Does a Picture Paint a Thousand Words? Evidence from a Microcredit Marketing Experiment

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Female entrepreneurship is low in many developing economies partly due to constraints on women's time and mobility, often reinforced by social norms. We analyze a marketing experiment designed to encourage female uptake of a new microcredit product. A brochure with two different covers was randomly distributed among male and female borrowing groups. One cover featured 5 businesses run by men while the other had identical businesses run by women. We find that both men and women respond to psychological cues. Men who are not themselves business owners, have lower measured ability and whose wives are less educated respond more negatively to the female brochure, as do women business owners with low autonomy within the household. Women with relatively high levels of autonomy shown the male brochure have a similar negative response, while there is no effect on female business owners with autonomy shown the female brochure. Overall, these results suggest that women's response to psychological cues, such as positive role models, may be mediated by their autonomy and that more disadvantaged women may require more intensive interventions. JEL codes: G21, D24, D83, O12

Women in developing countries face numerous barriers to participation in economic life. In addition to constraints on time and limited access to capital, women's exposure to markets and business networks is often also limited by

low mobility and lack of education. Weak decision-making power within the household often reinforces these disadvantages, further limiting women's ability to secure time or resources for their own productive activities. One manifestation of this is the comparatively low prevalence of female-owned businesses. Even as entrepreneurs, however, women operate businesses that are far smaller in scale and profitability than male businesses.

The recognition that women may therefore be most in need of credit for small businesses has played an important role in the woman-centered microcredit movement of the last two decades (Yunus, 1999). In Pakistan, however, microfinance as well as other support for micro-entrepreneurship has focused primarily on men while women remain at the margins of economic life.

This paper reports on an experiment designed to encourage female uptake of a new microcredit product that allowed eligible borrowers the opportunity to borrow up to four times the typical loan size.[1] In cooperation with the microfinance institution, we designed two different brochures that provided information about the characteristics of the loan and described the application process. The brochures were identical, except for the cover page: one featured 5 different businesses with men operating them, while the other had the exact same five businesses, but with women entrepreneurs, instead. Groups of borrowers targeted to be offered the new product were randomized to receive either the brochure with the female or the male pictures.

We find that this form of marketing affects both male and female clients but quite differently. In the full sample of clients, the brochure has little impact on loan demand among either men or women. When we focus on business owners, however, we find that exposure to the female brochure substantially decreases demand for the larger loan among women clients but has no impact on male clients. Importantly, this is not an artifact of business scale. While women typically operate much smaller businesses, we show that women who operate businesses which are comparable in scale to male businesses also react negatively to the female brochure. However, once we allow the response to the brochure picture to vary by individual characteristics, we find that this negative effect is concentrated among women business owners with low decision making power. For this group of women, we conjecture that it is the male decision maker's reaction to the female brochure that matters. We find that men also react negatively to the female brochure, but only among non-entrepreneurs, individuals with poor digit span recall (correlated with education and entrepreneurship) or with wives who are relatively poorly educated. This could be interpreted as evidence of affinity (Evans, 1963; Mobius and Rosenblat, 2006), but it is also consistent with men's low regard for females as business owners (see Beaman et al. 2009 who study perceptions about female

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1. While supply constraints may also be an important determinant of lack of credit to small firms (Banerjee and Duflo, 2008; de Mel et al. 2010), our sample consists of individuals that are already microfinance clients.

politicians). Interestingly, female business owners with high decision making autonomy shown the *male* brochure also react negatively by roughly the same magnitude, while there is no effect on female business owners with autonomy shown the female brochure.

These findings contribute to the relatively limited evidence on the impact of marketing on behavior change and in this sense, Bertrand et al. (2010) is the paper closest to ours. They analyze a direct mail field experiment in urban South Africa that randomized advertising content, loan price, and loan offer deadlines simultaneously. Their subjects, like ours, were existing microfinance clients. Bertrand et al. find that advertising content matters, especially among men, but it is mostly treatments that appeal to intuition (such as a picture) as opposed to reason (like a comparison of interest rates across lenders) that influence behavior. The reason why reflexive cues are less relevant is perhaps because individuals that received the loan offers had rationally decided not to borrow, and so were already familiar with the terms of the loan made salient by reflexive treatments (Kahneman, 2003).

In Bertrand et al (2010) men respond positively to the image of women credit officers in a context where this creates no threat to relative male authority within the household or within the community. In our experiment, however, the picture of a female entrepreneur on a brochure advertising a larger loan challenges local norms of relative power. In this sense, the paper is relevant to the growing literature on social norms which uses traditional marketing techniques to alter attitudes and behavior by changing individual perceptions (see, for example, La Ferrara et al., 2008; Jensen and Oster, 2007 and Paluck, 2009).

The remainder of the paper is structured as follows. Section I describes the context in Pakistan and the marketing experiment. Section II discusses the data, Section III describes the empirical strategy and Section IV reports the results of the experiment. Section V discusses the policy implementations of the results and concludes.

I. Setting and Intervention

Pakistan has a population of over 162 million, with over 60% living in rural areas. Although the agricultural sector continues to be important for overall growth, 45 percent of the rural poor rely on non-farm activities as important sources of income.[2]

Pakistan's financial system has grown significantly in the past few years due in part to the successful implementation of various financial sector reforms, including the granting of banking licenses to a number of new private banks in the early 1990s, the modernization of the governance and regulatory

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2. Source: World Development Indicators database, April 2009 and World Development Report 2008.

framework of the banking sector in the late 1990s, and the privatization of major public sector banks since the early to mid-2000s.

Despite these recent achievements, access to financial services is still quite limited, especially in rural areas. According to the Access to Finance dataset (Nenova et al. 2009), only 14 percent of households interviewed reported using a financial product or service (including savings, credit, insurance, payments, and remittance services) from a formal financial institution.[3] When informal financial access is taken into account, however, this figure rises to just over 50 percent.

Overall, rural firms and households account for about 7 percent of total credit disbursement (about Rs 130.7 billion) and the bulk of this is for agricultural finance (Rs 108.7 billion), including both farm and nonfarm credit (see Akhtar, 2008). While microcredit volumes are skewed towards rural areas, microcredit currently accounts for only 17 percent of total rural credit and serves some 1.7 million clients. Comparative rates of microfinance penetration in the South Asian region are 35 percent in Bangladesh, 25 percent in India, and 29 percent in Sri Lanka.

Among microfinance providers, Khushali Bank is active in 86 districts; National Rural Support Program (NRSP) comes second with a presence in 51 districts while Kashf Foundation has some presence in 24 districts.[4] These three microfinance entities account for approximately 70 percent of the sector's active clients (MicroWatch, 2008).

Unlike most other countries, the microfinance sector has focused primarily on men rather than women on the grounds that there is less demand for credit from women give their low mobility levels and cultural norms around women as economic actors. Consistent with this, Pakistan continues to under-perform on a range of social indicators relative to other countries at similar levels of per capita income and rural development. According to the 1998 Human Development Report, for example, Pakistan ranked 138 out of 174 on the Human Development Index, 131 out of 163 on the Gender Development Index (GDI), and 100 out of 102 on the Gender Empowerment Measure (GEM).

National Rural Support Program

Established in 1991, NRSP is the largest of the Rural Support Programs in the country in terms of outreach, staff and development activities. It is modeled after the Aga Khan Rural Support Program, established in the early 1980s as a not-for-profit rural development organization. During the early 1990s, NRSP remained small, but the establishment of the Pakistan Poverty Alleviation Fund in 2000, a second-tier funding and capacity-building apex, provided critical

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3. In comparison, 32 percent of the population has access to the formal financial system in Bangladesh, and this figure amounts to 48 percent in India and 59 percent in Sri Lanka (World Bank, 2008).

4. Both NRSP and Kashf obtain a large fraction of their loan funds from the Pakistan Poverty Alleviation Fund (PPAF) which supported this work.

funding that fueled NRSP and other partner NGOs' growth. As part of its growth strategy, NRSP applied for a microfinance bank license in 2008 and became a microfinance bank in early 2010, falling under the supervision of the State Bank of Pakistan. Microfinance banks now account for almost half of the outreach of the microfinance sector.

NRSP makes loans largely to members of a community organization. Its staff supports the creation of community organizations (CO) by a process of social mobilization which includes the creation of a community co-financed and co-managed infrastructure project and skill and group management training. Members of a CO typically live close to each other and meet regularly. Most also contribute towards individual and group savings. Up to date, NRSP has organized more than a million poor households into a network of more than 100,000 COs across the country. Roughly one-half to two-thirds of CO members are also active borrowers and group meetings serve as the venue for the receipt and repayment of loans for most members.

