# Financial Inclusion for Women from Minority Communities

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#### Abstract

Financial inclusion is the ability of members of all socioeconomic groups to access the credit they require for various purposes, such as expenditures on personal goods and for economic activities. Through this paper, I analyze financial inclusion at the intersection of two disadvantaged identities. I find that although there is a lower likelihood of owning a credit or debit card for women and people from minority communities, there is a differential positive impact for women from minority communities. Further, there is no differential disadvantage in usage of the card if they own one. I test some channels that could be driving the differential positive impact on ownership of cards and find it is not driven by more educated, urban residing, or wealthier women from minority communities. Their decision-making power, access to private banking infrastructure, and state capacity do not lead to higher financial inclusion either.

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## 1 Introduction

Financial inclusion has come to be seen as an important tool for boosting development and economic growth. As defined by the Rangarajan Committee (2008), Financial Inclusion is "the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections and low-income groups at an affordable cost". However, it remains a struggle and even more so in developing countries such as India where inadequate infrastructure, lower levels of financial literacy, and socioeconomic inequalities create substantial barriers to the inclusion of vulnerable groups in the formal financial system (Sarma 2016). Financial inclusion has been shown to be important for poverty alleviation, increase in output, increase in savings and women's decision making power (Burgess and Pande 2005, Aportela 2012, Ashraf, Karlan, and Yin 2010). Further, women and minority communities have been shown to face barriers in accessing financial instruments (Ghosh and Vinod 2017, Rajesh and Sasidharan 2018). The Government as well as the Reserve Bank of India (RBI) have worked hard to promote financial inclusion through various policies such as Pradhan Mantri Jan Dhan Yojana  $(2014)^1$ , Direct Benefit Transfer  $(2017)^2$ , Aadhaar Enabled Payment System<sup>3</sup>, the promotion of cooperatives, the nationalisation of banks and other pension schemes<sup>4</sup>.

In this paper, I study the access to financial instruments for women from minority communities. Living in a patriarchal society, women face a disadvantage in various aspects of their life, including access to financial resources. Patriarchy often restricts women's control over their earnings, limits their financial decision-making power, and perpetuates dependence on male family members. Further, India is a country which has been historically divided by caste, which continues to serve as a disadvantage to people belonging to lower castes leading to limited access to education, employment opportunities, and

<sup>1.</sup> The Pradhan Mantri Jan Dhan Yojana (PMJDY) aims to ensure that every household in India has access to a bank account by providing a no-frills bank accounts with zero balance requirements

<sup>2.</sup> Direct Transfer Benefits aims to establish a Giro system to transfer subsidies directly to the people through their linked bank accounts and reduce leakages

<sup>3.</sup> Aadhaar-Enabled Payment System aims to empower bank customers by allowing them to use Aadhaar as their identity to access their Aadhaar enabled bank account and perform basic banking transactions like cash deposit, cash withdrawal, Intrabank or interbank fund transfer and balance enquiry.

<sup>4.</sup> An example of pension schemes is the *Atal Pension Yojana* (2015) which targets the unorganized sector, offering guaranteed pension benefits to those without formal retirement savings.

financial services. Religious communities also differ greatly in terms of their position in society. Thus, it seems plausible that the difference in access to financial services and instruments becomes even more prominent for women belonging to minority communities, who exist at an intersection of two disadvantaged identities. The government and RBI have employed various policies in order to attempt to mitigate these disadvantages, such as the *Priority Sector Lending* (2020), *Rashtriya Mahila Kosh* (1993) and *Start Up India Scheme* (2016).

The motivation behind this study stems from the recognition that financial inclusion is not just a matter of economic growth but also of social justice and equality. Ensuring that women from minority communities have equal access to financial services is crucial for their empowerment and for the broader goal of inclusive development. By understanding the specific barriers these women face, policymakers can design more targeted interventions that address their unique challenges, thereby contributing to the overall goal of reducing poverty and promoting sustainable economic development.

In developing countries like India, where poverty and inequality are deeply entrenched, ensuring that all segments of the population have access to financial services is vital for fostering sustainable economic growth and reducing disparities. Thus, financial inclusion empowers individuals by providing them with the tools to manage their resources, invest in their futures, and improve their standard of living. However, the benefits of financial inclusion are not evenly distributed across society, particularly for women from minority communities who face compounded disadvantages. These intersecting identities create unique barriers that prevent them from accessing financial services, which are typically more accessible to men and higher-caste individuals.

By focusing on women from minority communities, this study seeks to highlight the specific challenges faced by this doubly marginalized group and to understand the gaps in existing financial inclusion initiatives. While general financial inclusion efforts have made significant strides, they may not fully address the nuanced needs of these women, who often require more targeted interventions. Understanding these challenges is crucial for designing policies that are inclusive and effective, ensuring that financial services reach those who need them the most.

I use a linear probability model to measure the likelihood of ownership of a credit or debit card for women from minority communities. I use the All India Debt and Investment Survey, 2019 for the same which records information regarding ownership and usage of debit and credit cards for all individuals in the households surveyed. I define minority communities to include both caste (SC/ST/OBCs) and disadvantaged religious minorities (Muslims). I control for possible correlated variables such as education, urban / rural residence, age, household size and more. I further use district fixed effects to account for differences in both observable and unobservable characteristics which differ among districts. The standard errors are clustered at the district level as well. This is a cross sectional study and hence, suffers biases associated with it – I cannot capture the prevalence of usage of financial instruments or reliance on cash economy which might be driving lower demand for cards, or distance from nearest banking institution which might influence one's decision in whether to invest in acquiring a credit or debit card.

I find that although women from minority communities are less likely to own a debit or credit card, the disadvantage from existing at the intersection of two minority identities is not entirely additive. There is a differential positive impact which dampens the negative effect of being a woman and from a minority community. Thus, the differential impact increases likelihood of women form minority communities having access to a card. Further, conditional on ownership, they do not face any differential disadvantage in using it. As compared to men from upper caste Hindu background, men belonging to minority communities are 9.1 percentage points (pp) less likely to own a debit or credit card, women from upper caste households are 17.8 pp less likely to own one and women from minority communities are 21.4 pp less likely to own a card. The overall ownership rate is 36% and for women from minority communities it is 23.5%. Hence, these are significant results which help account for differences in rates of ownership.

