Financial Inclusion in Nepal: Formal vs. Informal Financial Services

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Introduction

People are still unwillingly excluded from the financial system in emerging nations due to insufficient income levels and market discrimination, resulting in the potential loss of savings, investable funds, and asset growth. To close these disparities, financial inclusion is needed. Financial inclusion can be defined as the delivery of banking services at an affordable cost to the vast sections of disadvantaged and low-income groups.[1] It promotes social inclusion and plays a major role in eliminating poverty and income inequality through convenient access, availability, and usage of rules-based formal financial services by the "newly banked".There is a strong link between economic opportunity and financial access. This type of access is especially beneficial to underprivileged population segments, vulnerable groups such as rural dwellers, women, and low-income families who benefit enormously from basic financial services like savings, borrowings, payment, and insurance.[2] Financial services also assist the poor in insuring themselves against income shocks and equipping them to deal with situations such as illness, family death, or job loss.[3]

Households in developing countries such as Nepal utilize both formal and informal channels for various consumption and production needs. Formal financial institutions include commercial banks, rural development banks, non-governmental organizations, microfinance institutions, and other financial institutions. Informal financial institutions (IFIs) have a long history, including the widespread revolving savings and credit societies. They are self-help groups that mobilize their own resources, cover their costs, and finance their expansion from profits. They are owned and managed by local people, both poor and non-poor. They have moved into new areas as the money economy has expanded, increasing in number, size, and diversity.[4]

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[1] "Financial Inclusion: Issues and Challenges - JSTOR." https://www.jstor.org/stable/4418799. Accessed 25 Aug. 2021.

[2] "Financial Inclusion - Open Knowledge Repository - World Bank Group." 30 Sep. 2013, https://openknowledge.worldbank.org/bitstream/handle/10986/16238/9780821399859.pdf?sequence=4. Accessed 25 Aug. 2021.

[3] "Financial Inclusion - RBI." https://rbidocs.rbi.org.in/rdocs/Speeches/PDFs/IFFG091209.pdf. Accessed 25 Aug. 2021.

[4] "2001-6 Mainstreaming Informal FIs.DOC - EconStor." https://www.econstor.eu/bitstream/10419/23700/1/2001-6_Mainstreaming_Informal_FIs.pdf. Accessed 28 Aug. 2021.

61% of Nepalese adults use formal financial institutions whereas 21% use informal financial institutions. Out of them, 52% of the banked are men while 48% are women. About 18% still remain excluded from the financial system (World Bank 2017).There has been some progress in terms of financial inclusion over the years, but it is not yet adequate. As of 2019, there are 28 commercial banks, 36 development banks, 25 finance companies and 64 microfinance companies in Nepal. Total of 24 cooperatives and 24 NonGovernment Organization (NGO) are licensed by Nepal Rastra Bank for limited financial transactions. More than 35 hundred branches of financial organizations are carrying financial activities. A branch is serving more than 34 hundred people on average. The percentage of Nepali adults with bank accounts is 45% in comparison to the 70% average of South Asian Countries.[5]

As shown in the data, Nepal has a low level of financial penetration. Our goal is to identify policies that will improve financial access in Nepal. These policies will be developed by a) analyzing individual-level survey data to determine the demand for financial services in Nepal. b) performing a case study on a few South Asian countries to see what policies have worked and what policies haven't in order to see whether any of those policies may be implemented in Nepal.

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Literature review

Several pieces of literature have relied on survey data to gauge the demand for financial services in Nepal. The World Bank surveyed 1710 households from 49 districts in 2006 to know about the supply of and demand for financial services, the constraints to increasing access to them, dominance of informal channels and offered several recommendations for making the financial sector work for all of Nepal's people, targeting the poor. Aurora Ferrari (2006) study reported the findings of the survey. The survey found that 63 percent of households with accounts in formal financial institutions prefer to save elsewhere, 38 percent of households borrow only informally, and another 16 percent borrow both formally and informally. The study also reported that the use of banks was limited, financial NGOs and cooperatives played a large role in providing both deposit accounts and loans, and informal borrowing far exceeded formal borrowing. Aurora recommended banks to scale-up and simplify lending processes to make it easier for poor people. The report also suggested banks to increase the use of moving collateral as small businesses only have moving assets. [6]

Similarly, a Nepal Report survey done by MicroSave(2014) results showed that people depend upon five different factors while choosing financial services. People preferred institutions that had simple procedures and were closer to their homes. Similarly, trustworthiness, security system of institutions and fast services were other factors that the users considered. Some of the major reasons why people weren't using formal financial services suggested by the Nepal Rastra Bank were affordability, regularity of income, culture of avoiding formal channels, lack of financial awareness and customer education, geographical location and inappropriate products for unique needs. MicroSave analyzed the survey findings and recommended several policies to increase access to financial services. They suggested using technology-driven financial services to increase accessibility and reach out to more people. The report urged the government to improve financial literacy,

[5] "Financial Development and Economic Growth: Evidence from Nepal."
https://www.nrb.org.np/contents/uploads/2020/07/Financial-Development-and-Economic-Growth-Evidence-from-Nepal.pdf. Accessed 28 Aug. 2021.

[6] "English PDF - World Bank Document."
https://openknowledge.worldbank.org/bitstream/handle/10986/6687/399760NP0Acces101OFFICIAL0USE0ONLY1.pdf?sequence=1&isAllowed=y. Accessed 18 Oct. 2021.

provide training to use financial services to people, and make them aware of available financial products. They also recommended the government to develop need-based, innovative financial products to attract more customers and develop mechanisms to assess, monitor and improve client protection best practices. Our reports support their findings, and our report has tried refining their policies, i.e., making it more relevant with the current time.[7]

There are also several papers that discuss the financial inclusion policies across South Asian countries. Mani (2016) described financial inclusion metrics across different countries and discussed different policies in place to increase financial access in individual countries. Usage and access metrics were used to quantify financial inclusion. The usage indicators include the percentage of people who have a bank account, borrowed from a bank, made or received digital payments, made or received payments using a debit card, made or received payments using a mobile phone, received wages or government transfers into an account, saved at a bank or financial institution, and used savings as their primary source of emergency funds. Access indicators are the percentage of people having access to mobile phone or Internet at home, number of bank branches and number of ATMs per hundred thousand adults.[8]

While Mani (2016) has tried to analyze the levels of financial inclusion in South Asian countries and provide a side-by-side picture of financial inclusion across the South Asian countries, there is no literature to our knowledge that systematically examines the feasibility of other countries' policies in the context of Nepal. Our study assesses if policies in comparable countries will be effective in the context of Nepal. Additionally, our paper draws findings from more recent survey data with larger sample size (4014 in our paper as compared to 1710 in the access to finance survey(2006) published by the World bank) compared to the existing literature. We will also assess financial services demand among people who use formal, informal, and mixed channels separately, which allows us to identify specific needs and preferences among different population groups. We have compared the current financial inclusion status and policies of India, Afghanistan, and Sri Lanka.

Data

The data used in the study report was taken from the 2014 National Survey database published by FinMark Trust. A detailed questionnaire was used to conduct the survey, which included approximately 4000 respondents. The majority of the questions yielded a qualitative response. We used R to extract 112 important variables from the 778 categorical variables before performing secondary data analysis. Demographic variables, income, accessibility, and perception towards financial services were assessed.

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[7] "Understanding the Demand for Financial Services in Nepal - ALNAP." 16 Nov. 2014, https://www.alnap.org/system/files/content/resource/files/main/nepal-report1-final-red.pdf. Accessed 18 Oct. 2021.

