

# Incomes, employment and gender roles: understanding women's intrahousehold decision-making participation in Nicaragua

Women's  
decision-  
making in  
Nicaragua

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Roxana Gómez-Valle and Nathalie Holvoet  
*Institute of Development Policy, University of Antwerp, Antwerpen, Belgium*

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## Abstract

**Purpose** – This paper explores the relationship between married women's intrahousehold decision-making participation and marital gender roles, next to factors suggested in the household bargaining literature. Additionally, the authors investigate whether women's employment carries the same importance for decision-making participation as contributions to household incomes.

**Design/methodology/approach** – Using 2011/2012 Nicaraguan Demographic and Health Survey (DHS), the authors estimate multinomial logistic regressions for eight decision-making domains, analyzing three levels of decision-making: wife-dominant or sole decisions, joint decision-making (with the partner) and decision-making by someone else. The authors create an additive index for measuring internalized marital gender roles.

**Findings** – Women's intrahousehold decision-making participation is explained differently depending on the decision-making area and level of participation. Women with a better relative position vis-à-vis partners and not following patriarchal gender roles are more likely to make decisions jointly with their partners, but not alone. Women's age and educational level are the strongest predictors in the analysis. Women's employment reduces their decision-making participation in children's disciplining and daily cooking-related decisions.

**Research limitations/implications** – It focuses on married women only, while marital status might be a determinant of decision-making itself and left out the contribution of unearned incomes.

**Practical implications** – Interventions aimed at increasing women's intrahousehold decision-making participation should not only focus on economic endowments but also comprehend the gendered dynamics governing intrahousehold allocation.

**Originality/value** – The study incorporates quantitative measures of marital gender roles in the study of intrahousehold decision-making. It also contributes to the literature with insights from contexts where women's involvement in employment increased against a background of patriarchal gender roles.

**Keywords** Women, Decision-making, Nicaragua, Bargaining models, Gender roles, Incomes

**Paper type** Research paper

## 1. Introduction

Economic models of household behavior, particularly bargaining models, have gained attention in the design of public policies fostering women's empowerment and participation in household decisions aimed at influencing intrahousehold allocation to reach better developmental outcomes, such as health, education, labor and fertility (Alam, 2012; Behrman & Parker, 2013; Hendrick & Marteletto, 2017; Poelker & Gibbons, 2018).

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According to bargaining models, women's relative endowments in the household determine their intrahousehold bargaining position and decision-making power (Doss, 2013; Quisumbing, 2003). Moreover, women's employment status and income generation have been suggested as one of the main sources of women's participation in household decision-making and, ultimately, women's empowerment (Antman, 2014; Majlesi, 2016; Yusof & Duasa, 2010). However, the empirical evidence has also suggested that the effect of employment status and income generation depends on other socio-structural factors, such as the type of employment (e.g. being engaged in the formal vis-à-vis informal economy), work conditions or social perceptions of the income generators (Abdelali-Martini, 2015; Dasgupta, 2000; Sen, 1987). Previous studies also suggested that relative endowments can influence decision-making participation heterogeneously according to the area under study (e.g. productive vis-à-vis reproductive decisions) (Bayudan-Dacuycuy, 2013) or the variable used for measuring bargaining positions (Radel, Schmook, Haenn, & Green, 2017). For example, receiving incomes from cash transfers might not have the same "perceived" value as incomes generated through employment or lease agreements.

Personal characteristics and social meanings attached to them, like gender and gender roles, might also affect the perceptions of one's contributions to household welfare (Sen, 1987). A growing body of evidence has demonstrated how institutional factors, such as internalized attitudes towards gender roles, can condition and shape intrahousehold decision-making dynamics (Bradshaw, 2013; Grabe, 2010; Grasmuck & Espinal, 2000; Karimli, Lecoutere, Wells, & Ismayilova, 2021; Mabsout & Van Staveren, 2010). Although this growing evidence, mostly from evaluation of interventions comprising a gender component such as coaching and awareness-raising, points out the importance of gender roles in intrahousehold decision-making participation, quantitative studies that incorporate gender roles, or other institutional factors, into the framework of analysis of intrahousehold allocation and decision-making are scarce. This particularly holds for the Latin American context where women's relative conditions have improved over the years, i.e. education and insertion into the labor market, against a background of persistent traditional patriarchal gender roles.

Previous findings indicate that decision-making may vary across different domains (Bonilla *et al.*, 2017; deleted for blind review) or by types of decisions (joint vis-à-vis independent decisions) (Kafle, Michelson, & Winter-Nelson, 2019). However, joint or additive measures of decision-making are still broadly used, usually merging sole and joint decisions, particularly in studies using decision-making to approximate autonomy, status or empowerment (Allendorf, 2007; Kabir *et al.*, 2020; Seymour & Peterman, 2018).

This paper aims to contribute to the literature on intrahousehold decision-making participation by exploring (1) to what extent attitudes towards (marital) gender roles internalized by women (individually) affect their participation in household decisions, compared to other bargaining variables; (2) whether different decision-making domains are differently affected by bargaining variables and marital gender roles; and (3) whether women's employment carries the same importance for decision-making participation as contributions to household incomes. These questions are explored in the Latin American context, specifically using survey data from Nicaragua.

The Nicaraguan context offers a particular scenario to explore. On the one hand, women in the country have increased their educational attainments and economic participation, while the gender wage gap has decreased over the last years (Alaniz, Carrión, & Gindling, 2015; Herrera, Dijkstra, & Ruben, 2019). Nonetheless, women's participation in paid labor activities is predominantly through self-employment or in the service sector, characterized by a high level of vulnerability. Herrera *et al.* (2019) observed high occupational gender segregation with women usually inserting themselves in underpaid sectors following gender norms or constraints derived from gendered allocation of household care labor, as also confirmed in previous studies (Alaniz *et al.*, 2015; Bradshaw, 2013).

Overall, women's participation in the household and community is highly influenced by traditional patriarchal (religious). The 2020 World Values Survey (WVS) data suggest that approximately 61% of Nicaraguans still believe that it is problematic when women earn higher incomes than their husbands. Gender roles are also central in household dynamics definition. Müller (2019), for instance, describes how gender roles are relevant in childbearing decisions among Nicaraguan teenage girls. Similarly, studying the land tenure in rural communities, Grabe (2010) highlights that women's land ownership only triggers women's power and control within the couple when combined with changes in attitudes towards gender roles. Although some qualitative research has tried to unveil the influence of gender roles in intrahousehold decision-making processes in the country (Bradshaw, 2013; Müller, 2019), the quantitative research in this area is limited [1]. Moreover, few available quantitative studies that analyze decision-making participation as an outcome variable used aggregated measures of decision-making (Heaton, Huntsman, & Flake, 2005). As a result, neither the factors that influence the decision-making process in different spheres of a household are revealed nor the different configurations of participation are separately explored (Kishor & Subaiya, 2008).

Our study follows a quantitative and exploratory approach, using cross-sectional data for married or cohabiting opposite-sex couples in 2011/2012 Nicaraguan Demographic and Health Survey (DHS) (INIDE, 2014). It is the last openly available source that has the decision-making participation information. The determinants of women's participation in household decisions are estimated using multinomial logistic regressions (MNL). The predicted probabilities are analyzed for three levels of women's decision-making participation, i.e. wife-dominant or sole decisions, joint decision-making (with the partners) and decision-making by someone else.