There are various factors which could be contributing to this differential benefit. Demographic characteristics such as education, income and employment status may impact one's access to financial resource. I use a triple difference-in-difference framework to test whether these factors drive the positive differential access to credit and debit cards for women from minority communities. I find that this is not the case - women from minority communities with a secondary level education or above are 5.3 pp less likely to own a card than women from minority communities without it. Further, women from minority communities in the uppermost consumption quartile are 8 pp less likely to own a card, and so are women from minority communities who are employed in salaried work. Thus, demographic characteristics which are widely considered to indicate better access to resources and opportunities seem to have a negative effect for women from minority communities.

Financial Infrastructure is another factor which is likely to impact the ownership of financial instruments. Better financial infrastructure is likely to allow for easier access to financial instruments. However, I see a negative effect for the same. I first use urban areas as a proxy for better financial infrastructure and find that women from minority communities in urban areas are 8.7 pp less likely to own a card as compared to their rural counterparts. Further, I use the RBI scheme which encouraged banks to open branches in areas with less than the average number of banks per district which led to more private bank branches opening in these area (Young 2018). Comparing ownership for women from minority communities in underbanked districts, which gained private banks following the scheme and districts just above the threshold, I find that there is no increase in ownership for women from minority communities in districts just below the threshold. Thus, increase in private financial infrastructure is not driving the different positive impact in card ownership.

Some other channels which are important are differences in the decision making power a woman holds in a traditionally upper caste versus minority household which affects their access to financial instruments. The state government and their schemes may also have a significant impact on the same. Cultural norms such as patriarchal structure, religious beliefs and social stigma regarding to women's engaging in financial activities may also impact this choice. Media may also influence one's perceptions about women owning credit or debit cards and access to this media may influence ownership. Documentation is another significant factor which might prohibit individuals from being able to create an account with a bank or procure a card. State capacity may also impact one's ability to acquire access to financial instruments.

In this paper, I test as many of these determinants as possible and identify which might be most crucial for access to credit or debit cards. In addition to being able to rule out higher education, consumption, better financial infrastructure or urban residence as the channels for better financial inclusion, I find the woman's decision making power and better state capacity to not be the drivers of the result either. However, I am unable to rule out the impact of the government, documentation, social norms or media.

Overall, I conduct a correlational analysis and am only able to gather suggestive evidence regarding what factors may be more important in determining access to financial instruments, especially for women from minority communities. This is important as determining whats helps increase access to financial instruments can help influence policy through the targeting of these determinants. Government policies which focus directly on financial inclusion could benefit indirectly from targeting other determinants of it as well. Often various economic factors and interlinked and have a significant impact on the other, hence, targeting indirect methods of financial inclusion could have tangible results which would be hard to get from just direct policy interventions.

The rest of the paper is as follows: Section 2 reviews past literature on financial inclusion. Section 3 explains the research question and motivation in more detail. Section 4 covers the data and section 5 describes the empirical strategy. I present my main results in Section 6 and test the various channels which might be driving it in Section 7. I test for robustness of my main results in Section 8. Lastly, I discuss the findings and implications of my paper in Section 9 and conclude in Section 10.

## 2 Literature Review

Financial Inclusion is a process which ensures that all members of an economy are able to access and avail the usage of the formal financial system (Sarma and Pais 2011). Financial

inclusion has been shown to have a positive correlation with poverty alleviation. Burgess and Pande (2005) find that an increase in banks in rural areas led to a reduction in poverty and increase in non-agricultural output. Further, Aportela (2012) shows that an increase in access to financial services for low income individuals helps increase savings and Ashraf, Karlan, and Yin (2010) find that increased access to finance for women helped increase their decision making power in Philippines .

Individuals in developing countries like India face multiple barriers in access to finance and many studies find that this exclusion is exacerbated for people from disadvantaged communities. Ghosh and Vinod (2017) find evidence of gender disparities in both access and use of finance in India. They also show that households with female heads are less likely to access formal finance than male-headed ones. Kulkarni and Ghosh (2021) show that states with higher GDP and better digital financial infrastructure still have a wider gender gap in usage of mobile phone for digital transactions – micro-level factors such as household income were more important in determining women's financial inclusion. There are inequalities in access to finance for firms based on caste affiliation of the firm owner (Rajesh and Sasidharan 2018). Further, religion also plays a role in terms of access to financial services - Muslims have been shown to have 17% lower probability of having a bank account and are 8% less likely to use it (Ghosh 2020).

Thus, financial inclusion is seen to be important for the development and welfare of a country, and one's gender and caste/religious identity is seen to be an important determinant. I add to this literature by looking at the intersection of several of these identities - how does being a woman as well as from a minority community affect access to finance and what determinants are most important for this. I attempt to analyse the the determinants which become more prominent at being at the intersection of two disadvantaged identities and what factors may exacerbate or mitigate access to financial resources by comparing with women and people from disadvantaged communities.

## **3** Research Question and Hypothesis

I analyse the level of financial inclusion for women of minority communities by studying their ownership and usage of a credit or debit card. I focus on the differential impact of being both a woman and belonging to a minority community. Further, I analyse what channels might help in explaining their level of financial access.

Financial Inclusion helps ensure access and usage of the formal financial system and facilitates the efficient allocation of productive resources in the economy (Sarma and Pais 2011). Moreover, there are several benefits of financial inclusion as mentioned earlier. Thus, it is an important economic outcome. Additionally, the effect of an intersection of two minority identities is vastly understudied and hence, this paper attempts to supplement it by providing some insight into the interplay of marginalised caste and gender identities in India, in terms of access to financial resources.

I specifically focus on access to debit or credit cards as they are a newer financial technology which has been widely adopted and is used for payments. Bank accounts have become almost universal in India following *Pradhan Mantri Jan Dhan Yojana* (2014). Hence, access to cards serves as an informative tool which helps analyse purchasing power.

I hypothesise that women from minority communities will have lower financial inclusion. As mentioned before, studies have shown that there is a double burden placed on women from minority communities wherein they face lower autonomy as well as higher material deprivation than upper caste women (Deshpande 2002). Hence, I expect this to show in terms of lower financial inclusion for them and expect a differential negative impact due to the combination of two disadvantaged identities.

