Working paper – preliminary results

Women's income, saving behavior and moderating role of financial inclusion in rural Morocco

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Abstract

This paper proposes the study of individual's saving behavior employing data from the Bank Al-Maghrib survey on the financial inclusion of women in rural Morocco. It analyzes rural women's decision to save and their subsequent choice of saving instruments given a set of sociodemographic determinants based on the lifecycle hypothesis and women's intra-household bargaining power. Our findings confirm the hump-shaped relationship between savings and age as suggested by the lifecycle hypothesis. Further, we suggest that preeminent gender based disparities in labor participation, income during active years, financial capabilities, agency and control over own earned income among others, are likely to translate to disparities in lifetime income distribution and women's resources in retirement.

JEL classification : D1, D14, D31, E21

Keywords: Saving, lifecycle, gender, bargaining power, financial inclusion.

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1. Introduction

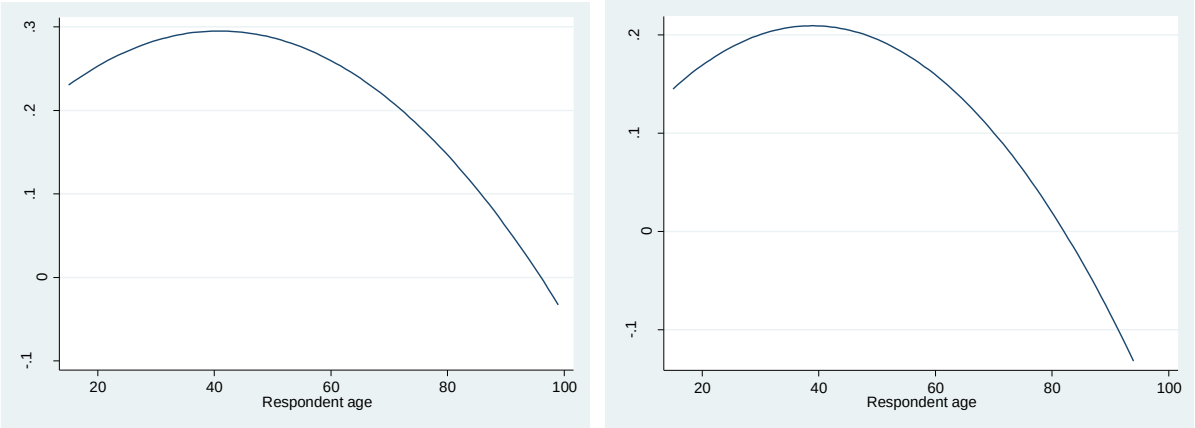
Savings constitute an important part of financial planning for future consumption, such as buying a home, investing in children's education or planning for retirement, and entail a comprehensive valuation of one's current and future financial status. Research shows that lower income households and individuals tend to constitute savings mainly to shield against unforeseen changes in expenditures and lack proper financial planning strategies (Mills &Amick, 2010; Collins, 2015). Individual characteristics as well as income can significantly impact saving behaviors and choice of saving portfolios (Lusardi, Schneider, & Tufano, 2011; West & Friedline, 2016). In fact, gender can be a source for substantial differences but little is known on women's financial planning and much less on their saving behavior (Keele & Alpert, 2013; Kumar, Tomar & Verma, 2018).

This paper proposes the investigation of one aspect of women's financial planning, saving behavior. It sheds light on (i) determinants behind the decision to save and (ii) the saving instrument of choice. The study of saving behavior is important for several reasons. Policies for financial and economic inclusion, for pensions regimes and safety nets for old age rely on developing an understanding of behaviors and patterns in income, financial capabilities and savings. While women have significantly lower earnings during their lifetime, they also present high-risk aversion and longer life spans (Glaubitz, Harnack-Eber & Wetter, 2022). In this regard, gender inequalities can cumulate over lifetime translating disparities in access to work force, earnings, control over earned income and decision-making power within the household to disparities at old age through the channel of savings (wealth accumulation).