NRSP has three main credit products: a single installment loan for agricultural inputs (fertilizer, seeds, etc) with maturity of 6 to 12 months; enterprise loans and loans for livestock that have 12 monthly installments each. The maximum amount that can be borrowed depends on the number of loans successfully repaid (loan cycle). A new borrower starts with a small loan limit of Rs 10,000 (USD 117)[5] which can increase in intervals of up to Rs 5,000 per loan cycle. As a point of comparison, a cow costs around Rs 60,000. All loans have joint liability at the CO level although new loans are issued even if some CO members are overdue.[6]

Besides credit, NRSP offers training in various vocational skills and provides up to 80 percent financing for infrastructure projects in the village.

The Experiment and Marketing Intervention

The study was conducted in five branches in the districts of Bahawalpur, Hyderabad, and Attock, spanning different agro-climatic regions of Pakistan.[7] Figure 1 shows the location of the study districts.

NRSP staff conducted a complete listing of the occupation of CO members in the study branches to identify those who were engaged in a non-farm activity. After the listing, a baseline survey was conducted in November 2006 in a sample of 747 COs, selected so that their membership was between 5 and 26 members. The original sampling framework included all CO members that according to the listing exercise had a non-farm business and five other members selected at random from each CO. In practice, enumerators ended up

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5. Currency converter accessed online on July 2nd, 2010.

6. Borrowers are required to find two guarantors, who can be members of the same CO. NRSP staff uses guarantors as a means of exerting peer pressure, rather than enforcing repayment from them.

7. These branches are as follows: Matiari and Tando Muhammad Khan in Hyderabad, Attock in Attock and Bahawalpur (rural and urban) in Bahawalpur.

FIGURE 1. Pakistan Study Districts

interviewing everyone that attended a special CO meeting that was called to conduct the baseline survey. The resulting sample consisted of a total of 4,162 members interviewed, and 2,284 members (54.9%) that were in good standing. The timeline of the experiment is presented in Figure 2.

Using data from the listing exercise, COs were randomly allocated into two groups, one of which was assigned to receive business training. Training sessions were held, from February to May 2007. Each session lasted for 6 to 8 days (see Giné and Mansuri (2011a) for more details about the business training intervention).

After completing the business training sessions, members from all study COs were invited to an orientation meeting that introduced the possibility of borrowing a larger loan amount. Most orientation sessions took place in regularly scheduled CO meetings and lasted for about an hour and a half. Attendance at these sessions was high, with more than 90 percent of members attending. Message consistency during the orientation was maintained by providing

FIGURE 2. Timeline
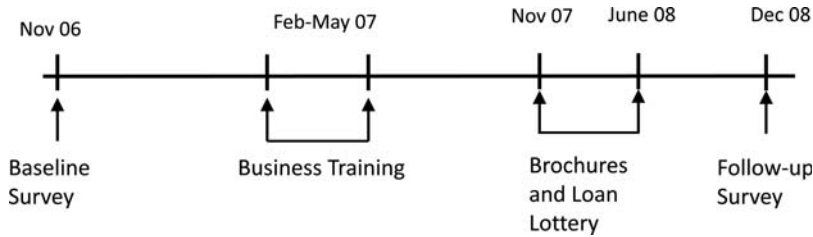
training to all NRSP credit officers and other staff who were in charge of delivering the orientations.[8]

During the orientation meeting, members who were in good standing i.e., those who had successfully repaid at least one loan on time received one of two versions of a marketing brochure. Orientations occurred successfully in 596 COs. In the remaining 151 COs orientation meetings could not be held because the CO had either disbanded or was newly formed so that none of its members was eligible for the lottery.[9] The brochure was identical in all respects except one. In one version, the entrepreneurs manning the business were male while in the other they were female. To ensure that only the gender of the businessperson differed between both versions of the brochure, the exact same business was photographed twice, the first time with a man as owner and the second with a woman. Figure 3 shows the front and back of the brochure along with the picture of the businesses first with men (Male brochure) and then with women (Female Brochure). The businesses in the brochure were chosen to be representative of the type of businesses typically run by NRSP microentrepreneurs. The brochure thus contained two agribusinesses, two retail businesses and one tailoring business. According to our baseline data, 49.41 percent of male businesses were agribusiness, 26.87 percent were in retail and 8.53 percent were involved in handicrafts and tailoring, thus accounting for almost 85 percent of all male businesses. Among female businesses, 19.88 percent were agribusinesses, 17.60 percent were retail businesses and 56.90 were in handicrafts and tailoring, accounting for almost 95 percent of all female businesses. All members of a CO were given one of the two brochures, which were randomly allocated across COs.

The goal of the brochure was to explain how to apply for a larger loan via a lottery. Appendix A provides the translated text of the brochure. According to this, all eligible members could make a loan request of up to Rs. 100,000. The request was subject to all the usual technical and social reviews conducted by

8. There were 12 teams of two NRSP staff each in Attock, 29 in Bahawalpur and 7 in Hyderabad.
9. First time borrowers were not eligible to participate in the lottery. NRSP felt it did not have sufficient credit history for this group to allow them access to the much larger loans available to lottery winners.

FIGURE 3. Brochures
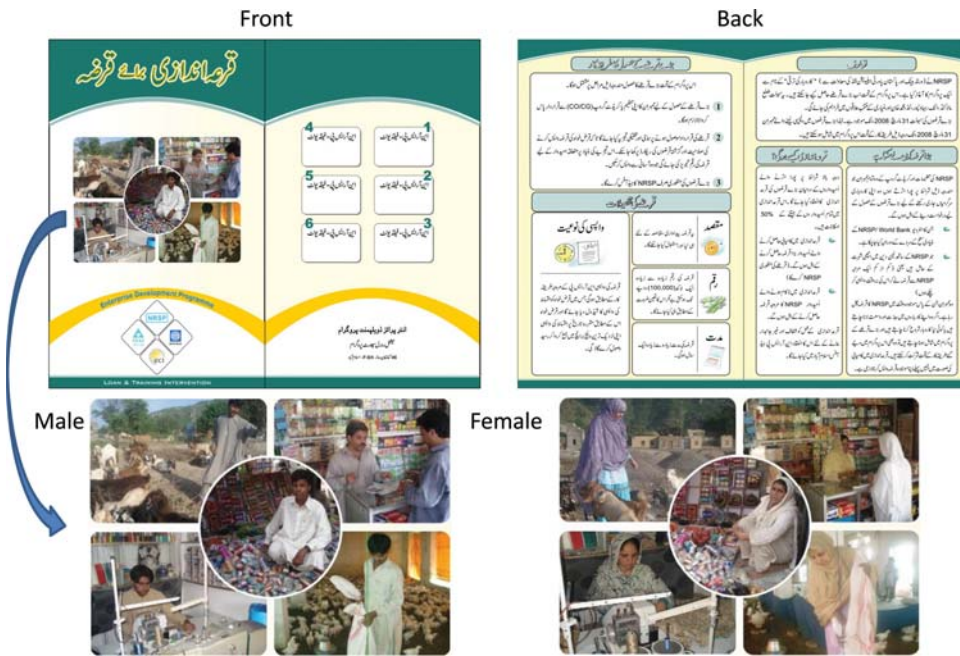
NRSP credit officers, who could also determine the loan amount they were willing to approve for each borrower. Approved loans which were larger than the usual limit of Rs. 30,000, were to be forwarded to headquarters, where the result of the lottery were maintained.[10] Lottery winners could borrow the approved amount, while those who lost the lottery could borrow up to their regular loan size. Although the brochure encouraged members to borrow for productive purposes, in practice there were no restrictions on the use of the loan. In addition, qualifying members who already had an outstanding loan with NRSP were allowed to apply for the larger loan, subject to the condition that part of the new loan would be used to pay off the outstanding debt.

Eligible CO members had seven months, from November 2007 to June 2008, to apply for the larger loan. Of the 2,284 eligible CO members, 713 (31.2 percent) applied. NRSP approved 532 loans (74.6 percent). Most applicants had their loan amounts reduced. Credit officers reported that this was due to concerns that borrowers would not be able to make the required monthly installments. Of the customers approved, 254 were assigned to win the lottery (47.7 percent) and 211 ended up borrowing (83 percent). Among the 278 loan applicants that lost the lottery, only 161 borrowed (58 percent). Among the reasons cited for changing their mind are time elapsed from request

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10. The lottery was designed so that the chance of winning was 50 percent. See Giné and Mansuri 2011 for more details.