## 4 Data

The data set used for this analysis is the All India Debt & Investment Survey NSS 77th round (January – December, 2019) collected by the National Statistical Office (NSO). It collects basic information on the assets and liabilities of households. It includes data regarding household debt, investment and credit. The survey consists of 4,95,573 obser-

vations with 2,98,496 observations for people belonging to the age group I restrict my assessment to individuals between the age of 18 and 60 years old. It has various blocks with some data collected at the individual level while other is collected at household level. My variables of interest such as gender and minority identity as well as ownership of cards are available at the individual level and so are most of my controls, except monthly consumption expenditure and urban or rural area of residence of the household.

#### 4.1 Independent Variable

The main variables on basis of which I will be analysing financial inclusion is **gender** and being part of a **minority group**.

51.19% of the sample is male and 48.81% are non-men - either women or transgender people. Due to the small number of transgender people in the population and them also belonging to a disadvantaged group, I add them to the 'non-male' sample and will refer to the collective group as women from hereon.

Minorities refers to any group which has been the recipient of any disadvantaged treatment in the past. These are not numerical minorities necessarily and it is a colloquial term used to refer to disadvantaged groups. The minorities referred to here consist of Muslims and individuals belonging SC/ST/OBC communities. 77% of the population falls in these categories with 64.17% being SC/ST, 22.9% being OBC and 12.87% being Muslims. The group I compare with is the remaining Hindus, or Upper Caste Hindus which form the more privileged part of the Indian population.

#### 4.2 Dependent Variable

I use ownership of a credit or debit card as a proxy for financial inclusion. This variable measures if the individual themselves owns either a credit card, debit card or both. However, I am unable to differentiate between which type of card the individual owns. There is also a variable which measures if the individual has used this card in the past year which I use to compare at the intensive margin.

#### 4.3 Controls

I control for various observable characteristics of an individual which may be correlated with credit access to avoid omitted variable bias. These include age, education level, monthly consumption level of the household, relationship to household head, household size and urban or rural residence. Younger people i.e. those between 25-40 years of age are possibly more likely to have a card as they may be working, and also may be responsible for buying various necessities for the family which requires access to money. People in Urban areas may also be more likely to have a credit or debit card due to access to banks and better connectivity. Further, there may also be a higher prevalence of use of such financial instruments in urban areas. Educated people may also be more likely to have a card due to knowledge about it and its uses. Being from a wealthier household, as measured by the monthly consumption expenditure, may also increase the likelihood of having a card due as it may affect the ability to acquire one. One's relative position in the household as measured by their relationship to the household head may also impact access to a card for them. Hence, I control for these variables to ensure that they are not driving my result.



#### 4.4 Summary Statistics

Figure 1: Ownership and Usage of Credit and Debit Cards

The graph shows a clear difference in ownership of a credit or debit card by gender as well as caste. 40.85% of the population owns a credit or debit card. Among the population that owns a card, 64.54% are owned by men and 35.46% by women. This is stratified by different social groups, with 50% of Hindu upper castes owning a card as compared to 37% in any disadvantaged group. Dividing by specific caste and gender groups, 66% of men from Upper Caste Hindu families have a credit or debit card, while the same for women is 39%. The share of men from minority communities owning a card is also lower at 39.6%, 51% and 41.3% for SC/ST, OBC and Muslim men respectively. The shares for women belonging to these communities is even lower at 21.9%, 28% and 21.6%. However, given ownership, it seems that most people use their cards, with the proportion of people using the cards only slightly higher for those belonging to Upper Caste Hindu backgrounds. I display more summary statistics about the population in Table 4 in the Appendix.

## 5 Empirical Strategy

#### 5.1 Main Estimating Equation

The main analysis uses a Linear Probability Model specification to measure the probability of a woman from a minority community owning of a credit or debit card.

 $Own_{ij} = \alpha + \gamma_j + \beta_1 * Female_{ij} + \beta_2 * Minority_{ij} + \beta_3 * Female_{ij} * Minority_{ij} + \pi * X_{ij} + \epsilon_{ij}$ 

The outcome *Own* measures the probability of an individual owning a debit or credit card. *Female* \* *Minority* is the main variable of interest which measures the impact of being both a woman and from a disadvantaged community.  $\beta_1$  is the impact of being a woman,  $\beta_2$  is the impact of being from a minority community.  $\gamma$  denotes District fixed effects. This controls for all variables that remain constant in a district, both observable and unobservable. For example, districts may differ in terms of access to the internet and hence, lead to differences in financial education among them. This would affect the level of ownership of cards, hence, I include district fixed effects to account for such variation.  $X_{ij}$  are the controls and  $\epsilon$  is the error term. The standard errors are clustered at the district level to allow for correlation among factors within a district.

While  $\beta_1$  and  $\beta_2$  measure the direct impact of being a woman and being from a minority community,  $\beta_3$  measures the differential impact of the coexistence of the above identities. Female and minority are binary variables which switch on when the person belongs to these identities. Hence,  $\beta_3$  measures the added impact from belonging to both groups.

## 5.2 Identification

This is a correlational analysis which attempts to measure the impact of identities which are endogenous and hence, have an effect on various other factors which also affect access to a credit or debit card. There might be systematic differences in terms of characteristics of the groups due to this difference in identity. For example, being a woman from a minority community might affect one's employment status as well as employment prospects which would also have an impact in terms of access to credit or debit cards. Different cultures have different family structures and these difference may also affect one's access to financial instruments due to their culture or relative position in the household.

Further, this model suffers from general limitations of the linear probability model such as imposing a linear framework on the relationship of the impact of one's identity on credit access. It can be sensitive to outliers. It also might predict probabilities outside the range of 0 and 1 which cannot exist and hence, pose a question regarding the accuracy and predictive power of the model. However, this problem does not occur in my model as 99.1% of the predictions of the main model lie within the range of 0 to 1.