[8] "Financial Inclusion in South Asia—Relative Standing, Challenges ...." https://www.researchgate.net/publication/326283741_Financial_Inclusion_in_South_Asia-Relative_Standing_Challenges_and_Initiatives. Accessed 4 Oct. 2021.

Study Design

Based on the types of financial institutions the respondents utilized, we divided them into five groups: formal, informal, both, none, and others. The "formal" group included participants who had a financial account. People who were members of a savings group but did not have a financial account made up the "informal" group. Those who were in the "both" category had both savings and financial accounts. Respondents in the "other" category made use of someone else's bank account but did not have their own financial account. Those in the "none" category did not belong to a savings group, didn't have a financial account or made use of someone else's bank account.

The five groups were compared in terms of demographic features and participants' attitudes toward various financial services. The purpose behind the stratification was to find out what factors influence people's decisions to use formal or informal financial institutions. We report n (%) for categorical variables and mean (sd) and median (IQR) for continuous variables.

We also perform logistic regression to understand the association of various covariates (independent variables : gender (male, female), residence (rural, urban), access to tech (yes, no), access to income (yes, no) and dependent variables : financial service used (formal, informal) and the financial channels people use. We chose logistic regression to account for the categorical dependent variable in the data, which would not be compatible in the simple linear regression model. Based on our findings, we propose policies targeted at people who utilize informal financial institutions to encourage them to use formal channels. We will also recommend changes that formal financial institutions can adapt to attract potential customers. In addition, we will undertake case studies of three comparable nations to assess Nepal's position in comparison to others. This will allow us to identify successful policies, if any, in these countries and determine whether a comparable framework is achievable in Nepal.

Results

Demographics

Overall, there were 4014 participants in the data, among which the majority were female (58% versus 42% from male) . Most of the participants (80%) were from rural areas. The higher proportion of participants were from tarai (47%) and hill (41%) compared to mountain regions (12%). (**Fig 1.1, 1.2, 1.3**)

Among 4014 participants in the data, 20% used formal, 18% used informal, 10% used mixed, 2% used others, and 45% used no financial channels. (**Fig 1.4**) A staggering 45% of the survey population made no use of financial services which points to the critical state of financial inclusion in Nepal. It could be because of the high proportion of the participants from rural areas in the survey, where the use of financial services is expected to be low. People showed almost an equal preference towards formal and informal financial institutions. This suggests that, despite the predominance of formal financial institutions, people still rely on informal institutions.

	B	C	D	E	F	G
1	**T1. Demographic characteristics**					
2		<u>both, N = 617</u>	<u>formal, N = 806</u>	<u>informal, N = 734</u>	<u>none, N = 1,807</u>	<u>others, N = 50</u>
3	**Sex**					
4	Male	193 (31%)	413 (51%)	225 (31%)	805 (45%)	25 (50%)
5	Female	424 (69%)	393 (49%)	509 (69%)	1,002 (55%)	25 (50%)
6	**Age**					
7	<25	54 (8.8%)	115 (14%)	98 (13%)	415 (23%)	16 (32%)
8	25 - 55	481 (78%)	551 (68%)	492 (67%)	948 (52%)	28 (56%)
9	55+	82 (13%)	140 (17%)	144 (20%)	444 (25%)	6 (12%)
10	**Residence**					
11	Urban	491 (80%)	534 (66%)	633 (86%)	1,513 (84%)	33 (66%)
12	Rural	126 (20%)	272 (34%)	101 (14%)	294 (16%)	17 (34%)
13	**Ecological region**					
14	Hill	277 (45%)	364 (45%)	327 (45%)	677 (37%)	23 (46%)
15	Mountain	71 (12%)	68 (8.4%)	170 (23%)	186 (10%)	3 (6.0%)
16	Terai	269 (44%)	374 (46%)	237 (32%)	944 (52%)	24 (48%)

Perception

1. **Trust**

   According to the survey results, the bank (37%) is the most trusted formal financial institution in all ecological regions, whereas postal savings (0.2%) is the least trusted. Despite the government's efforts to promote MFIs, individuals still prefer savings and credit institutions to MFIs. Even when combined, insurance and postal savings do not attain the same level of trust as in MFIs. (**Fig 2.1,2.2**)
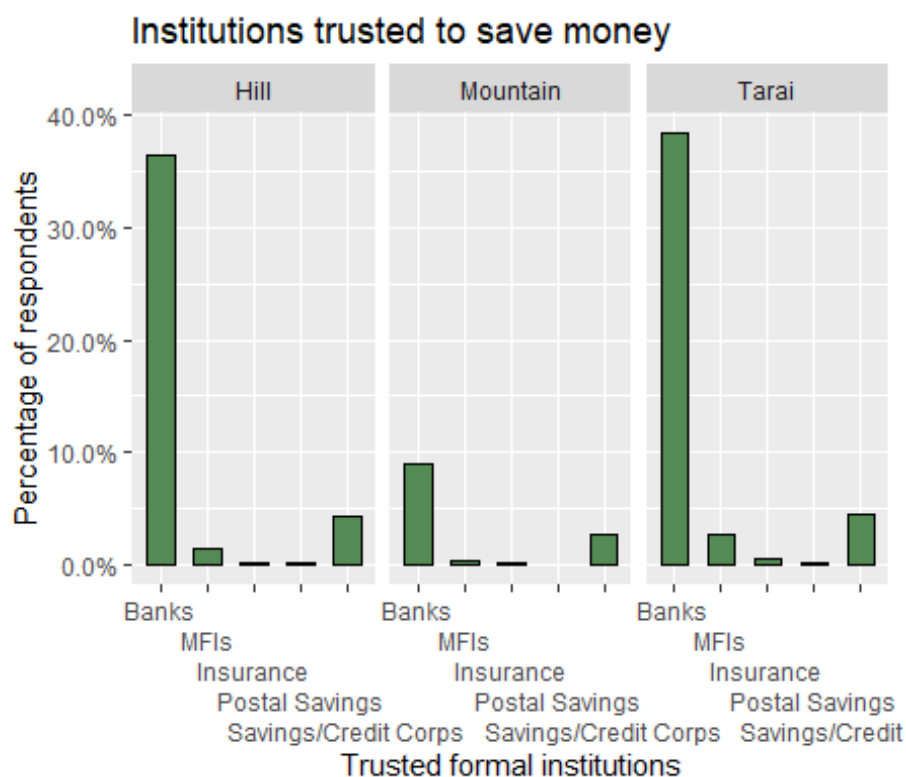

Fig 2.2

2. Triggers

a) Opening a bank account:

The most influential triggers for the participants to open a bank account in a descending order are :

Convenience > Recommendation > Cost Benefit > None > Income amount.