The remainder of this paper is organized as follows. Section 2 presents the framework of analysis. Section 3 describes the methodological approach and measures adopted. Section 4 presents and discusses the results of the quantitative analysis. Section 5 concludes this paper, provides some policy recommendations and proposes some topics for further research.

## 2. Theoretical background: decision-making participation in economic models of household behavior

The analysis of intrahousehold resource allocation has been widely explored, with a large body of literature focused on testing the assumptions of conventional household models. The evidence has pointed out in favor of collective models against unitary models (Alderman, Chiappori, Haddad, Hoddinot, & Kanbur, 1995; Himmelweit, Santos, Sevilla, & Sofer, 2013), and the existence of both efficient (Attanasio & Lechene, 2014; Bobonis, 2009) and inefficient outcomes (Gupta, Ksoll, & Maertens, 2021; Hoel, Hidrobo, Bernard, & Ashour, 2017) in the allocative process. Therefore, allocative outcomes might depend on who brings the resources, which resources to bring and who makes the decisions. Moreover, household members also allocate responsibilities and management over the available resources (e.g. incomes, labor and time). The allocation of responsibilities and participation in intrahousehold decisions is *per se* a factor of contestation.

Collective bargaining models suggest that women's access and control over resources improve their decision-making participation (Wiig, 2013; Yusof & Duasa, 2010). This has resulted in interventions directed to increase women's access to economic endowments through cash transfer and microcredit programs, delivery of productive resources, among others. In bargaining models, household outcomes reflect the preferences of those with higher bargaining power. Member's bargaining power depends on their threat points [2], i.e. their situation outside their household if the actual contract is broken, determined by their endowments and extrahousehold environmental parameters (Doss, 2013; Phipps & Burton, 1998). A member with few exit options is less likely to abandon the household and would accept others' preferences in the decision-making process.

However, the literature on determinant factors explaining women's decision-making participation is mixed. The first body of literature confirms the role of women's endowments, in the form of incomes (Yusof & Duasa, 2010), employment status (Majlesi, 2016; Rammohan & Johar, 2009) or asset ownership (Melesse, Dabissa, & Bulte, 2018; Wiig, 2013), in increasing the participation in intrahousehold decisions, as suggested by conventional bargaining models. Women's age and education are other factors that increase women's outside options and determine decision-making power (Anderson, Reynolds, & Gugerty, 2017; Heaton *et al.*, 2005; Menon & Sharma, 2020), as well as relative age and education between the partners (Bertocchi, Brunetti, & Torricelli, 2014; Osanya, Adam, Otieno, Nyikal, & Jaleta, 2020; Sell & Minot, 2018). Along the same lines, past marriage history can change the expectations and fall-back position of household members, since they reflect the breakout of a preceding contract, with remarried couples being more likely to make decisions individually than first-marriage couples (Lambert, van de Walle, & Villar, 2018; Yusof & Duasa, 2010).

A similar understanding of bargaining power is Blood and Wolfe's resource theory of marital power (1960), which also puts social and economic resources at the center of decision-making participation, with greater attention to those resources generated outside the household. Another pool of papers under the "sociology of the family" literature suggests that women's position in the household power structure does not only depend on their relative position vis-à-vis their partner but also on the overall household structure and social structural and socio-psychological barriers to women's economic independence (Kranichfeld, 1987; Safilios-Rothschild, 1976).

In the economic literature, feminist and institutional economists (Agarwal, 1997; Bergmann, 1995; England, 2002; Folbre, 1997; Katz, 1997) have indicated the lack of understanding of household dynamics in most conventional models, including bargaining models, with particular attention to the influence of gender relations (and overall institutional factors) in the intrahousehold allocative processes. Katz (1997) proposes the inclusion of a feminist and institutional view into the household bargaining framework. The institutional perspective propagates the explicit inclusion of rules and norms that might influence household resource allocation. A feminist view of intrahousehold allocation recognizes the gendered nature of the household members instead of assuming that all household members have the same potential bargaining power.

The empirical evidence has also shown that an increase in women's endowments does not always lead to changes in decision-making participation (Abdelali-Martini, 2015; Hidrobo, Hoddinott, Margolies, Moreira, & Peterman, 2012) but that these interact with dominant gender roles to determine women's participation in household decision-making (Bradshaw, 2013; Grasmuck & Espinal, 2000; Mabsout & Van Staveren, 2010). A few studies even show an opposite relation between women with salaried employment and decision-making participation (Hussain & Jullandhry, 2020). An alternative explanation lies with Sen's cooperative conflict framework (Sen, 1987), which assumes that household allocative outcomes result from a process of cooperation and conflict between its members conversed by perceptions of interests, legitimacy and deservedness of contributions generally shaped by individual characteristics, such as gender, and values ascribed to them (Sen, 1987). Evidence of perceptions over income contributions biased negatively towards women has been found in Nicaragua (Bradshaw, 2013), where even when women contributed higher wages than their spouses, they were still perceived as supplementary to men's incomes.

Some non-cooperative models state that individuals have autonomous sub-economies, which may be gender-specific, ending in female or male members making decisions in specific domains (Haddad, Hoddinott, & Alderman, 1997). For the Latin American context, Cuesta (2006) describes the *machismo allocation*, a non-cooperative model where "individuals act non-cooperatively by first retaining the income necessary to satisfy their threat point, and

excess income is then shared according to the needs of each individual of the same gender” (Cuesta, 2006, p. 4), usually discriminating against women and girls.

Recent empirical evidence has paid more attention to household-level characteristics such as household structure (Baland, Bonjean, Guirkingner, & Ziparo, 2016; Bayudan-Dacuycuy, 2013; Debnath, 2015; Karimli *et al.*, 2021; Kazianga & Wahhaj, 2016; deleted for blind review), i.e. nuclear vis-à-vis extended households, or monogamous in contrast to polygamous households, or and differences in geographical regions (Bradshaw, 2013; Heaton *et al.*, 2005; Lamidi, 2016). The decision-making dynamics might be affected by the number of adult members or familial ties, altering their opportunities for participation and coordination. The area and region of residence could also influence the decision-making process through women’s labor opportunities, access to public services, and even different perceptions and beliefs around decision-making participation.

Our analysis comprises both conventional models and feminist-institutional approaches, specifically by incorporating women’s internalized attitudes towards marital gender roles into the analysis as a measure of institutional factors affecting decision-making processes. Figure 1 summarizes the approach followed in this paper.

Although we acknowledge the importance of extrahousehold factors in intrahousehold decision-making, this information was not available for the case under study which limits the scope of the analysis. Likewise, the variables selected for each of the different categories included in the analysis are based on data availability, as described in the “methods and data” section below.

