shows the (1) The regression coefficient β, which is the log-form value used in predicting the dependent variable (2) The p-value is used in hypothesis testing to test the validity of a claim that is made about a population. In this case, the claim is on Internet use. The null hypothesis is rejected at the 0.05 significance level.

Regressions were run with the various uses of phones as dependent variables. All the factors mentioned in table 5 were controlled for, with the exception of owning a TV and having electricity in your home. These two variables were excluded as they correlated highly with other variables in the regression. Their inclusion would have led to multicollinearity, and an overfitting of the model.

Table 6 looks at the beta coefficients of the variable with the adoption categories. This will determine the extent of the impact of the date of the purchase of the SIM, once other factors are accounted for.

Table 6: Results of regressions: Impact of SIM purchase date

Explanatory variable	Coefficient (β)	p-value
Email	-0.460	0.00
Facebook	-0.407	0.00
Wikipedia	-0.235	0.00
Online government services	-0.251	0.00

Chat/IM apps	-0.207	0.00
Send/share pictures	-0.197	0.00
Internet calls	-0.185	0.00
Updates such as breaking news	-0.173	0.00
Stream music/videos	-0.156	0.00
Missed calls	0.130	0.00
Mobile money or banking services	-0.093	0.00
Play games offline	-0.076	0.00
Download pictures/videos	-0.080	0.00
Play games online	-0.056	0.00
Search for information	0.069	0.00
Network calls	0.065	0.00
Download apps	0.078	0.00
Text message via network provider	0.012	0.00

Source: Authors based on data from LIRNEasia 2016 survey

The fact that $p < 0.05$ indicates that the time of adoption, depicted by the adoption category, is significant after controlling for other factors. Early birds such as innovators were more likely to use email, Facebook and instant messaging/chat services, make Internet calls, and stream music and watch videos. This was true even after controlling for other factors such as education, digital literacy, socio-economic status, gender, age and networked effects. Those who purchased SIMs later were more likely than innovators to use their phones to make network calls and missed calls. The trends observed in the descriptive statistics thus remain in most cases.
Sending text messages via one's network provider was one of the factors in which the time of adoption had the least effect.

7.a Factors influencing Facebook use
One of the uses of mobile phones, Facebook, was examined further. Facebook had a β coefficient of -0.409 and also had one of the strengths of association with the date of purchasing the SIM, with a Cramer's v value of 0.322. This suggests that Facebook is a case where which the length of use has a comparatively large effect on its use. Moreover, the importance of Facebook in Internet use in Myanmar has been documented by those such as Caryl (2015). Data from the Facebook Advertising Portal (2017) indicate that there were 16 million Facebook users in Myanmar as at end May 2017; this amounts for roughly 30 Facebook users per 100 in Myanmar. A binary logistical model was used.

The odds ratio, seen in Table 7, refers to the odds of an event occurring versus not occurring. This helps to interpret the size of the impact on the dependent variable

Table 7: Logistic model for Facebook use amongst mobile owners

Explanatory variable	Coefficient (β)	Odds ratio (eᵝ)	p- value
Tertiary education	0.887	2.336	0.00
Digital literacy	0.612	1.757	0.00
Gender	0.246	1.342	0.00
Keep up with trends	0.118	1.187	0.00
Urban/rural	0.196	1.184	0.00
SEC	0.154	1.134	0.00
Network on social networks	-0.004	1.111	0.00
Primary education	-0.582	0.708	0.00
SIM purchase year	-0.407	0.878	0.00
Secondary education	0.148	0.921	0.00
Age	-0.148	0.99	0.00
Constant	7.537		

Source: Authors based on data from LIRNEasia 2016 survey

Table 7 indicates that respondents with tertiary education were most likely to use Facebook; Suthaharan, Zainudeen, & Galpaya (2016) found that tertiary education was the largest determinant of mobile ownership. Digital literacy, though not the largest determinant, too had a large impact on Facebook use. Network effects (Rogers & Kincaid, 1981), interestingly, played a limited role in Facebook use. Meanwhile, gender was a significant factor in determining Facebook use. A Negelkerke R square value of 0.675 indicates a good fit of the model.

The results from table 4 and 7 indicate that those who began using phones earlier were more likely to use email, Facebook and instant messaging/chat services, make Internet calls, and stream music and watch videos. Hence it was hypothesized that the results may suggest that early adopters were simply more likely to be Internet users. A similar regression was run, looking at Internet use by collating all the dependent variables that necessitated the use of Internet. However, the β coefficient in this regression of the adoption category (-0.244) was smaller than the coefficients for Facebook use (-0.407), indicating the effect may have been diluted when looked at as a whole.

The binary logistic models run however solidify the argument that the time of adoption, and likely thus the length of ownership of the mobile phone, is linked to the uses of phones.

8. Policy implications

The impact of the changing tides in economic policy in Myanmar is clear, with a noticeable uptake in mobile adoption.

Residing in a rural area reduces the odds of using a mobile phone. However, over two thirds of late adopters lived in rural areas, and over half in small townships. This gradual diffusion of mobile phones through competitive forces may lessen the need for subsidized rollout of telecommunications infrastructure.

While more women are acquiring SIMs, there is still a gender imbalance in purchase. More sustained efforts may have to be taken to get women online.

The binary logistic regressions run point to the fact that the date of purchase of the SIM had an impact on many uses of mobile phones, some more than others. The largest impact was seen in the case of email, Facebook, Wikipedia, government services and chat/IM. We were curious to see if it was Internet specific, or if it was more specific to applications/content. The date of purchase of the SIM has a smaller effect Internet use as a whole than on Facebook, suggesting that the effect may have got diluted when looking at Internet use as a whole. Late adopters were likely to use simpler features of phones, such as the calling function.

The impact of time on downloading apps and searching for information may be less prominent, especially because the ability to do so is explicitly listed in the digital literacy index. The significance of the year of SIM purchase, after controlling for factors such as digital literacy and network effects imply that these alone did not impact use. The use of applications that necessitated the use of the Internet likely happened over time, as users got more comfortable with the use of the devices. Users may have acquired digital skills beyond the simple factors measured by our digital literacy index. Nevertheless, the results infer that, despite the smartphone and Facebook heavy markets in Myanmar, lags in use do exist. Despite having basic digital literacy skills and friends to help teach you, lags in more sophisticated adoption are likely to occur. Policymakers and others targeting these new users should likely wait a while before expecting miraculously fast use of more complex uses of phones.

Digital skills however, were identified as one of the most important determinants of many uses of phones. Yet, a mere 22 percent of mobile owners were able to search for information online, while 18 percent were able to create log-in details. The need to improve digital skills among mobile phone owners is clear.

9. Further research
The study through use of the binary logistic model looks at the use of factors such as networked calls and the use of Facebook, but does not study the frequency of use. It is possible that innovators and early adopters also use their mobiles more frequently. This can be explored in future research.

Is has been hypothesized that a proportion of innovators were government officials who may have had preferential access to the SIMs. Differentiating between those individuals and other innovators may be insightful.

The binary logistic models run use the adoption categories as the variable to look at the impact of the time of mobile adoption. While it is insightful in telling us that the time of adoption is significant and the trends in adoption, the use of the year of purchase may give more tangible results in telling the incremental changes in use of phones for every year of use.

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