Figure 4. Distribution of Loans by Date of Disbursement
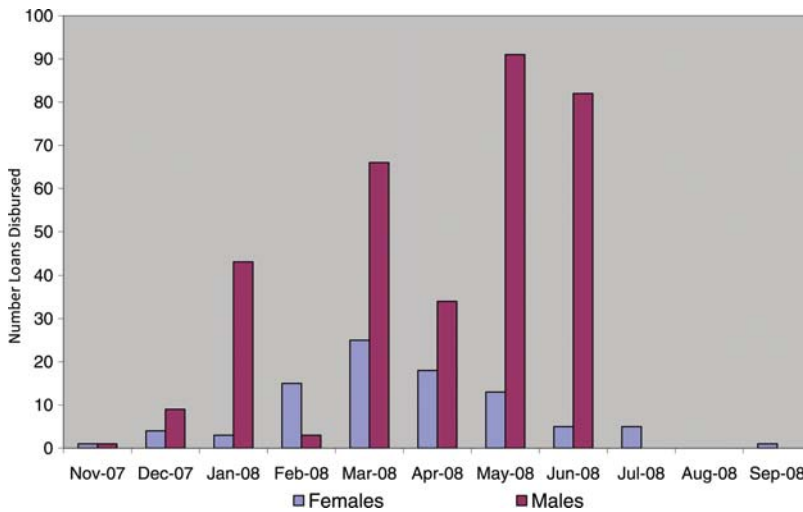
(Source: Administrative records, NRSP)

to approval (average time was 2 months), and for losers the fact that the new loan size was not too different than the loan they currently had.

Figure 4 shows the distribution of loans by disbursement date and gender. The vertical axis measures number of loans applied for in each disbursement month. It is clear that women did the bulk of the borrowing in the first three to four months after the lottery started. Males, on the other hand, waited for the months of May and June to ask for loans, coinciding with the agricultural season.

A follow-up survey was conducted in December 2008. This was six months after the loan lottery concluded and about 13 months after the loan orientation meetings. In the follow up, some 45 percent of eligible CO members recalled attending the loan lottery orientation meeting. Among those who recalled attendance, about 70 percent recalled receiving a brochure and of these about half were able to correctly recall the picture they were shown.

Of the 211 lottery winners who took the larger loan, 125 reported loan use in the follow up. Table 1 reports the share of loans used for different purposes by gender, along with the *p*-value of a test of differences by gender. On average, about 48 percent of the loan was used for working capital, with men significantly more likely to use loans for this purpose (50 percent as compared to 36 percent for women). In contrast only 6 percent of loan proceeds were used for purchasing business equipment, but here women were 3 times more likely to report this use (12 percent compared to about 4 percent for men). For other uses, men and women look roughly similar, though women use loans

TABLE 1. Reported Larger Loan Use

	All (1)	Male (2)	Female (3)	P-val of t-test (2)-(3) (4)
Household Durables	0.038	0.027	0.080	0.161
Food consumption	0.041	0.041	0.041	0.999
School Supplies	0.003	0.003	0.005	0.584
Festivals and Ceremonies	0.010	0.007	0.022	0.250
Household Repairs	0.070	0.081	0.027	0.293
Previous Loan Repayment	0.059	0.057	0.068	0.787
Savings	0.041	0.036	0.063	0.438
Inventories/ raw materials for main business	0.475	0.505	0.355	0.110
Equipment for main business	0.055	0.038	0.124	0.064
Inventories and Equipment for other household businesses	0.061	0.053	0.096	0.361
Other uses	0.146	0.153	0.118	0.606
Number of Obs.	125	100	25	

Note: Authors' analysis based on data from the follow-up survey conducted in December 2008. Columns report the average fraction of loans used for each purpose.

more frequently for consumer durables (8 percent of loan proceeds on average versus about 3 percent for men), while men use loan proceeds more frequently for housing improvements (8 percent versus about 3 percent for women).

II. DATA

Baseline data collected in November 2006, prior to the business training and loan lottery orientations, included questions on the CO member, the member's household and the business. Besides the usual set of variables, such as age, education, marital status etc, individual characteristics include measures of entrepreneurship, digit span recall, risk preferences and decision making autonomy across a range of household and business outcomes. Household characteristics include information on the income generating activities of all household members, total household assets including livestock and past and current borrowing and saving of household members. Business characteristics, including age, location and type of business activity, as well as the scale of the business as measured by its assets, hired workers and monthly sales.

Summary statistics from the baseline survey are presented in Table 2, and variable definitions are provided in Appendix B. CO members are about 38 years old, have 4.1 years of education, own some 3.5 acres of land and have average household expenditures of about Rs 5,200 per month (roughly 61 USD). This places them significantly above the bottom half of the population of the villages in which they reside (see Mansuri, 2011). Women are

TABLE 2. Summary Statistics

	N. Obs (1)	All members			P-value of t-test (4)-(5)	Business Owners		P-value of t-test (7)-(8)	Matched Business Owners		P-value of t-test (10)-(11)
		All (2)	Male (3)	Female (4)	(5)	Male (6)	Female (7)	(8)	Male (9)	Female (10)	(11)
Take-up											
Shown Female brochure (Yes = 1)	3,451	0.52	0.49	0.56	0.00	0.47	0.57	0.02	0.45	0.58	0.02
Eligible for loan lotttery (Yes = 1)	3,451	0.55	0.62	0.62	0.00	0.69	0.67	0.00	0.71	0.68	0.01
Offered Business Training (Yes = 1)	3,451	0.54	0.52	0.53	0.00	0.55	0.53	0.00	0.54	0.56	0.04
Applied for loan (1 = Yes)	2,149	0.31	0.42	0.18	0.00	0.45	0.17	0.00	0.44	0.22	0.00
Approved, conditional on applying (1 = Yes)	664	0.76	0.76	0.76	0.01	0.78	0.75	0.05	0.81	0.74	0.35
Borrowed, conditional on being approved (1 = Yes)	503	0.69	0.75	0.52	0.62	0.75	0.55	0.85	0.78	0.63	0.87
Amount borrowed ('000 Rs)	445	33.00	33.83	30.00	0.06	34.59	29.55	0.02	36.04	32.50	0.43
Baseline Characteristics											
Individual Characteristics											
Female (Yes = 1)	3,451	0.46	–	–	–	–	–	–	–	–	–
Age	3,451	37.88	38.18	37.51	0.01	37.5	36.97	0.29	38.49	39.02	0.98
Years of Education (0-16)	3,451	4.09	5.31	2.63	0.00	5.53	2.73	0.00	5.29	2.65	0.00
Married (Yes = 1)	3,451	0.83	0.82	0.84	0.12	0.82	0.86	0.13	0.84	0.87	0.09
Digit Span Recall (0-8)	3,451	3.31	3.84	2.68	0.00	4.03	2.74	0.00	3.87	2.48	0.00
Member of a Mixed Group (Yes = 1)	3,451	0.06	0.04	0.09	0.00	0.05	0.09	0.00	0.03	0.13	0.00
Index of Female Mobility	1,571	0.06	–	0.06	–	–	0.12	–	–	0.15	–
Index of No Purdah	1,571	0.15	–	0.15	–	–	0.13	–	–	0.37	–
Business Owner (Yes = 1)	3,451	0.60	0.61	0.58	0.01	–	–	–	–	–	–
Risk Tolerance (0 = Risk Averse; 10 = Risk Lover)	3,451	3.61	3.81	3.37	0.00	3.84	3.39	0.00	4.08	3.59	0.00
Months as Member	3,451	26.55	24.57	24.56	0.00	26.92	22.11	0.00	28.38	25.35	0.01
Household Characteristics											
Years of Education, Spouse (0-16)	3,451	3.31	2.12	4.75	0.00	2.24	4.66	0.00	2.06	4.53	0.00

(Continued)