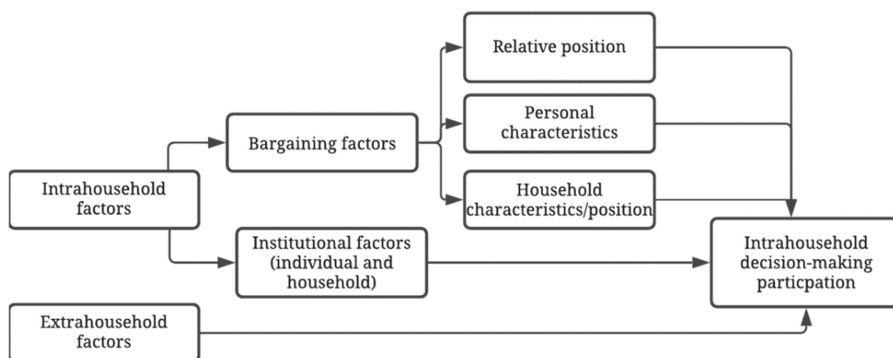
### 3. Methods and data

#### 3.1 Empirical approach: method

The paper follows a quantitative and exploratory approach. Drawing on theoretical insights offered by bargaining models, Sen’s cooperative conflict framework and feminist-institutional approaches to intrahousehold resource allocation, as summarized in Figure 1, the determinants of women’s intrahousehold decision-making participation are estimated following a random utility function given by:

$$U_{ij} = \alpha_{ij} + \beta_1 Xg_i + \beta_2 Xr_i + \beta_3 Xp_i + \beta_4 Xh_i + \epsilon_{ij} \quad (1)$$

where  $Xg_i$  is a variable that approximates *attitudes towards marital gender roles* of the woman  $i$ ;  $Xr_i$  is a vector of regressors with information on the *woman’s relative position* vis-à-vis their partners;  $Xp_i$  is a set of variables with information about the *woman’s characteristics*;  $Xh_i$  represents *household-level characteristics and household position*; and  $\alpha_{ij}$  and  $\epsilon_{ij}$  are the



**Figure 1.**  
Theoretical  
relationships-  
associated factors of  
(women’s)  
intrahousehold  
decision-making  
participation

constant and error terms of the function for each woman  $i$  in each decision-making outcome  $j$ , respectively.

Contrarily to previous research using decision-making indicators to construct autonomy or empowerment measures (Allendorf, 2007; Kabir *et al.*, 2020; Seymour & Peterman, 2018), we do not order the decision-making outcomes given the lack of information to determine whether sole compared to joint decision-making translates into more decision-making power (see Bernard, Doss, Hidrobo, Hoel, & Kieran, 2020; Mabsout, 2011 for arguments and evidence where joint decisions may represent better bargaining outcomes for women compared to sole decisions). Therefore, the model choice probability of each alternative  $j$  is estimated using multinomial logistic regressions (MNL) [3], a popular method to estimate unordered categorical dependent variables.

The alternatives  $j$  included in the analysis, defined by who has the final say in different areas of a decision in the household, consist of: (1) the decision is made by the woman alone; (2) the woman and her partner make the decision together and (3) someone else decides, i.e. the woman is not involved. Women's sole and joint participation are analyzed separately, considering that they are not necessarily explained by the same factors (Peterman, Schwab, Roy, Hidrobo, & Gilligan, 2021; Seymour & Peterman, 2018). Furthermore, a Wald test for combining alternatives was applied. The results from the test suggest that the choices  $j$  are not indistinguishable from the explanatory variables. Unfortunately, the survey does not have information on whether the decision was made recently or not, which could bring a potential bias if there is not a decision-making process for that particular area [4].

The third research question focusing on the influence of relative income contribution in contrast to employment status is answered by estimating two different models. More specifically, model 1 includes relative incomes as a measure of relative position, while in model 2 this is replaced by the couple's employment status.

### 3.2 Data description and measures

This study uses data from opposite-sex couples in the 2011/2012 Nicaraguan DHS. The DHS is a nationally representative cross-sectional survey providing information on health, nutrition and demographic issues. The instrument is a standard DHS survey [5] with a household questionnaire (collects general characteristics of the dwelling and the household and its members) and a separate questionnaire for the two partners who are of reproductive age (15–49 years) (including information on socioeconomic characteristics, reproductive behavior, gender roles and intimate partner violence (IPV), among others). The DHS 2011/2012 is the last openly available data source with representation at the national level collecting decision-making-related information. The survey has a sample of 19,918 households, with 15,266 and 4,499 observations for women and men of reproductive age, correspondingly. Given that the questions regarding decision-making are only available for opposite-sex couples (married or cohabitating), the sample is restricted to 2,058 women who are in union or partnership.

The last DHS was carried out in 2011/2012, leaving out the country's socio-political and later economic crisis experienced since 2018. As suggested by Dong (2017), the socioeconomic and political crisis might alter the working opportunities of men and women differently, i.e. gender differences in response to shocks, and rebound in decision-making processes. Hitherto, there is no evidence confirming whether this is the case for the country, but it is important to acknowledge it as a potential limitation of our study.

Married women's intrahousehold decision-making participation is explored in eight decision domains, namely large household purchases, (general) household income expenditures, children's visits to the doctor, children's education, children's disciplining, visits family and friends, daily meals preparation and contraceptive use.

For contraceptive use-related decisions, we did not include women who were using modern contraceptives for medical reasons, i.e. to treat a medical condition, as the decision-making dynamics within the couple might change in these specific cases. For children-related decisions, the information is restricted to couples with children living in the household, since there is no information about individuals living outside the household or characteristics of the household itself. The dependent variables are the decision-making outcomes for each decision domain. The explanatory variables included in the analysis are based on the categories defined in Equation (1), as illustrated in Figure 1. First, the variable of *attitudes towards marital gender roles internalized by women* is constructed as an additive index composed of six indicators reflecting women's attitudes towards gender roles in a couple or marital relationship. Each indicator is coded as a binary variable, and they take a value of 1 when women disagree with statements of non-egalitarian marriages and 0 otherwise. The propositions included in the index are (1) whether men must demonstrate to their wives who are the head of the household; and (2) a set of questions reflecting attitudes towards IPV. The five propositions indicate scenarios where men have the right to beat their wives when she does not do her chores to the satisfaction of the husband, she disobeys, she neglects to have sexual relations with the husband, she asks him if he is unfaithful, and if he discovers that she has been unfaithful. The higher the index value, the higher the woman's support and acceptance of egalitarian marital roles. It is worth mentioning that the indicators do not reflect whether women effectively experience these situations but rather how they perceive marital roles.

The selection of the index indicators followed a two-step procedure. First, factor analysis was conducted over 10 potential indicators, according to the literature on gender roles measurement (Beere, 1990; Constantin & Voicu, 2015), and only those with loading factors with a minimum of 0.5 in at least one of the retained factors were selected. Next, inter-item correlations (item-test and item-rest) and Cronbach's alpha statistic were estimated to obtain the best combinations of indicators. The selected combination showed a value of 0.72 against a threshold for internal consistency of 0.7. Jelen (1988) cited by Constantin and Voicu (2015) identifies three categories of attitudes towards gender roles in measurement: traditional, specialized and modern attitudes. The statements included in the survey, and in the index, are mostly from the traditional segment which implies that our results can only be interpreted as the influence of traditional attitudes towards women in the household marital domain.

Next, from the bargaining variables, those measuring *women's relative position* within the household are women's relative income contribution, the couple's employment status (for model 2), age and educational differences between the couple, and length of marriage or cohabitation. For employment and income-related information, only couples in which at least one of them was earning an income are included in the analysis, which may exclude other existing household structures (e.g. monoparental households). Also, couples where women indicated saving all the money earned were excluded from the sample, as there was no further information on whether this was a pooled or women's saving fund. Additionally, the DHS 2011/12 does not contain information about unearned incomes (e.g. inheritance, remittances) and non-monetary endowments, which is a limitation of this study, considering that earning an income is the result of an intrahousehold decision in itself [6].

