Emergence of Financial Inclusion in Developing Economies: A Case Study of China and Pakistan

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The study aims to investigate the factors of financial inclusion in China and Pakistan in 2011 and 2014 based on the Global Findex database. The findings of this study are interesting and insightful. The encouraging part of the result is the most percentage of Chinese individuals having the formal account. The individual proportion of formal account in China is more than any country in the world. However, the individual proportion of formal account in Pakistan is very low as compared to other developing nation. The barriers to financial inclusion both in China and Pakistan in 2011 and 2014 are voluntary barriers. The informal source of borrowing is often used in China and Pakistan. The paper further explores that individual characteristics such as gender, age, education, and income have a significant impact on main indicators of financial inclusion. The results suggest that an educated male belongs to the high-income class and as being older, contribute more toward financial inclusion. Finally, the level of financial inclusion in China in 2011 and 2014 is better than the other developing countries. However, it is limited to a formal bank account, the use of formal credit and saving is still at the lower side.

1. INTRODUCTION

The phenomenon of financial inclusion has spread around the globe in recent times. The term financial inclusion, defined as the use of formal financial services, crucially measures economic progress. The individuals who are financially included may invest in education, business, and entrepreneurship that can lead to poverty reduction and economic growth of a country [Beck, Demirgüc-Kunt and Levine (2007); Bruhn and Love (2014)].

For a better future, financial inclusion provides opportunities to individuals who can foster financial stability by making safe deposits in banks for difficult times [Han and Melecky (2013)]. The increased deposit base in banks not only gives financial stability to an individual but also economic contributions to a country's financial growth. Furthermore, reliable and ready access of financial services are needed by people to uplift their quality of life. Savings, credit, payment, transfers and insurance services have become necessities of modern age. While financial inclusion has been a concern of

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governments for many centuries throughout the world, the policy regarding financial inclusion has changed in recent times to involve the poor and unbanked class with the financial system through microfinance. The emergence from the G-20 of the global partnership for financial inclusion is one example of how financial inclusion has become a major concern for leading and growing economies. However, CGAP (2010) showed that almost 45 percent of the world population still does not have formal access to financial services around the globe.

A few studies have investigated financial inclusion in different countries on the basis of surveys conducted by the World Banks's Global Findex database in 2011. The level of income is a main indicator to determine the level of financial inclusion in 148 countries [Demirgüc-Kunt and Klapper (2013)]. Using the survey data of 2011, they also explored the different aspects of financial inclusion in these countries. In addition to descriptive statistics, they examine country and individual characteristics related with main indicators of financial inclusion, such as bank account holding, saving accounts and use of credit from banks. The results show that income differences among countries and individuals affect the level of financial inclusion. Allen, *et al.* (2012) examines the individual and country characteristics which determine the holdings of bank accounts or saving accounts in different countries. They have come up with different individual and country characteristics which are associated with financial inclusion, such as income and education.

However, little work has been done in the case of China, the largest country in the world with respect to population and second largest economy of the world. China has also experienced major financial and structural reforms in recent past. Moreover, the process of financial reforms and liberalisation is still going on in China. The importance of financial inclusion particularly in the case of China is determined by its connection to three major debates that are currently ongoing in the country: sustainable economic growth, shadow banking and high deposit rates. The importance of financial inclusion is vital to attaining sustainable economic growth, especially in developing countries of the world. Being the largest developing country of world, it is imperative to assess the process of financial inclusion for China. For example, the alternative borrowing sources are extensively used in China because there are many constraints for SMEs and individuals to get finances from banks [Geng and N'Diaye (2012)]. This aspect has encouraged and expanded shadow banking system in China. The shadow banking in China not only includes formal funding channels, like micro-financial institutions and company to company lending, but also uses informal channels, such as private lending and un-registered banks and financial intermediaries. The expansion of the shadow banking system raises several questions regarding Chinese banking regulations and their effectiveness. The analysis of this paper will provide essential information of financial inclusion and the magnitude of the usage of formal credit channels in China. Further, the saving rates are extremely important for China [Yang (2012)]. Therefore, it is important to explore the factors or individual characteristics which motivate an individual to open a bank saving account in China.

Moreover, Pakistan formally embarked on the policy of financial inclusion for over a decade initiated and regulated by SBP. In 2011 and 2012 it's microfinance regulations were ranked best in the world by the Global Microscope report, and Pakistan

was ranked in the top-ten internationally for it's enabling environment for financial inclusion in the most recent Global Microscope 2014. "Despite these efforts, the level of financial inclusion remains very low. Only 10.3 percent of Pakistani adults have an account with a formal financial institution, well below both the south Asian average of 33 percent and the average for all lower-middle-income countries of 41.4 percent. Fifty-six percent of adults use neither formal nor informal products, and while 36 percent of adults save, only 4 percent save with a formal financial institution" (SBP: Financial Inclusion Strategy, July 2017). These low level statistics of financial inclusion in Pakistan may be attributed to several factors including: economic cycles, business climate, gender barriers, and growing informality in the economy. This section will analyse and evaluate Pakistan's progress in this area and identify policy recommendations.

This paper aims to fill this gap by using the survey data from the World Bank's Global Findex databases for two time periods: 2011 and 2014. It contributes to the understanding of financial inclusion in China in several ways. First, it examines the level of financial inclusion in China and compares it with two time periods. Second, it determines what changes have occurred in the level of financial inclusion in China from 2011 to 2014. Third, it looks at the level of financial inclusion in China and compares it with other developing countries like Pakistan during this decade. Pakistan has become an important country for China after the announcement of the China Pakistan Economic Corridor (CPEC). It is imperative for both countries to attain benchmark levels of financial inclusion for the ultimate success of CPEC. Fourth, the paper will also explore the main barriers to financial inclusion in China. Are these barriers the same or different in Pakistan?

Finally, this paper will determine the factors of financial inclusion in China and Pakistan. Are the factors of financial inclusion similar to China? The analysis of this paper will also determine how the barriers of financial inclusion and choices of alternative borrowing sources associated with individual characteristics in both countries such as income level and education.

