Women's empowerment in Ecuador: differentiating the impact of two interventions

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ABSTRACT

This paper analyses the impact of two interventions on women's empowerment in Ecuador using an experimental design. Women's empowerment is operationalized by using two metrics. First, the participation of women in the decision process at household level. Second, the disagreements between men and women in the decision process. We find negative effects of both interventions on women's participation on the decision making process at household level. However, we do find positive effects on disagreements regarding women's work and use of contraceptives, as well as positive effects of vouchers on disagreements on large food purchases and large assets purchases.

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1. INTRODUCTION

In this paper we understand women's empowerment as the process by which those who have been denied the ability to make strategic life choices acquire such ability (Kabeer 1999). In addition, following Kabeer we distinguish between first- and second-order choices, where the former are those strategic life choices which are critical for people to live the life they want (such as choice of livelihood, whether and who to marry, whether to have children, etc.), and the later are second-order, less consequential choices, which may be important for the quality of one's life but do not constitute its defining parameters. We concentrate in how women increase their participation in the decision process at household level for strategic life choices.

One interesting discussion in the literature is the 'intrinsic' view of women's empowerment, and the 'instrumental' view. The 'intrinsic' view understands women's empowerment as an end in itself, as a structural process to improve women's decision making participation at different levels in the society. Empowerment, in this sense, refers to transform the society. The 'instrumental' view, on the other hand, refers to women's empowerment as a means to a complementary end, such as economic growth, poverty reduction, democracy, human rights, peace, and conflict prevention, among others (Eyben and Napier-Moore 2009). The idea behind the 'instrumentalist' view is that changing women's bargaining power at household level has significant impact on development outcomes. In this view, women's bargaining power refers to women's ability to negotiate favourable intra-household allocations of resources. Examples of outcomes are health and education of children and the general well-being of women and girls (Doss 2013).

In this paper we focus on the 'intrinsic' view of women's empowerment. Inasmuch as the notion of empowerment is about change, it refers to the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them. This ability to exercise strategic choice incorporates three inter-related dimensions: resources, agency, and achievements. To operationalize both, resources and agency, participation of women in the decision making process at household level, has been used. Such participation has been operationalized using responses to questions asking women about their roles in relation to specific decisions regarding household budget, food cooked, children's education and health, use of family planning methods, purchase of food, purchase of major household goods, purchase of small items, whether she works or not, how to spend husband's income, number of children to have, whether buy or sell land and livestock, house repair, purchases of clothes, purchase of major assets, among others (Kabeer 1999). In this paper, the operationalization of resources and agency, as a key component of empowerment, is done by using a sort of questions that allow us to evaluate whether women participate or not in the decision process of the referred items.

One additional point is that evidence of empowerment was based solely on decision-making power that is outside of the realm of traditionally assigned gender roles. For example, deciding what to feed the children for dinner is considered a traditional female role, and was therefore not considered a sign of women's empowerment. We concentrate on decisions which relate to strategic life choices or to choices which had been denied to them in the past (Kabeer 1999).

We evaluate the effect of two different interventions, vouchers for food, and a combination of vouchers plus women's training on women's empowerment. To our

understanding, it is the first time that an experimental design is used to evaluate the differentiated effect of both, vouchers for food and women's training, on women's empowerment (operationalized by the participation of women in the decision making of strategic topics at household level), at least in a developing country.

The paper is organized as follows. Section two presents the literature review. The next section introduces the experimental design and a detailed description of the interventions evaluated. Section four introduces the methodology. The fifth section presents the data used and results. The last section concludes.

2. LITERATURE REVIEW

We found some studies that analyse the impact of transfers (in cash or in kind) and training on women's empowerment. We divided the literature review in two groups. On the one hand we include studies that find a positive impact, and, on the other hand, we review studies that find mixed or negative impacts on women's empowerment. The studies presented show different methodologies and definitions, but one common characteristic is that they do not analyse differentiated impacts as we do in our study.

Among the first group, Adato et al. (2000) evaluated the impact of the *Oportunidades program* in Mexico on women's empowerment. To evaluate empowerment, Adato and colleagues took into account women's capacity to control household income and their intra-household decision-making related to children's health, their own health and general expenditures. By using the original experimental evaluation design of the program, they found a positive impact on women's participation on households' decisions, as well as on controlling household income. The study also found heterogeneous effects. The impact of the program was higher in households where women had more education and work experience, and smaller among indigenous women. For the same program, and also using the original experimental evaluation design, Attanansio and Lechene (2002) investigated intra-household decisions making using a variety of outcomes. They tested global pooling of resources within households and also exploited a set of questions about power and the decision-making process in the household to investigate aspects of strategic interactions between household members. They did not find significant income pooling at the household level. They did find that the wife´s relative income share was a significant determinant of the wife´s decision-making power in the household, with a higher share of income associated with more participation of women in the decision-making process. By using qualitative techniques, Escobar and de la Rocha (2005) also evaluated the *Oportunidades* program. They found that the transfer and training to women in health issues improved women's administration of household resources and their participation in the decision process at household level.