Other people's recommendations had a greater influence on respondents than the cost or benefit of opening a bank account. (**Fig 2.3**)
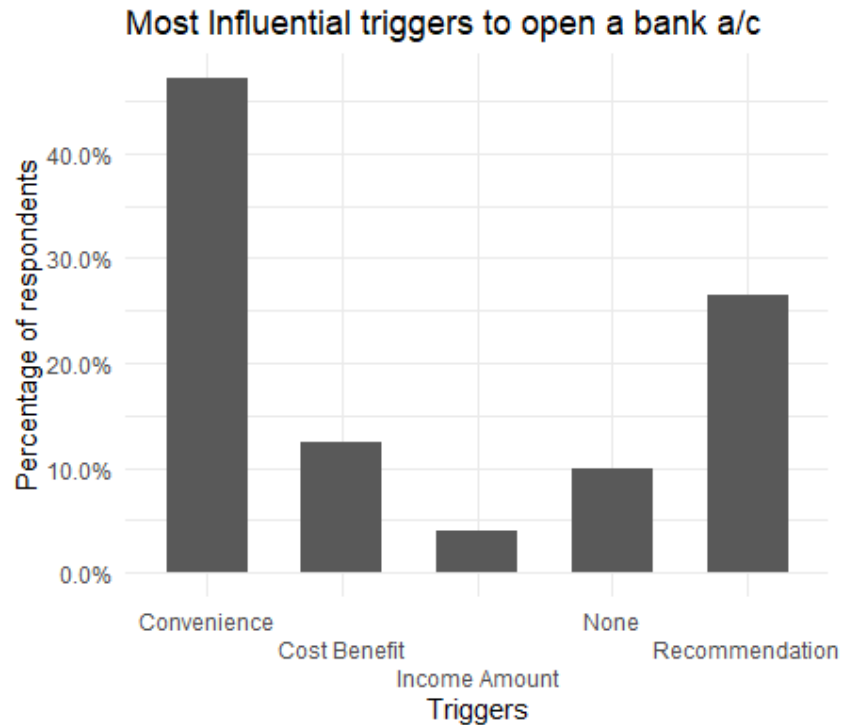

Fig 2.3

b) Borrowing:

For triggers related to borrowing, low interest rates was the major factor that encouraged consumers to borrow money. People in rural areas were more concerned than those in urban areas about the interest rates. This could be because people who live in cities have greater income levels and are less sensitive to interest rates. When it comes to borrowing, the repayment term is a more significant trigger than collateral and lender requirements. A notable difference in the respondent's attitude towards financial services is that they prioritized cost-benefit over convenience when borrowing, but convenience over cost-benefit when opening a bank account.

Low interest rates influenced participants' borrowing decisions in all stratified groups, including those who did not use any financial services. (**Fig 2.4, 2.5, 2.6, 2.7**)
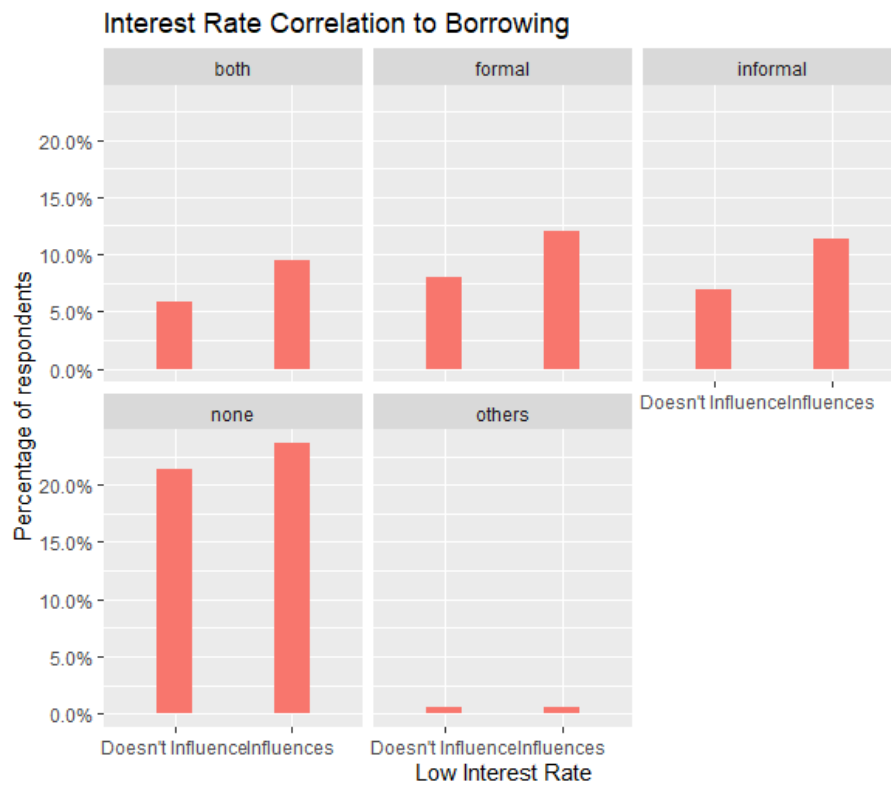

Fig 2.7

c) Saving:
Majority of both males and females save for later use. Although nearly equal percentages of males and females who used formal financial institutions saved money for later use, females who used informal financial institutions were more likely to save money for later use than males who used informal financial institutions. (**Fig 2.8**)

Case Study

Located towards the southern territory of Asia, Nepal shares its identity as a South Asian country with seven other nations—Afghanistan, Bangladesh, Bhutan, India, Pakistan, Sri Lanka, and the Maldives. Defined on the basis of geographical and ethnocultural terms, South Asian countries are analogous in various aspects. For instance, the *Terais, Hills,* and *Himalayas* of Nepal could be compared to the upland plains, rolling plains, and the northernmost parts of India respectively. Cultural similarities can also be observed amongst these nations. This is why studying the context of financial inclusion and the penetration of financial services within South Asia is an essential component for identifying multiple financial vulnerabilities that can guide us towards positive approaches for uplifting the standards of our financial inclusion. This section of the paper discusses the similarities and differences in financial inclusion of Nepal, India, Sri Lanka, and Afghanistan.

Srilanka
The government of Sri Lanka has been delivering significant efforts for raising the standards of financial inclusion in the country. Sri Lanka has achieved the highest financial inclusion in comparison to other South Asian countries.

- With the central goal of eradicating the financial dualism prevailing within various parts of the country, influential initiatives such as the National Financial Inclusion Strategy-2021 (NFIS) have been introduced. NFIS aims to make the nation entirely dependent upon formal financial services by adhering to its four core pillars—increasing access to digital finance and payments, boosting access to finance for micro, small, and medium enterprises (MSMEs), protecting every financial consumer, and improving financial literacy among consumers including women.[9]

- Srilanka also has introduced regulations for banks that require them to provide 10% mandatory credit to the agricultural sector. This has helped farmers get access to financial services.[10]

- Srilanka declared 2020 as the Year of Digital Transactions and this resulted in a huge number of the population being aware of transactions from mobile. The central bank together with other banks and other payment service providers implemented the promotional campaigns in several phases. This phased approach ensured that the awareness campaign is effectively delivered to all segments of the society. Due to this initiative, 62% of all women in Sri Lanka have reported being aware of making transactions through their mobile phones, which is considerably higher than any other country in South Asia. The government of Sri Lanka has also promoted mobile banking and ticketing in line with their year of digital transaction objectives. These steps have strengthened the use of formal financial institutions in Sri Lanka, which stands at 74% and is ahead of the regional average of South Asia at 68%.[11]

[9] "Financial Inclusion and Inclusive Growth: What Does it Mean for Sri ...." 8 Apr. 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3571022. Accessed 18 Oct. 2021.

[10] "Financial Inclusion in Sri Lanka: Issues and Challenges." https://www.ips.lk/wp-content/uploads/2017/06/presentation.pdf. Accessed 18 Oct. 2021.

[11] "Cracking the Code of Financial Inclusion in Sri Lanka - International ...." https://www.ifc.org/wps/wcm/connect/news_ext_content/ifc_external_corporate_site/news+and+events/news/financial-inclusion-sri-lanka. Accessed 18 Oct. 2021.