TABLE 2. Continued

	N. Obs (1)	All members			P-value of t-test (4)-(5) (5)	Business Owners		P-value of t-test (7)-(8) (8)	Matched Business Owners		P-value of t-test (10)-(11) (11)
		All (2)	Male (3)	Female (4)		Male (6)	Female (7)		Male (9)	Female (10)	
Total Household Income (log)	3,451	11.53	11.62	11.44	0.00	11.71	11.45	0.00	11.53	11.61	0.99
Expenditures (log)	3,451	8.28	8.29	8.27	0.00	8.32	8.29	0.00	8.19	8.39	0.40
Number of Children under 9	3,451	2.65	2.89	2.37	0.00	2.89	2.43	0.00	2.77	2.31	0.01
Land (area)	3,451	4.48	5.94	2.74	0.00	5.84	2.57	0.01	4.99	3.48	0.01
Credit constraints (Yes = 1)	3,451	0.14	0.12	0.16	0.00	0.12	0.12	0.00	0.12	0.13	0.01
Family ever in business (Yes = 1)	3,451	0.61	0.61	0.61	0.31	0.75	0.7	0.06	0.74	0.69	0.14
Decision Making (0-8)	3,451	2.65	3.34	1.84	0.00	3.35	1.59	0.00	3.20	1.79	0.00
Sources of Credit											
% borrowing Formal Sector 2006-08	2,931	0.05	0.07	0.03	0.01	0.08	0.03	0.02	0.09	0.01	0.01
Amount borrowed 2006 ('000s)	2,931	5.94	9.67	1.37	0.08	11.57	0.85	0.19	13.35	0.15	0.31
% borrowing Microfinance Institutions / Microfinance Banks 2006-08	2,931	0.82	0.79	0.86	0.00	0.86	0.93	0.00	0.87	0.91	0.00
Amount borrowed 2006 ('000s)	2,931	31.17	34.23	27.42	0.00	37.67	28.79	0.00	39.62	31.54	0.13
% borrowing Friends and Family (other than CO members) 2006-08	2,931	0.22	0.21	0.23	0.11	0.2	0.22	0.30	0.19	0.22	0.47
Amount borrowed 2006 ('000s)	2,931	5.57	6.19	4.81	0.00	6.19	4.78	0.01	6.04	4.61	0.13
% borrowing Informal Lenders 2006-08	2,931	0.48	0.50	0.47	0.16	0.47	0.42	0.27	0.49	0.45	0.20
Debt to informal lenders 2006 ('000s)	2,931	15.07	23.21	5.06	0.00	26.45	4.32	0.00	18.38	4.73	0.02
Businesses											
Agribusiness, Dairy, Livestock (Yes = 1)	1,962	0.40	0.54	0.22	0.00	0.54	0.22	0.00	0.56	0.56	−
Retail and Food Services (shopkeeping) (Yes = 1)	1,962	0.24	0.28	0.19	0.00	0.28	0.19	0.00	0.29	0.29	−
Handicraft, Tailoring, Vocational Trade (Yes = 1)	1,962	0.29	0.09	0.55	0.00	0.08	0.55	0.00	0.05	0.05	−
Other (Yes = 1)	1,962	0.07	0.09	0.04	0.00	0.09	0.03	0.00	0.09	0.09	−
Sales ('000 Rs)	2,065	14.51	22.3	4.74	0.01	22.3	4.74	0.00	7.06	7.01	0.48

Note: All variables are from the baseline survey (November 2006), except for Sources of Credit information, which is from the followup and recalls credit for the 2006-2008 period. See Appendix B for definition of variables. Columns (2)-(4), (6)-(7) and (9)-(10) report means.

only slightly less likely than men to report owning a business (61 percent of sample men and 58 percent of sample women owned a business at baseline).[11] However, there are significant differences between male and female CO members in almost all other dimensions, and these differences are sustained when we focus only on those who owned a business at baseline. Women tend to have less education, perform significantly below men on digit span recall and are less risk tolerant (on a 0 to 10 scale). Women members are also more likely to come from households that have less land wealth, as compared to the households of male CO members. This indicates some selection of women CO members by wealth and is consistent with more stringent female seclusion practices among landed rural households (see Jacoby and Mansuri, 2011). Importantly, women members also report far less decision making autonomy than men do on a range of household, individual and business outcomes. Among business owners, women report having complete autonomy over roughly 1.5 decisions out of a total of 8, whereas men claim to have complete autonomy over more than 3 decisions.[12]

Women are also more likely than men to belong to a mixed gender CO in our sample (about 63 percent of members in mixed COs are women). While this is a small sample overall, given that only 7 percent of COs have both men and women, there are some interesting differences between women in mixed and single gender COs. In particular, the former seem to have less 'voice' in the COs they belong to. While the odds of holding office in the single gender COs are about the same for men and women, at 20 and 18 percent respectively, 48 percent of men and only 7 percent of women in mixed COs report holding any office. Women in mixed COs are also significantly more likely to observe purdah, even though mixed COs are more than twice as likely to be composed of members of the same *zaat* (caste).[13] They are also younger and have more young children under age 9. They are also less risk tolerant, significantly less optimistic and have less trust in the formal institutions. However, they do about as well as other women on digit span recall and the index of entrepreneurial literacy. They are also about as well educated as women in female only COs and come from households that are, on average, wealthier than those of other women in the sample (Appendix Table A1). Bothe men and women in mixed COs are also far less likely to be eligible for the larger loan, and this is even more the case for men, perhaps because they have been CO members for a much shorter time, on average.

Entrepreneurs are also different from other CO members. They are more likely to be older, more educated and to report a family history of business ownership. In addition, business owners have better digit span recall, have a

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11. This is not surprising given that the men and women in our sample are all microfinance clients.

12. Giné and Mansuri (2011a) also find that women members are often not the effective managers of businesses they claim to own.

13. Seclusion practices are much less stringent within *zaat/biradari* (caste) groups. See Jacoby and Mansuri (2011).

TABLE 3. Percentage Borrowing and Reasons for not Borrowing by Credit Source

	Credit Source			
	Commercial Bank	MFI	Informal Lenders	Relatives and Friends
Percent borrowing from [source] in 2006	5.07	83.43	33.77	21.12
The main [reason] for not borrowing from [source]?				
Do not like/need to borrow	52.55	81.39	70.81	74.69
Inadequate collateral	18.50	1.98	11.94	6.77
Lender's procedures are too cumbersome	14.49	9.31	6.70	5.82
Lender's loan terms are unfavorable	5.48	0.59	3.35	0.91
Lender is too far away	3.18	0.40	0.78	1.35
Need to pay bribes	2.02	0.79	2.18	0.08
Past default with lender	1.96	0.79	0.89	1.15
Members not willing to lend to me	1.25	4.55	2.51	6.53
Bad credit history	0.56	0.20	0.84	2.69

Notes: Data come from the baseline survey (November 2006)

better outlook on life and not surprisingly, also score higher on a business knowledge test (see Giné and Mansuri, 2010 for details). They are also more likely to be risk tolerant. Among women, those that have a business are less likely to report mobility constraints, but are somewhat more likely to observe *purdah*, perhaps because they are relatively wealthier.

Table 2 also suggests that the scale at which male and female businesses operate is quite different (see also de Mel et al. 2009). Men's businesses yield monthly sales that are more than 4 times as large as monthly sales for women. Women also tend to operate more businesses from home. While there is considerable overlap in the type of businesses owned by men and women, men are far more likely to be in the agribusiness sector, with much greater contact with wider markets, while women are concentrated in small scale manufacturing, handicrafts and tailoring in particular.

Table 3 shows the main sources of credit for sample households at baseline. Only 5 percent of members have any loans from formal financial sources, mainly commercial banks. In contrast, 34 percent report borrowing from informal lenders, mainly shopkeepers, and 21 percent report borrowing from relatives.[14] Not surprisingly, most borrow from an MFI, including NRSP. Average loan sizes vary greatly by source. While the average loan from a commercial bank is around 100,250 Rs (1,172 USD), the average MFI loan is only 12,000

14. Informal lenders also include traders and wholesalers and, to a smaller extent, professional moneylenders and landlords.

Rs (USD 140) and loans from informal lenders are typically in about the same range. There is little variation in the relative share of lenders by gender, however, though female CO members tend to borrow less overall.

Table 3 also reports reasons for not borrowing for those who reported not using a credit source. Interestingly, most respondents without loans report an unwillingness to borrow – either because they have no need for loans or because they dislike borrowing – as the main reason for not taking a loan and this varies little across lenders. Lack of collateral and cumbersome loan application procedures come in next, and are particularly important when dealing with a formal lender.

Table 4 presents the means of baseline variables for the sample. Columns 2, 3 and 4 report the means for CO members who were exposed to the male and female brochure, respectively and the *p*-value of the test that the difference in means is significant. We also report the means and *p*-value of the same test for the sample of males (columns 5 to 8) and females (columns 9-12) separately. Overall, we find balance between the two groups. The difference in means for members receiving the male and female brochure is significant at conventional levels for only two of the 16 baseline variables we consider. Study participants who received the male brochure borrow more from informal sources and are less likely to be members of a mixed group (both significant at the 10% level). For the sample of males, the difference in means in the two groups is again significant for only two of the 16 variables considered. Male participants who received the male brochure are somewhat less likely to belong to a mixed CO (significant at the 10% level)[15] and are somewhat less likely to borrow from friends and relatives (significant at the 5% level). For the sample of females the difference is only significant for own education. Women who received the male brochure appear to have higher formal education by about one third of a year. Table 3 also reports the *p*-value of an F-test that all baseline characteristics are jointly insignificant. We cannot reject this hypothesis in any of the three samples (lowest *p*-value is 0.58).