2. MEASURING FINANCIAL INCLUSION

This section provides the details of financial inclusion in China and another developing country like Pakistan. The different indicators of the financial inclusion have examined based on available data for both countries. Further, this paper analyses the factors affecting the financial inclusion in China and Pakistan.

In literature, financial inclusion is defined as to use or access financial services in an economy. [Fungáčová and Weill (2014); Hannig and Jansen (2010)]. It is very interesting to note that two terminologies, use, and access, are used in literature as interchangeable. However, the meaning of both terms is different in financial inclusion context. Supply-demand perspective can also differentiate These two terminologies; Access means the supply of services, whereas use refers to the demand for the financial services. [Claessens (2006); Demirgüç-Kunt and Klapper (2012)]. Hannig and Jansen (2010) argued that it is important to incorporate the understanding of barriers to receiving financial services if efforts are made to expand the access of financial system in an economy. The barriers may be geographic (e.g., bank branches are too far away from the location), socioeconomic (e.g., financial services are inaccessible to certain income class,

social or ethnic groups). However, the use of financial services means the actual service consumption, including frequency, regularity and period of use over time [Claessens (2006); Hannig and Jansen (2010)].

There are different ways to assess the access and use of financial services. The accessibility of financial services has determined in many studies by per capita number of bank branches, ATMs, deposit accounts and credit provided by different financial institutions [Beck, Demirgüç-Kunt, and Pería (2007); Hannig and Jansen (2010); Pería (2013)]. However, there are some limitations in the data provided by the financial institution. The aggregate of the total loans can only provide a rough estimate of individual household using financial services. Some individuals use more than one financial services whereas other use no service at all [Pería (2013)]. Further, the bank level data do not provide individual-level information due to financial regulations and other reasons [Honohan (2008)].

Therefore, researchers mostly used surveyed data at the individual level to get the information of their use of financial services, its frequency and nature (e.g., borrowing or saving) [e.g., Fungáčová and Weill (2014); Hannig and Jansen (2010); Peachey and Roe (2006)]. The main objective of financial inclusion is to add the unbanked population of any economy into the financial system of the country by providing credit and other benefits. [e.g., Allen, *et al.* (2016); Demirgüç-Kunt and Klapper (2013)]. This study also uses the surveyed data conducted by the world-renowned data collection agencies.

2.1. Data and Sample

The data have taken from World Bank's Global Findex database, which includes individual-level data based on a survey of China and Pakistan for the year of 2011 and 2014.

The Gallup, Inc., was conducted surveys in association with its annual Gallup World Poll. Gallup has surveyed on an annual basis in different countries of the world since 2005. However, the sample size has varied across countries. In this paper, the survey data of China and Pakistan for the year 2011 and 2014 is used to determine the financial inclusion in both countries. The sample size for China is 4220 individuals and for Pakistan 1000 individuals. The target population as per the guide of the survey is entire civilian above the age of 15 years. The detail information about the data set and survey methodology is available in Demirgüc-Kunt and Klapper (2012).

The questionnaire developed by the Global Findex provides detailed information on financial inclusion. A large set of questions have added in it to determine the use and the motives of financial inclusion. The databases also have the information about individual's characteristics like income, age, education, and gender. The provided information is further used to analyse the factors affecting the financial inclusion in the respective countries.

2.2. Main Indicator of Financial Inclusion

In this study, the main indicators of financial inclusion for China and Pakistan have taken from literature. Three indicators are mainly covered in this study according to the Demirgüc-Kunt and Klapper (2013). The first indicator of financial inclusion is traditional which refers to the information of an individual about the ownership of a

formal account in a financial institution. It is termed as Formal Account. The information about the formal account of an individual has asked in a survey through the following question: Do you currently have a bank account at a financial institution? The second indicator of financial inclusion is based on the saving behaviour of an individual and termed as Formal Saving. The question used in this case in the survey is: Have you saved money at the financial institution during the past twelve months? The number of respondent decline in this case because respondent may have a saving behaviour but not in a formal financial institution. That is why the number of respondent for the second indicator is quite low as compared to the first indicator. The third indicator of financial inclusion is the usage of bank credit, and it refers to Formal Credit. In the survey, the question asked, in this case, is: Have you borrowed from a financial institution during the past twelve months?

The descriptive statistics of the main indicator of financial inclusion for 2011 and 2014 in China and Pakistan is presented in Table 1. Each indicator in table 1 reports a different number of respondents. The reason behind this fact is that financial inclusion can take different forms. The main and broader indicator in this regard is a formal account holding by an individual. A formal account in a bank can provide an individual to avail other financial services of the bank such as saving account or credit facility. In 2011, it is noted that 66 percent of Chinese individual have a formal bank account as compared to 10 percent bank account holders in Pakistan. However, in 2014, 76 percent of the Chinese and 12 percent Pakistan individuals have their bank accounts. There is an increase of 10 percent bank account holders in China from 2011 to 2014, whereas in Pakistan only 2 percent increase in a formal bank account is observed from 2011-2014. The percentage of formal bank accounts in China for both years is greater than other countries like Brazil 55 percent, South Africa 57 percent, India 37 percent, and Russia 44 percent [Zuzana and Laurent (2014)]. Further, the Chinese formal account holder percentage is even better than the world average, as half of the world population do not have their bank accounts [Demirgüc-Kunt and Klapper (2013)].