India

According to the World Bank data, around half of the populations in India are financially excluded.[12] From the estimations of a survey by Standard and Poor's Financial Services, the percentage of financially literate adults was only 24% which was extremely low but owing to the major banking and economics reforms by the Government of India made improvement. The financial inclusion net in India has increased in the past years by the combined efforts of successive governments, civil society and the private institutions. There has been an emphasis on providing the last-mile connectivity of banks and other financial institutions[13].

- India has sharply increased the number of bank accounts following the Pradhan Mantri Jan Dhan Yojana (PMJDY). PMJDY was the national mission for financial inclusion in 2014. It ensures access to financial products & services at an affordable cost, and to increase account ownership.[14] This programme had brought an additional 310 million Indians into the formal banking system. But many people might not yet have had an opportunity to use their new account. Also, India has the largest share of inactive accounts, i.e 48% which is the highest in the world.[15]

- Now for making the active use of accounts, they are focusing on financial literacy. For that they have build India's National Strategy for Financial Education (NSFE) "OECD Global Symposium" which aims to spread awareness about basic financial products in order to link new users to the formal financial sector, to educate existing users of financial products and services to make informed choices and to ensure consumer protection for all the users[16].

- The Indian government has taken steps like the curriculum setting bodies, education boards, and central and state governments collaborating to include financial literacy curriculum in schools.[17]

- One of the most important initiatives is the Prime Minister's "Digital India" programme which was launched. The one-of-its-kind campaign came up with many new initiatives to ensure that all government services digitally reach people across the country through high-speed internet. Another initiative "The Bharat Net" Project aims to enhance e-banking, e-governance, internet services, e-education. to the villages in India. The government intends to digitally empower and connect all the Gram Panchayats and offer 100 mbps connectivity.

- Financial Inclusion Fund has been created with the objective to support the development and promotional financial inclusion including banks.

[12] "Global Findex - World Bank Group." https://globalfindex.worldbank.org/. Accessed 22 Oct. 2021.
[13] "Financial Inclusion and Digital India: A Critical Assessment." 29 Apr. 2020, https://www.epw.in/engage/article/financial-inclusion-and-digital-india-critical. Accessed 22 Oct. 2021.
[14] "At 48%, India tops in bank users with inactive accounts, says World ...." 19 Apr. 2018, https://www.thehindubusinessline.com/money-and-banking/at-48-india-tops-in-bank-users-with-inactive-accounts-says-world-bank/article23606293.ece. Accessed 22 Oct. 2021.
[15] "World Bank: India's 48% bank accounts inactive, thanks to Modi ...." 25 May. 2018, https://www.counterview.net/2018/05/world-bank-indias-48-bank-accounts.html. Accessed 22 Oct. 2021.
[16] "Financial literacy is key to financial inclusion - Business Line." 12 Dec. 2018, https://www.thehindubusinessline.com/opinion/financial-literacy-is-key-to-financial-inclusion/article25726991.ece. Accessed 23 Oct. 2021.
[17] (2012, April 22). K C Chakrabarty: Financial literacy and consumer protection. Retrieved October 19, 2021, from https://www.bis.org/review/r120425b.pdf

- Reserve Bank of India (RBI) has taken many monumental steps including the inauguration of Pradhan Mantri Jan Dhan Yojana (PMJDY), which was the national mission for financial inclusion in 2014. Pradhan Mantri Jan-Dhan Yojana ensures access to financial products & services at an affordable cost and encourages use of technology to lower cost & widen reach. The program made it easier for people in India to open basic savings bank deposit accounts with minimum paperwork and provisions like Relaxed (KYC) Know Your Customer, e-KYC, zero balance, and zero charges. KYC is an important process of verifying account opener when opening a bank account. The program also issued various local debit cards for cash withdrawal and payment at merchant locations and made free from frauds in insurance.[18] The government also initiated the "Cashless India" movement to promote digital financial services.[19]

Afghanistan

Within South Asia, Afghanistan has consistently been ranked behind in terms of financial inclusiveness, promotion of formal financial services, and the level of penetration in various national segments. The main reason for the low trend of financial inclusion in Afghanistan is the exclusion of households with lesser farm size, educational accomplishments, and limited trust, heavy reliance on informal sector, religious beliefs[20].

- As of 2020, nearly 85% of the population of Afghanistan was unbanked. The lack of trust is one of the key reasons for not using formal financial services in Afghanistan. The agriculture sector is the main source for the country's economy which is extremely low, the government of Afghanistan is yet to find the ways to address the problem in its agriculture sector[21].

- Some informal credit schemes have stepped up to meet the demand for financial services among needy people. For example, the Qarz-i Hasana system provides a free-of-cost credit without any profits or returns for the lender. Furthermore, there is no firm repayment timeline, which allows borrowers to repay at their convenience. As of 2020, Qarzi Hasanna has the most users followed by Musawamah where a buyer and a seller can bargain for the price of a particular commodity and Peshaki which focus on farmers to meet their consumption needs and to purchase agricultural inputs in the lean period.[22]

[18] (2020, August 28). Pradhan Mantri Jan-Dhan Yojana (PMJDY) - PIB. Retrieved October 19, 2021, from https://pib.gov.in/Pressreleaseshare.aspx?PRID=1649091
[19] (n.d.). Cashless India. Retrieved October 19, 2021, from http://cashlessindia.gov.in/
[20] "National Financial Inclusion Strategy 2020 – 2024 - Da Afghanistan ...." https://www.dab.gov.af/sites/default/files/2020-06/National%20Financial%20Inclusion%20Strategy%20for%20Afghanistanfinal.pdf. Accessed 22 Oct. 2021.
[21] "An Exploration of the Informal Credit Practices for Agriculture in ...." https://core.ac.uk/download/pdf/288004749.pdf. Accessed 22 Oct. 2021.
[22] "Microcredit, Informal Credit and Rural Livelihoods: A Village Case ...." https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-case-study-microcredit-informal-credit-and-rural-livelihoods-a-village-case-study-in-kabul-province-nov-2007.pdf. Accessed 20 Oct. 2021.

Nepal

Financial inclusion in Nepal has improved gradually over the past several years, but there is still a large gap between Nepal and other countries.The Government of Nepal and Nepal Rastra Bank are working accordingly to make significant changes. For instance,

- Nepal Rastra Bank has announced to promote fiscal year 2021/22 as electronic transaction promotion year. Its long term vision is to provide a basis for achieving "Prosperous Nepal, Happy Nepali".[23]

- NRB's 'Access to Financial Services' project which has launched a financial literacy campaign which is promoting financial literacy in the school curriculum, through publication of books, broadcasting infomercial programmes, conducting exposure visits, seminars, training, etc.[24]

- "The Nepal Financial Inclusion Portal" which is helping regulatory bodies, financial service providers and infrastructure providers build in-roads to help financial independence in rural areas to maintain the gap between urbans and rural areas.[25]

- The government had announced in the fiscal budget in 2016/2017 which had channelized the social security payment and other benefits through the banking channel. NRB has also issued a licensing policy to allow non-bank payment operators to be involved in digital banking services. The system to pay revenue and all forms of taxes to the government from mobile phones is currently available at the Taxpayers' Office in the first phase.[26]

  Slowly, but steadily the digitization of Nepal is improving. Many banks are going in digitized forms. Banks in Nepal are partnering with different hospitals to provide various facilities to the people from rural areas as well as in urban areas but also people are lacking education. However, seeing the growth of Nepal in digitization, we can slowly enter into a cashless economy.