There might also be an omitted variable bias due to the inability to control for all factors which may be correlated with being a woman from a minority community and their ability to access credit. For example, employment might be positively correlated with access to a credit or debit card. It may also be higher and hence, positively correlated with being a women from a minority community leading to a misattribution and overstating of the impact of being a women from a minority community on credit access. There might also be supply side variations in who banks are more willing to help with the process of issuing a card. They might be biased against minority communities and women and hence, these communities may end up with lower card access. However, due to data limitations, I am unable to control for all possible variables which may be endogenous.

## 5.3 Other Estimating Equations

To analyse the impact of being a woman from a minority community on usage of credit or debit card, I use the same specification as above with the dependent variable being usage, subject to the restriction of ownership of a card.

 $Usage_{ij} = \alpha_{ij} + \gamma_j + \beta_1 * Female_{ij} + \beta_2 * Minority_{ij} + \beta_3 * Female_{ij} * Minority_{ij} + \pi * X_{ij} + \epsilon_{ij}$ for an woman i in district j where  $\beta_1$  is the impact of being a woman,  $\beta_2$  is the impact of being from a minority community and  $\beta_3$  measures the impact of the interaction of these two identities.  $\gamma$  denotes District fixed effects,  $X_{ij}$  are the controls and  $\epsilon$  is the error term. The standard errors are clustered at the district level.

To test the channels driving financial inclusion for women from minority communities, I look at a triple interaction of the respective channel with being a women from a minority community to measure the differential impact of the channel for them. The specific equation to estimate this impact is:

## $Ownership ij = \alpha_{ij} + \gamma_j + \beta_{1ij} * Female * Minority * A + \pi * X_{ij} + \epsilon_{ij}$

for an individual i in district j where  $\beta_1$  is the differential impact of a channel A for women from minority communities. If this coefficient has the sign which is the same as the differential impact of being a woman from a minority community and is statistically significant, it might be a potential channel responsible for their financial inclusion. However, if it has a sign contrary to that of the differential impact of being a woman from a minority community on financial inclusion or is not statistically significant, one can rule out that the channel plays a major role in determining financial inclusion.

Through this paper, I perform a correlational analysis as one's identity is endogenous. Being born a certain gender or a certain caste has repercussions on various outcomes in life and likely also affects one's access to financial instruments such as a credit or debit card. Hence, I can only make correlational analyses based on these identities and what impact they are seen to have at present.

The channels I test for are also endogenous based on gender and caste. For example, the educational level one attains is not random, rather it is directly determined by gender with boys usually achieving higher level than girls. Thus, although the analysis of these channels allows me to determine if they have a differential impact, they are not causal of the level of financial inclusion. There might also be an omitted variable bias influencing my results. While I control for all possible correlated variables in the data, there are various other factors I am unable to account for such as employment, health, public sanitation, quality of education, number of women in the household and more.

Moreover, I cannot accurately determine the intensive margin of usage of the cards. While ownership is important, it might be artificial and doesn't fully capture the ability of the woman to be able to use it and benefit from it. Hence, being able to asses their usage would help strengthen the analysis and provide a more detailed argument. However, the intensive margin available in the data is crude and does not give much information.

Further, the data combines debit and credit cards although they are quite different and it is hard to determine which of these is driving the result. Although ownership of a debit card also shows access to financial services, it does not provide credit and in that regard, differs significantly from the impact of the ownership of a credit card.

## 6 Main Results

My main research question measures the extent of financial exclusion for women from minority communities in the form of the probability of owning a debit or credit card using a linear probability model. The results are presented in Table 1 with various specifications, including controls and district fixed effects. All of them show a negative impact for women and men from minority communities. However, there is a positive coefficient on the interaction term, that is, there is a positive differential impact which reduces the level of financial exclusion one would expect from existing at the intersection of the two disadvantages identities. To ensure that the results are not driven by other omitted variables which could be correlated with access to credit and be influenced by being a woman or from a disadvantaged community or both, I add controls. In this specification, women from minority communities are 16.5 percentage points (pp) less likely to own a credit or debit card as compared to an Upper Caste Hindu man. This is a large change as the mean probability of owning a card is 0.39. The overall coefficient for being a woman from a minority is community is almost half of the probability of owning a card and hence, is highly economically significant. Further, in this specification, women from minority communities, who one would assume to be the most disadvantaged, are more likely to own a card than women from Upper Caste Hindu backgrounds (who are 17.3 pp less likely to own a credit or debit card than Upper Caste Hindu men).

Table 1: Ownership of Credit or Debit Card for Women from Minority Communities

	(1)	(2)	(3)	(4)	(5)
Minorities	-0.182***	-0.049***	-0.063***		-0.091***
	(0.012)	(0.009)	(0.006)		(0.007)
Woman	-0.261***	-0.173***		-0.134***	-0.178***
	(0.009)	(0.009)		(0.005)	(0.009)
Minority Woman	0.055***	0.057***			0.055***
	(0.010)	(0.009)			(0.009)
Observations	298496	298496	298496	298496	298496
Adjusted $\mathbb{R}^2$	0.067	0.219	0.290	0.295	0.298
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Standard errors in parentheses

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

There may also be differences based on the district where one lives and hence, I include District Fixed Effects to control for all factors, observable and unobservable, which remain constant at the district level. I find that card ownership for women from minority communities is 21.4 pp lower than Upper Caste Hindu men and the difference is significant at the 1% level. The likelihood of owning a card reduces for women and people from minority communities after controlling for district characteristics. Thus, there may have been a negative bias undermining the impact of identities on credit access without

fixed effects. There are systematic differences in access to financial services among regions and district fixed effects help neutralise this impact by controlling for all variables constant within a district. Hence, it is likely that the estimates in Column 2 (the specification with controls but without fixed effects) underestimate the impact of being a woman from a minority community.

The controls are important and have a significant impact on one's likelihood of having a credit or debit card (Appendix, Table 6). As expected, age has a quadratic relationship with ownership of a card - it increases with age first and later, decreases. Education has a positive impact, with the probability of owning a card being 22.8 pp higher for people with a secondary level education. Having more people in the household reduces one's likelihood of having a card and this may be due to other people in the household already having a card. Being wealthier increases one's odds of having a card. Lastly, living in an Urban area increases probability of owning a card by 9.2 pp.