Table 1

Main Indicator of Financial Inclusion

Country Name	Year	Formal Account			Formal Saving			Formal Credit		
		Obs	Mean	SD	Obs	Mean	SD	Obs	Mean	SD
China	2011	4220	0.66	0.47	1810	0.82	0.38	4220	0.06	0.24
China	2014	4184	0.76	0.43	4184	0.40	0.48	4184	0.07	0.25
Pakistan	2011	1000	0.10	0.29	76	0.14	0.35	1000	0.03	0.16
Pakistan	2014	1000	0.12	0.33	1000	0.05	0.21	1000	0.02	0.12

The role of formal account usage in the economic development of a country is critical. Demirgüc-Kunt and Klapper (2013) suggest that GDP per capita has an important role in explaining cross-country difference of formal account usage. However, in case of China it leads the rest of the world in the usage of formal account, on the other hand, its GDP per capita is far below as compared to other countries. The GDP per capita of China in 2011 was 5,615 USD which raised to 6,108 USD in 2014, is still at the lower

end as compared to Russia 13, 571 USD, Brazil 12,500 USD and South Africa 8,039 USD [Zuzana and Laurent (2014)]. However, China has better GDP per capita as compared to India 1,500 USD and Pakistan 1040 USD in 2011 and 1,111 in 2014. This number shows a high discrepancy in the usage of formal account and economic development of a country. It is further established this fact that China usage of formal account is higher than its economic development.

In case of formal saving in China, the results of 2011 survey showed that 82 percent of the Chinese individuals have their savings at the financial institution during past twelve months. However, in Pakistan, only 14 percent individuals have their saving at financial institutions. The Chinese saving numbers in 2011 were very high as compared to other emerging countries which varies from 50 percent to 72 percent [Zuzana and Laurent (2014)], and the world average of 36 percent [Demirgüc-Kunt and Klapper (2013)]. It is also observed that the ratio of aggregate deposits to GDP in China is among the highest in the G20 group countries [Iorgova and Lu (2013)]. Further, the high saving rates in China is due to the large share of individuals using the formal saving accounts [Yang, *et al.* (2012)]. Mees and Ahmed (2012) observed that the saving rate in China for household savings was 27 percent in 2009, which is greater than OECD countries average saving rates varies from 6-16 percent. The high trend of saving in China is due to precautionary measures associated with the underdeveloped social insurance, sex ratio imbalance and private insurance [Wei and Zhang (2011)]. The high percentage of formal saving among Chinese also indicates their level of trust in the banking system of China. However, the formal saving percentage is declined significantly over the period of three years. In 2014, the formal saving percentage of Chinese individual was 40 percent. Almost, half of the Chinese individual changed their saving behavior over the period of three years. Whereas, in Pakistan, the formal saving account percentage was 5 percent in 2014. These results are interesting that in both countries the saving behavior of the individuals has decreased from 2011 to 2014.

However, the number of formal credit usage in China for 2011 is not encouraging. The term formal credit defines as the issuance of credit or loan by a financial institution which is regulated and governed by the respective government and operated within the framework of the financial system [Campero and Kaiser (2013)]. Some studies have argued that a large number of individuals and families all over the world not have access to formal credit for certain reasons [Beck and Demirgüç-Kunt (2008); Tejerina and Westley (2007)]. For example, Tejerina and Westley (2007) observed that only 6.3 percent of the families and individuals used formal credit in 12 South American countries. The result of this study is in line with some of the previous studies that only 6 percent of the Chinese individuals have credit through the formal account. For Pakistan, the percentage of formal credit use is 3 percent in 2011. However, the percentage of formal credit usage of Chinese individual is lower than the other countries average formal credit percentage as 14 percent [Zuzana and Laurent (2014)]. In 2014, the percentage of formal credit for Chinese individual was slightly increased to 7 percent. Further, Pakistani individuals used formal credit in 2014 is 2 percent. The use of formal credit by a country's individuals has its significance with the financial development of the country. Demirgüc-Kunt and Klapper (2013) show a positive relationship between use of formal credit of an individual with economic development of the country.

2.3. Barriers of Financial Inclusion

It is important to investigate the reasons or barriers for individuals not to have a formal bank account in the developing countries. The survey has included different aspects and factors for an individual who may influence the behavior of the individual's decision for a formal bank account. These factors include, "too far away," "too expensive," "lack of documentation" lack of trust" "lack of money," religious reason" and "family member has an account already." These factors may further categorise in different categories such as voluntary exclusion (lack of money, religious reason, the family has an account) [Allen, *et al.* (2012)]. The differentiation between voluntary exclusion and involuntary exclusion has important implications for policy-makers. It is important to understand that only involuntary exclusion reasons help ones to identify the barriers to financial inclusion by setting up suitable policies.

Table 2 presents the descriptive statistics of barriers to financial inclusion for both countries China and Pakistan in 2011 and 2014. The lack of money is observed to be the main barrier to financial inclusion in most of the countries in the world. The results of this paper also indicate that 57 percent of the non-formal account holders in China selected the option of lack of money in 2011. In Pakistan, this percentage is higher than the China that 78 percent of the individuals think that lack of money is the main barrier for them to become the part of the country's financial system. In 2014, the most prominent barrier to financial inclusion in China was again the lack of money. However, the percentage is declined to 48 percent. In case of Pakistan, 66 percent of the individual thinks that the lack of money is the main reason for them not to have a formal bank account. The results of 2014 suggest that for both countries China and Pakistan, the percentage of lack of money has declined significantly as compared to 2011.

Table 2

Barriers of Financial Inclusion

Country Name	Year	Obs	Far Sway		Expensive		Lack of Documentation	
			Mean	SD	Mean	SD	Mean	SD
China	2011	1189	0.15	0.36	0.09	0.28	0.08	0.27
China	2014	1224	0.15	0.35	0.10	0.30	0.08	0.26
Pakistan	2011	901	0.23	0.42	0.24	0.42	0.23	0.42
Pakistan	2014	900	0.22	0.41	0.20	0.39	0.17	0.37

Country Name	Year	Obs	Lack of Trust		Lack of Money		Religious Factor		Family Member Account	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD
China	2011	1189	0.05	0.22	0.57	0.43	0.01	0.09	0.32	0.48
China	2014	1224	0.06	0.24	0.48	0.50	0.03	0.15	0.39	0.41
Pakistan	2011	901	0.19	0.39	0.78	0.41	0.17	0.37	0.19	0.39
Pakistan	2014	900	0.09	0.28	0.66	0.47	0.07	0.25	0.16	0.37

The second most cited barriers to financial inclusion in 2011 for China is the family member has an account already. 32 percent of the individuals in China do not have their formal bank account due to the reason that their family member has a bank account

already. The same factor is identified in 2014 for China. However, individual of Pakistan think differently in 2011. The second most prominent financial inclusion barrier for Pakistani individuals in 2011 is too expensive nature of banks. 24 percent of the Pakistani individuals think that they do not have a bank account because it is too expensive for them. Further, in 2014, individuals think that distance of the financial institution from their residence does matter. 22 percent of the Pakistani individuals responded in 2014 that they do not have a bank account because a bank is too far away from their homes.