The *women's characteristics* included in the analysis are age, educational level, ethnicity (whether she belongs to an indigenous or afro-descendant community), religion and whether women had a cohabitating partner before.

Finally, the *household-related variables* used for the analysis are household welfare, household formation (nuclear or extended), the number of additional adult members in the household besides the couple, area (urban or rural) and region of residence (four macro-regions in the country). The household welfare indicator is approximated using the 2019 version of the global Multidimensional Poverty Index (G-MPI) (Alkire, Kanagaratnam, &

Suppa, 2019), which was proposed by Alkire and Santos (2014). Table 1 describes the structure of the G-MPI 2019.

### 3.3 Summary statistics

Basic descriptive statistics of the dependent variables and covariates are presented in Tables 2 and 3.

Overall, household decisions across the eight domains are made by women jointly with their partners. However, women participate less in financial or economic-related decisions, with a slightly higher proportion for large household purchases. Nonetheless, the area with the lowest wife-dominant decisions is related to “visiting”, which indicates that decision-making participation is even more limited for those areas related to mobility and the public domain.

The distribution shows a clear inclination toward women’s participation in those areas traditionally considered feminine. Women in partnerships have greater participation in decisions related to the preparation of daily meals and the use of contraceptives. Particularly, daily meals preparation is the domain where most women are involved in independent decisions with the lowest prevalence of joint participation. Children-related decisions, on the other hand, are similarly distributed with more shared participation in decisions on how to discipline children.

Indicators	Deprivation indicators	Weights
<i>Health</i>		
Nutrition	Any person under 70 years of age, for whom there is nutritional information, is malnourished*	1/6
Child mortality	A child under 18 years of age has died in the family in the five year period preceding the survey	1/6
<i>Education</i>		
Years of schooling	No household member aged 10 years or older has completed six years of schooling	1/6
School attendance	Any school-aged child is not attending school up to the age at which they would complete class 8**	1/6
<i>Living standard</i>		
Cooking fuel	A household cooks with dung, agricultural crops, shrubs, wood, charcoal or coal	1/18
Sanitation	The household’s sanitation is not improved or it is improved but shared with other household	1/18
Improved water	The household does not have access to improved drinking water or safe drinking water is at least 30 minute walk from home (as a round trip)	1/18
Electricity	The household has no electricity***	1/18
Housing	The household has inadequate housing: the floor is made of natural materials or the floor or wall are made of rudimentary materials	1/18
Assets	The household does not own more than one of these assets: radio, TV, telephone, computer, animal cart, bicycle, motorbike or refrigerator, and does not own a car or truck	1/18

**Note(s):** \*The Nicaraguan DHS 2011/2012 only has information for children and women in reproductive age (15–49 years);

\*\*Corresponding to children between 6 and 14 years old, inclusively;

\*\*\*Households using solar panels as the main source of energy are considered non-deprived

**Source(s):** Adapted from Alkire *et al.* (2019)

**Table 1.**  
G-MPI structure



From [Table 3](#), we can infer that most women in the sample support egalitarian marital relationships. Specifically, 95% present positive attitudes towards equitable gender roles in the couple, including those excusing IPV.

Women's participation in the labor market is lower in comparison to men and so is their contribution to household incomes. Also, women in Nicaraguan couples are usually younger than their spouses but possess the same level of education. From the sample, Nicaraguan marriages are relatively new. Both, differences in age and length of the relationship are, however, limited to the sample itself, where the ages of the couple do not exceed 59 years for men (and then less likely to have long marriages) and 49 years for women, which does not allow to have couples with women older than their husbands for men above 50 years old.

Women themselves are mostly between 20 and 39 years old, have at least completed primary education, and practice some religion (mainly Catholic and protestant). One-fifth of them have had a previous relationship and 10% belong to an indigenous or Afro-descendant group.

Nicaragua is one of the countries with the highest poverty rates in the region, which is evident from its G-MPI measure. Household arrays in the country are very diverse with 25% of households in the sample differing from nuclear compositions. The extended household may include additional adult household members different than children such as in-laws or other children besides the daughter/son figure, e.g. grandchildren.

## 4. Results and discussions

### 4.1 Determinants of women's participation in household decisions

[Tables 4](#) and [5](#) present the estimation details of the main model. The results suggest that women's intrahousehold decision-making participation is differently determined by the factors proposed, depending on the area of decision-making and their degree of participation, usually with women being more likely to take part in the decision-making with their husbands, as expected by the distribution of the dependent variable (see [Table 2](#)). However, some factors triggering sole participation include women's income contributions to the household, women's age, women belonging to an indigenous or Afro-descendant community, and relative education (women being more educated than their husbands).

Our findings also indicate that women's participation in household decisions is not only explained by variables suggested in bargaining models (i.e. relative income, relative employment status, education, age and differences in couples' characteristics) but also by attitudes towards marital gender roles embraced by women. Gender roles are positively correlated to large household purchase-related decisions, children's disciplining, visits to family and friends, and contraceptive use. Results for the model with relative employment status suggest that women with more egalitarian ideas are also less likely to be excluded from the decision-making process of general household income expenditures and children's education (Results can be found in [Tables 6](#) and [7](#)).

Variable	Sole decision (%)	Joint decision (%)	No decision (%)	Observations
Large household purchases	4.38	70.78	24.84	2,057
Household income expenditures	9.74	67.82	22.44	2,054
Taking children to doctor	14.61	72.67	12.72	2,005
Children's education	8.66	78.67	12.67	1,997
Children's disciplining	5.63	82.30	12.06	2,006
Visit to family and friends	3.45	76.57	19.98	2,057
Daily cooking	39.89	54.47	5.64	2,058
Contraceptive use	17.22	74.54	8.24	2,027

**Table 2.**  
Summary statistics:  
decision-making  
variables

Variable	Mean	SD	Min	Max	Observations
Gender roles index	5.49	0.78	0	6	2,025
<i>Relative incomes</i>					
No contribution	0.57	0.49	0	1	1,987
Low contribution	0.15	0.36	0	1	1,987
Contribution around half	0.15	0.36	0	1	1,987
High contribution/All	0.13	0.33	0	1	1,987
<i>Woman's employment status</i>					
Unemployed	0.55	0.50	0	1	2,058
Employed	0.45	0.50	0	1	2,058
<i>Husband's employment status</i>					
Unemployed	0.06	0.24	0	1	2,058
Employed	0.94	0.24	0	1	2,058
<i>Couple's age difference</i>					
Woman older than partner	0.18	0.39	0	1	2,058
Same age	0.06	0.24	0	1	2,058
Woman younger than partner	0.76	0.43	0	1	2,058
<i>Couple's educational difference</i>					
Woman more education than partner	0.25	0.42	0	1	2,058
Same education	0.55	0.55	0	1	2,058
Woman less education than partner	0.20	0.40	0	1	2,058
Marriage length	10.43	7.31	0.08	32.25	1,918
<i>Woman's age</i>					
15–19 years	0.09	0.29	0	1	2,058
20–29 years	0.40	0.49	0	1	2,058
30–39 years	0.36	0.48	0	1	2,058
40–49 years	0.15	0.35	0	1	2,058
<i>Woman's education</i>					
No formal education	0.13	0.33	0	1	2,058
Primary education	0.44	0.50	0	1	2,058
Secondary education	0.32	0.47	0	1	2,058
Higher than secondary education	0.11	0.31	0	1	2,058
<i>Woman's religion</i>					
No religious	0.11	0.32	0	1	2,058
Catholic	0.49	0.50	0	1	2,058
Other religion	0.40	0.49	0	1	2,058
<i>Woman's ethnicity</i>					
None	0.90	0.30	0	1	2,057
Indigenous or afro-descendant	0.10	0.30	0	1	2,057
<i>Remarried woman</i>					
Yes	0.20	0.40	0	1	2,058
No	0.80	0.40	0	1	2,058
Household welfare	10.88	20.35	0	94.44	2,049
<i>Household composition</i>					
Nuclear household	0.75	0.43	0	1	2,058
Extended household	0.25	0.43	0	1	2,058
Number of additional household members	0.52	0.97	0	6	2,058