For analyzing women's saving behavior, we identify two bodies of literature. First, the lifecycle hypothesis is a gender-neutral setting that should explain, for the most part, saving behavior of individuals and households alike. It constitutes the standard backdrop to explaining saving behaviors in literature (Modigliani, 1954; 1986). The main implication of this theory is the hump-shaped saving to age profile as midlife individuals and households have higher savings, wealth accumulation, than young and retired ones. We find evidence of this hump-shaped saving profile when analyzing data from the World Bank Findex survey (2017) and Bank Al-Maghrib financial inclusion of rural women survey (FIRW, 2019) as well. Another implication pertains to impact of permanent and temporary income shocks on savings. In the case of temporary income shocks, savings are ought to be the most impacted as individuals tend to dip into their savings to meet unforeseen expenses. For this reason, we expect that one of the main motivations to saving is

expectation of unforeseen expenses instead of thought-through financial planning. Being subject to regular income shocks which results in constant financial distress can limit one's capacity to constitute savings and accumulate wealth for future consumption – like for retirement (Friedman, 1957; Carroll, 1994). Lusardi and Mitchel (2007a, b, 2011a) show that women are less likely to be financially literate which explains their lack of financial planning for retirement. In this sense, financial literacy is found to be critical for informed saving decisions and financial planning across the board and women lack significantly behind on all these aspects.

Figure 1 – Probability of saving by age Men (left) vs. Women (right)



Source: World Bank, Findex survey, 2017, sample of 5110

A more gender specific body of literature that we identify belongs to the household economics which shows that weak intra-household bargaining power is a source of decision making power about consumption and savings (Grown, 2014; Lambert et al., 2014; Munoz Boudet et al., 2018). Moreover, men, as primary breadwinners, undertake the task of financial management and are the primary responsible party for financial planning for their households. On the other hand, women have little to no say about this topic specifically when they are not heads of households. Women's access to the labor market or exercise of an income generating activity can increase their bargaining power within the household provided they also maintain control over their earnings. Thus, if women have less bargaining power to begin with and limited control over their earnings, then they are less likely to save and will make less informed decisions about their choice of saving portfolios.

The following section presents a brief description and analysis of the used data and employed empirical approach. Estimation results and a brief discussion are presented in section 3 followed by some concluding remarks.

2. Data and empirical approach

Bank Al-Maghrib conducted a quantitative and qualitative survey to collect data on the socio-economic environment of rural women and their level of financial inclusion. The survey covered many aspects pertaining to the socioeconomic conditions of women in rural Morocco, among which we can mention household management (roles and responsibilities, involvement in decision-making, own perceptions vis-à-vis their role), sources of income, frequency of income, management of unexpected expenses/financial stress, and barriers to women's financial autonomy.

As far as income is concerned, collected answers show that rural households have less than two incomes with males being predominantly heads of households. Over 23% of surveyed women in our sample declare belonging to household with an income of less than 1000MAD (equivalent to 100USD). The household income is found to increase on average with the level of education of the respondent and that of the head of the household. Confirming the limited financial capabilities of women, less than a third of the surveyed population reports having personal income and female heads of households are more likely to participate in the labor market and have personal income. Moreover, less than 25% of respondents declare having savings and over 87% of those savings are in cash. Additionally, the survey shows that when faced with unforeseen expenses, more than 27% of respondents have recourse to their savings or resort to borrowing from family and friends (29%) (*cf. figure 2*).

Table 1 - Sample descriptive statistics

	Obs	Mean
Age	2045	35
Female headed household	2045	8,8%
Married	2045	67,9%
Household 1 to 3	2045	17,4%
Household 4 to 6	2045	57,1%
Household more than 7	2045	25,4%
Number of children	2045	3
Children under 6	2045	82,7%
Children under 15	2045	70,4%
Low income (less than 1000)	2045	23,5%
Medium income (1001-4000)	2045	5,1%
High income (more than 4000)	2045	0,4%
High school education	2045	12,0%
University education	2045	2,4%
Labor force participation	2045	21,1%
Employed	2045	7,3%
Self-employed	2045	6,3%
Homeowner	2045	82,7%
Bank perceived as far	2045	1,1%
Has health insurance	2045	53,6%
Savings	2045	24,9%
Interest savings	509	2,7%
Cash savings	509	87,1%

Source: Bank Al-Maghrib, financial inclusion of rural women survey
Note: Descriptive statistics are the average value for the survey

Figure 2- How do you meet unforeseen expenses?