Gitter and Barham (2007) evaluated the Nicaraguan conditional cash transfer programme (CCT), *Red de Protección Social,* using the randomized experimental data from the original impact evaluation. They used as proxy variable of women's empowerment, the relation between the years of schooling of women and the years of schooling of their husbands[1]. They tested for heterogeneous program impacts on school enrolment and spending, based on women's power. The study found that more household

[1] This is another interesting way of operationalizing women' empowerment. However, we prefer to use the participation in the decision making process at household level because it is more consistent with our theoretical framework.

resources were devoted to children when women were more powerful. However, when a woman's power greatly exceeded the power of her husband, additional female power reduced school enrolment.

Perova and Vakis (2010) evaluated the effect of the Peruvian conditional cash transfer programme (*Juntos*) on domestic violence. By combining difference in differences with propensity score matching, the authors found a positive effect of the transfer on reducing domestic physical violence (9%) and psychological violence (11%). Two techniques were employed to estimate impact: an analysis of difference in differences and matching. Similar results were found with both techniques. A reduction in the incidence of physical violence of 9% and emotional violence of 11% was found with difference in differences, while a reduction of 8% and 10% respectively was found with matching. These reductions represent 50% of what was reported before the treatment. The study included control groups, but the results did not change significantly. The results indicate that the reduction of overall violence was lower in the case of women experiencing domestic violence in their childhood, especially sexual violence. In the case of women with remunerated jobs, sexual and emotional violence decreased more than in the case of jobless women.

Hidrobo and Fernald (2013) evaluated the impact of the Ecuadorian cash transfer programme, BDH (*Bono de Desarrollo Humano*), on domestic violence, in both physical and psychological terms. Results showed that for women with greater than primary school education, the program significantly reduced psychological violence perpetrated by their partner. For women with primary school education or less, however, the effect of the program depended on women's education relative to the education level of the partner. Specifically, the cash transfer significantly increased emotional violence in households where the woman's education was equal to or higher than the education of her partner.

Rosero and Schady (2007) used the randomized introduction of BDH (*Bono de Desarrollo Humano*), to poor women in rural Ecuador, to analyse the effect of transfers on the food Engel curve. The authors showed that a higher food share among program beneficiaries was found among households that had both adult males and females, but not among households that only had adult females, which means that bargaining power between men and women is likely to be important in mixed-adult households, but not among female-only households, where there are no men to bargain with. Finally, they showed that within mixed-adult households, programme effects were only significant in households in which the initial bargaining capacity of women was likely to be weak. This pattern of results is consistent with an increase in the bargaining power of women in households that received the transfer.

On the other hand, we found papers with mixed or negative results of transfers or training on women´s empowerment. Armas (2005) evaluated the impact of *Bono de Desarrollo Humano* from a gender perspective in Ecuador. By using qualitative techniques, she found that the programme had no impact on women's health, but a positive impact on children schooling.

Hidrobo et al. (2012) evaluated the impact of a cash and voucher intervention in Northern Ecuador on women's empowerment. The programme consisted of six monthly transfers of food, food vouchers, or cash to Colombian refugees and poor Ecuadorian households in selected urban centres. The authors found that transfers led to a significant decrease in partner violence, but there were no impact on decision-making indicators. The food treatment arm led to a significant impact on the experience of disagreements

regarding child health. There were no other significant impacts by treatment arm for women's decision-making. While all three treatment arms led to significant decreases in physical/sexual violence, only cash and food led to significant decreases in controlling (abusive) behaviours. There were no significant differences across modalities in the size of the impact for intimate partner violence.

De Brauw et al. (2014) evaluated the Brazilian CCT, *Bolsa Familia* programme on women's decision making. By using a propensity score matching, they found that the programme significantly increased women´s decision-making power regarding contraception. For urban households, the programme also significantly increased women´s decision-making on children´s school attendance and health expenditures, household durable goods purchases, and contraception use. On the other hand, they found no increases and possible reductions in women´s decision-making power for rural households.

Molyneux and Thomson (2011) evaluated three cash transfer programmes; *Juntos* from Peru, *Bono de Desarrollo Humano* (BDH) from Ecuador, and *Bono Juana Azurduy* from Bolivia. They found that beneficiaries had problems of access to health and financial services. On the other hand, the authors found that the programmes improved women's self-esteem, and improved their link with other institutions especially those in charge of women's protection and domestic violence.

Scarlato et al. (2016), evaluated the Chilean CCT (*Chile Solidario)* from a gender perspective. The authors found that the programme had a negative effect on both women's labour participation and labour stability.

Bobonis et al. (2013) evaluated the effect of the *Oportunidades* programme on domestic violence. They found a significant impact of the programme on reducing physical violence, but a negative effect on threats as well as on emotional violence.