**Table 3.**  
Summary statistics:  
correlates

(continued)

Table 3.

Variable	Mean	SD	Min	Max	Observations
<i>Region of residence</i>					
Managua (capital city)	0.09	0.29	0	1	2,058
Rest Pacific	0.34	0.47	0	1	2,058
Central region	0.42	0.49	0	1	2,058
Caribbean region	0.15	0.36	0	1	2,058
<i>Area of residence</i>					
Urban	0.45	0.50	0	1	2,058
Rural	0.55	0.50	0	1	2,058

4.1.1 *Attitudes towards marital gender roles.* Women with more positive attitudes towards equitable gender roles in a couple are more likely to participate in three of the decisions where they lack most participation: major household purchases, children's disciplining, and visits to family and friends. In these areas, they are more likely to participate in decision-making but only jointly with their husbands. Moreover, the probability that women are excluded from contraceptive use-related decisions also decreased when the gender roles index increases, but there are no statistically significant differences between joint and sole decision-making.

4.1.2 *Relative position variables.* Women's contribution to household incomes proves important to promote decision-making participation only for household income expenditures (there is a direct relation between bringing more income into the household and deciding how to spend this income) and domains closely linked to labor dynamics, i.e. children's disciplining and daily meals preparation.

In the case of daily meals preparation, women who are employed or contribute more to household incomes are less likely to make these decisions alone while the probability of joint decisions is increasing. As many of the income-generating activities carried out by women occur outside the household (76.93 are working outside their homes), the meal preparation dynamics might change from being women-led to joint responsibility. Similarly, from the children-related decisions, decision-making about children's disciplining is the only one with a statistically significant association with income contributions. Women are less likely to participate in these decisions when having small or no contributions to household incomes, but the opposite occurs when they are high contributors, having a higher probability to make decisions alone. Of women who participate in the labor market, 30% of them declared to take care of their children, 30% referred to either their mother or their mother-in-law as caretakers, and 12% to other relatives. Husbands were only mentioned in 5% of the cases, which is illustrative of the fact that childcare is mainly linked to women, which could diminish when women work outside the household.

Participation in decision-making about contraceptive use also depends on the level of contribution, but there is only a statistical relationship for women contributing small amounts of income. In this case, the woman is less likely to jointly decide on contraceptive use with their partner and she is more likely to be excluded from the decision process. Previous studies have shown both positive (Bogale, Wondafrash, Tilahun, & Girma, 2011) and negative (Behrman, 2017; Juan, Allen, & MacQuarrie, 2020) associations between reproductive-related decision-making and women's economic endowment. Behrman (2017) embraces a hypothesis related to intrahousehold conflict derived from women's increased ownership, while Salazar and San Sebastian (2014) prompt healthcare services as an inhibitor of women's ability to control their fertility. In both cases, the small amount of contribution could deter women to realize real changes in decision-making.

Relative education is a crucial factor for women's sole decision-making. Women who are similarly or more educated than their partners are more likely to make decisions alone in

**Table 4.**  
Marginal effects of  
determinants on  
decision-making

	Large household purchases			General income expenditures			Take children to doctor			Children's education		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
Gender roles index	-0.009 (0.01)	0.036* (0.02)	-0.028 (0.02)	-0.015 (0.01)	0.037* (0.02)	-0.022 (0.02)	-0.017 (0.02)	0.018 (0.02)	-0.001 (0.01)	-0.006 (0.01)	0.018 (0.02)	-0.012 (0.01)
<i>Income contribution</i>												
No contribution (ref.)												
Low contribution	0.009 (0.02)	-0.041 (0.04)	0.032 (0.04)	0.027 (0.03)	0.061 (0.05)	-0.088** (0.04)	-0.013 (0.03)	0.001 (0.04)	0.011 (0.04)	0.019 (0.03)	-0.038 (0.04)	0.019 (0.03)
Half contribution	0.028 (0.02)	0.035 (0.04)	-0.063* (0.04)	0.046 (0.03)	0.047 (0.04)	-0.093** (0.04)	0.042 (0.04)	-0.031 (0.04)	-0.011 (0.03)	-0.006 (0.02)	0.006 (0.04)	-0.000 (0.03)
High contribution	0.014 (0.02)	-0.002 (0.05)	-0.012 (0.04)	0.066** (0.03)	0.039 (0.04)	-0.105*** (0.04)	-0.018 (0.03)	0.017 (0.04)	0.001 (0.03)	0.011 (0.02)	-0.009 (0.04)	-0.002 (0.03)
<i>Couple's age difference</i>												
Woman older (ref.)												
Same age	0.001 (0.04)	-0.026 (0.07)	0.025 (0.07)	-0.031 (0.04)	0.022 (0.08)	0.009 (0.08)	0.087 (0.06)	-0.105 (0.08)	0.018 (0.07)	-0.071*** (0.03)	0.116** (0.05)	-0.045 (0.05)
Woman younger	-0.034 (0.03)	0.068* (0.04)	-0.034 (0.04)	-0.024 (0.02)	0.078* (0.04)	-0.053 (0.04)	0.051* (0.03)	0.013 (0.04)	-0.064* (0.03)	-0.018 (0.02)	0.049 (0.04)	-0.031 (0.03)
<i>Couple's educational difference</i>												
Woman more education (ref.)												
Same education	-0.023 (0.02)	0.021 (0.03)	0.002 (0.03)	-0.095*** (0.03)	0.065* (0.04)	0.03 (0.03)	-0.033 (0.03)	0.047 (0.03)	-0.014 (0.03)	-0.052* (0.03)	0.074*** (0.03)	-0.022 (0.02)
Woman less education	-0.017 (0.02)	0.043 (0.05)	-0.027 (0.04)	-0.114*** (0.03)	0.098** (0.05)	0.016 (0.04)	-0.043 (0.04)	0.103** (0.05)	-0.060* (0.03)	-0.075*** (0.03)	0.072 (0.05)	0.003 (0.04)
Years of marriage	0.001 (0.00)	-0.002 (0.00)	0.002 (0.00)	0.000 (0.00)	-0.001 (0.00)	0.001 (0.00)	-0.004* (0.00)	0.005* (0.00)	-0.001 (0.00)	-0.003 (0.00)	0.006** (0.00)	-0.004 (0.00)