The other barriers to financial inclusion in China and Pakistan for 2011 and 2014 have almost similar trends. There is one interesting barrier of financial inclusion in case of Pakistan, i.e., religious reason. In 2011, 17 percent of the respondents thought that they did not have formal bank account due to religious reasons. For China, the religious reason had very low percentage almost near to 1 percent in 2011. However, the percentage of the religious reason is dropped significantly in 2014 for Pakistan as 7 percent respondent make this factor as one of the barriers to financial inclusion. Whereas, for China, it increases to 3 percent. Allen, *et al.* (2012) reported the almost the same results for rest of the world in 2011. These results indicate that in China and Pakistan both voluntary and involuntary reasons contribute to financial exclusion for a larger people like rest of the world.

2.4. Alternative Sources of Borrowing

There is a key policy issue to provide access to credit to every individual in an economy. However, in developing economies, the access to credit is very limited. Many studies have examined that access to credit is a major concern for small businesses and individuals in most of the developing economies. However, the state-owned and big organisation can easily get credit from financial institutions [Hale and Long (2010); Li, *et al.* (2013)]. The limited access to credit becomes the main problem for the economic system of the country because access to credit mostly used as a tool to alleviate poverty from the country [Bruhn and Love (2014)]. Moreover, this problem also helps to grow shadow banking which has severe negative impacts on the financial and economic system of a country [Iorgova and Liu (2013)].

In this section, the study throws light on the alternative sources of borrowing in China and Pakistan in 2011 and 2014. Table 3 shows the descriptive results of an alternative source of borrowing in both countries. According to the 2011 survey, five items have included determining the alternative sources of borrowing. Such as questions asked by individuals that how they borrow, from "store" "family or friend," "employer," "private lender" and "financial institutions." The number of questions has reduced from five to four in 2014, as employer option has excluded from the survey. The results for China show that 32 percent of the individual obtained credit during past twelve months from all possible sources in 2011. It shows that the percentage of using credit in China is relatively low as compared to other developing countries in the world. For example, Russia and South Africa have 33 percent and 48 percent respectively; only India posted less figure as 29 percent in 2011. Moreover, Pakistan has much higher numbers as compared to China and other developing nations in 2011. 52 percent of the individuals in Pakistan has borrowed money from different channels during the past 12 months in 2011.

Table 3

Alternative Sources of Borrowing

Country Name	Year	Obs	A Store		Family and Friends		Employer		Private Lender		Formal Financial Institutions	
			Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
China	2011	4202	0.03	0.17	0.21	0.40	0.01	0.11	0.01	0.10	0.06	0.24
China	2014	4150	0.03	0.16	0.23	0.42			0.01	0.10	0.07	0.25
Pakistan	2011	1000	0.12	0.32	0.25	0.43	0.08	0.29	0.04	0.20	0.03	0.17
Pakistan	2014	1000	0.23	0.42	0.34	0.47			0.06	0.24	0.02	0.12

As far as the individual source is concerned, family and friends is the major source from which individuals get credit both in China and Pakistan. 21 percent and 25 percent in China and Pakistan respectively, borrowed money from the past 12 twelve months in 2011. However, 6 percent of the Chinese individuals borrowed money from the financial institutions. In Pakistan, only 3 percent individuals borrowed money from banks. These numbers are not promising for the developing nations that formal financial institutions have not considered as a premier source of borrowing.

The results did not change much for China in 2014, as the total percentage of borrowing stand at 34 percent. There is a slight improvement as compared to 2011, but for Chinese economy which is now considered as the best economy in the world, this increase is not enough. For Pakistan, the total percentage of individual borrowing has increased to 65 percent, which is a significant increase. However, the use of informal credit remains at the top of both countries in 2014. 80 percent of the Chinese individuals are still using informal credit sources in 2014. In Pakistan, the use of informal credit percentage is considerably high as compared to China, as 97 percent of the Pakistan individuals are using informal sources of credit in 2014. The high percentage of using informal sources of credit in both countries gives a clear indication of the economy that shadow banking is growing faster as compared to the formal banking system.

Among informal source of credit, family and friend source is used extensively in both countries, as 23 percent Chinese and 34 percent Pakistani individuals borrowed money from family and friend sources during the past 12 months in 2014. The second most frequently used an informal source of credit for both countries is a store or shop. For China, the percentage of store borrowing is relatively lower as compared to Pakistan. 3 percent in China and 12 percent in Pakistan borrowed money from stores in 2014.

The descriptive results posit some interesting findings regarding financial inclusion in China and Pakistan. Therefore, it is important to examine the determinants of financial inclusion for both countries. The next section explains the methodology and results of the determinants of financial inclusion in 2011 and 2014 for both countries.