Camacho and Rodríguez (2017) also found negative effects in variables of interest. They analysed the Colombian programme *Familias en Acción*, on the effect of transfers as additional exogenous income on women's empowerment. The programme focused on nutrition and health of children from families under extreme poverty. The programme made the transfer under the condition of children attending school. Additional 25 USD per household with children below 7 years old were given under the condition of periodic health checks for children.

The results showed no women's empowerment due to the programme in either of the five aspects under evaluation. Regarding schooling or extraordinary purchases, women had lower probability than men of deciding by themselves after the implementation of the programme. The probability of joint decisions also decreased in the case of schooling.

Finally, Friederic (2014) evaluated the effect of women's training on domestic violence in rural Ecuador. She found that the programme's approach to violence referred only to the ideological and cultural aspects exclusively, without paying attention to its political, economic, and structural underpinnings. In this regard, she points out that even if the understanding of women of their own rights can be improved, women continue without the social, psychological, and economic assets required to claim their rights. In this sense, according to Friederic, women can achieve partial empowerment and adopt micro-strategies of resistance. One of these strategies can be disagreements. The presence of disagreements is important because it reflects certain kind of women's empowerment;

it represents women's challenging of her partner decision. This represents the intent to participate in choices which had been denied to women in the past (Kabeer 1999).
From the literature above, one can see that the outcomes of the different programmes depend on many variables: the intervention itself, education, age, ethnicity, income, rurality, and others. In our view, the contribution of this paper to the literature is that it analyses the differentiated impact of two interventions, so that these outcomes can be fed back to policy makers for their intervention programmes design phases, allowing for tailored interventions and therefore, more successful outcomes.

3. CONTEXT, INTERVENTION AND EXPERIMENTAL DESIGN

3.1. Context

Ecuador is a lower-middle income country, in 2013, its per capita GDP was 10,720 PPP, US dollars. Poverty and inequality decreased sharply during the 2000s. According to the employment and unemployment surveys, poverty incidence, measured by per capita income at household level, reduced from 37.6% in 2006 to 25.6% in 2013. The Gini coefficient reduced from 0.56 in 2006 to 0.48 in 2013 (MCDS 2017).

However, gender and ethnic disparities remain. In table 1 we can see some important social indicators.

Table 1. Social Indicators in Ecuador

	Years of schooling		**Illiteracy (%)**		**Poverty Incidence (%)**	
	2006	**2013**	**2006**	**2013**	**2006**	**2013**
Men	9.3	9.9	7	5.6	37.1	24.8
Women	8.8	9.6	10.2	7.8	38.1	26.3
Indigenous	4.8	5.9	27.7	21.4	65.6	51.5
Total	9.1	9.7	8.6	6.7	37.6	25.6

Source: Employment and Unemployment Survey. INEC. 2006 and 2013. SIISE.

Years of schooling, for those aged 24 and more, increased from 9.1 to 9.7 between 2006 and 2013. However, years of schooling among indigenous are only 5.9. The similar pattern is observed for illiteracy. At national level, the rate of illiteracy decreased from 8.6 to 6.7 between 2006 and 2013. However, the illiteracy rate is higher among women (7.8) and among indigenous people (21.4). Finally, a similar trend is observed for poverty incidence. As mentioned, it decreased from 37.6% to 25.6% between 2006 and 2013. However, poverty incidence is higher among women (26.3) and among indigenous (51.5) (MCDS, 2017).

3.2. Intervention

The project called Local Capabilities for Feeding and Nutrition (*Capacidades Locales para Alimentación y Nutrición*) started in Ecuador in 2013 in two provinces in the *Sierra* region (*Carchi and Chimborazo*) and one coastal province (*Santa Elena*). The main objective of the programme was to improve nutrition and dietary diversity of families. The programme was implemented and funded by the World Food Program of Ecuador. In this regard, the project provided vouchers for food, voucher plus training, and other interventions (such as water facilities, and other infrastructural items). Training sessions

were mandatory, and only women participated (the beneficiaries of the voucher). For our analysis, we used two treatment groups, voucher and voucher plus training, and a control group. The voucher consisted of a monthly amount of US$ 40 dollars, which could be used exclusively to buy food, and the training included monthly sessions. The sessions included the following topics: nutrition, intra-household violence, women's rights and empowerment. In relation to intra-household violence, the sessions covered the definition of gender violence, types of violence, myths about violence against women, where and how to proceed in cases of violence. In relation to women's empowerment the sessions covered the difference between sex and gender, gender equality at personal, household and labour level, constructing gender identity, gender and power (roles, resources, agency), the rights of boys and girls, gender justice, empowerment, masculinities. Training sessions were supported by Plan International and Asylum Access, two NGOs specialized in gender equity and women's empowerment training programmes.

3.3. Experimental Design

The randomization was done at household level. In each household one woman (the spouse of the head of the household) received the intervention. Power estimates as well as sample size were computed using the optimal design software. We decided to work with a power of 80% percent, at 5% percent of significance, and with a minimum detectable effect of 0.25 (standard deviations). The sample size computed, using two surveys (with a correlation of 0.15 between baseline and follow up in outcome variables), was of around 200 households per group. The sample was taken from three provinces where the programme was implemented: Carchi, Santa Elena and Chimborazo. However, the sample was not clustered at province level. It is representative for the three provinces at global level. We took a baseline survey between September and November of 2013, and the follow up one year later. Only women responded to the survey.