(continued)

	Large household purchases		General income expenditures		Take children to doctor		Children's education					
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else			
<i>Woman's age</i>												
15–19 years (ref.)												
20–29 years	-0.067 (0.06)	0.030 (0.06)	0.037 (0.06)	0.032 (0.03)	0.081 (0.06)	-0.113* (0.06)	0.070** (0.03)	0.030 (0.06)	-0.100* (0.06)	0.019 (0.02)	0.031 (0.06)	-0.050 (0.06)
30–39 years	-0.059 (0.07)	0.140* (0.07)	-0.082 (0.06)	0.030 (0.04)	0.176*** (0.07)	-0.206*** (0.07)	0.068** (0.04)	0.067 (0.07)	-0.135** (0.07)	0.069** (0.03)	0.051 (0.07)	-0.120* (0.06)
40–49 years	-0.089 (0.07)	0.213** (0.08)	-0.124 (0.08)	0.043 (0.05)	0.175** (0.09)	-0.218** (0.09)	0.074 (0.06)	-0.003 (0.10)	-0.071 (0.09)	0.065 (0.05)	-0.001 (0.09)	-0.066 (0.08)
<i>Woman's education</i>												
No formal education (ref.)												
Primary education	-0.092** (0.05)	0.124** (0.05)	-0.032 (0.05)	-0.100* (0.05)	0.097* (0.05)	0.003 (0.04)	0.011 (0.04)	-0.010 (0.05)	-0.001 (0.04)	-0.045 (0.04)	0.001 (0.05)	0.044 (0.04)
Secondary education	-0.084* (0.05)	0.168** (0.07)	-0.084 (0.06)	-0.130** (0.06)	0.154** (0.07)	-0.024 (0.06)	-0.006 (0.05)	0.064 (0.06)	-0.058 (0.04)	-0.081* (0.05)	0.096* (0.06)	-0.016 (0.04)
Higher than secondary	-0.083 (0.06)	0.205** (0.08)	-0.122* (0.07)	-0.165*** (0.06)	0.275*** (0.07)	-0.111* (0.06)	-0.009 (0.06)	0.006 (0.08)	0.003 (0.06)	-0.038 (0.06)	0.074 (0.07)	-0.037 (0.05)
<i>Woman's religion</i>												
No religious (ref.)												
Catholic	0.024 (0.01)	0.043 (0.05)	-0.067 (0.05)	-0.012 (0.03)	0.076 (0.05)	-0.065 (0.05)	-0.012 (0.04)	0.117** (0.05)	-0.105** (0.05)	-0.062** (0.03)	0.043 (0.04)	0.019 (0.03)
Other	0.032** (0.02)	0.059 (0.05)	-0.091* (0.05)	-0.009 (0.03)	0.042 (0.05)	-0.033 (0.05)	0.024 (0.04)	0.036 (0.05)	-0.06 (0.05)	-0.039 (0.03)	0.026 (0.04)	0.014 (0.03)
<i>Woman's ethnic group</i>												
None (ref.)												
Indigenous or Afro-descendant	0.070** (0.04)	-0.059 (0.05)	-0.010 (0.04)	0.083* (0.04)	-0.039 (0.05)	-0.044 (0.03)	-0.018 (0.03)	-0.026 (0.05)	0.044 (0.04)	0.041 (0.03)	-0.075* (0.05)	0.035 (0.04)

(continued)

Table 4.

Table 4.

	Large household purchases			General income expenditures			Take children to doctor			Children's education		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Remarried woman</i>												
No (ref.)												
Yes	0.032 (0.02)	-0.029 (0.04)	-0.003 (0.04)	-0.044** (0.02)	-0.000 (0.04)	0.044 (0.04)	-0.033 (0.03)	0.020 (0.04)	0.013 (0.03)	-0.000 (0.02)	0.019 (0.03)	-0.019 (0.02)
Household welfare	-0.001** (0.00)	-0.000 (0.00)	0.001 (0.00)	-0.001 (0.00)	0.000 (0.00)	0.001 (0.00)	-0.000 (0.00)	0.001 (0.00)	-0.001 (0.00)	-0.000 (0.00)	0.001* (0.00)	-0.001 (0.00)
<i>Household composition</i>												
Nuclear household (ref.)												
Extended household	0.040 (0.03)	-0.095** (0.05)	0.055 (0.05)	-0.003 (0.03)	0.002 (0.05)	0.001 (0.04)	0.014 (0.04)	0.003 (0.05)	-0.017 (0.04)	0.094*** (0.03)	-0.07 (0.04)	-0.024 (0.03)
Additional adult members	-0.017* (0.01)	0.041* (0.02)	-0.024 (0.02)	0.000 (0.01)	0.006 (0.02)	-0.006 (0.02)	-0.000 (0.02)	-0.007 (0.02)	0.007 (0.02)	-0.031*** (0.01)	0.024 (0.02)	0.006 (0.01)
<i>Region of residence</i>												
Managua (capital, ref.)												
Rest Pacific	-0.019 (0.02)	0.060 (0.05)	-0.041 (0.05)	0.006 (0.04)	0.125** (0.05)	-0.131*** (0.05)	-0.017 (0.04)	0.051 (0.05)	-0.034 (0.04)	-0.025 (0.03)	0.035 (0.05)	-0.01 (0.04)
Central	-0.038 (0.02)	0.143*** (0.05)	-0.105*** (0.05)	-0.101*** (0.04)	0.171*** (0.05)	-0.070 (0.05)	-0.090** (0.04)	0.106** (0.05)	-0.016 (0.04)	-0.040 (0.03)	0.054 (0.05)	-0.014 (0.04)
Caribbean	-0.047* (0.03)	0.162*** (0.06)	-0.116** (0.06)	-0.106*** (0.04)	0.230*** (0.06)	-0.123** (0.06)	-0.062 (0.05)	0.121** (0.06)	-0.058 (0.05)	-0.034 (0.04)	0.087* (0.06)	-0.053 (0.05)
<i>Area of residence</i>												
Urban (ref.)												
Rural	-0.011 (0.01)	-0.006 (0.04)	0.018 (0.04)	-0.025 (0.02)	0.036 (0.04)	-0.011 (0.04)	-0.031 (0.03)	0.012 (0.04)	0.020 (0.03)	0.009 (0.02)	-0.008 (0.03)	-0.002 (0.03)
Observations	1,824	1,824	1,824	1,821	1,821	1,821	1,774	1,774	1,774	1,769	1,769	1,769