III. Empirical strategy

Because the type of brochure is assigned randomly at the CO level, its impact can be estimated via the following regression equation:

$$Y_{ij} = \alpha + \beta FB_j + \gamma X_{ij} + \epsilon_{ij} \qquad (1)$$

where Y_{ij} is the outcome of interest for individual i in CO j (for e.g., and indicator variable that takes the value 1 if the respondent had applied for a larger loan, and 0 otherwise), FB_j is an indicator variable that take the value 1 if the

15. Since brochure-type was assigned at the CO level, the lower representation of men in mixed COs likely explains this.

TABLE 4. Verification of Randomization

	All members				Male				Female			
		Means		P-val of t-test (1)-(2)			Means		P-val of t-test (4)-(5)			Means		P-val of t-test (7)-(8)
	N. Obs. (1)	Male Brochure (1)	Female Brochure (2)	(3)	N. Obs. (5)	Male Brochure (4)	Female Brochure (5)	(6)	N. Obs. (9)	Male Brochure (7)	Female Brochure (8)	(9)
Characteristics at Baseline												
Age	3,451	37.95	37.81	0.74	1,880	37.98	38.40	0.89	1,571	37.91	37.20	0.85
Number of children under 9	3,451	1.73	1.83	0.77	1,880	1.92	1.99	0.53	1,571	1.45	1.40	0.17
Business Owner(Yes = 1)	3,451	0.60	0.59	0.57	1,880	0.63	0.59	0.75	1,571	0.57	0.60	0.79
Digit Span Recall	3,451	3.36	3.28	0.85	1,880	3.82	3.88	0.83	1,571	2.72	2.65	0.82
Risk Tolerance (0 = Risk Averse; 10= Risk Lover)	3,451	3.71	3.52	0.25	1,880	3.81	3.81	0.53	1,571	3.57	3.22	0.49
Land	3,451	4.38	4.58	0.82	1,880	5.83	6.05	0.77	1,571	2.36	3.05	0.55
Years of Education of Spouse	3,451	3.69	3.71	0.69	1,880	2.72	2.73	0.86	1,571	5.05	4.75	0.55
Member of a Mixed Group (Yes = 1)	3,451	0.04	0.08	0.10	1,880	0.02	0.06	0.06	1,571	0.07	0.10	0.89
Own Education	3,451	4.26	3.95	0.14	1,880	5.27	5.36	0.78	1,571	2.84	2.47	0.07
Decision Making	3,451	2.74	2.57	0.35	1,880	3.41	3.26	0.77	1,571	1.82	1.85	0.61
N. Obs.		1,662	1,789			967	913			695	876	
Pct. Borrowing from … at the time of Baseline*												

(Continued)

TABLE 4. Continued

	All members					Male					Female			
		Means		P-val of t-test (1)-(2)			Means		P-val of t-test (4)-(5)			Means		P-val of t-test (7)-(8)
	N. Obs. (1)	Male Brochure (1)	Female Brochure (2)	(3)	N. Obs. (5)	Male Brochure (4)	Female Brochure (5)	(6)	N. Obs. (9)	Male Brochure (7)	Female Brochure (8)	(9)
Commercial Bank	2,931	2.38	1.7	0.64	1,616	3.69	2.71	0.60	1,315	0.51	0.69	0.74
Microfinance Institution	2,931	71.34	67.62	0.30	1,616	69.44	63.74	0.98	1,315	74.06	71.74	0.46
Friends and Relatives	2,931	7.71	6.58	0.48	1,616	7.85	5.16	0.05	1,315	7.5	8.09	0.14
Informal lenders	2,931	0.7	0.2	0.07	1,616	0.83	0.26	0.19	1,315	0.51	0.13	0.23
N. Obs.		1,427	1,504			841	775			586	729	
Pct. Offered Business Training	3,451	52.47	51.82	0.83	1,880	51.29	52.03	0.93	1,571	54.1	51.6	0.48
Member is eligible for loan lottery (Yes = 1)	3,451	63.72	69.00	0.54	1,880	64.63	59.69	0.82	1,571	62.45	62.21	0.66
P-val of F-test that all baseline characteristics are jointly insignificant				0.65				0.58				0.65

Notes: * denotes variable measured at follow-up, conducted in December 2008. Other variables are from baseline conducted in november 2006. Pct. Offered Business Training and Member eligibility come from administrative data from NRSP.

respondent was shown the female brochure, X_{ij} is a vector of individual characteristics collected at baseline and ϵ_{ij} is a mean-zero error term. Standard errors are clustered at the CO level throughout since the CO level treatment assignment creates spatial correlation among members of the same CO (Moulton, 1986). The vector X_{ij} includes the following baseline characteristics reported in Table 2: eligibility, being offered business training, a dummy if decision-making power is above the median in the same gender sample, own education, digit span recall, spouse education, landholdings, membership in a mixed group, age, number of children and risk tolerance. It also includes field unit (branch) dummies, our stratification variable. This set of variables includes characteristics for which there is imbalance as well as variables that are likely to affect the decision to borrow. [16] The coefficient β captures the impact of being shown a brochure with pictures of female entrepreneurs on the cover and is the coefficient of interest.

We also examine interactions between the type of brochure shown and baseline characteristics which could proxy for attitudes towards women

$$Y_{ij} = \alpha + \rho(FB_j^* Z_{ij}) + \beta FB_j + \gamma X_{ij} + \epsilon_{ij} \tag{2}$$

Z_{ij} is a subset of individual characteristics included in the vector X_{ij} that could represent an individual's attitudes towards women. The coefficient ρ on the interaction term $FB_j * Z_{ij}$ reveals the extent to which the impact of the female picture (FB) on loan uptake varies according to the members attitudes towards women.

IV. Empirical Results

This section presents evidence on the impact of the female brochure on two main outcomes: the decision to borrow and the loan amount requested.

Table 5 presents regression results from the estimation of equation (1) for the decision to borrow. Columns (1)-(3) present results for the full sample, combined and disaggregated by gender. On average, only 14.6 percent of members, roughly 31 percent of the eligible, applied for a larger loan. This is somewhat higher for men, at 20 percent, and correspondingly lower for women, among whom only 8 percent of the eligible applied. Given that the sample consists of seasoned microfinance clients, this number appears low. When asked anecdotally, many borrowers report either that the monthly installment amount for the larger loan was too high or that the maturity period was too short. Both of these indicate that the clients of NRSP are not, by and large, constrained by the current loan size, but that some could benefit from larger loans. Among men, older members and business owners were more

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16. The regression results to come are not substantially affected by the exclusion of this set of control variables.

TABLE 5. Uptake of Larger Loan

	OLS								
	All members			All Business Owners			Matched Business Owners		
Sample:	All (1)	Males (2)	Females (3)	All (4)	Males (5)	Females (6)	All (7)	Males (8)	Females (9)
Female Brochure	−0.026	−0.033	−0.015	−0.029	−0.017	−0.051**	−0.029	−0.007	−0.043
	(0.021)	(0.034)	(0.019)	(0.027)	(0.044)	(0.023)	(0.035)	(0.058)	(0.039)
Offered Business Training	0.048**	0.046	0.046**	0.058**	0.067	0.037	0.071**	0.056	0.095**
	(0.021)	(0.035)	(0.019)	(0.027)	(0.044)	(0.024)	(0.035)	(0.055)	(0.047)
Female	−0.016			−0.034			−0.029		
	(0.021)			(0.031)			(0.046)		
Age	0.006***	0.008**	0.000	0.006	0.009	−0.003	0.009	0.011	−0.003
	(0.002)	(0.004)	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.008)	(0.011)
Age∧2	−0.000**	−0.000**	0.000	0.000	0.000	0.000	−0.000*	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
High Decision-making power (1 = yes)	0.001	−0.003	−0.022	0.002	0.009	−0.016	−0.002	−0.037	−0.039
	(0.002)	(0.020)	(0.017)	(0.003)	(0.025)	(0.022)	(0.005)	(0.051)	(0.036)
Own Education	0.002	0.005	0.000	0.003	0.004	0.001	0.004	0.004	0.007
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.005)	(0.007)	(0.006)
Digit Span Recall	0.003	0.002	0.001	−0.001	−0.002	−0.002	0.002	−0.001	−0.001
	(0.003)	(0.005)	(0.004)	(0.005)	(0.008)	(0.005)	(0.008)	(0.013)	(0.011)
Risk Tolerance	0.001	−0.001	0.002	0.001	−0.001	0.001	0.004	−0.002	0.006
	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.005)	(0.008)	(0.006)
Yrs. Of Education of Spouse	0.000	−0.005	0.002	−0.001	−0.003	0.000	−0.004	−0.011*	−0.001
	(0.002)	(0.003)	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)	(0.006)	(0.004)

(Continued)