Table 4

Descriptive of Individual Characteristics

Characteristics	China		Pakistan	
	2011	2014	2011	2014
Age (15–50)	0.72	0.67	0.88	0.86
Gender (Male)	0.47	0.45	0.50	0.50
Education Level (Primary or More)	0.90	0.92	0.94	0.94
Income Level(Up to Middle 20%)	0.47	0.58	0.56	0.49

3. METHODOLOGY AND RESULTS DISCUSSION

In this section, we examine the determinants of the financial inclusion on the basis of individual characteristics for both countries. The individual responses about financial inclusion in China and Pakistan for 2011 and 2014 are used for this analysis. The responses of the sample countries and the years are collected from Global Findex database. A binary logistic regression is applied to determine the individual characteristics and its impact on the financial inclusion. The following equation is estimated for this purpose.

$$finInc_i = a_0 + \beta_1 gender_i + \beta_2 age_i + \beta_3 age_i^2 + \beta_4 income_i + \beta_5 education_i + \beta_6 countrydummy_i + \varepsilon_i$$

Where *finInc* denotes to three main factors of financial inclusion (formal account, formal saving, and formal credit) and i shows the index of the individuals. There are four individual's characteristics are added to the equation along with one dummy variable for the country. Two countries China and Pakistan are included in the analysis; therefore, the country dummy is introduced into the equation, it takes a value 1 if the country is China, or 0 otherwise. The same equation is analysed for two different years, 2011 and 2014. The year dummy is not included in the equation because the Global Findex used two different surveys in 2011 and 2014. Gender is a dummy variable; it takes 1 if male, otherwise 0. The age is a scalar variable. It refers to the respondent age which varies from 15 to 90 years or more. The equation has introduced another variable which is age_i^2. It is calculated by taking square of an individual age to determine non-linear relationship between age and financial inclusion. The income and education of the individuals are measured as categorical variables. For income, four dummy variables are included in the analysis. Each dummy variable equals to 1 if an individual income falls in either of the categories, like 20 percent poorest, second 20 percent poorest, third 20 percent poorest, or fourth 20 percent, 0 otherwise. The fifth income category which is the remaining 20 percent richest are the omitted dummy variable. Similarly, education is also a categorical variable. Two dummy variables are added for education. Each dummy variable of education takes a value 1, if an individual's education is primary or less, and completed secondary education, and 0. otherwise. The omitted dummy variable is tertiary education.

3.1. Determinants of Main Financial Indicators

The results of binary logistic regression are presented in Table 5 for the determinants of main financial inclusions. Table 5 present results for the year of 2011 and 2014 results. Three main indicators of financial inclusion, such as formal account, formal saving, and formal credit are taken as dependent variable. Whereas, the individual's characteristics are used independent variables.

Table 5 shows the results for 2011. The gender is significant and positively associated with the formal account. It means that males are more inclined toward formal account opening. The age is also significant and positively associated with formal accounts. It shows that individuals of high age use more formal accounts as compared to young ones. However, the result of age square shows that it is negative and significantly associated with financial inclusion. It shows a nonlinear relationship between age and formal account. Further, the use of the formal account is common in elder people.

However, it is true for a certain age limit as indicated by nonlinear relationship between age and formal account. The same results are observed for other two indicators of financial inclusion, i.e., formal saving and credit. These results are in line with the literature [Demirgüc-Kunt and Klapper (2013); Zuzana and Laurent (2014)].

Table 5

Main Indicators of Financial Inclusion— Logistic Regression Results

	Year 2011			Year 2014		
	Formal Account	Saving Account	Formal Credit	Formal Account	Saving Account	Formal Credit
Variable	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios
Gender	0.317	–0.19	0.38	0.62	–0.06	0.33
	1.373***	0.82**	1.4****	1.87***	0.93	1.39****
Age	0.477	0.51	0.82	0.08	0.05	0.134
	1.61***	1.66***	2.2***	1.09***	1.05***	1.14***
Age2	–0.001	–0.001	–0.001	–0.001	–0.001	–0.002
	0.99***	0.99***	0.99***	0.99***	0.99***	0.98***
Education (Primary or Less)	–1.30	0.03	–0.56	–1.43	–0.31	–0.57
	0.271***	1.03	0.56**	0.24***	0.73**	0.57**
Education (Completed Secondary)	–0.575	0.05	–0.34	–0.563	–0.17	–0.26
	0.56***	1.05	0.7	0.53***	0.84	0.77
Income Level (20% Poorest)	–1.59	–1.14	0.42	–0.80	–1.27	–0.62
	0.202***	0.36***	1.5***	0.45***	0.28***	0.54***
Income Level (Second 20%)	–1.27	–0.46	–0.03	–0.53	–0.64	–0.24
	0.28***	0.62***	0.96	0.51***	0.53***	0.79
Income Level (Third 20%)	–0.81	–0.34	–0.10	–0.37	–0.38	–0.17
	0.44***	0.71***	0.9	0.69***	0.68***	0.84
Income Level (Fourth 20%)	–0.38	–0.06	–0.09	–0.14	–0.04	–0.16
	0.68***	0.94***	0.91	0.87***	0.96	0.85
Country	3.210	2.14	1.4	3.520	1.16	1.71
	24.8***	8.5***	4.1***	33***	3.19***	5.51***
Constant	–1.17	–2.24	–4.3	–2.72	–1.48	–5.71
	0.31***	0.10***	0.01***	0.06***	0.23***	0.03***
Obs	5220	2872	5220	5183	3304	5184
Cox and Snell R2	0.3	0.065	0.021	0.3	0.07	0.04

The results show that education level of an individual is also associated with the formal account. The dummy variables for the lesser education categories 'primary or less' and secondary completed have significant negative relationship with formal account opening. It shows that use of the formal account is increased as the education level of the individual increase. In case of formal saving, the coefficients of education dummies become positive but insignificant. However, more educated individual obtained more formal credit as a dummy variable for primary or less education has a significant and negative relationship with formal credit. The level of income is also associated with formal account usage. The dummy variables of the lesser quintiles of income like 20 percent poorest, second 20 percent, third 20 percent and fourth 20 percent are significant and negatively related to financial inclusion. It shows that the higher income individual tier has more formal accounts as compared to lower-income tier. The same trend is observed for formal saving, i.e., higher income class safe their funds with formal saving more as compared to lower income class. However, in case of formal credit, the lesser

income quintile 20 percent of poorest is significant and positively associated. It shows that lesser income class obtain more formal credit as compared to high-income class. These results are in line with Demirgüç-Kunt and Klapper (2013). The country dummy is significant and positively associated with the formal account, saving and credit. It shows that Chinese individual is more financially included as compared to Pakistani individuals in 2011 (see Table 5).