Note(s): Standard errors in parentheses  
\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
Gender roles index	-0.017** (0.01)	0.040** (0.01)	-0.022** (0.01)	0.002 (0.01)	0.020 (0.02)	-0.022 (0.02)	-0.047* (0.02)	0.054** (0.02)	-0.007 (0.01)	0.012 (0.02)	0.012 (0.02)	-0.025** (0.01)
<i>Income contributions</i>												
No contribution (ref.)												
Low contribution	0.010 (0.02)	-0.111** (0.04)	0.102** (0.04)	-0.018 (0.01)	0.039 (0.03)	-0.021 (0.03)	0.040 (0.04)	-0.109** (0.04)	0.069** (0.03)	0.016 (0.04)	-0.069* (0.04)	0.053 (0.03)
Half contribution	0.040* (0.02)	-0.094** (0.04)	0.054* (0.03)	-0.009 (0.02)	0.014 (0.04)	-0.005 (0.04)	-0.007 (0.04)	-0.031 (0.04)	0.038 (0.03)	0.006 (0.04)	0.001 (0.04)	-0.006 (0.02)
High contribution	0.067** (0.03)	-0.116** (0.04)	0.049 (0.05)	-0.015 (0.02)	0.029 (0.04)	-0.014 (0.04)	-0.084* (0.04)	0.087* (0.05)	-0.003 (0.02)	-0.019 (0.03)	0.017 (0.04)	0.001 (0.03)
<i>Couple's age difference</i>												
Woman older (ref.)												
Same age	-0.030 (0.02)	-0.026 (0.07)	0.056 (0.06)	0.054 (0.03)	-0.062 (0.07)	0.009 (0.06)	-0.082 (0.07)	0.016 (0.07)	0.066 (0.04)	0.021 (0.05)	-0.084 (0.06)	0.063 (0.05)
Woman younger	-0.012 (0.02)	0.056 (0.03)	-0.044 (0.03)	-0.004 (0.01)	0.029 (0.04)	-0.025 (0.04)	-0.015 (0.04)	0.025 (0.04)	-0.01 (0.02)	0.009 (0.03)	-0.021 (0.04)	0.011 (0.02)
<i>Couple's educational difference</i>												
Woman more education (ref.)												
Same education	-0.028 (0.02)	0.046 (0.03)	-0.018 (0.02)	-0.017 (0.02)	0.079** (0.03)	-0.062* (0.03)	-0.078** (0.04)	0.072** (0.04)	0.005 (0.02)	-0.044 (0.03)	0.040 (0.03)	0.004 (0.02)
Woman less education	-0.027 (0.03)	0.046 (0.04)	-0.019 (0.04)	-0.033* (0.02)	0.106** (0.04)	-0.073* (0.04)	-0.092* (0.05)	0.116** (0.05)	-0.024 (0.02)	-0.038 (0.04)	0.068 (0.04)	-0.030 (0.03)
Years of marriage	-0.003** (0.00)	0.006** (0.00)	-0.003 (0.00)	-0.001 (0.00)	0.005* (0.00)	-0.004 (0.00)	-0.003 (0.00)	0.001 (0.00)	0.001 (0.00)	-0.001 (0.00)	0.001 (0.00)	0.000 (0.00)

(continued)

**Table 5.** Marginal effects of determinants on decision-making (II)

	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Woman's age</i>												
15–19 years (ref.)												
20–29 years	0.030** (0.01)	0.108* (0.06)	-0.138** (0.06)	0.019 (0.01)	0.014 (0.05)	-0.033 (0.05)	0.055 (0.05)	-0.072 (0.06)	0.016 (0.03)	0.049 (0.05)	-0.046 (0.05)	-0.002 (0.03)
30–39 years	0.051*** (0.02)	0.110 (0.07)	-0.161** (0.07)	0.035* (0.02)	0.058 (0.06)	-0.093 (0.06)	0.026 (0.07)	0.003 (0.07)	-0.029 (0.04)	-0.023 (0.06)	-0.016 (0.06)	0.007 (0.03)
40–49 years	0.092** (0.04)	0.007 (0.09)	-0.099 (0.09)	0.007 (0.02)	0.096 (0.07)	-0.102 (0.07)	0.125 (0.09)	-0.071 (0.09)	-0.055 (0.04)	0.012 (0.08)	-0.076 (0.08)	0.064 (0.06)
<i>Woman's education</i>												
No formal education (ref.)												
Primary education	-0.039 (0.04)	0.025 (0.05)	0.015 (0.04)	-0.052 (0.05)	0.137** (0.06)	-0.084 (0.06)	-0.139*** (0.05)	0.123** (0.05)	0.015 (0.02)	-0.119** (0.05)	0.089 (0.06)	-0.030 (0.03)
Secondary education	-0.029 (0.05)	0.079 (0.06)	-0.050 (0.05)	-0.05 (0.05)	0.210*** (0.07)	-0.160** (0.07)	-0.159** (0.07)	0.144** (0.06)	0.015 (0.02)	-0.157*** (0.06)	0.161** (0.07)	-0.004 (0.04)
Higher than secondary	-0.058 (0.04)	0.139** (0.06)	-0.081 (0.05)	-0.043 (0.06)	0.263*** (0.07)	-0.220*** (0.07)	-0.255*** (0.07)	0.250*** (0.07)	0.005 (0.03)	-0.160** (0.07)	0.183** (0.08)	-0.022 (0.04)
<i>Woman's religion</i>												
No religious (ref.)												
Catholic	-0.009 (0.02)	0.032 (0.04)	-0.023 (0.04)	0.028 (0.02)	-0.072* (0.04)	0.044 (0.04)	-0.012 (0.05)	0.067 (0.05)	-0.054* (0.03)	-0.018 (0.03)	0.131*** (0.05)	-0.113*** (0.04)
Other	0.008 (0.02)	0.016 (0.04)	-0.024 (0.04)	0.009 (0.01)	-0.026 (0.04)	0.017 (0.04)	-0.001 (0.05)	0.062 (0.05)	-0.060** (0.03)	-0.034 (0.03)	0.163*** (0.05)	-0.129*** (0.04)
<i>Woman's ethnic group</i>												
None (ref.)												
Indigenous or Afro-descendant	-0.007 (0.02)	-0.009 (0.04)	0.016 (0.04)	0.032 (0.02)	-0.072 (0.04)	0.039 (0.04)	0.009 (0.05)	-0.039 (0.05)	0.030 (0.03)	-0.065** (0.03)	-0.021 (0.05)	0.045 (0.04)

(continued)