For a more rigorous analysis, I break the difference down for specific minority groups in the Appendix (Table 7) and find that the results are consistent across groups. The differential positive impact is highest for SC/ST women who have a 8.1 pp differential increase in their likelihood of owning a card. The same for Muslim women is 5.3 pp. It is lower but still statistically significant for OBC women with a 3.6 pp increase.

Overall, as expected, there is a negative impact on financial inclusion for a woman from a minority community i.e. a woman who belongs to a SC, ST, OBC or Muslim family. This is not completely additive and is less than the composite of being a woman and being from a minority community. Thus, although they are disadvantaged, this gap is not as big as one would expect. There is a differential positive impact of 5.5 pp which remains stable on the addition of control and fixed effects. This is a big impact as the mean probability of owning a credit of debit card is 0.36 and hence, is 12% of the overall likelihood of owning a credit or debit card.

While ownership of a debit or credit card is a good measure of financial inclusion, it only measures the extensive margin. It is also important to look at the intensive margin usage. Although people may own financial instruments, their usage of these instruments is more important in determining inclusion. To analyse this, I look at usage of a credit or debit card for those who own one and hence, restrict the sample to people who own a card. The results (Table 2) show that not only is there a difference in terms of ownership of cards, but given ownership, there is also an impact of one's identity on using it. However, the differential impact of being a woman from a minority background is not statistically significant at the traditional levels. Thus, I cannot reject the null hypothesis that they face an added disadvantage in terms of using a card given that they own one.

	(1)	(2)	(3)	(4)	(5)
Minorities	-0.058***	-0.007	-0.024***		-0.023***
	(0.007)	(0.006)	(0.006)		(0.007)
Woman	$-0.107^{***}$	-0.071***		-0.076***	-0.073***
	(0.011)	(0.011)		(0.007)	(0.011)
Minority Woman	-0.010	0.003			-0.004
willottey wollian	-0.010	0.000			-0.004
	(0.013)	(0.012)			(0.011)
Observations	127125	127125	127125	127125	127125
Adjusted $\mathbb{R}^2$	0.026	0.095	0.186	0.188	0.189

Table 2: Usage of Credit or Debit Card for Women from Minority Communities

Standard errors in parentheses

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

However, the data gives a crude measure of usage as they ask if the person used the card in the past 365 days. Hence, even if the person used the card once in the past year, it would be coded as 1 although this would not be a great indicator of financial inclusion. As a result, we should be wary of the analysis we make and the weight we give to these results. Further, this is a restricted and biased sample consisting of only those people who own a card which could potentially be different from women from minority communities in general and may not be representative of the population. It is also possible that the individuals only use the card to withdraw cash and use cash instead. It could also be that this cash, once withdrawn by the woman, is handed over to her husband or another male in the household. Hence, it is plausible that although she has access to these financial instruments and uses them, she does not gain access to money as we would like to assess.

## 7 Channels

In order to estimate various factors which might be playing a role in the differential positive impact seen for ownership of a debit or credit card for women from minority communities, I test the interactions of some channels that could be the driving the dampening effect.

## 7.1 Demographic Characteristics

Population demographics such as education, income and employment status might have a significant influence on financial inclusion and hence, I test whether they are driving the differential positive impact seen for women from minority communities.

	(1)	(2)	(3)
	Educated	Richer	Employed
	Minority Woman	Minority Woman	Minority Woman
Owns a Debit or Credit Card	-0.053***	-0.044***	-0.066***
	(0.012)	(0.010)	(0.018)
Observations	286476	286476	286476
Adjusted $R^2$	0.302	0.297	0.308
Controls	Yes	Yes	Yes
District FE	Yes	Yes	Yes

Table 3: Channels for Ownership of a Card for Women from Minority Communities

Standard errors in parentheses

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

#### Education:

I consider an individual to be educated if have a secondary level education or above. Comparing educated and uneducated women from minority communities, I find that education has a differential negative impact on the probability of owning a card for them, reducing it by 5.3 pp (Table 3, Appendix Table 8). While men from minority communities benefit from being educated, there is an opposite impact for women which is more pronounced for women from minority communities. Hence, while education does prove to be an important determiner of financial inclusion, it has an impact contrary to expectation.

#### **Consumption:**

I use consumption as a proxy for wealth (due to lack of income data) as it is an indicator of ones purchasing power. To do so, I divide the population into two halves based on the median level of consumption. Being in the upper consumption half increases financial inclusion as expected, but it has a differential negative impact for women from minority communities. It reduces their probability of owning a card by 4.4 pp and is significant at the 5% level.

For more precise estimation of what income levels are driving the lower financial inclusion for women from minority communities, I divide consumption into four quartiles. On testing for heterogeneity, I find that the negative impact is driven by the last, or richest, quartile (Appendix Table 10). There is a 8 pp lower likelihood of a woman from a minority community who is in the highest consumption quartile to have a debit or credit card. Further, there is no differential impact for being in quartiles 2 or 3. Consequently, I find that the lower likelihood of owning a card is driven by the richest group.

#### **Employment:**

Employees in the informal sector are usually paid in cash, while employees in the formal sector are more likely to be paid via cashless transactions. Hence, employment in salaried work is another important channel which might lead to higher access to financial instruments. To test whether employment might be driving the positive impact, I test the difference in ownership for women from minority communities who are employed in salaried work. I find that there is a differential negative effect - they are 6.6 pp less likely to own a credit or debit card (Table 3). Thus, employment in the formal sector is likely not the driving factor for financial inclusion.

#### 7.2 Norms

Norms regarding women's access to financial resources may govern whether of not she owns a card. In order to measure this, I look at the women's decision making power in the family. Greater decision making power is likely to drive a higher ability to access resources such as financial instruments. Hence, I test if there is a baseline difference in terms of decision making power possessed by women from minority communities by using land ownership as a proxy. Although it's possible that the family has put some land in the woman's name for various reasons and it does not lend her power, the title deed might still indicate a higher chance of the woman being given access to other resources. Further, I believe that this could be an important channel as research has shown that land ownership, alone or jointly, leads to an increase in women's decision making power with respect to finances (Behrman 2017). I find that there is no differential impact in terms of area of land owned by women from minority communities in rural areas (Table 4). Thus, it is not likely that the higher financial inclusion is due to higher decision making power and I can rule that out as a channel.