- The NRB started providing direct financial support to the banks and financial institutions where the number of banking units is low.

- In its Monetary Policy, the NRB made a provision of a special refinance facility at 1 percent interest with the aim of encouraging BFIs to extend loans to agriculture and small business-based income generating activities in poverty stricken areas of the country.

- The Government of Nepal in its Budget had announced a policy encouraging for opening a bank account for each household.

- Financial literacy programs are being conducted through audio-visual and print media. The financial literacy campaign would focus on spreading awareness about banking and non-banking institutions and also educate communities about the informal financial sector including dhukuti and hundi.

[23] "The Fifteenth Plan." https://npc.gov.np/images/category/15th_plan_English_Version.pdf. Accessed 23 Oct. 2021.

[24] "Promoting financial literacy a must - || ShareSansar ||." 15 Mar. 2014, https://www.sharesansar.com/c/promoting-financial-literacy-a-must.html. Accessed 23 Oct. 2021.

[25] "Data to help NRB, government develop plans for rural areas | NiD." 3 Oct. 2018, https://nepalindata.com/ne/data-to-help-nrb-government-develop-plans-for-rural-areas/. Accessed 23 Oct. 2021.

[26] "digitalization in banking and factors that makes it more compelling." http://nepalbankers.com.np/wp-content/uploads/2019/01/DIGITALIZATION-IN-BANKING-FINAL.pdf. Accessed 23 Oct. 2021.

- NRB's 'Access to Financial Services' project which has launched a financial literacy campaign through publication of books and broadcasting infomercial programmes on radio and television. Releasing a music album and a booklet targeting a young audience and readers to promote financial knowledge[27]. Also been conducting exposure visits, seminars, training, etc on Access to Finance. The critical challenge on the national financial highway remains "Access to formal Financial Channel ", huge unbanked population, lack of focused banking promotion activities and mechanism to mobilize national household savings. This initiative has been helping communities from all walks of life such as young students, rural housewives, remittance dependent families, members of cooperatives, and disadvantaged and underprivileged groups amongst others at the base of the pyramid to understand the importance of saving habits and financial planning[28].

- Nepal Rastra Bank has announced to promote fiscal year 2021/22 as electronic transaction promotion year.[29] The NRB plans to maintain record of digital transactions, reduce the tariff imposed on digitalion digital transactions, and introduce national payment cards. The NRB also plans to collaborate with government agencies to receive money through electronic payment and pay social security allowance digitally.   The government has been developing it in three different phases. The first phase involves working on routing non-card transactions such as mobile banking, e-banking, e-wallet or QR code which will come into implementation in the first quarter of the current fiscal year. In the second phase, they will work on the national card system. In the third phase, all domestic electronic transactions will be routed through the national payment switch.

- Sri Lanka also focused on Information and Communication Technology services in economic activities and motivated people to use mobile banking where trust was a significant thing. NRB should also make its relation good with the customer so that the Information and Communication Technology, as well as other policies, can be used strongly and easily. As per the latest MIS report from Nepal Telecommunication Authority (Baisakh 2077) broadband Internet penetration has reached 72.22% in Nepal.[30] But still, despite having a good internet penetration rate, internet connection is not stable everywhere, and people still don't completely trust mobile banking.[31] The government should urge people to use Mobile banking, and make it mandatory to use it in certain sectors. The government can formulate this step by making mobile banking mandatory in government offices. This could ensure people that this method of transaction is safe and motivate many to use them.

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[27] "Promoting financial literacy a must - || ShareSansar ||." 15 Mar. 2014, https://www.sharesansar.com/c/promoting-financial-literacy-a-must.html. Accessed 22 Oct. 2021.
[28] "Financial Literacy Training Manual Book | National Banking Institute." 15 Feb. 2015, http://nbi.com.np/news/financial-literacy-training-manual-book. Accessed 22 Oct. 2021.
[29] (2021, August 13). NRB announces FY 2021/22 as Electronic Transaction .... Retrieved October 19, 2021, from https://myrepublica.nagariknetwork.com/news/nrb-announces-to-promote-fy-2021-22-as-electronic-transaction-promotion-year/
[30] (2020, July 31). Digital Banking and Payment Trend in Nepal: Past, Present, and .... Retrieved October 19, 2021, from https://blog.esewa.com.np/digital-banking-and-payment-trend-in-nepal-past-present-and-future/
[31] (2020, September 14). Why Internet speed is slower and slower | Nepali Times. Retrieved October 19, 2021, from https://www.nepalitimes.com/latest/why-internet-speed-is-slower-and-slower/

- Nepal can ensure access to financial products and services at an affordable cost and to use technology to lower cost and widen reach as like Pradhan Mantri Jan-Dhan Yojana done in India . As our data clearly showed convenience was the most influential trigger when using financial services, NRB should try making the bank opening process more convenient than before.

- NRB should mandate NEB to include financial literacy-related courses in the curriculum at the grass root level to ensure students know about financial services and tools at an early age. NRB's 'Access to Financial Services' project which has launched a financial literacy campaign through publication of books and broadcasting infomercial programmes.[32] Also been conducting exposure visits, seminars, training, etc on Access to Finance. To promote financial literacy, the Ministry of Education has already prepared a pilot project to introduce financial literacy in the school curriculum.

- The critical challenge on the national financial highway remains "Access to formal Financial Channel ", huge unbanked population, lack of focused banking promotion activities and mechanism to mobilize national household savings. This initiative has been helping communities from all walks of life such as young students, rural housewives, remittance dependent families, members of cooperatives, and disadvantaged and underprivileged groups amongst others at the base of the pyramid to understand the importance of saving habits and financial planning[33]

- Our study clearly showed the primary thing that people look at when borrowing is the interest rate. As most of our surveyees are from rural areas, the one major way to attract people to use formal financial services is providing them loans with lower interest rates. Even in Afghanistan the Qarz-e Hasana credit scheme was very successful. Many people took out loans using the scheme. This type of scheme even helps people build trust in formal institutions. So, NRB should try bringing schemes like Qarz-e Hasana or charge interest as low as possible.

- It was clear from our data analysis that recommendation and trust are major primary triggers for using financial services. Nepal should focus on developing financial institutions that are more individualized and relevant to the region. Srilanka succeeded in forming models focusing on the rural areas such as Village Banking, Self-help Groups, etc gaining the trust of people in local areas. Nepal should do the same. People in rural areas will trust such local institutions more than any banks. There are several microfinances in Nepal working like the self help groups of Srilanka but microfinances here face a significant problem in terms of institutional viability. Because of on-lending funds, most microfinance makes a minimal profit. For on-lending funds, they largely rely on commercial banks and wholesale funding. These funds are below market rate, but they must pay market rate interest, and as a result, they lose money. As a result, certain methods for making these institutions more efficient, less expensive, and profitable will have to be devised[34].

[32] "Promoting financial literacy a must - || ShareSansar ||." 15 Mar. 2014, https://www.sharesansar.com/c/promoting-financial-literacy-a-must.html. Accessed 22 Oct. 2021.

[33] "Financial Literacy Training Manual Book | National Banking Institute." 15 Feb. 2015, http://nbi.com.np/news/financialPromoting financial literacy a must --literacy-training-manual-book. Accessed 22 Oct. 2021.

[34] "The Role of Micro Finance Institutions on the Development of Micro ...." 13 Jan. 2021, https://www.journalsajsse.com/index.php/SAJSSE/article/download/30227/56719. Accessed 22 Oct. 2021.