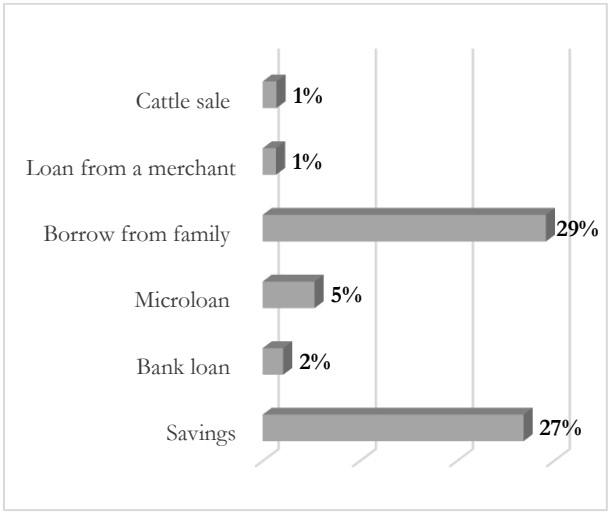
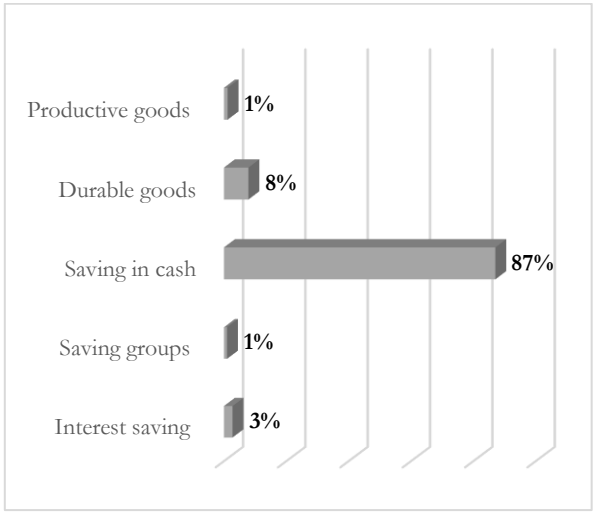


Figure 3-Saving instrument of choice when saving



Source: Author, Bank Al-Maghrib, FIRW survey, 2019, sample of 2045

To understand rural women's saving behavior we propose a two-fold empirical strategy. The first stage investigates women's decision to save estimated based on the lifecycle hypothesis by regressing the probability of saving on a set of individual and household characteristics using a probit model. The choice of covariates is based on both empirical and theoretical considerations namely the lifecycle hypothesis and women's bargaining power based in household economics. The individual characteristics include age, education, status of employment and the income group. We also include indicators on financial capability, indicating if she, and her household, face regular financial distress, along with indicators on her level of financial inclusion and usage of financial products. Additionally, holding a health insurance should give an indication on her risk-aversion.

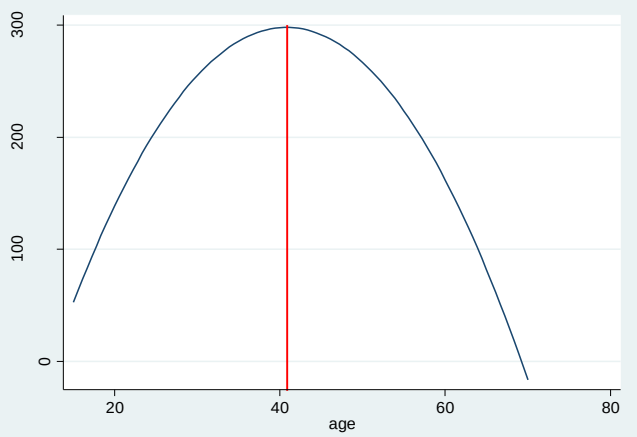
Among the population of surveyed women whom choose to save, in the second stage, we propose an analysis of the type of the saving instrument they choose. Two instruments are distinguished, an interest-bearing instrument and saving in cash. For this, a limited dependent variable estimation approach is adopted allowing for corner solutions. The general model for the latent variable to be estimated using a tobit specification includes a similar set of characteristics in line with the lifecycle hypothesis literature where the relationship between age and savings is analyzed. Also, having children within the household is another determinant of saving that is considered based on both the lifecycle hypothesis and theoretical literature on women's bargaining power and decision making within the household. In fact, while having children in the household can endure expenses, it can also increase parents' savings foreseeing future expenses, such as higher education (Crossley and O'Dea, 2010). On another hand, presence of young children (under the age of 6) can also keep mothers from participating in the labor market, hence limiting their income and resources available