	(1)	(2)
	Own Land x	Urban x
	Minority Woman	Minority Woman
Owns a Debit or Credit Card	0.007	-0.086***
	(0.007)	(0.016)
Observations	286476	286476
Adjusted $R^2$	0.710	0.301
Controls	Yes	Yes
District FE	Yes	Yes

Table 4: Channels for Ownership of a Card for Women from Minority Communities

Standard errors in parentheses

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

## 7.3 Financial Infrastructure

One would assume better connectivity to financial institutions would lead to a higher likelihood of having a credit or debit card. As urban areas have more financial institutions and at closer distances, living in urban areas can be considered as a proxy for distance to financial institutions. The results (Table 4) show that there is a differential negative impact for minority women in urban areas and reduces their likelihood of owning a card by 8.7 pp as compared to women from minority communities in rural areas. Urban areas could also be considered a proxy for financial infrastructure in general, demonstrating that financial infrastructure is not responsible for financial inclusion for women from minority communities. In addition, I test for financial infrastructure in the district. To do this, I exploit the RBI circular released in 2005 which listed all districts below the national average as underbanked and made policies such that it was easier to open new banks in these districts (RBI 2007). This was reflected by an increase in private banks in districts near the threshold of being counted as 'underbanked' but no increase in government banks (Young 2018). Hence, this helps us measure the impact of an increase in private financial infrastructure and helps ensure that this result is likely not due to other social policy motives that government banks might attempt to achieve. The results (Table 5) show that a small positive impact for women in these areas - they are 4 pp more likely to own a card but there is no differential positive impact of being in a district right below the threshold which overall saw an increase in private banks and hence, an increase in overall financial infrastructure does not lead to higher financial inclusion for women from minority communities. Thus, it is unlikely to be a supply side effect.

Table 5: Card Ownership for Women from Minority Communities in Underbanked Districts near the threshold of classification

	(1)	(2)	(3)
Minority x Underbanked District	0.013	-0.011	0.013
	(0.033)	(0.029)	(0.022)
Woman x Underbanked District	0.034	0.043**	$0.040^{*}$
	(0.024)	(0.022)	(0.022)
Minority Woman x Underbanked District	-0.001	-0.008	-0.003
U	(0.029)	(0.027)	(0.027)
Observations	137984	137984	137984
Adjusted $R^2$	0.073	0.216	0.293
Controls	No	Yes	Yes
District FE	No	No	Yes

Standard errors in parentheses

This specification compares the districts near the threshold, however it does not deploy the RDD framework.

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

I also test this for being in any district which has lower than the average number of banks in India. Hence, here I analyse the impact of overall worse financial infrastructure. The results (Appendix, Table 14) show no differential impact for this as well, bolstering the strength on my initial result regarding the null effect of financial infrastructure on financial inclusion for women from minority communities.

## 7.4 Other Channels

Lastly, I test if the state capacity has an impact on the financial inclusion of women from minority communities. To do so, I use the Corruption Study done by the Centre for Media Studies (2008) to create two corruption indices: one based on perception of Corruption in the State and another based on its incidence. In doing so, I determine a State to have a high level of corruption if it falls above the median on the index being used for that measure of corruption. The results (Appendix Table 15) show no differential impact based on corruption for ownership of a card for women from minority communities. Hence, better state capacity is also not likely to increase financial inclusion for them.

## 8 Robustness Check

To ensure that my results are robust, I add some controls. I include a dummy for whether the individual owns land and some indicators relating to the household head's age, gender and educational level. I find (Appendix, Table 16) that there is no impact on the baseline results. Further, on the intensive margin, there is still no differential impact on the probability of a woman from a minority community using it.

Ownership of a credit or debit card by any other member of the family may also be an important determinant of one's own ownership. This might be because a family's ownership of a card might mean that the woman may also be able to get access to one. Further, if no one in the family owns a card, it could be due to it being an inaccessible instrument for the entire family. On the other hand, the ownership of a credit or debit card by any other family member may also indicate a lower need for the woman to own a card due to other people in the family such as the husband, son, father, etc. already owning one. I find (Appendix, Table 17) that this is indeed an important indicator and if another household member owns a card, it increases the likelihood of the owning a card by 33.4 pp. This might be a network effect wherein ownership by one household member increases information about procurement of a card and allows for other household members to do with more ease. Further, this does not lead to a big change in our main results, i.e. the different impact on card ownership for women from minority communities. In the specification with control and district fixed effects, there is a 6.1 pp increase in odds of owning a card for the specified group.

I also check if the results are being driven by extremely good or bad outcomes for women from a minority communities in a particular state by dropping each state one at a time from my sample. This is shown in Graph 2 in the Appendix and I find that there are only slight shifts in the coefficient on the differential impact of being a woman from a minority community by doing so and this never goes beyond the 95% confidence interval for all states. Hence, I can reject the null hypothesis that the differential positive impact is being driven by the outcomes regarding ownership of a credit or debit card for women from a minority communities in a particular state.

## 9 Discussion

I find a surprising differential negative impact for women from minority communities who are educated, employed in salaried work, belong to wealthier households, have higher decision making power and live in urban areas, as they have lower financial inclusion than their uneducated, poor, unemployed and rural counterparts. These factors are further correlated with other characteristics we may assume to increase financial inclusion. Hence, it is not likely that the general schemes of the government which attempt to increase educational outcomes and improve their living standards by increasing consumption are going to lead to an increase in access to financial services. Therefore, there is a need for government policies to specifically target this in order to ensure financial access encompasses all peoples in the society.

Since India is primarily a cash based economy, it is possible that women from wealthier households are choosing to not have a credit or debit card, preferring to use cash instead.

However, they may have the resources to meet their financial needs. As a result, my analysis, which focuses on cashless financial instruments which are used more generally and not necessarily for meeting specific financial needs, might be picking up on their choice to not own a credit or debit card, rather than their lack of ability to access it.

Further, targeting marginalised communities to increase financial access might already be a reason for the higher financial inclusion for women from minority communities through the PMJDY scheme with the result being driven by the ownership of RuPay debit cards that the scheme provided access to for all PMJDY account holders. Perhaps, more such schemes could prove to be useful and effective in ensuring all sections of the society are able to secure the finance they need.