Table 5 further presents the results of logistic regression for 2014. The individual characteristics include gender and age have significant positive relationship with the formal account. These results are similar to 2011 results. It shows that male and elder people have more formal accounts as compared to females and younger people. However, the age square, which has a significant and negative coefficient, shows a nonlinear relationship between age and formal account. In case of formal saving, age and age square has similar results. However, the gender has a negative but insignificant association with formal saving. The education dummies are significant and negatively related to formal accounts. Further, primary or less education dummy is significant and negatively associated with formal saving and credit. However, secondary completed education dummy has a negative and insignificant association with formal saving and credit. Similar to 2011, all income level dummies have a significant and negative association with the formal account. However, the least income quintile has a negative and significant association between formal credit; remaining income quintiles have an insignificant association with formal credit. The county dummy is positively and significantly associated with all three indicators of financial inclusion. It shows that even in 2014 Chinese individuals are more financial included as compared to Pakistani individuals.

3.2. Determinants of the Barriers for Financial Inclusion

The paper further investigates that how individual characteristics influence the reasons for not having a formal account. The ownership of a formal account is considered an important indicator for financial inclusion. Therefore, the individual characteristics of not having a formal account are determined in this part of the analysis. The barriers to financial inclusion as discussed in the literature are taken as dependent variables in the analysis such as too far, too expensive, lack of documents, lack of trust, lack of money, religious reasons and family member already have an account. The individual characteristics are taken as independent variables such as gender, age, education level and income level.

Table 6 shows the results of the determinants of a barrier for financial inclusion for 2011. There are several reasons for not having a formal account for an individual concerning gender. The gender has a significant association with all defined barriers except the cost of banking. However, the association signs are different with different barriers. It has a significant positive association with distance (too far), lack of documentation, lack of trust, and religious reasons. Further, gender has a negative and significant association with lack of money and family member have an account. It is interesting that males think, they do not have formal accounts because banks are too far away. They are concerned with lack of documentation, trust and religious reason for not having a formal bank account. However, in case of females which do not have formal accounts, are more concerned with lack of money, and another family member already has an account.

Table 6

Barriers of Financial Inclusion—Logistic Regression Results

	Year 2011						
	Too Far	Too Expensive	Lack of Doc	Lack of Trust	Lack of Money	Religious Reason	Family Account
Variable	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios
Gender	0.35	−0.05	0.20	0.60	−0.23	1.08	−0.57
	1.42***	0.94	1.23***	1.82***	0.79***	2.94***	0.56***
Age	0.18	0.11	−0.72	−0.03	0.12	−0.35	−0.18
	1.20	1.12	0.48***	0.96	1.12	0.70	0.83
Age2	−0.002	−0.001	0.007	0.001	−0.0010	0.0003	0.0001
	0.99	0.99	1.00***	1.00	0.99	1.00	1
Education (Primary or Less)	−1.89	−1.52	−1.44	−2.09	0.93	1.6	0.32
	0.15*	0.21	0.23	0.12**	2.54	4.95	1.38
Education (Completed Secondary)	−1.80	−1.28	−1.34	−1.37	0.75	1.7	0.54
	0.16*	0.27	0.26	0.25	2.13	5.47	1.71
Income Level (20% Poorest)	0.59	0.62	−0.16	−0.12	0.79	0.03	−1.17
	1.81***	1.86**	0.85	0.88	2.21***	1.03	0.30***
Income Level (Second 20%)	0.27	0.02	−0.49	0.27	0.73	−0.79	−0.81
	1.31	1.02	0.60**	1.31	2.08***	0.45*	0.44***
Income Level (Third 20%)	0.45	0.40	−0.18	−0.08	0.35	0.17	−0.55
	1.57**	1.49	0.83	0.91	1.42**	1.18	0.57***
Income Level (Fourth 20%)	0.65	0.39	−0.01	0.25	0.24	−0.03	−0.04
	1.92***	1.47	0.98	1.29	1.28*	0.96	0.95
Country	−0.21	−0.66	−0.65	−0.67	−1.14	−2.1	1.37
	0.80	0.51***	0.52***	0.51***	0.31***	0.11***	3.95***
Constant	−0.76	−0.93	0.48	−1.06	−0.42	−1.8	−1.68
	0.46	0.39	1.62	0.34	0.65	0.98	0.18
Obs	2090	2090	2090	2090	2090	2090	2090
Cox and Snell R2	0.3	0.03	0.02	0.02	0.08	0.056	0.08

An individual age does not consider any of the given barriers for not having a formal account except lack of documentation. Further, age square results reveal that age does not have a non-linear relationship with all the barriers to financial inclusion except lack of documentation. Already for not having a formal account.

The education level of an individual considers distance and lack of trust as barriers to financial inclusion. The dummy variable primary or less education coefficient is significant and negatively associated with lack of trust. It shows that highly educated people think that trust on banking system is the main hurdle for them for not having a bank account. Moreover, the educated class also consider the distance of a financial institution as a barrier for not having a bank account.

There are several reasons for not having a formal account for different income classes. The first quintile of income class which is 20 percent poorest has a significant positive relationship with distance (too far), cost (too expensive) and lack of money. The results show and explain that why poor people in the developing countries do not have their bank accounts. They consider that distance, cost and more importantly lack of money are the main reasons for poor people for not having a bank account. Further, it is less likelihood for a poor individual to have a bank account if another family member already has a formal bank account. The dummy variables of second income quintile feel that distance and cost of the financial institutions do not restrict them from having a formal bank account. However, the lack of document, religious reasons, and other family member account are the potential barriers to financial inclusion for the dummy variable of second income quintile. The second income quintile also considers lack of money as a

barrier to financial inclusion but in the opposite direction. The distance of a financial institution and lack of money are main barriers to financial inclusion for third income quintile. The third income quintile also considers other family member account one of the reasons for not having a bank account, but in the opposite direction. Interestingly, the fourth income quintile only considers the distance of the financial institution as a hurdle for them for not having a bank account. The results of country dummy are also very interesting. Country dummy is negative and significantly associated with cost (too expensive), lack of documents, lack of trust, lack of money, religious reasons and other family member account. It means that Pakistani individuals consider all these reasons as barriers to financial inclusion.