Policy

The following are the policy suggestions for Nepal to improve the condition of financial inclusion:

- The Sri Lankan government has focused on Information and Communication Technology Services in economic activities and motivated people to use mobile banking where trust was a significant thing. As per the latest Management Information System report from Nepal Telecommunication Authority (Baisakh 2077) broadband Internet penetration has reached 72.22% in Nepal.[35] In today's time, Users are using the internet throughout the day. Despite the high internet penetration rate, they are using slow speed with inconsistent services. There are not enough Internet Services Providers (ISPs) in the market to meet the bandwidth. For improving internet services, the government should minimize the requirement and should reduce the cost of the internet so that every user can use it. They should encourage Internet Services Providers (ISPs) to provide consistent services to the customers. The government should create a more favorable environment for more other Internet Services Providers to enter more in the market.

- As Nepal, slowly making progress in digitization. The Government should make internet penetration good as well as stable internet.

- The Sri Lankan government was successful in mandating their banks to open two branches in rural areas for every branch they open in metropolitan areas. The Government of Nepal in its Budget had announced a policy encouraging for opening a bank account for each household which has not successfully been implemented. Given the success of the policy in increasing financial access in rural Sri Lanka, the Nepali government should enforce stricter monitoring and regulation for the banks.

- The government was successful in mandating banks to open two branches in rural areas for every branch open in metropolitan areas.

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[35] (2020, July 31). Digital Banking and Payment Trend in Nepal: Past, Present, and .... Retrieved October 19, 2021, from
https://blog.esewa.com.np/digital-banking-and-payment-trend-in-nepal-past-present-and-future/

Logistic Regression Models

1) Sex (Male/Female) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of gender on selection between formal and informal financial institutions.

$log(fin\_serv) = \beta_0 + \beta_1 \, log(sex)$

Regression table:

```
Call:
glm(formula = response1 ~ fin_serv, family = binomial(link = logit))

Deviance Residuals:
[1]  0  0

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  0.07633    0.07388   1.033    0.301
fin_serv1   -0.08129    0.10208  -0.796    0.426

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 6.3436e-01  on 1  degrees of freedom
Residual deviance: 6.5281e-14  on 0  degrees of freedom
AIC: 18.194

Number of Fisher Scoring iterations: 2
```

Result Interpretation:
The p-value indicates the confidence level for a result to be significant. The p-value obtained for our regression model was 0.426.

Since the coefficient is negative, we can say, males have a lesser chance to use formal financial institutions than females.

We have,
Odds ratio $= e^{\beta} = e^{-0.81} = 0.44$

That means when all other independent variables are constant there is a 56% (1- 0.44) lesser relative chance of selecting formal financial institutions by males compared to females.

2) Residence (Urban/Rural) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of residence on selection between formal and informal financial institutions.

log(fin_serv)= β_0 + β_1 log(residence)

Regression table:

```
Call:
glm(formula = response2 ~ fin_serv, family = binomial(link = logit))

Deviance Residuals:
[1]  0  0

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)   1.8353     0.1071  17.129   <2e-16 ***
fin_serv1    -1.1608     0.1305  -8.895   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 86.442  on 1  degrees of freedom
Residual deviance:  0.000  on 0  degrees of freedom
AIC: 17.339

Number of Fisher Scoring iterations: 3
```

Result Interpretation:
The p-value indicates the confidence level for a result to be significant. The p-value obtained for our regression model was $2 \ x \ 10^{-16}$.

Since the coefficient is negative, we can say, rural people, have a lesser chance to use formal financial institutions than urban people, holding all other independent variables constant

We have,
Odds ratio = e^{β}= $e^{-1.16}$= 0.32

That means when all other independent variables are constant there is a 68% (1- 0.32) lesser relative chance of selecting formal financial institutions by rural peoples compared to urban peoples.

3) Access to Technology (Yes/No) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of technology on selection between formal and informal financial institutions.

log(fin_serv)= β_0 + β_1 log(technology)

Regression table:

```
Call:
glm(formula = response3 ~ fin_serv, family = binomial(link = logit))

Deviance Residuals:
[1]  0  0

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  0.56497    0.07679   7.358 1.87e-13 ***
fin_serv1    1.02965    0.12142   8.480  < 2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance:  7.5484e+01  on 1  degrees of freedom
Residual deviance: -5.3291e-14  on 0  degrees of freedom
AIC: 17.539

Number of Fisher Scoring iterations: 2
```

Result Interpretation:
The p-value indicates the confidence level for a result to be significant. The p-value obtained for regression model was $2 \, x \, 10^{-16}$.

Since the coefficient is positive, we can say, people with access to technology have a higher chance to use formal financial institutions than people without access to technology.

We have,
Odds ratio $= e^{\beta} = e^{1.03} = 2.8$

That means when all other independent variables are constant there is a 180% (2.8-1=1.8) greater relative chance of selecting formal financial institutions by people with access to technology compared to people without access to technology.

4) Access to Income (Yes/No) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of income status on selection between formal and informal financial institutions.

$log(fin\_serv) = \beta_0 + \beta_1 \, log(income)$

Regression table:

```
Call:
glm(formula = response4 ~ fin_serv, family = binomial(link = logit))

Deviance Residuals:
[1]  0  0

Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)   4.9822     0.4487  11.103   <2e-16 ***
fin_serv1    -0.2448     0.5878  -0.416    0.677
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1.7536e-01  on 1  degrees of freedom
Residual deviance: 2.1205e-13  on 0  degrees of freedom
AIC: 11.273

Number of Fisher Scoring iterations: 3
```

Result Interpretation:

The p-value indicates the confidence level for a result to be insignificant. The p-value obtained for our regression model was 0.677 i.e greater than 0.5. So, our model suggests selection between formal and informal financial institutions doesn't depend on income status when all other independent variables are constant.

5) Access to Technology (Yes/No) and   Access to Income (Yes/No) to Formal/Informal Financial Service Logistic Regression Model

Since we don't find an influence of income status only on selection between formal and informal financial institutions. We performed logistic regression to forecast the influence of technology and income status both on selection between formal and informal financial institutions holding all other independent variables constant.

$$log(fin\_serv) = \beta_0 + \beta_1 \, log(tech) + \beta_2 \, log(income) + \alpha_i$$

Regression table:

```
Call:
glm(formula = cat_formal ~ cat_access_tech_yes + cat_income_yes,
    family = binomial(link = "logit"), data = table1_final)

Deviance Residuals:
   Min      1Q  Median      3Q     Max
-1.524  -1.332   1.030   1.030   1.475

Coefficients:
                    Estimate Std. Error z value Pr(>|z|)
(Intercept)          -0.2475     0.6082  -0.407    0.684
cat_access_tech_yes   1.0328     0.1215   8.497   <2e-16 ***
cat_income_yes       -0.4290     0.6073  -0.706    0.480
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2131.5  on 1539  degrees of freedom
Residual deviance: 2055.5  on 1537  degrees of freedom
  (2474 observations deleted due to missingness)
AIC: 2061.5

Number of Fisher Scoring iterations: 4
```

Result Interpretation:

The p-value indicates the confidence level for a result to be highly significant. The p-value obtained for variable tech was $2x\ 10^{-16}$.

Since the coefficient is positive, when all other independent variables are constant except access to income we can say, people with access to technology would have a greater chance to use formal financial institutions than those without access to technology.

We have,

Odds ratio $= e^{\beta} = e^{1.03} = 2.8$

That means when all other independent variables are constant except access to income there is a 180% (2.8- 1) higher relative chance of selecting formal financial institutions by people with access to technology compared to those without access to technology.