TABLE 5. Continued

	OLS								
	All members			All Business Owners			Matched Business Owners		
Sample:	All (1)	Males (2)	Females (3)	All (4)	Males (5)	Females (6)	All (7)	Males (8)	Females (9)
Number of children under 9	0.003	0.003	0	0.007	0.007	0.006	0.01	0.017	0.001
	(0.003)	(0.004)	(0.004)	(0.004)	(0.006)	(0.007)	(0.008)	(0.011)	(0.011)
Business Owner (Yes = 1)	0.028**	0.040*	0.01						
	(0.014)	(0.022)	(0.018)						
Land	0.000	0.001	0.000	0.000	0.001	0.000	-0.001	0.000	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)
Member of a Mixed Group (Yes = 1)	−0.092***	−0.086*	−0.105**	−0.150***	−0.121*	−0.196***	−0.166**	0.021	−0.272***
	(0.032)	(0.047)	(0.048)	(0.043)	(0.066)	(0.070)	(0.073)	(0.236)	(0.100)
Eligibility	0.188***	0.246***	0.130***	0.203***	0.299***	0.111***	0.219***	0.304***	0.148***
	(0.015)	(0.026)	(0.016)	(0.019)	(0.033)	(0.018)	(0.024)	(0.040)	(0.032)
Mean Dependent Variable	0.15	0.20	0.08	0.15	0.20	0.08	0.18	0.25	0.11
N. Observations	3,451	1,880	1,571	2,065	1,149	916	726	363	363
R-squared	0.17	0.18	0.11	0.18	0.17	0.13	0.17	0.17	0.16

Note: Authors' analysis based on survey and administrative records data. The dependent variable takes value 1 if the member applied for a larger loan. All regressions include branch fixed effects and are estimated using OLS methods. Standard errors are clustered at the borrower group level.The following symbols *, ** and *** denote significance at 10, 5 and 1 percent level, respectively. See Appendix B for variable definition.

likely to apply, while among women, being offered business training increases loan demand. Membership in a mixed CO dampens loan demand for both men and women even after controlling for eligibility, perhaps because group dynamics provide disincentives to borrow, since only half of the members of mixed COs are eligible to borrow (see Appendix Table A1). Exposure to the female brochure does not seem to have any effect, however.

In columns (4)-(6) we focus on all CO members who had a business at baseline. We find, perhaps surprisingly, that the female brochure impacts negatively the uptake by women entrepreneurs. The effect is not small. From a base of 8.3 percent, the point estimate indicates a reduction of 39 percent the probability of applying for the larger loan. In contrast, businessmen appear indifferent to the picture in the brochure and, as before, being offered business training increases loan demand while membership in a mixed CO depresses it, but there are no differences by gender in these or any other characteristics. Taken face value, the result among women appears counterintuitive: if anything, one might expect that a woman who owns a business would be attracted to a loan product that makes salient her identity as a business woman. But since women operate businesses that are much smaller than those of men, it is possible that the negative impact is an artifact of the business scale. Specifically, women may find the scale of the business pictured in the brochure too large and they may be discouraged from applying.[17] To explore this hypothesis further, we restrict attention to female business owners who operate at a scale comparable with men.[18] Specifically, we construct a sample of matched male and female businesses by sector.[19] Given differences in business scale by gender, this matched sample necessarily consists of businesses in the upper (lower) tail of the distribution of female (male) businesses. In particular, female businesses in the matched sample have on average Rs 4,016 higher sales compared to the sample of all female businesses, while male businesses in the matched sample have Rs 8,129 lower sales, on average. Sample size is also considerably reduced. Only 363 female businesses can be matched with a corresponding male business. Columns (7)–(9) report these results. The coefficient for female brochure remains negative but we lose precision. The coefficient falls by about 16 percent while the standard error increases by

17. We have some anecdotal evidence that businesswomen felt that some of the businesses featured in the brochure were run on a larger scale than the typical female business and that this fact discouraged them from borrowing. As mentioned, many women operated each of the three business types featured in the brochure, which together account for 95 percent of all businesses run by women. In addition, the brochure clearly stated that the loan could be used for any purpose and for any business, but nonetheless, the picture may have triggered a more deliberative response (Kahneman, 2003).

18. We are grateful to an anonymous referee for suggesting this analysis.

19. The matched sample is generated as follows. For each female business, we compute the absolute difference in sales with each male business in the same sector and then pick the business with the smallest difference. A male business is matched only once with a female business. In the final sample we keep only those female businesses where the absolute difference in sales is less than Rs 1000.

about 70 percent. In sum, we cannot conclusively rule out a negative effect of exposure to the female brochure even among women business owners who run larger businesses. Note, however, that in this matched group, being offered business training increases the probability of a woman applying for a larger loan by 86 percent from a base of 11 percent and appears to be driving the overall increase in loan applications due to the offer of business training. On the other hand, decision making power does not appear to encourage loan applications from women in any of these samples.

Table 6 reports the regression results from specification (2), for males (columns 1-3) and females (columns 4-6) on all three samples. All regressions include the baseline controls used in Table 5. The first striking fact is that a subset of men does respond to the psychological content of the brochure. Specifically, business owners with low scores on the digit span recall question, a proxy for ability, and those whose wives are poorly educated (*p*-value of FB x Years Education of Spouse is 0.11), respond negatively to the female brochure. In this group, loan demand falls by about 13 percentage points (more than a 50% decline over the base demand).

While our experimental design does not allow us to distinguish between lack of affinity towards women and an outright distaste for female-run businesses as possible explanations for the negative response, it does suggest one channel through which exposure to the female brochure among female business owners could depress loan demand. Specifically, women who have low decision making power may turn to their husbands for permission to borrow and may face a negative response from them when shown the female brochure.

We do find some evidence in support of this. Females in mixed groups, which as mentioned before appear to have less 'voice', as well as business women with low decision making power in their household react negatively to the female brochure. Interestingly, female business owners with high decision making autonomy shown the *male* brochure also react negatively by roughly the same magnitude, while there is no effect on female business owners with autonomy shown the female brochure (*p*-value is 0.28).[20] This suggests that women with decision-making autonomy react negatively to the brochure of opposite sex by about as much as men without business, with low digit span and poorly educated wives. Given the disadvantaged position of women in rural Pakistan, we conjecture that men may have less respect for female businesses whereas women may feel more alienated when shown the male brochure.

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20. More formally we test whether the coefficient on the female brochure plus the coefficient on decision-making power above median plus the coefficient on the interaction between the female brochure and decision-making power above median is different from zero, that is $\beta + \gamma + \rho = 0$ following the notation of Equation (2) .

TABLE 6. Heterogeneous Effects of Larger Loan Uptake

	OLS					
	Male			Female		
	All Members (1)	All Business Owners (2)	Matched Business Owners (3)	All Members (4)	All Business Owners (5)	Matched Business Owners (6)
Female Brochure (FB)	−0.129**	−0.131*	−0.157	0.001	−0.062	−0.053
	(0.051)	(0.072)	(0.114)	(0.034)	(0.038)	(0.052)
Business Training	0.064	0.101*	0.072	0.029	0.018	0.044
	(0.045)	(0.054)	(0.069)	(0.025)	(0.032)	(0.050)
FB x Business Training	−0.045	−0.065	0.007	0.039	0.035	0.082
	(0.067)	(0.082)	(0.110)	(0.036)	(0.045)	(0.074)
High Decision−making power (1 = yes)	−0.016	−0.008	−0.038	−0.021	−0.051*	−0.095*
	(0.025)	(0.031)	(0.068)	(0.024)	(0.029)	(0.054)
FBx High Decision making power	0.007	0.007	0.006	0.024	0.079**	0.137**
	(0.005)	(0.007)	(0.014)	(0.030)	(0.039)	(0.068)
Digit Span Recall	−0.005	−0.014	−0.016	0.010*	0.009	0.017
	(0.006)	(0.010)	(0.017)	(0.005)	(0.007)	(0.013)
FB x Digit Span Recall	0.016**	0.023*	0.023	−0.01	−0.015	−0.023
	(0.008)	(0.012)	(0.021)	(0.006)	(0.009)	(0.016)
Yrs. Education of Spouse	−0.039	−0.065*	−0.111	−0.011	−0.012	0.031
	(0.028)	(0.038)	(0.069)	(0.025)	(0.033)	(0.065)
FB x Yrs. Education of Spouse	0.038	0.09	0.124	0.044	0.043	−0.016
	(0.040)	(0.055)	(0.101)	(0.032)	(0.039)	(0.072)
Member of a Mixed Group (Yes = 1)	−0.100*	−0.113	0.058	−0.047	−0.125***	−0.152***
	(0.053)	(0.069)	(0.242)	(0.034)	(0.039)	(0.051)
FB x Mixed Group	0.053	0.009	−0.087	−0.135**	−0.168**	−0.242***

(Continued)

TABLE 6. Continued

	OLS					
	Male			**Female**		
	All Members (1)	All Business Owners (2)	Matched Business Owners (3)	All Members (4)	All Business Owners (5)	Matched Business Owners (6)
	(0.073)	(0.091)	(0.215)	(0.055)	(0.067)	(0.079)
Business owner (Yes = 1)	0.031			0.046**		
	(0.030)			(0.022)		
FB x Business owner	0.031			−0.059*		
	(0.042)			(0.031)		
Mean Dependent Variable	0.20	0.24	0.25	0.08	0.08	0.11
N. Obs.	1880	1149	363	1,571	916	363
R−squared	0.19	0.19	0.19	0.12	0.13	0.19

Note: The dependent variable takes value 1 if the member applied for a larger loan. All regressions are estimated using OLS methods and control for eligibility, own education, landholdings, membership in a mixed group, age, number of children, risk tolerance, as well as branch fixed effects. Standard errors are clustered at the borrower group level. The following symbols *, * * and ** * denote significance at the 10, 5, and 1 percent level, respectively. See Appendix B for definition of variables.