The results of 2014 survey are not much different as compared to 2011 result concerning the determinants of barriers for financial inclusion. Table 7 presents the results for 2014. The gender has a positive and significant relationship with lack of documentation and lack of money. However, it has a negative and significant association with other family member account. It shows that males consider lack of documentation and money restrict them for not having a formal bank account. These results are slightly different from 2011 results. However, females think that if another family member has an account then there is no need for them to open another account. These findings are similar to 2011 findings.

Table 7

Barriers of Financial Inclusion—Logistic Regression Results

	Year 2014						
Variable	Too Far Odd Ratios	Too Expensive Odd Ratios	Lack of Doc Odd Ratios	Lack of Trust Odd Ratios	Lack of Money Odd Ratios	Religious Reason Odd Ratios	Family Account Odd Ratios
Gender	−0.07	0.13	0.34	0.19	0.33	0.34	−0.41
	0.93	1.13	1.41**	1.21	1.39***	1.40	0.66***
Age	0.03	0.00	−0.06	0.00	0.01	0.02	0.001
	1.03**	1.00	0.93***	0.99	1.00	1.03	1.00
Age2	−0.03	−0.05	0.04	0.03	−0.01	−0.03	−0.02
	0.97**	0.95	1.04***	1.03	0.99	0.97	0.98
Education (Primary or Less)	1.90	1.91	−1.09	1.60	0.23	1.52	2.1
	6.68	6.75	0.33	4.95	1.25	4.57	8.16
Education (Completed Secondary)	1.80	1.70	−1.28	1.70	0.15	1.45	2.2
	6.04	5.47	0.27	5.47	1.16	4.26	9.02
Income Level (20% Poorest)	0.40	0.44	0.11	−0.14	0.67	0.07	−0.55
	1.49**	1.55**	1.12	0.86	1.95***	1.08	0.57***
Income Level (Second 20%)	0.27	0.26	−0.05	−0.70	0.38	−0.11	−0.49
	1.31	1.30	0.95	0.49**	1.47***	0.89	0.61***
Income Level (Third 20%)	0.35	0.24	−0.17	−0.67	0.50	−0.19	−0.13
	1.42*	1.27	0.84	0.51**	1.66***	0.81	0.87
Income Level (Fourth 20%)	−0.02	0.09	0.06	−0.41	0.25	−0.69	−0.37
	0.97	1.10	1.07	0.66	1.29	0.49*	0.68*
Country	−0.35	−0.67	−0.53	−0.31	−0.87	−0.71	1.52
	0.70	0.51	0.58***	0.72	0.41***	0.48***	4.57***
Constant	−2.10	−2.50	2.74	−2.95	−2.22	−2.96	−2.33
	0.12	0.08	15.48	0.05	0.10	0.05	0.09
Obs	2124	2124	2124	2124	2124	2124	2124
Cox and Snell R2	0.025	0.032	0.03	0.012	0.05	0.017	0.09

The lack of documentation and distance have a significant association with individual's age characteristic but with opposite direction. Further, the age square is also significantly associated positively and negatively with lack of documentation and distance respectively. It shows that age is having a non-linear relationship with some of the barriers to financial inclusion. Further, the elder people do not have bank account due to the distance of a financial institution. Moreover, lack of documentation is also one of the hurdles for not having a bank account for older people. However, to a certain age, these barriers are no longer exist, as results show that there is nonlinear between age and barriers for financial inclusion.

The results further show that the educational dummies do not have any significant relationship with any barrier for financial inclusion. These findings are different as compared to 2011. There are several reasons for different income classes of individual for not having a bank account. The poorest class do not have a bank account because they consider distance, cost and lack money are the main reason for it. Further, the other family member account also demotivates the poorest class for not having a bank account. The second income quintile thinks that they do not have bank account due to lack of trust and other family member's account. Further, they do not have enough money to operate a formal bank account. Similarly, the third income quintile considers lack of trust and money as main barriers for financial inclusion but in the opposite direction.

The country dummy has a negative and significant association with lack of documentation, lack of money, religious reasons and other family member account. It shows that as compared to China, Pakistani individuals do not have formal accounts due the mentioned reasons.

3.3. Determinants of Alternative Source of Borrowing

In this part, the study further identifies the individual characteristics influence the borrowing options. The alternative source of borrowing is discussed in above section such as a store, family and friends, employer, private lenders and financial institutions, are taken as dependent variable. The individual characteristics are taken as independent variables in the analysis.

Table 8 presents the results of the determinants of an alternative source of borrowing for 2011. The results show that gender of individual influences the decision on the sources of borrowing. Male considers the alternative source of borrowing such as from store, family or friend, employer or financial institution. The age of an individual is also positive and significantly associated with borrowing alternatives such as store, family and friend, private lenders and financial institutions. The age square is negative and significantly associated with family or friend, employer, private lender and financial institution borrowings. It shows that age and alternative sources of borrowing have a non-linear but significant relation. It further suggests that, age matters for a certain age limit to decide for an appropriate borrowing alternative.