The attrition rate is 7%. We had information on 566 women in the baseline, and 527 in both surveys (baseline and follow up). More importantly, we did not find any significant difference in attrition rates between the treatment groups and the control group, as well as between different treatment arms. See table 2.

Table 2. Attrition rates by treatment group and control

Variable	**Mean**			**P-value**		
	Control	**T1**	**T2**	**T1-C**	**T2-C**	**T1-T2**
Attrition	0.057	0.075	0.09	0.515	0.94	0.577
	(0.23)	(0.26)	(0.28)			
Number of cases	192	186	188			

The following groups were randomly created. First, households (T1) assigned to receive a monthly voucher for food of 40 US$, equivalent to 20% of average monthly per capita income. Second, households (T2) assigned to receive training in addition to the voucher. Finally, the third group (C) was used as control group and received neither intervention.

With the three groups we could evaluate the following impacts.

T1-C= the impact of voucher. (1)
T2-C= the impact of voucher and training. (2)
(T2-C) – (T1- C) = (T3) the impact of training. (3)

Based on van den Bold et al. (2013), and following the operationalization of women's participation on decision making process used by Hidrobo and colleagues (2014), and by the Demographic and Health Surveys (DHS) (2017), we decided to operationalize women's empowerment, at household level, by evaluating the change in women's participation in the decision making process in several aspects. For this evaluation, following Kabeer, we distinguished between first- and second-order choices, where the former are those strategic life choices which are critical for people to live the life they want (such as choice of livelihood, whether and who to marry, whether to have children, etc.), and the later are second-order, less consequential choices, which may be important for the quality of one's life but do not constitute its defining parameters. We concentrated in how women increased their participation in the decision process at household level for strategic life choices. The questions used, as well as the aspects evaluated, were the following.

Who in the household generally has the final say in decisions regarding whether or not the woman works for pay?

Who in the household generally has the final say in decisions regarding children´s education?

Who in the household generally has the final say in decisions regarding children´s health?

Who in the household generally has the final say in decisions regarding woman´s own health?

Who in the household generally has the final say in decisions regarding small daily food purchases?

Who in the household generally has the final say in decisions regarding large food purchases?

Who in the household generally has the final say in decisions regarding large asset purchases (such as furniture, TV sets, etc.)?

Who in the household generally has the final say in decisions regarding whether or not to use contraceptives?

The responses could be: the woman alone, her spouse or partner alone, the woman and spouse/partner together, someone else in the household alone, and the woman and someone else together. A woman's participation in the household decision-making process implied that a woman had a say in the decision both alone or together with her partner or someone else.

In addition, we took into account whether or not there had been any disagreements over the decision domains listed above in the previous 6 months. The following questions were used.

In the past 6 months, has there been a disagreement regarding this decision?: whether or not the woman works for pay, children´s education, children´s health, woman´s own health, small daily food purchases, large food purchases, large asset purchases (such as furniture, TV sets, etc.) and whether or not to use contraceptives.

The presence of disagreements is important because it reflects certain kind of women's empowerment; it represents women's challenging of her partner decision. This represents the intent to participate in choices which had been denied to women in the past (Kabeer 1999).

Finally, we constructed a women's participation index ranked from 0 to 8. This index is the sum of the several dummies for each topic, and takes the value of 0 if a woman had no participation in any topic analysed, and 8 if a woman participated in all the issues. In the same way, we also constructed a disagreement index. In this case the index is also the sum to the several dummies for each topic, and takes the value of 0 if there were no disagreements, and 8 if there were complete disagreement in all the topics analysed.

4. METHODOLOGY

Differences between random assignment and the real treatment forced us to use an instrumental variable estimation, where treatment was instrumented by the original random assignment. As it is well known, the original random assignment is a good instrument if two conditions are met. First, if the instrument is a good predictor of the real treatment; and, second, if the instrument meets the "exclusion restriction", which means that the only way of affecting the outcome variable is through program participation. Regarding the first condition, the following table presents the results of the regression between the instrument and the real treatment (See table 3).

Table 3. First stage. OLS between treatment and random assignment.

	T1	**T2**
Coefficient	0.9710	0.9591
Standard error	0.0126	0.0150
F value for the instrument	5855.27	4050.19
Number of cases	350	348

In all cases, the coefficient is highly significant and with values higher than 0.9. The F value for the instrument is significant in all cases. The second condition is met because of the random assignment to treatment.