In the matched sample (column 6), the results for female business owners with high decision making autonomy become stronger (the point estimate increases in absolute value).

Table 7A reports the impact of the female brochure and baseline characteristics on the loan amount requested (columns 1-4) and approved (columns 5-8) among loan applicants. Table 7B reports the same regressions among loan applicants with a business at baseline. In both tables we find a positive and significant effect of the picture on the loan amount requested among males but not females. The result in both tables is driven primarily by selection because men without a business and low digit span recall tend to borrow less and decide not to borrow when shown a female brochure.

V. Conclusions

We designed a marketing experiment to test whether exposure to positive role models could encourage women's uptake of a new credit product in a context where women face barriers to participation in economic life. Brochures advertising the new product, a much larger loan, were varied such that the cover page featured either men or women as entrepreneurs running five otherwise identical businesses. The brochures were randomly assigned to existing clients in good standing.

The results suggest that both men and women respond to psychological cues embedded in this type of social norms marketing. However, men's response is conditioned by relative economic status and ability while women's response is conditioned by relative status within the household. In particular, men who are not themselves business owners, have lower measured ability and whose wives are less educated respond more negatively to the female brochure, as do women business owners who have low autonomy within the household. Women with relatively high levels of autonomy shown the male brochure have a similar negative response. In contrast, the reaction of high autonomy female business owners shown the female brochure is no different from that of low autonomy women shown the male brochure.

We conjecture that loan demand for low autonomy women is mediated through men who respond positively to the male brochure. This suggests that social norms marketing can often be more salient for the more disadvantaged (Paluck and Ball, 2010) but, as our results suggest, this could generate perverse responses in some contexts.

Finally, our results also suggest that exposing women to positive role models or information that challenges prevailing norms may meet different levels of success depending on the level of autonomy enjoyed by women. In particular, women with low levels of autonomy may require more intensive interventions, consistent with other work which has used information campaigns to change stereotypes. Giné and Mansuri (2011b), for example, find that the response to a voter awareness campaign directed at rural women in Pakistan was most

TABLE 7A. Loan Size, All Members

	OLS							
	Log of Amount Requested				Log of Amount Approved			
	All Members		Males	Females	All Members		Males	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female Brochure	0.088	0.085*	0.161***	−0.035	0.0036	−0.006	0.008	−0.098
	(0.054)	(0.049)	(0.052)	(0.104)	(0.029)	(0.030)	(0.030)	(0.069)
Offered Business Training		−0.041	−0.032	−0.092		0.004	−0.01	0.007
		(0.042)	(0.046)	(0.104)		(0.029)	(0.031)	(0.068)
Female		0.078				−0.054		
		(0.079)				(0.055)		
Age		0.010	0.015*	−0.007		0.010**	0.013**	0.002
		(0.007)	(0.009)	(0.018)		(0.005)	(0.005)	(0.017)
Age^2		0.000	−0.000*	0.000		−0.000*	−0.000**	0.000
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
High Decision−making power (Yes = 1)		0.015***	0.087***	0.024		0.008*	0.021	0.1
		(0.005)	(0.028)	(0.071)		(0.005)	(0.026)	(0.064)
Own Education		0.018***	0.016***	0.016		0.016***	0.014***	0.016^
		(0.005)	(0.004)	(0.010)		(0.003)	(0.003)	(0.010)
Digit Span Recall		−0.012	−0.018**	0.024		−0.013**	−0.012*	−0.001
		(0.009)	(0.008)	(0.024)		(0.006)	(0.006)	(0.016)
Risk Tolerance		0.003	0.001	0.005		−0.002	−0.004	−0.001
		(0.004)	(0.004)	(0.013)		(0.004)	(0.005)	(0.008)
Yrs. Of Education of Spouse		0.002	0.003	0.002		0.004	−0.004	0.018**
		(0.004)	(0.005)	(0.010)		(0.005)	(0.005)	(0.008)
Number of children under 9		0.004	0.004	0.007		0.004	0.003	−0.017
		(0.009)	(0.009)	(0.029)		(0.006)	(0.006)	(0.022)
Business Owner (Yes = 1)		0.023	−0.006	0.064		0.050	0.058	0.027

(Continued)

	OLS							
	Log of Amount Requested				Log of Amount Approved			
	All Members		Males	Females	All Members		Males	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(0.032)	(0.036)	(0.069)		(0.035)	(0.042)	(0.061)
Land		0.006***	0.005***	0.007		0.001	0.000	0.005**
		(0.001)	(0.001)	(0.005)		(0.001)	(0.001)	(0.002)
Member of a Mixed Group (Yes = 1)		0.096	0.377**	−0.233		0.025	−0.06	0.076
		(0.153)	(0.170)	(0.167)		(0.176)	(0.176)	(0.197)
Mean Dependent Variable	10.93	10.93	10.92	10.97	10.67	10.67	10.72	10.52
N. Observations	664	664	491	173	503	503	372	131
R−squared	0.21	0.27	0.32	0.33	0.27	0.34	0.26	0.44

Note: The dependent variable is log of loan amount requested (columns 1-4) and log of loan amount approved (columns 5-8). The sample includes loan applicants. All regressions include branch fixed effects and are estimated using OLS methods. Standard errors are clustered at the borrower group level. The following symbols *, * * and ** * denote significance at the 10, 5, and 1 percent level, respectively. See Appendix B for definition of variables.

T ABLE 7B. Loan Size, Business Owners

	OLS							
	Log of Amount Requested				Log of Amount Approved			
	Business Owners		Males	Females	Business Owners		Males	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female Brochure	0.093	0.08	0.135**	-0.061	0.027	0.011	0.002	-0.068
	(0.057)	(0.050)	(0.052)	(0.129)	(0.032)	(0.033)	(0.030)	(0.081)
Offered Business Training		-0.032	-0.058	-0.021		0.054**	0.026	0.032
		(0.046)	(0.047)	(0.145)		(0.027)	(0.026)	(0.098)
Female		0.089				-0.094		
		(0.082)				(0.064)		
Age		0.013	0.017	-0.024		0.007	0.015**	-0.006
		(0.009)	(0.011)	(0.021)		(0.005)	(0.006)	(0.023)
Age^2		-0.000*	-0.000*	0.000		0.000	-0.000**	0.000
		(0.000)	(0.000)	(0.000)		(0.000)	(0.000)	(0.000)
High Decision-making power (Yes = 1)		0.025	0.095**	-0.022		0.029	-0.007	0.094
		(0.038)	(0.038)	(0.091)		(0.030)	(0.024)	(0.070)
Own Education		0.022***	0.020***	0.027		0.012***	0.013***	0.012
		(0.005)	(0.005)	(0.017)		(0.004)	(0.004)	(0.010)
Digit Span Recall		-0.014	-0.019*	0.003		-0.009	-0.009	0.001
		(0.011)	(0.010)	(0.034)		(0.006)	(0.007)	(0.020)
Risk Tolerance		0.002	0.001	0.014		-0.001	0.000	-0.003
		(0.005)	(0.005)	(0.017)		(0.005)	(0.006)	(0.011)
Yrs. Of Education of Spouse		0.001	0.007	-0.007		0.002	-0.005	0.013
		(0.005)	(0.005)	(0.013)		(0.006)	(0.006)	(0.010)
Number of children under 9		0.004	0.008	-0.032		0.001	-0.004	-0.011
		(0.011)	(0.011)	(0.037)		(0.007)	(0.007)	(0.019)
Land		0.005***	0.005***	0.005		0.002	0.000	0.004

(Continued)

	OLS							
	Log of Amount Requested				Log of Amount Approved			
	Business Owners		Males	Females	Business Owners		Males	Females
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(0.001)	(0.002)	(0.005)		(0.001)	(0.001)	(0.003)
Member of a Mixed Group (Yes = 1)		0.138	0.314	-0.293		-0.007	-0.256***	0.030
		(0.167)	(0.213)	(0.293)		(0.239)	(0.086)	(0.331)
Mean Dependent Variable	10.92	10.92	10.92	10.92	10.69	10.69	10.69	10.69
N. Observations	459	459	356	103	355	355	278	77
R-squared	0.23	0.30	0.34	0.42	0.28	0.35	0.29	0.58

Note: The dependent variable is log of loan amount requested (columns 1-4) and log of loan amount approved (columns 5-8). The sample includes loan applicants. All regressions include branch fixed effects and are estimated using OLS methods. Standard errors are clustered at the borrower group level.The following symbols *, * * and ** * denote significance at the 10, 5, and 1 percent level, respectively. See Appendix B for definition of variables.

effective among women who had voted in the past and hence had overcome some of the barriers to participation in public life.