There is also a need to further this study of financial inclusion for women from minority communities and assess their ability to access other financial services such as loans, savings instruments, investment instruments and more for a more comprehensive picture of their level of financial inclusion. While ownership of a credit or debit card shows ability to access financial services and also go to financial institutions, it is only one determiner and perhaps, not the most significant one. Hence, it is essential to assess access to other financial services as well for a clearer and more accurate assessment of financial inclusion for women from minority communities. The results from this paper can further help understand the need for investment and policy intervention that may help ensure uniform and equitable financial access.

## 10 Conclusion

I find that although women from minority communities do face high exclusion in terms of access to financial instruments such as credit or debit cards, this disadvantage is not entirely additive – in fact, there is a positive differential impact of being a woman from a minority community which increases their likelihood of owning a card. Further, for women from minority communities who do own a credit or debit card, there is no differential impact of their identities in terms of being able to use it. Thus, this paper provides hope for the position of women from minority communities in India and their financial access.

I further rule out that the cause of this higher financial inclusion is higher education levels, wealth, urban residence, employment, decision making power, banking infrastructure or state capacity. However, there is need for more research to test out other channels more precisely to be able to ascertain what drives the positive differential impact on financial inclusion for women from minority communities.

## A Appendix

Variable	Upper Caste	Upper Caste	Minority	Minority
	Men	Women	Men	Women
Age	36.52	37.26	35.32	35.64
	(12.34)	(12.19)	(12.14)	(12.14)
Educated	0.68	0.55	0.42	0.31
	(0.47)	(0.50)	(0.49)	(0.46)
Household size	4.81	4.87	5.26	5.28
	(2.25)	(2.26)	(2.45)	(2.44)
Consumption Exp	14109.41	14462.59	10435.46	10439.84
(Monthly)	(10112.36)	(10507.12)	(6,519.12)	(6, 539.96)
Urban	1.47	1.46	1.29	1.28
	(0.50)	(0.50)	(0.45)	(0.45)
Owns Land	0.41	0.10	0.45	0.09
	(0.49)	(0.30)	(0.50)	(0.28)
Owns a Card	0.63	0.37	0.45	0.25
(Credit / Debit)	(0.48)	(0.48)	(0.50)	(0.43)
Observations	298496			

 Table 6: Summary Statistics

	(1)	(2)	(3)	(4)	(5)
Minorities	-0.174***	-0.043***	-0.063***		-0.087***
	(0.012)	(0.010)	(0.006)		(0.008)
Warran	0.961***	0 17/***		0 19/***	0 170***
woman	-0.201	-0.174		-0.134	-0.179
	(0.009)	(0.009)		(0.005)	(0.009)
Minority Woman	$0.054^{***}$	0.058***			0.055***
	(0.010)	(0.009)			(0.009)
	()	()			()
Age		$0.033^{***}$	$0.031^{***}$	$0.030^{***}$	$0.029^{***}$
		(0.001)	(0.001)	(0.001)	(0.001)
		0.047***	0.001***	0.000***	0.000***
Educated		$0.247^{***}$	$0.231^{***}$	$0.236^{****}$	$0.228^{***}$
		(0.007)	(0.005)	(0.005)	(0.006)
Household size		-0.028***	-0.014***	-0.017***	-0.014***
		(0.002)	(0.001)	(0.001)	(0.001)
		()	()	()	()
Monthly Consumption Exp		$0.000^{***}$	$0.000^{***}$	$0.000^{***}$	$0.000^{***}$
		(0.000)	(0.000)	(0.000)	(0.000)
<b>TT</b> 1		0.4.0 -			0.000****
Urban		0.107***	0.077***	0.082***	0.092***
		(0.009)	(0.006)	(0.006)	(0.007)
Observations	261191	261191	298496	298496	261191
Adjusted $R^2$	0.068	0.223	0.290	0.295	0.304
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Table 7: Ownership of Credit or Debit Card for Women from Minority Communities: Extended Table Displaying Controls

	(1)	(2)	(3)
SC/ST Woman	0.083***	0.082***	0.081***
	(0.011)	(0.010)	(0.010)
OBC Woman	0.031***	0.040***	0.036***
	(0.011)	(0.009)	(0.009)
Muslim Woman	0.064***	0.052***	0.053***
	(0.014)	(0.012)	(0.012)
Observations	298496	298496	298496
Adjusted $\mathbb{R}^2$	0.074	0.221	0.299
Controls	No	Yes	Yes
District FE	No	No	Yes

 Table 8: Ownership of Credit or Debit Card for Women from Minority Communities

 divided by specific minority groups

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 9: Ownership of a Card for Women from Minority Communities by Education

	(1)	(2)	(3)	(4)	(5)
Minority x Educated	0.004	0.041***	-0.008		$0.022^{*}$
	(0.015)	(0.014)	(0.009)		(0.013)
Woman x Educated	0.010	-0.017		$-0.071^{***}$	-0.026
	(0.017)	(0.016)		(0.008)	(0.016)
Minority Woman x Educated	$-0.051^{***}$	-0.040**			-0.050***
	(0.018)	(0.017)			(0.016)
Observations	298496	298496	298496	298496	298496
Adjusted $R^2$	0.146	0.220	0.290	0.297	0.299
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)
Minority x Richer	-0.020	0.005	-0.038***		-0.018
	(0.017)	(0.015)	(0.010)		(0.013)
Woman x Richer	0.019	0.005		-0.039***	0.002
	(0.018)	(0.017)		(0.007)	(0.016)
Minority Woman x Richer	-0.057***	-0.041**			-0.043**
	(0.018)	(0.017)			(0.017)
Observations	298496	298496	298496	298496	298496
Adjusted $R^2$	0.096	0.214	0.287	0.291	0.295
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Table 10: Ownership of Credit or Debit Card for Women from Minority Communities by Consumption Level

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 11: Ownership of Credit or Debit	Card for Women	from Minority	Communities by
Consumption Level divided into quartil	les		