Taking advantage of the baseline survey, we performed a difference in differences analysis. In addition, we used the reduced form equation and estimated the Intent to Treat (ITT) effect by using the original assignment to the several treatments and control group as an instrument of the actual treatment variable. The following econometric specification was estimated:

$$Y_{i1} = \propto + X'_{i0}\beta_0 + \beta_1 Z_i A_i + \beta_2 A_i + \beta_3 Z_i + \beta_4 P_i + \varepsilon_i \qquad (4)$$

Where Yi1 is the outcome of interest for a woman i at follow up. The sub index 1 is for the follow up and 0 for the baseline. The outcome of interest is the participation or not (a dummy variable) in each aspect evaluated, in reference to each question applied. The same applies for the disagreements. Finally, we included the indexes as summary variables, which are the sum of all the dummy variables (for both participation and disagreement). Zi are indicators that equal one if a household is in the corresponding

treatment arm, and zero otherwise. Ai is the dummy for year, 1 for the follow up, and 0 for the baseline. Pi are dummies at provincial level. Finally, X' is a vector of control variables at baseline. ei is the error term. Beta 1 is the corresponding ITT estimate. Standard errors are clustered at provincial level.

Three specifications are reported. The basic specification, which only includes dummies for the corresponding treatment. We used several treatments for each type of intervention, as well as dummies for comparing different interventions. In this sense, Z1, and Z2, stand for voucher, and voucher plus training. Z3 (Z2-Z1) takes the value of 1 for voucher plus training, and zero for voucher. Finally, Z0 takes the value of 1 for all the treatment groups and zero for the control group. The second specification includes women's variables as additional controls: age, years of schooling, ethnic self-identification, and whether or not she works for a remuneration. Finally, the third specification includes, in addition, specific control variables for her partner: age of the spouse/partner, years of schooling of her spouse/partner and whether the spouse/partner works or not, ethnic self-identification, and dummy variables at provincial level.

5. DATA AND RESULTS

5.1. Descriptive Statistics

As already mentioned, we took a baseline survey between September and November of 2013, and the follow up one year later, following what is currently found in the literature. Regarding women's participation in the decision making process at household level, using information from the baseline survey of our study, we have the following results (See table 4).

Table 4. Women's decision making indicators (participation or not in each issue, in the previous two weeks)

Decision making indicators	**Control group**
Women should work	0.7
Any disagreement	0.06
Children´s education	0.76
Any disagreement	0.02
Children´s health	0.85
Any disagreement	0.01
Women's health	0.85
Any disagreement	0.01
Small daily food purchases	0.78
Any disagreement	0
Large food purchases	0.63
Any disagreement	0.01
Large assets purchases	0.6
Any disagreement	0.01
Use of contraceptives	0.82
Any disagreement	0.02
INDEX	5.99

Source: Baseline survey

At aggregate level, the average value for the index of women's participation is 6 (out of 8). The highest level of women's participation refers to children's and women's health issues, followed by the use of contraceptives (85%, 85%, and 82% respectively). On the other hand, the lower level of women's participation refers to large assets and food purchases (60% and 63% respectively).

In relation to disagreements, the highest level of disagreement refers to women's work and use of contraceptives (6% and 2%), and children's education (2%).

Results from the baseline survey show that the experiment works properly. The following table shows the means for a woman, her partner or spouse, and outcome variables for the three groups, as well as the p value of differences among groups (See table 5).

Table 5. Baseline variables. Treatment arms and control group.

Variable	Means			P-value of difference		
	C	T1	T2	T1-C	T2-C	T1-T2
Women characteristics						
Age	30.45	29.77	30.92	0.55	0.68	0.32
Years of Schooling	7.4	7.85	7.89	0.2	0.17	0.89
Work for pay	0.36	0.39	0.43	0.56	0.18	0.45
Age spouse/partner	33.21	32.9	34.95	0.82	0.22	0.16
Years of Schooling spouse/partner	7.61	7.63	7.86	0.96	0.52	0.56
Work for pay spouse/partner	0.96	0.95	0.96	0.66	0.93	0.62
Decision making indicators						
Women should work	0.7	0.7	0.75	0.97	0.26	0.28
Any disagreement	0.06	0.07	0.06	0.75	0.89	0.86
Children´s education	0.76	0.79	0.79	0.4	0.51	0.86
Any disagreement	0.02	0.02	0.01	0.52	0.12	0.32
Children´s health	0.85	0.9	0.92	0.14	0.02*	0.39
Any disagreement	0.01	0.03	0	0.23	0.17	0.03*
Women's health	0.85	0.85	0.92	0.92	0.03*	0.04*
Any disagreement	0.01	0.02	0.01	0.66	0.34	0.18
Small daily food purchases	0.78	0.86	0.85	0.03*	0.07	0.74
Any disagreement	0	0.01	0.01	0.54	0.53	0.99
Large food purchases	0.63	0.66	0.64	0.61	0.92	0.69
Any disagreement	0.01	0.01	0.01	0.59	0.6	0.99
Large assets purchases	0.6	0.64	0.6	0.5	0.97	0.48
Any disagreement	0.01	0.01	0.01	0.34	0.34	0.99
Use of contraceptives	0.82	0.8	0.8	0.73	0.69	0.96
Any disagreement	0.02	0.03	0.02	0.94	0.53	0.49
INDEX	5.99	6.21	6.27	0.34	0.21	0.76
Number of cases (households)	204	193	191			

*significant at 5 per cent level.