for savings (Waldfogel, 1997; Hardy & Ziliak, 2014). Besides, we also include controls for female headed household, for being financially included (having at least a checking account in her name) and for having a health insurance.

3. Results and discussion

Table 2 presents marginal effects from the probit model estimation where the dependent variable is *the probability of saving* and controls include lifecycle determinants as well as financial inclusion. Our analysis of the determinants of rural women's saving behavior suggests that age is one of the most important motivations behind saving which corroborates the lifecycle hypothesis. The probability of being an active saver is higher for younger women and reaches a peak around the age of 40 (*cf. figure 4*) where it begins to decline steadily.

Figure 4 - Probability of saving by age



Source: author computations

Women savers are also more likely to be heads of households, in which case, they are the main decision makers on matters pertaining to financial decision-making and planning. Moreover, women's inferior intra-household bargaining power can significantly affect their ability to save as they are less implicated in financial decision making than the male head of household. This becomes more self-evident as employed and self-employed women hold higher probabilities of saving, hence, higher decision-making power. In this regard, increasing women's access to the labor market, giving them opportunities for income and control over their earned income can increase their financial decision-making power and, thus, decision to save.

Higher bargaining power is also derived from having access to higher education and can impact decisions affecting children's well-being. Additionally, we also find that financially included women have higher probability of saving which corroborates recently documented similar findings around the world (Demirguc-Kunt & al., 2015; 2016; 2017). Having a health insurance also increase the probability to save and could be related to a set of reasons such as higher risk aversion, but also increased awareness and education which pushes individuals to save more in an optic of financial planning. Still, we reckon that the main motive behind saving is rather related to foreseeing unexpected financial emergencies instead of financial planning. Women's limited financial resources and capabilities remain the main obstacle to saving and much more to planning for retirement (Bertrand et al., 2004; Hardy & Ziliak, 2014).

Among women that choose to save, we analyze their subsequent choice of saving portfolios. Considering for the low level of income, of education and limited financial literacy of women in the sample, whom are mainly in rural settings, we distinguish between two broad types of saving instruments: interest bearing and cash. Results should be viewed with a degree of caution and we do not claim robust degrees of correlations nor inferred causalities. First, the life-cycle hypothesis is also likely to hold for the choices of saving instruments as middle-aged individuals tend to opt more for interest bearing saving instruments and less for cash.

Table 2 – Determinants of savings

Dependent variable	(1) Savings	(2) Savings
Age	0,0068564*	0,0101012*
	(0,0041461)	0,0041901)
Age squared	-0,0000992*	-0,0001407*
	(0,0000571)	(0,0000577)
Female headed household	0,0749619*	0,0607544*
	(0,0347863)	(0,0360834)
Children under 6 years	0,001518	0,0012053
	(0,0405973)	(0,0406897)
Medium income	0,0609098**	0,0543131**
	(0,0200588)	(0,0201883)
High income	0,1661133***	0,1195427*
	(0,0463722)	(0,0470784)
High school education	0,1115512***	0,0896812 **
	(0,0318419)	(0,0319939)
University education	0,0752792	0,0660417
	(0,0651376)	(0,0653526)
Employed	0,1439733***	0,1384924***
	(0,0355433)	(0,036027)
Self-employed	0,2095264***	0,2044069***
	(0,0365335)	(0,0364217)
Faces financial difficulty		0,1517891***
		(0,0195924)
Has health insurance		0,056149**
		(0,0195319)
Basic financial inclusion		0,0559567*
		(0,0329291)
Remittances		0,0516487
		(0,0453616)
Log-L	-1096,9975	-1062,1512
N	2 045	2 045