Table 8

Alternatives of Financial Inclusion—Logistic Regression Results

	Year 2011				
	Store	Family and Friend	Employer	Private Lender	Financial Instt.
Variable	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios	Odd Ratios
Gender	0.31	0.31	0.74	–0.09	0.38
	1.37**	1.37***	2.10***	0.9	1.46***
Age	.460	0.25	0.24	0.69	0.81
	1.59***	1.29***	1.27	1.99**	2.26***
Age2	–0.010	–0.04	–0.006	–0.09	–0.01
	.990	0.99***	0.99**	0.91**	0.99***
Education (Primary or Less)	1.500	1.9	1.1	1.5	1.2
	4.480	6.68	3.00	4.48	3.32
Education (Completed Secondary)	1.800	1.61	1.29	1.42	1.5
	6.490	5.00	3.63	4.13	4.48
Income Level (20% Poorest)	.100	0.74	0.66	–0.29	0.43
	1.100	2.10***	1.94**	0.74	1.540**
Income Level (Second 20%)	–0.190	0.4	0.28	–0.67	–0.015
	0.810	1.50***	1.32	0.5	0.98
Income Level (Third 20%)	–0.220	0.31	0.02	–0.12	–0.08
	0.790	1.36***	1.02	0.88	0.91
Income Level (Fourth 20%)	–.940	0.07	0.03	–0.17	–0.08
	0.39***	1.08	1.03	0.83	0.91
Country	–1.340	0.06	–1.3	–0.73	1.42
	0.26***	1.06	0.27***	0.48***	4.14***
Constant	–1.900	–2.12	–1.9	–2.47	–2.18
	.140	0.12	0.14	0.08	0.11
Obs	5220	5220	5220	5220	5220
Cox and Snell R2	.030	0.032	0.02	0.04	0.021

The education level of an individual does not have any role in the selection of borrowing alternatives. The results show that educational dummies do not have any significant relationship with any of the borrowing alternatives. The income level of individual influences the borrowing decision. The poorest class borrow more from family and friends, and employers. The first income quintile has a positive and significant association with the above borrow alternatives. It is interesting to know that the poor class also prefers to use formal credit option as well. The results indicate that first income quintile is positive and significantly associated with borrowing from financial institutions. However, the second and third income quintiles prefer to opt to inform borrowing. The results suggest that there is a positive and significant association between second and third income quintiles and borrowing from family and friend. Moreover, the fourth income quintile dislikes borrowing from stores.

The results of country dummy are also very interesting. The results suggest that Pakistani individuals prefer borrowing from informal sources more as compared to Chinese individuals. Whereas, Chinese individuals prefer a formal source of borrowing more as compared to Pakistani individuals.

The results of 2014 for the determinant of alternative sources of borrowing are presented in Table 9. The findings for the year 2014 are quite similar to 2011 concerning individual characteristics, such as gender, age, and education level. However, the

association between income level of an individual and borrowing decision depicts different results as compared to 2011. Such as, poorest class in 2014 does not prefer formal borrowing option which they previously considered. Further, the rich people prefer borrowing from formal sources which they did not prefer previously. The country dummy shows slightly different results as compared to 2011. In 2014, the Pakistani individuals used more formal and informal borrowing sources as compared to China.

Table 9

Alternatives of Financial Inclusion—Logistic Regression Results

Variable	Year 2014			
	Store Odd Ratios	Family and Friend Odd Ratios	Private Lender Odd Ratios	Financial Instt. Odd Ratios
Gender	0.57	0.27	0.71	.570
	1.77***	1.31***	2.04**	1.77***
Age	0.06	0.03	0.13	.060
	1.06***	1.03***	1.14***	1.06***
Age2	−0.001	−0.002	−0.002	−.002
	0.99***	0.99***	0.99***	0.99***
Education (Primary or Less)	−0.36	0.19	1.15	−.360
	0.69	1.21	3.16*	.690
Education (Completed Secondary)	−0.04	0.09	1.06	−.040
	0.95	1.09	2.89*	.950
Income Level (20% Poorest)	−0.45	0.58	−0.42	−.450
	0.63**	1.79	0.65	.630
Income Level (Second 20%)	−0.07	0.25	−0.56	−.070
	0.92	1.29**	0.57*	.920
Income Level (Third 20%)	−0.04	0.28	−0.36	−.040
	0.95	1.33***	0.69	.950
Income Level (Fourth 20%)	−0.33	0.13	−0.3	−.330
	0.71*	1.14	0.73	0.71**
Country	−2.23	−0.41	−1.59	−2.230
	0.10***	0.65***	0.20***	0.10***
Constant	−2.15	−1.69	−6.43	−2.150
	0.11***	0.18***	0.002	0.11***
Obs	5184	5184	5184	5184
Cox and Snell R2	0.04	0.03	0.02	.084

4. CONCLUSION

In this study, an investigation has been done for determining the factors of financial inclusion in China and Pakistan in 2011 and 2014 based on the Global Findex database. The role of financial inclusion is very important for country's financial development, and it helps to foster the economic growth of a country by increasing the possibilities for education and new business development.

The findings of this study are interesting and insightful. The encouraging part of the result is the most percentage of Chinese individuals having the formal account. The individual proportion of formal account in China is more than any country in the world.

Further, it has an increasing trend in 2014 as well. However, the individual proportion of formal account in Pakistan is very low as compared to other developing nation. The barriers to financial inclusion both in China and Pakistan in 2011 and 2014 are voluntary barriers. Such as they do not have a formal account due to lack of money, religious reasons or family member accounts. However, in other developing nations involuntary financial exclusion prevails. People are discouraged to have bank accounts due to distance, cost, and lack of trust in the financial system.

The informal source of borrowing is often used in China and Pakistan. The trend has not changed over the period of three years from 2011 to 2014. People are more used to borrow from family and friends as compared to financial institutions. The paper further explores that individual characteristics such as gender, age, education, and income have a significant impact on main indicators of financial inclusion. The results suggest that an educated male belongs to the high-income class and as being older, contribute more toward financial inclusion. It is because individual characteristics are positively associated with financial inclusion. The results of this study are comparable with other studies as most of the results are in line with the literature.

The main conclusion of this study is the level of financial inclusion in China in 2011 and 2014 is better than the other developing countries. However, it is limited to a formal bank account, the use of formal credit and saving is still at the lower side.

The results of this paper have some important policy implications. The use of the formal account is not a big problem in China but do have in Pakistan. Pakistani financial managers need to enhance the ownership of formal accounts. Further, the use of formal saving and credit by Chinese and Pakistani individuals could enhance by reducing the hurdles regarding gender, education, and income. Nonetheless, the limited use of formal credit is one of the major concerns for China and Pakistan. The use of informal borrowing may lead to slower economic growth for both countries. The economic managers of both countries should introduce which encourages individuals to use formal credit.

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