Results from baseline show no systematic differences between each treatment arm and the control group, as well as between both treatment groups. Working at 5 per cent of significance level we find the following. Between T1 and C we find differences in small daily purchases. Between T2 and C we find differences in children's and women´s health. Between T2 and T1 we find differences on women's health and on disagreements on children´s health. As mentioned in the methodological section, all the variables included in table 1 are incorporated as controls in the econometric model.

5.2. Results

To begin with, we evaluated the impact on woman´s decision making. Table 6 shows the results.

Table 6. Impact on sole or joint decision making involvement. Several treatments.

		Z0		**Z1**		**Z2**		**Z3**	
		Coeff.	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**
Own work	Spec. 1	-0.034	0.030	-0.005	0.064	-0.063*	0.009	-0.058	0.067
	Spec. 2	-0.015	0.024	0.017	0.053	-0.045*	0.005	-0.062	0.060
	Spec. 3	-0.012	0.025	0.018	0.059	-0.041*	0.007	-0.060	0.067
Children´s education	Spec. 1	-0.047	0.038	-0.051	0.064	-0.043*	0.014	0.008	0.053
	Spec. 2	-0.037	0.043	-0.041	0.067	-0.033***	0.021	0.006	0.047
	Spec. 3	-0.035	0.042	-0.039	0.068	-0.032***	0.020	0.007	0.049
Children´s health	Spec. 1	-0.068*	0.015	-0.043*	0.015	-0.094*	0.023	-0.051**	0.023
	Spec. 2	-0.067*	0.014	-0.043*	0.018	-0.092*	0.018	-0.051**	0.022
	Spec. 3	-0.066*	0.015	-0.041*	0.021	-0.091*	0.019	-0.051**	0.024
Own health	Spec. 1	-0.017	0.013	0.015	0.027	-0.050*	0.011	-0.065**	0.032
	Spec. 2	-0.012	0.011	0.021	0.026	-0.046*	0.013	-0.066***	0.035
	Spec. 3	-0.010	0.012	0.022	0.026	-0.044*	0.012	-0.065***	0.034
Small daily food purchases	Spec. 1	-0.070	0.058	-0.081	0.073	-0.060	0.046	0.020	0.036
	Spec. 2	-0.065	0.059	-0.073	0.074	-0.056	0.044	0.020	0.037
	Spec. 3	-0.065	0.059	-0.073	0.075	-0.056	0.044	0.020	0.039
Large food purchases	Spec. 1	-0.022	0.043	-0.027	0.048	-0.017	0.039	0.010	0.011
	Spec. 2	-0.007	0.040	-0.013	0.049	-0.001	0.031	0.009	0.016
	Spec. 3	-0.008	0.041	-0.013	0.049	-0.001	0.032	0.010	0.018
Large asset purchases	Spec. 1	-0.007	0.018	0.001	0.026	-0.014	0.036	-0.015	0.051

	Spec. 2	0.010	0.023	0.018	0.023	0.004	0.037	-0.019	0.043
	Spec. 3	0.010	0.023	0.018	0.024	0.003	0.039	-0.018	0.053
Use contraceptives	Spec. 1	0.039	0.051	0.081**	0.040	-0.004	0.062	-0.085**	0.030
	Spec. 2	0.038	0.057	0.081***	0.045	-0.005	0.069	-0.086**	0.029
	Spec. 3	0.038	0.056	0.081***	0.046	-0.006	0.068	-0.086**	0.029
Index	Spec. 1	-0.227*	0.074	-0.109	0.173	-0.345*	0.093	-0.236	0.233
	Spec. 2	-0.155*	0.043	-0.033	0.146	-0.273*	0.074	-0.249	0.218
	Spec. 3	-0.149*	0.051	-0.027	0.165	-0.267*	0.08	-0.245	0.246
Number of cases		524		347		347		334	

*significant at 1 per cent level. ** Significant at 5 per cent level. *** Significant at 10 per cent level.

At aggregate level, we find a significant and negative effect of the complete treatment group (all treatments combined) and the cash plus training group, on the decision participation index. It means that the interventions, in general, had a negative effect on women's empowerment. At disaggregated level, we found a negative effect of all interventions on children' health. In addition, we found a negative impact of the voucher and training on women's work and health, and children education and health. Finally, we found also a negative effect of training on children's health, women's health and the use of contraceptives. However, we did find a positive impact of vouchers on the use of contraceptives.

The following table presents the results for the indicators of disagreements in the previous 6 months across the same domains analysed previously (See table 7).