<p align="center">APPENDIX A: BROCHURE SCRIPT</p>

NRSP (in collaboration with the World Bank and the Pakistan Poverty Alleviation Fund) has initiated an Enterprise Development Program. As part of this program, the possibility of obtaining a larger loan is now available.

TABLE A1. Baseline Member Characteristics of Mixed vs single gender COs

	Male			Female		
	Means		P-val of t-test (1)-(2)	Means		P-val of t-test (4)-(5)
	Mixed Gender CO/CG (1)	Single gender CO/CG (2)	(3)	Mixed Gender CO/CG (4)	Single gender CO/CG (5)	(6)
Individual Characteristics						
Age	36.26	38.27	0.16	34.06	37.85	0.00
Own Education	7.22	5.22	0.06	2.54	2.65	0.61
Business Owner (Yes = 1)	0.63	0.61	0.66	0.59	0.58	0.84
Digit Span Recall	3.87	3.85	0.94	2.39	2.71	0.12
Risk Tolerance (0 = Risk Averse; 10 = Risk Lover)	4.09	3.80	0.38	2.80	3.43	0.02
Married (Yes = 1)	0.77	0.82	0.01	0.83	0.85	0.48
Index of Optimism	-0.23	-0.02	0.21	-0.87	-0.29	0.00
Business Literacy	0.97	0.66	0.07	0.14	0.23	0.67
Index Female Mobility	–	–	–	0.08	0.00	0.36
Index No Purdah	–	–	–	-0.30	0.19	0.00
Trust in Formal System	-0.01	-0.03	0.31	-0.28	-0.14	0.00
Months as Member	16.48	28.74	0.00	20.28	24.98	0.45
Holds office in Group (Yes = 1)	0.48	0.20	0.00	0.06	0.18	0.01
Eligibility	0.49	0.63	0.00	0.53	0.63	0.00
Household Characteristics						
Household size	7.88	7.93	0.70	7.45	7.00	0.00
Years of Education of Spouse	3.87	2.67	0.02	4.93	4.88	0.91
Number of children under 9	1.78	1.97	0.40	1.69	1.40	0.05
Land	4.38	6.01	0.39	4.48	2.58	0.30

(Continued)

TABLE A1. Continued

	Male			Female		
	Means		P-val of t-test (1)-(2)	Means		P-val of t-test (4)-(5)
	Mixed Gender CO/CG (1)	Single gender CO/CG (2)	(3)	Mixed Gender CO/CG (4)	Single gender CO/CG (5)	(6)
Fraction of Members of same Zaat (caste)	0.41	0.43	0.12	0.45	0.21	0.00
Ever in Business (Yes = 1)	0.60	0.62	0.11	0.54	0.61	0.76
Log of Value of Livestock	5.77	9.36	0.00	6.99	4.78	0.00
Distance to meeting place	6.24	7.50	0.07	5.91	9.17	0.00
Credit Constraints (Yes = 1)	0.09	0.12	0.28	0.19	0.16	0.31
Expenditures (in 1,000 Rupees)	5.42	4.98	0.91	4.86	4.58	0.36
Decision Making (0-8)	3.10	3.35	0.71	1.95	1.83	0.39
N. Obs	82	1798		137	1434	

Which CO members qualify for this larger loan?

All CO members that have a good borrowing record with NRSP (that is, have successfully repaid at least one loan) will be eligible to put in a request for a larger loan to fund their business activity.

Who will obtain the larger loan?

Among the applicants who qualify for the larger loan, a lottery will be implemented to determine who gets the larger loan. Winners of the lottery will receive the larger loan approved by NRSP. Losers of the lottery will be offered a normal size loan according to their credit history with NRSP. Each qualifying CO member will have a 50% chance of winning the lottery. To ensure transparency and fairness, the loan lottery will be done in the NRSP head office in Islamabad.

Procedure to apply for a larger loan

The following steps are involved in accessing larger loans through this program

  (1) COs will pass a resolution identifying a larger loan need for their eligible and interested members, as such demands come in.
  (2) Each time there is a demand for a larger loan, a social and technical appraisal will be done to assess the applicant's credit history and repayment capacity and the loan size that the candidate can safely repay.

(3) If a larger than normal loan is approved, the loan application will be forwarded to headquarters where the results of the lottery will be checked and disbursement made accordingly.

(4) Borrowers who win the lottery will actually get the larger loan. Borrowers who lose in the lottery will be offered the normal loan amount set by NRSP.

Amount of Loan

Maximum up to Rs. 100,000/- (One hundred thousand only) according to the need

Purpose of Loan

Loan will be taken and subsequently utilized for productive purposes only

Duration of Loan

Up to maximum of One year

Loan Repayment

Loan repayment will be made according to the prevalent NRSP procedures, whereby the borrower will be given a repayment schedule and he/she will have to repay in installments, in accordance with the schedule, in the nearest NRSP village branch and take a repayment receipt.

APPENDIX B: VARIABLE DEFINITIONS

Data used in this paper come from two surveys: a baseline conducted in November 2006, a follow-up survey in December 2008. We also used administrative data about loan take-up, obtained from NRSP's internal records.

TREATMENTS AND TAKE UP (FROM ADMINISTRATIVE RECORDS).

- *Female picture brochure* takes the value of 1 if the member was shown a brochure with female business owners on the cover, 0 if the brochure showed the same businesses with men.

- *Eligibility*, takes the value of 1 if member is eligible for the loan lottery, 0 otherwise.

- *Business Training*, a dummy taking the value of 1 if the individual was offered business training, 0 otherwise.

- *Applied for larger loan*, 1 if the member actually requested a loan, 0 otherwise.

- *Approved*, conditional on applying for a loan, takes a value of 1 if the member was approved by NRSP, 0 otherwise.

- *Borrowed*, takes a value of 1 if the individual actually borrowed money from NRSP; while conditional on approval, not all those that applied and were approved took actually a loan.

- *Amount borrowed*, is measured in thousands of Rupees.

BASELINE CHARACTERISTICS INDIVIDUAL.

- *Female* equals 1 for women and 0 for men.

- *Age* is respondent's age in years.

- *Years of education* is years of completed schooling, and is top-coded at 16.

- *Married*, a dummy taking the value of 1 if member is married, 0 if single, divorced or widowed.

- *Digital span recall* reports the number of digits correctly recalled after being shown an eight digit number for 30 seconds.

- *Member of a mixed group*, dummy takes the value of 1 if the member belongs to a borrowing group with mixed gender, 0 if the group is of the same gender.

- *Index of female mobility and No purdah index* are principal components of several variables with negative values indicating less mobility (or observing more types of purdah).

- *Business owner* equals 1 if the member had a business at baseline, 0 otherwise.

- *Aversion to risk general* is measured on a 0-10 scale where 0 indicates the most risk averse and 10 the most risk-tolerant/lover.

- *Months as member*, number of months as member of NRSP group.

- *Holds Office in Group*, takes value 1 if member has or has had in the past a leadership position in group.

- *Fraction of Members of same Zaat (caste)*, is a percentage of members in the group that share the same cast of the member.

HOUSEHOLD.

- *Education of spouse* is years of completed schooling of the respondent's partner, if any. Top coded at 16.

- *Total HH income and Expenditures*, transformed to logs for analysis.

- *Number of children under 9*

- *Land* is the total owned land inside and outside the village.

- *Credit constraints*, dummy taking a value of 1 if the member faced any type of credit constraint, formal or informal.

- *Ever in business*, captures business experience within the household. Equals 1 when this is the case, 0 otherwise.

- *Decision Making*, is the number of household decisions out of a total of eight that the member usually takes on his or her own. The decisions are: children's schooling, consumption expenditures, major investments in business or land, the respondent's participation in community or political activities, the respondent's spouse participation in community or political activities, whether or not the respondent should work for an income, whether or not the spouse should work for an income and how much the household saves. In the analysis, a dummy is used that takes value 1 if the variable is above the median for each gender subsample.

BUSINESS CHARACTERISTICS.

- *Type of business*, dummy variables for businesses shown on brochure

- *Business Literacy*, scores of component 1 of a PCA for a set of questions about knowledge about how to run a business, and of competition.

- *Sales in '000 rupees*, sales of business in an average month at the time of baseline.

ANALYSIS-RELATED VARIABLES.

- *Field Unit*, refers to the NRSP branch and is the stratification variable. There are six field units in the three study districts.

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