Likewise, The p-value indicates the confidence level for a result to be significant. The p-value obtained for variable income was 0. 48.

Since the coefficient is negative when all other independent variables are constant except access to technology we can say, people with access to income would have a lesser chance to use formal financial institutions than those without access to income.

We have,

Odds ratio $= e^{\beta} = e^{-0.43} = 0.65$

That means when all other independent variables are constant except access to technology there is a 35% (1-0.65) lesser relative chance of selecting formal financial institutions by people with access to income compared to those without access to income.

6) Sex (Male/Female) and Access to Technology (Yes/No) to Formal/Informal Financial Service Logistic Regression Model

We performed logistic regression to forecast the influence of technology and income status both on selection between formal and informal financial institutions.

$$log(fin\_serv) = \beta_0 + \beta_1 \ log(sex) + \beta_2 \ log(tech) + \alpha_i$$

Regression table:

```
Call:
glm(formula = cat_formal ~ cat_sex_male + cat_access_tech_yes,
    family = binomial(link = "logit"), data = table1_final)

Deviance Residuals:
    Min       1Q    Median       3Q      Max
-1.5168  -1.1870    0.8725   1.1679   1.5679

Coefficients:
                     Estimate Std. Error z value Pr(>|z|)
(Intercept)           -0.8830     0.1118  -7.901 2.77e-15 ***
cat_sex_male           0.7472     0.1092   6.842 7.83e-12 ***
cat_access_tech_yes    0.9055     0.1240   7.305 2.77e-13 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2131.5  on 1539  degrees of freedom
Residual deviance: 2008.5  on 1537  degrees of freedom
  (2474 observations deleted due to missingness)
AIC: 2014.5

Number of Fisher Scoring iterations: 4
```

Result Interpretation:

The p-value indicates the confidence level for a result to be highly significant. The p-value obtained for variable sex was $7.83x \ 10^{-12}$.

Since the coefficient is positive, we can say when all other independent variables are constant except access to technology males would have a greater chance to use formal financial institutions than females.

We have,

Odds ratio $= e^{\beta} = e^{0.75} = 2.12$

That means when all other independent variables are constant except access to technology there is a 112% (2.12- 1) higher relative chance of selecting formal financial institutions by males compared to females. Likewise, The p-value indicates the confidence level for a result to be highly significant. The p-value obtained for variable tech was $2.77 x \, 10^{-13}$.

Since the coefficient is positive, we can say when all other independent variables are constant except gender, people with access to technology would have a greater chance of using formal financial institutions than those without access to technology.

We have,

Odds ratio $= e^{\beta} = e^{0.9} = 2.46$

That means when all other independent variables are constant except gender there is a 146% (2.46- 1) higher relative chance of selecting formal financial institutions by people with access to technology compared to those without access to technology.

7) Sex (Male/Female) and Access to Income(Yes/No) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of gender and income status both on selection between formal and informal financial institutions.

$$log(fin\_serv) = \beta_0 + \beta_1 \, log(sex) + \beta_2 \, log(income) + \alpha_i$$

Regression table:

```
Call:
glm(formula = cat_formal ~ cat_sex_male + cat_income_yes, family = binomial(link = "logit"),
    data = table1_final)

Deviance Residuals:
    Min      1Q   Median      3Q      Max
-1.6541  -1.0676   0.9331   1.2913   1.2913

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)       0.2044     0.5921   0.345    0.730
cat_sex_male      0.8699     0.1068   8.146 3.77e-16 ***
cat_income_yes   -0.4683     0.5950  -0.787    0.431
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2131.5  on 1539  degrees of freedom
Residual deviance: 2063.1  on 1537  degrees of freedom
  (2474 observations deleted due to missingness)
AIC: 2069.1

Number of Fisher Scoring iterations: 4
```

Result Interpretation:
The p-value indicates the confidence level for a result to be highly significant. The p-value obtained for variable gender was $3.77x\ 10^{-16}$

Since the coefficient is positive, we can say, when all other independent variables are constant except access to income, males have a higher chance to use formal financial institutions than females.

We have,

Odds ratio $= e^{\beta} = e^{0.87} = 2.39$

That means when all other independent variables are constant except access to income there is a 139% (2.39-1) higher relative chance of selecting formal financial institutions by males compared to females. Likewise, The p-value indicates the confidence level for a result to be significant. The p-value obtained for variable income was 0.431

Since the coefficient is negative, we can say, when all other independent variables are constant except gender, people with access to income would have a lesser chance of using formal financial institutions than those without access to income.

We have,

Odds ratio $= e^{\beta} = e^{-0.47} = 0.63$

That means when all other independent variables are constant except gender there is a 37% (1-0.63) higher relative chance of selecting formal financial institutions by people with access to income compared to those without access to income.

8) Residence (Rural/Urban) and Access to Income(Yes/No) to Formal/Informal Financial Service Logistic Regression Model
We performed logistic regression to forecast the influence of residence and income status both on selection between formal and informal financial institutions.

$$log(fin\_serv) = \beta_0 + \beta_1\ log(residence) + \beta_2\ log(income) + \alpha_i$$

Regression table:

```
Call:
glm(formula = cat_formal ~ cat_income_yes + cat_res_rural, family = binomial(link = "logit"),
    data = table1_final)

Deviance Residuals:
    Min       1Q    Median       3Q      Max
 -1.6156  -1.1053    0.7954   1.2513   1.2513

Coefficients:
                Estimate Std. Error z value Pr(>|z|)
(Intercept)       1.2383     0.6102   2.029   0.0424 *
cat_income_yes   -0.2495     0.6032  -0.414   0.6792
cat_res_rural    -1.1608     0.1305  -8.895   <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2131.5  on 1539  degrees of freedom
Residual deviance: 2044.9  on 1537  degrees of freedom
  (2474 observations deleted due to missingness)
AIC: 2050.9

Number of Fisher Scoring iterations: 4
```

Result Interpretation:

The p-value indicates the confidence level for a result to be insignificant. The p-value obtained for variable income was 0.6792 i.e greater than 0.5. So, our model suggests selection between formal and informal financial institutions doesn't depend on income status when all other independent variables are constant except residence. Likewise, the p-value indicates the confidence level for a result to be highly significant. The p-value obtained for variable residence was $2x\ 10^{-16}$

Since the coefficient is negative, we can say, when all other independent variables are constant except access to income, males would have a lesser chance of using formal financial institutions than females.

We have,

Odds ratio $= e^{\beta} = e^{-1.16} = 0.31$

That means when all other independent variables are constant except access to income there is a 69% (1-0.31) higher relative chance of selecting formal financial institutions by males compared to females.