Table 7. Impact on disagreements regarding decision-making. Several treatments

		Z0		**Z1**		**Z2**		**Z3**	
		Coeff.	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**
Own work	Spec.1	0.013	0.035	-0.011	0.041	0.037	0.033	0.048***	0.027
	Spec.2	0.011	0.035	-0.012	0.039	0.036	0.033	0.048***	0.026
	Spec.3	0.012	0.035	-0.012	0.040	0.036	0.032	0.048***	0.026
Children´s education	Spec.1	0.005	0.020	-0.000	0.024	0.011	0.019	0.011	0.015
	Spec.2	0.005	0.020	-0.001	0.025	0.011	0.019	0.011	0.015
	Spec.3	0.005	0.020	-0.001	0.024	0.010	0.019	0.011	0.013
Children´s health	Spec.1	0.006	0.011	-0.010	0.022	0.023	0.023	0.033	0.040
	Spec.2	0.006	0.011	-0.012	0.022	0.023	0.024	0.033	0.040
	Spec.3	0.006	0.011	-0.012	0.022	0.023	0.024	0.033	0.039
Own health	Spec.1	0.018	0.028	0.012	0.029	0.023	0.032	0.011	0.023
	Spec.2	0.018	0.028	0.012	0.029	0.024	0.033	0.010	0.023
	Spec.3	0.018	0.028	0.012	0.028	0.024	0.032	0.010	0.023
	Spec.1	0.004	0.021	0.018	0.023	-0.010	0.018	-0.028	0.005

Small daily food purchases	Spec.2	0.005	0.020	0.019	0.024	-0.009	0.017	-0.028	0.005
	Spec.3	0.005	0.020	0.019	0.023	-0.009	0.017	-0.028	0.005
Large food purchases	Spec.1	0.009	0.007	0.012*	0.004	0.006	0.009	-0.006	0.006
	Spec.2	0.009	0.006	0.012*	0.003	0.006	0.009	-0.006	0.006
	Spec.3	0.009	0.006	0.012*	0.003	0.005	0.009	-0.006	0.007
Large asset purchases	Spec.1	0.011	0.007	0.011**	0.005	0.011	0.015	0.000	0.017
	Spec.2	0.012	0.008	0.011**	0.006	0.012	0.016	0.000	0.018
	Spec.3	0.012	0.008	0.011**	0.006	0.011	0.016	0.000	0.018
Use contraceptives	Spec.1	0.026	0.019	0.017	0.019	0.034***	0.020	0.017*	0.001
	Spec.2	0.025	0.020	0.017	0.020	0.034***	0.020	0.018*	0.002
	Spec.3	0.025	0.020	0.017	0.020	0.034***	0.021	0.018*	0.002
Index	Spec.1	0.092	0.063	0.05	0.112	0.135*	0.031	0.085	0.105
	Spec.2	0.089	0.066	0.045	0.115	0.135*	0.041	0.086	0.104
	Spec.3	0.09	0.065	0.048	0.113	0.134*	0.042	0.086	0.1
Number of cases		524		353		352		343	

*significant at 1 per cent level. ** Significant at 5 per cent level. *** Significant at 10 per cent level

In this case we found the following results. First, we found a significant and positive effect of voucher plus training on the index of disagreements, as well as on the use of contraceptives. Second, we found a significant and positive effect of voucher on large food purchases and large assets purchase. Finally, we found a positive and significant differentiated effect of the training on women's work and the use of contraceptives.

In sum, we found negative effects of the interventions (both voucher and training) on women's participation on the decision making process at household level. However, we did find a positive effects, especially of training, on disagreement regarding women's work and use of contraceptives, as well as a positive effects of vouchers on disagreements on large food purchases and large assets purchases. In other words, women are more likely to express disagreements about decisions but less likely to participate in them.

Heterogeneous Effects

To evaluate heterogeneous effects we included in the main regression, for both decision making and disagreements, interaction variables between the treatment variables and the following variables: years of schooling, indigenous dummy, age, and dummy for those women that receive the BDH. Interestingly, results show that the positive effect found on disagreements regarding the use of contraceptives was powered with the dummy for indigenous, and with the dummy for BDH. These results may indicate a differentiated impact, larger on those collectives that are more vulnerable according to social indicators, indigenous and the poor (the beneficiaries of the BDH), which very often coincide. In the same line, the positive result found on disagreements regarding women's own work was powered with age, indigenous, and BDH dummies. This result adds age as a relevant variable, suggesting that policy interventions may need to be different when addressing younger and elder women. Results are reported in appendix 1.

6. CONCLUSIONS

Women's empowerment is understood as the process by which those who have been denied the ability to make strategic life choices acquire such ability. In this paper, in order to measure differentiated impacts of interventions, we have focused on the outcomes of such process, on decisions itself. We operationalized women's empowerment as women's participation in key decisions at household level, and as the possibility of disagreements of women with their partners on these key issues. The topics analysed in this paper refer to strategic issues such as children' education and health, women's work, health and use of contraceptives, and large purchases of food and assets.

By using an experimental design we evaluated the impact of several interventions on women's empowerment. Voucher for food, and voucher plus training are compared with a control group to evaluate the differentiated impact of each intervention.