Source: Author's estimations
Note: the coefficients report average marginal effects from probit model, standard errors in parantheses ***p<0,01, **p<0,05, *p<0,1

A relationship that is also hump-shaped. This confirms Lusardi and Mitchell's (2011) findings on the importance of increasing financial literacy for younger individuals favoring better choice of saving portfolios and, thus, more informed financial planning. Yet, we reckon this might strongly be limited by one's level of education which directly impacts financial resources and financial capabilities of individuals. In this regard, Touhami et al., (2010) find that education is the main determinant of savings in rural Morocco which corroborates our results for the most part. We also find similar results in the sense that more members of the household can decrease the level of savings and their diversification, especially when children under 6 are present. However, we depart from their results by including a control for the number of household members with an income and find it significantly lowers savings in cash. This could be indication of women having increased control over own earnings as the household multiplies its income sources. This finding should be further investigated considering literature on the bargaining power of women and intrahousehold allocations of resources. Increasing women's bargaining power should have important implications for their financial planning.

Table 3 – Determinants of saving instruments

Dependent variable	(1) Interest bearing saving instrument	(2) Cash as saving instrument
Age	0,5303069*	-0,0092388*
	(0,3028796)	(0,008034)
Age squared	-0,0084647*	0,0001271*
	(0,0048449)	(0,0001069)
Female headed household	0,2428625*	-0,0773568
	(0,7878649)	(0,0582119)
Children under 6 years	-2,055902	-0,014465
	(1,54709)	(0,0724521)
Has steady income	0,4594919*	-0,010959
	(0,691732)	(0,0393015)
Medium income	0,0111065	-0,0696813
	(0,6918221)	(0,0585787)
High income	0,2339949	0,0314942
	(1,463707)	(0,1592749)
High school education	1,492462*	-0,0667244
	(0,7185651)	(0,0567993)
University education	1,860401*	-0,2085857*
	(0,8347092)	(0,0863752)
Employed	1,219883*	-0,0719727
	(0,7395292)	(0,0581676)
Self-employed	0,4355736	-0,0331377
	(0,7464747)	(0,0549878)
Faces financial difficulty	-0,1193407	-0,0616991*
	(0,5023782)	(0,0339155)
Has health insurance	0,5903744	-0,0156263*
	(0,5280898)	(0,0335643)
Number of household members with an income	0,0200795	-0,041059*
	(0,2738319)	(0,018655)
/Sigma	1,714***	0,367***
	(0,414)	(0,0130)
Log-L	-57,478391	-279,16045
N	509	509

Source: Author's estimations

Note: The coefficients report the average marginal effects from a limited dependent variable model (tobit). /Sigma is the estimated standard error of the regression. standard errors in parantheses. ***p<0,01, **p<0,05, *p<0,1

Conclusion

This study proposed a framework for understanding women's saving behavior in rural Morocco considering for the potential moderating role of financial inclusion. Based on the lifecycle hypothesis, we find support for the hump-shaped saving to age relationship which is also found in the propensity to use interest bearing saving instruments. Moreover, we find support for the claim that women's limited bargaining power within the household, low educational attainment, labor participation and limited control over their earnings can limit their savings and portfolio diversification. While financial inclusion is found to be related to an increased probability of saving, we believe that simultaneously increasing women's financial capabilities and resources is a more optimal approach. In fact, our findings suggest that the main motive behind saving is to meet unforeseen expenses rather than financial planning. This highlights rural women's poor economic position during their earning years which is likely to persist later during retirement. Whereas these findings deserve further analysis to derive opportune policy recommendations, for the time being, they confirm the necessity to understand the peculiarities of women's saving behavior and, why not, financial planning.

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