	(1)	(2)	(3)
Minority Woman x Quartile 2	-0.003	0.002	0.005
	(0.026)	(0.025)	(0.025)
Minority Woman x Quartile 3	-0.005	0.005	0.005
	(0.026)	(0.025)	(0.024)
Minority Woman x Quartile 4	-0.104***	-0.081***	-0.080***
	(0.027)	(0.025)	(0.024)
Observations	298496	298496	298496
Adjusted $R^2$	0.109	0.222	0.299
Controls	No	Yes	Yes
District FE	No	No	Yes

Standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)
Minority x Urban	0.011	0.050***	-0.025**		0.016
	(0.020)	(0.016)	(0.012)		(0.015)
Woman x Urban	0.079***	0.046***		-0.024***	0.049***
	(0.017)	(0.015)		(0.008)	(0.015)
Minority Woman x Urban	-0.097***	-0.079***			-0.086***
v	(0.018)	(0.016)			(0.016)
Observations	298496	298496	298496	298496	298496
Adjusted $\mathbb{R}^2$	0.112	0.219	0.291	0.296	0.299
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Table 12: Ownership of Credit or Debit Card for Women from Minority Communities by Residence in Urban Areas

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

	(1)	(2)	(3)
Minorities	0.031***	-0.012**	-0.013**
	(0.010)	(0.006)	(0.006)
Woman	-0.401***	-0.088***	-0.083***
	(0.011)	(0.010)	(0.009)
Minority Woman	0.040***	0.007	0.007
winointy woman	(0.012)	(0.007)	(0.007)
Observations	169387	169387	169387
Adjusted $\mathbb{R}^2$	0.222	0.701	0.710
Controls	No	Yes	Yes
District FE	No	No	Yes

Table 13: Land Ownership for Women from Minority Communities in Rural Areas

Standard errors in parentheses

	(1)	(2)	(3)
Minority x Underbanked District	-0.014	-0.027	-0.012
	(0.023)	(0.018)	(0.014)
Woman x Underbanked District	-0.002	0.007	0.006
	(0.018)	(0.015)	(0.015)
Minority Woman x Underbanked District	$0.035^{*}$	0.025	$0.030^{*}$
	(0.019)	(0.017)	(0.017)
Observations	298496	298496	298496
Adjusted $R^2$	0.084	0.224	0.298
Controls	No	Yes	Yes
District FE	No	No	Yes

Table 14: Card Ownership for Women from Minority Communities in Underbanked Districts

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 15: Ownership of Credit or Debit Card for Women from Minority Communities by Corruption level

	Incidence			Perception			
	(1)	(2)	(3)	(4)	(5)	(6)	
Minority	0.021	0.029	0.007	0.016	$0.032^{*}$	-0.013	
x Higher Corruption	(0.023)	(0.018)	(0.014)	(0.022)	(0.017)	(0.014)	
Woman	-0.012	-0.009	-0.012	-0.007	-0.012	-0.014	
x Higher Corruption	(0.019)	(0.016)	(0.016)	(0.017)	(0.015)	(0.015)	
Minority Woman	0.008	0.006	0.006	0.010	0.014	0.014	
x Higher Corruption	(0.021)	(0.018)	(0.018)	(0.018)	(0.016)	(0.017)	
Observations	298496	298496	298496	298496	298496	298496	
Adjusted $\mathbb{R}^2$	0.072	0.222	0.298	0.077	0.225	0.298	
Controls	No	Yes	Yes	No	Yes	Yes	
District FE	No	No	Yes	No	No	Yes	

Standard errors in parentheses

	( - )	(2)	(2)	( 1)
	(1)	(2)	(3)	(4)
	Own	Own	Usage	Usage
Minorities	-0.042***	-0.083***	-0.008	-0.022***
	(0.010)	(0.008)	(0.007)	(0.007)
Woman	-0.177***	-0.181***	-0.085***	-0.081***
	(0.011)	(0.010)	(0.012)	(0.012)
Minority Woman	0.055***	0.055***	0.003	-0.006
	(0.010)	(0.010)	(0.012)	(0.012)
Observations	251343	251343	106365	106365
Adjusted $\mathbb{R}^2$	0.216	0.299	0.096	0.197
Controls	Yes	Yes	Yes	Yes
District FE	No	Yes	No	Yes

Table 16: Ownership of Credit or Debit Card for Women from Minority Communities:Robustness

Standard errors in parentheses

This specification included additional controls such as indicators of household head

\* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table 17: Ownership of Credit or Debit Card for Women from Minority Communities by Salaried Worker

	(1)	(2)	(3)
Minority x Salaried Worker	$0.105^{***}$	$0.084^{***}$	$0.064^{***}$
	(0.018)	(0.016)	(0.014)
Woman x Salaried Worker	0.010	-0.001	-0.003
	(0.019)	(0.017)	(0.016)
Minority Woman x Salaried Worker	-0.079***	-0.064***	-0.066***
	(0.019)	(0.018)	(0.018)
Observations	261191	261191	261191
Adjusted $R^2$	0.107	0.228	0.308
Controls	No	Yes	Yes
District FE	No	No	Yes

Standard errors in parentheses

	(1)	(2)	(3)	(4)	(5)
Minorities	-0.115***	-0.037***	-0.041***		-0.069***
	(0.008)	(0.007)	(0.005)		(0.006)
	0.001***	0 1 0 0 * * *		0 1 1 0 ***	0 1 0 0 ***
Woman	$-0.281^{***}$	$-0.162^{***}$		-0.118***	$-0.168^{***}$
	(0.008)	(0.009)		(0.005)	(0.009)
Minority Woman	0.050***	0.064***			0.061***
winority woman	0.059	0.004			(0.001)
	(0.010)	(0.009)			(0.009)
Card owned by any other Family Member	0 451***	0.389***	0.335***	0.334***	0.334***
Card office Sy any other raining memor	(0,000)	(0,008)	(0,007)	(0,007)	(0,008)
	(0.009)	(0.008)	(0.007)	(0.007)	(0.008)
Observations	261191	261191	298496	298496	261191
Adjusted $R^2$	0.275	0.361	0.385	0.390	0.398
Controls	No	Yes	Yes	Yes	Yes
District FE	No	No	Yes	Yes	Yes

Table 18: Ownership of Credit or Debit Card for Women from Minority Communities: Robustness





Figure 3: Caption

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