The results show a negative effects of the interventions (both voucher and training) on women's participation on the decision making process at household level. However, we did find positive effects, especially of training, on disagreement regarding women's work and use of contraceptives, as well as positive effects of vouchers on disagreements on large food purchases and large assets purchases.

In the literature review introduced in this paper we found some studies that also find mixed results of transfers or training on women´s empowerment.

One limitation of our study is that statistical perspectives on decision-making are simple windows on complex realities. We base our conclusions on women's self-report about her participation in the decision process. They may provide a brief glimpse of processes of decision-making, but they tell us very little about the subtle negotiations that go on between women and men in their private life. Consequently, they may underestimate the informal decision making agency which women often exercise (Kabeer 1999).

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APPENDIX 1

Dummy interaction (etnia)

		Z0Aes		Z1Aes		Z2Aes		Z3Aes	
		Coeff.	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**	**Coeff.**	**St. err**
Own work	Spec. 1	0.007	0.009	-0.017	0.010	0.034	0.024	0.034	0.024
	Spec. 2	0.006	0.010	-0.018	0.018	0.035	0.022	0.034	0.017
	Spec. 3	0.007	0.010	-0.017	0.017	0.036	0.025	0.035	0.022
Small daily food purchases	Spec. 1	-0.012	0.010	-0.019	0.024	-0.002	0.011	-0.002	0.011
	Spec. 2	-0.010	0.006	-0.018	0.021	0.004	0.016	0.003	0.019
	Spec. 3	-0.009	0.005	-0.018	0.020	0.004	0.016	0.003	0.021
Large food purchases	Spec. 1	0.005	0.008	0.010	0.016	-0.002	0.008	-0.002	0.008
	Spec. 2	0.006	0.007	0.009	0.015	0.002	0.011	-0.002	0.014
	Spec. 3	0.006	0.007	0.010	0.014	0.001	0.012	-0.002	0.015
Large asset purchases	Spec. 1	-0.003	0.003	-0.005	0.009	-0.002	0.011	-0.002	0.011
	Spec. 2	-0.004	0.003	-0.004	0.007	-0.002	0.011	-0.002	0.012
	Spec. 3	-0.004	0.003	-0.004	0.006	-0.004	0.012	-0.002	0.014
Use contraceptives	Spec. 1	-0.004	0.005	-0.018	0.012	0.013	0.005	0.013	0.005
	Spec. 2	-0.001	0.007	-0.019	0.013	0.020	0.005	0.020	0.010
	Spec. 3	-0.002	0.006	-0.019	0.013	0.020	0.004	0.018	0.010
Index	Spec. 1	0.012	0.033	0.019	0.044	0.009	0.025	0.009	0.025

	Spec. 2	0.025	0.021	0.031	0.034	0.035	0.020	0.013	0.013
	Spec. 3	0.025	0.029	0.033	0.043	0.028	0.024	0.010	0.020

Dummy interaction (etnia)

		Z0Aes		Z1Aes		Z2Aes		Z3Aes	
		Coeff.	St. err	Coeff.	St. err	Coeff.	St. err	Coeff.	St. err
Own work	Spec. 1	0.007	0.009	-0.017	0.010	0.034	0.024	0.034	0.024
	Spec. 2	0.006	0.010	-0.018	0.018	0.035	0.022	0.034	0.017
	Spec. 3	0.007	0.010	-0.017	0.017	0.036	0.025	0.035	0.022
Small daily food purchases	Spec. 1	-0.012	0.010	-0.019	0.024	-0.002	0.011	-0.002	0.011
	Spec. 2	-0.010	0.006	-0.018	0.021	0.004	0.016	0.003	0.019
	Spec. 3	-0.009	0.005	-0.018	0.020	0.004	0.016	0.003	0.021
Large food purchases	Spec. 1	0.005	0.008	0.010	0.016	-0.002	0.008	-0.002	0.008
	Spec. 2	0.006	0.007	0.009	0.015	0.002	0.011	-0.002	0.014
	Spec. 3	0.006	0.007	0.010	0.014	0.001	0.012	-0.002	0.015
Large asset purchases	Spec. 1	-0.003	0.003	-0.005	0.009	-0.002	0.011	-0.002	0.011
	Spec. 2	-0.004	0.003	-0.004	0.007	-0.002	0.011	-0.002	0.012
	Spec. 3	-0.004	0.003	-0.004	0.006	-0.004	0.012	-0.002	0.014
Use contraceptives	Spec. 1	-0.004	0.005	-0.018	0.012	0.013	0.005	0.013	0.005
	Spec. 2	-0.001	0.007	-0.019	0.013	0.020	0.005	0.020	0.010

	Spec. 3	-0.002	0.006	-0.019	0.013	0.020	0.004	0.018	0.010
Index	Spec. 1	0.012	0.033	0.019	0.044	0.009	0.025	0.009	0.025
	Spec. 2	0.025	0.021	0.031	0.034	0.035	0.020	0.013	0.013
	Spec. 3	0.025	0.029	0.033	0.043	0.028	0.024	0.010	0.020