_____

APPENDIX

17	**Development region**					
18	Eastern	191 (31%)	312 (39%)	174 (24%)	542 (30%)	11 (22%)
19	Central	153 (25%)	213 (26%)	257 (35%)	540 (30%)	13 (26%)
20	Western	69 (11%)	87 (11%)	108 (15%)	166 (9.2%)	8 (16%)
21	Midwestern	64 (10%)	75 (9.3%)	109 (15%)	282 (16%)	10 (20%)
22	Farwestern	140 (23%)	119 (15%)	86 (12%)	277 (15%)	8 (16%)
23	**Highest level of education**					
24	Illiterate	76 (12%)	127 (16%)	156 (21%)	673 (37%)	9 (18%)
25	Informal education/vocational training	109 (18%)	76 (9.4%)	186 (25%)	228 (13%)	7 (14%)
26	Primary/Secondary	212 (34%)	221 (27%)	246 (34%)	479 (27%)	15 (30%)
27	Tertiary	27 (4.4%)	80 (9.9%)	8 (1.1%)	31 (1.7%)	1 (2.0%)
28	**Possess ID**					
29	Yes	29 (4.7%)	43 (5.3%)	9 (1.2%)	17 (0.9%)	1 (2.0%)
30	No	588 (95%)	763 (95%)	725 (99%)	1,790 (99%)	49 (98%)
31	**Access to technology**					
32	Yes	510 (83%)	670 (83%)	468 (64%)	1,002 (55%)	42 (84%)
33	No	107 (17%)	136 (17%)	266 (36%)	805 (45%)	8 (16%)

Table 1

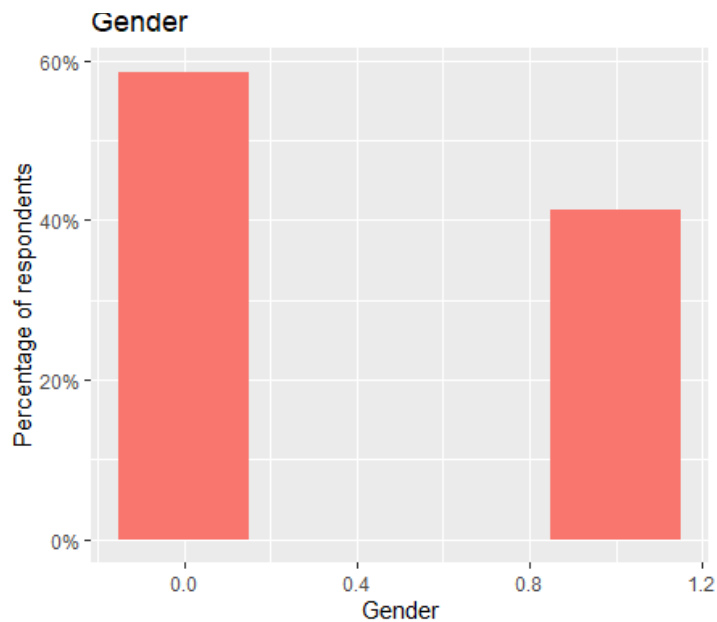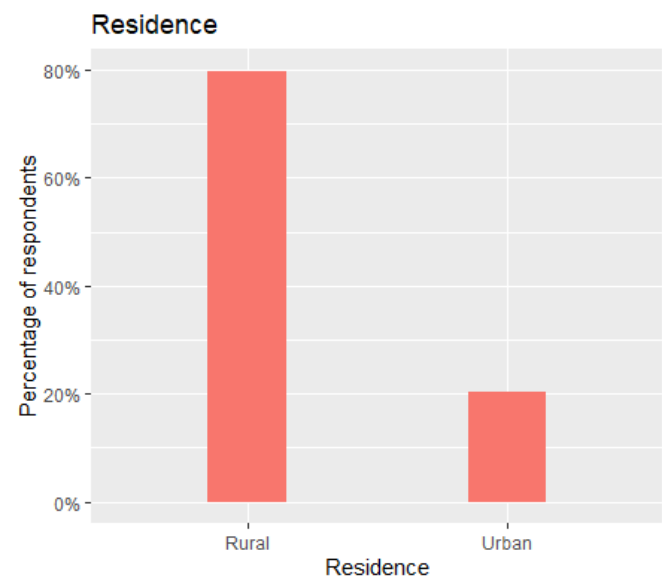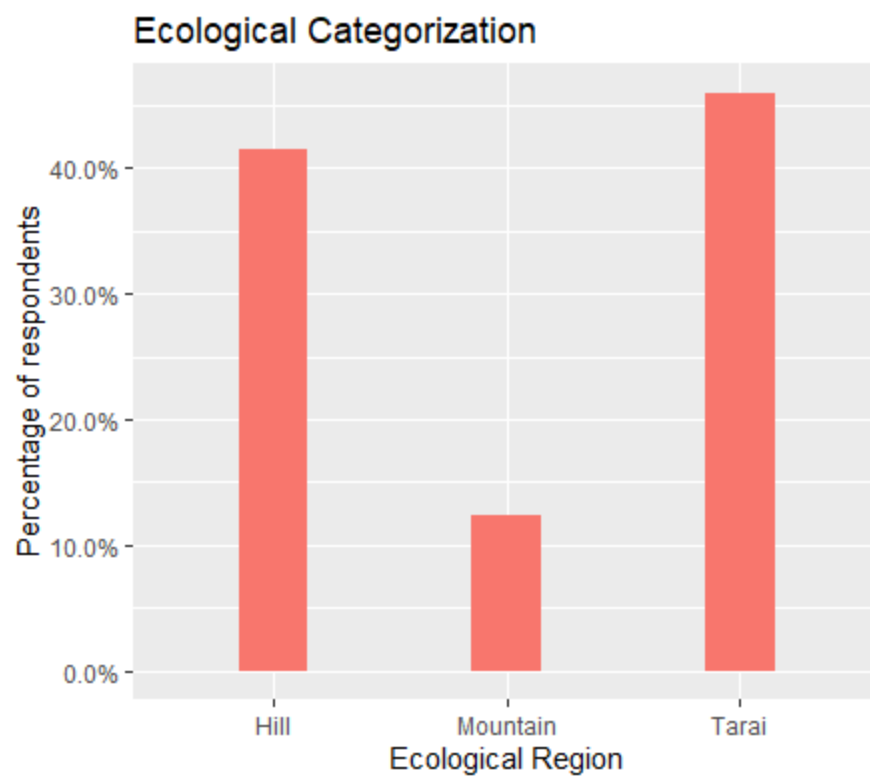|						
37	**Source of income**					
38	Salary/wage from entities	87 (14%)	162 (20%)	44 (6.0%)	125 (6.9%)	6 (12%)
39	Salary/wage from individual	47 (7.6%)	57 (7.1%)	54 (7.4%)	187 (10%)	2 (4.0%)
40	Self-employed (farming)	310 (50%)	321 (40%)	476 (65%)	850 (47%)	20 (40%)
41	Self-employed (non-farming)	148 (24%)	208 (26%)	134 (18%)	250 (14%)	6 (12%)
42	**Welfare/grant**	187 (30%)	172 (21%)	160 (22%)	405 (22%)	16 (32%)
43	Investment/Pension	65 (11%)	76 (9.4%)	22 (3.0%)	57 (3.2%)	2 (4.0%)
44	From other household members	122 (20%)	157 (19%)	143 (19%)	405 (22%)	13 (26%)
45	Other	1 (0.2%)	3 (0.4%)	0 (0%)	5 (0.3%)	0 (0%)
46	**Monthly income**					
47	Mean (SD)	12,104 (16,948)	14,346 (25,217)	7,368 (8,839)	6,309 (8,030)	15,367 (19,788)
48	Median [IQR]	7,000 (3,000, 16,000)	10,000 (5,000, 17,000)	5,000 (2,500, 10,000)	4,000 (2,000, 8,000)	10,000 (5,000, 16,500)

Table 2

Fig 1.1

Fig 1.2

Ecological Categorization

Fig 1.3

Financial Service Usage

Fig 1.4

Institutions trusted to save money

Fig 2.1

Borrowing Triggeres

Fig 2.4

Fig 2.5

Fig 2.6

Fig 2.8