	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Remarried woman</i>												
No (ref.)												
Yes	0.017 (0.02)	0.013 (0.03)	-0.03 (0.02)	0.016 (0.02)	-0.001 (0.03)	-0.015 (0.03)	-0.036 (0.04)	0.019 (0.04)	0.017 (0.02)	0.028 (0.04)	-0.131 (0.04)	-0.004 (0.03)
Household welfare	0.000 (0.00)	0.001 (0.00)	-0.001 (0.00)	-0.000 (0.00)	0.001 (0.00)	-0.000 (0.00)	-0.002** (0.00)	0.002* (0.00)	0.000 (0.00)	-0.001 (0.00)	0.001 (0.00)	0.000 (0.00)
<i>Household composition</i>												
Nuclear household (ref.)												
Extended household	-0.015 (0.02)	0.058* (0.04)	-0.043 (0.03)	0.023 (0.03)	-0.013 (0.04)	-0.010 (0.04)	0.046 (0.05)	-0.017 (0.05)	-0.029 (0.02)	0.036 (0.03)	0.008 (0.04)	-0.044* (0.03)
Additional adult members	0.005 (0.01)	-0.026 (0.02)	0.021 (0.01)	-0.017 (0.01)	0.044** (0.02)	-0.027* (0.02)	-0.012 (0.02)	-0.006 (0.02)	0.018* (0.01)	-0.004 (0.02)	-0.015 (0.02)	0.019* (0.01)
<i>Region of residence</i>												
Managua (capital, ref.)												
Rest Pacific	-0.025 (0.02)	0.044 (0.04)	-0.019 (0.04)	-0.022 (0.03)	0.048 (0.05)	-0.026 (0.05)	-0.045 (0.05)	0.060 (0.05)	-0.015 (0.03)	0.003 (0.03)	-0.017 (0.04)	-0.016 (0.03)
Central region	-0.028 (0.02)	0.058 (0.04)	-0.03 (0.04)	-0.040 (0.03)	0.108** (0.05)	-0.068 (0.05)	-0.119** (0.05)	0.158*** (0.05)	-0.038 (0.02)	0.021 (0.03)	-0.001 (0.04)	-0.019 (0.03)
Caribbean region	0.008 (0.03)	0.043 (0.05)	-0.051 (0.04)	-0.034 (0.03)	0.092* (0.05)	-0.058 (0.05)	-0.102 (0.06)	0.121** (0.06)	-0.019 (0.03)	0.121** (0.05)	-0.006 (0.06)	-0.055 (0.03)
<i>Area of residence</i>												
Urban (ref.)												
Rural	0.013 (0.02)	-0.011 (0.03)	-0.002 (0.03)	-0.011 (0.01)	0.033 (0.03)	-0.022 (0.03)	0.025 (0.04)	-0.055 (0.04)	0.030 (0.02)	0.003 (0.03)	-0.013 (0.03)	0.01 (0.02)
Observations	1,776	1,776	1,776	1,824	1,824	1,824	1,825	1,825	1,825	1,798	1,798	1,798

**Note(s):** Standard errors in parentheses  
\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

Table 5.

**Table 6.**  
Marginal effects of  
determinants on  
decision-making with  
employment status

	Large household purchases			General income expenditures			Take children to doctor			Children's education		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
Gender roles index	-0.01 (0.01)	0.051*** (0.02)	-0.041*** (0.02)	0.014 (0.02)	0.010 (0.02)	-0.024* (0.01)	-0.006 (0.01)	0.022 (0.02)	-0.016 (0.01)	0.002 (0.01)	0.015 (0.01)	-0.017* (0.01)
<i>Woman's employment status</i>												
Unemployed (ref.)												
Employed	0.016 (0.02)	-0.010 (0.03)	-0.007 (0.03)	0.040* (0.02)	0.051 (0.03)	-0.091*** (0.03)	0.007 (0.02)	-0.013 (0.03)	0.006 (0.02)	0.012 (0.02)	-0.024 (0.03)	0.011 (0.02)
<i>Spouse's employment status</i>												
Unemployed (ref.)												
Employed	-0.052* (0.03)	0.030 (0.05)	0.022 (0.05)	-0.090** (0.04)	0.103* (0.06)	-0.013 (0.05)	-0.002 (0.04)	-0.037 (0.05)	0.039 (0.03)	-0.041 (0.03)	0.023 (0.04)	0.018 (0.03)
<i>Couple's age difference</i>												
Woman older (ref.)												
Same age	0.004 (0.04)	-0.043 (0.07)	0.039 (0.07)	-0.035 (0.04)	0.024 (0.08)	0.011 (0.08)	0.084 (0.06)	-0.089 (0.07)	0.005 (0.07)	-0.073*** (0.03)	0.121*** (0.05)	-0.048 (0.05)
Woman younger	-0.031 (0.02)	0.050 (0.04)	-0.019 (0.04)	-0.031 (0.02)	0.074* (0.04)	-0.043 (0.04)	0.051* (0.03)	0.015 (0.04)	-0.065* (0.03)	-0.019 (0.02)	0.048 (0.04)	-0.029 (0.03)
<i>Couple's educational difference</i>												
Woman more education (ref.)												
Same education	-0.018 (0.01)	0.012 (0.03)	0.005 (0.03)	-0.089*** (0.03)	0.052 (0.03)	0.037 (0.03)	-0.031 (0.03)	0.035 (0.03)	-0.003 (0.03)	-0.055*** (0.03)	0.073*** (0.03)	-0.018 (0.02)
Woman less education	-0.010 (0.02)	0.040 (0.05)	-0.030 (0.04)	-0.112*** (0.03)	0.096** (0.05)	0.016 (0.04)	-0.048 (0.04)	0.096** (0.05)	-0.048 (0.03)	-0.081*** (0.03)	0.070 (0.04)	0.012 (0.04)
Years of marriage	0.001 (0.00)	-0.003 (0.00)	0.002 (0.00)	0.000 (0.00)	-0.001 (0.00)	0.000 (0.00)	-0.005*** (0.00)	0.006*** (0.00)	-0.001 (0.00)	-0.003 (0.00)	0.006*** (0.00)	-0.003 (0.00)

(continued)

	Large household purchases			General income expenditures			Take children to doctor			Children's education		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Woman's age</i>												
15–19 years (ref.)												
20–29 years	-0.068 (0.07)	0.028 (0.07)	0.040 (0.06)	0.033 (0.03)	0.072 (0.06)	-0.105* (0.06)	0.076** (0.03)	0.012 (0.06)	-0.088 (0.06)	0.015 (0.02)	0.019 (0.06)	-0.035 (0.05)
30–39 years	-0.065 (0.07)	0.141* (0.07)	-0.077 (0.06)	0.034 (0.04)	0.166** (0.07)	-0.200*** (0.07)	0.076** (0.04)	0.056 (0.07)	-0.133* (0.07)	0.055* (0.03)	0.054 (0.07)	-0.109* (0.06)
40–49 years	-0.097 (0.08)	0.222*** (0.08)	-0.125* (0.08)	0.056 (0.05)	0.145* (0.09)	-0.201** (0.08)	0.093 (0.06)	-0.024 (0.09)	-0.068 (0.09)	0.058 (0.05)	0.000 (0.09)	-0.059 (0.08)
<i>Woman's education</i>												
No formal education (ref.)												
Primary education	-0.069* (0.04)	0.103** (0.05)	-0.035 (0.05)	-0.086* (0.05)	0.092* (0.05)	-0.006 (0.04)	-0.004 (0.04)	-0.011 (0.05)	0.015 (0.04)	-0.048 (0.04)	-0.009 (0.05)	0.057* (0.03)
Secondary education	-0.058 (0.04)	0.140** (0.06)	-0.083 (0.06)	-0.122** (0.06)	0.157** (0.07)	-0.034 (0.06)	-0.030 (0.05)	0.074 (0.06)	-0.044 (0.04)	-0.092** (0.05)	0.100* (0.06)	-0.009 (0.04)
Higher than secondary	-0.056 (0.05)	0.177** (0.07)	-0.121* (0.07)	-0.158*** (0.06)	0.264*** (0.07)	-0.107* (0.06)	-0.031 (0.06)	0.000 (0.08)	0.030 (0.06)	-0.057 (0.06)	0.088 (0.07)	-0.030 (0.04)
<i>Woman's religion</i>												
No religious (ref.)												
Catholic	0.021 (0.01)	0.041 (0.05)	-0.062 (0.05)	-0.009 (0.03)	0.074 (0.05)	-0.065 (0.05)	-0.009 (0.04)	0.122** (0.05)	-0.113** (0.04)	-0.061** (0.03)	0.044 (0.04)	0.017 (0.03)
Other	0.033** (0.02)	0.058 (0.05)	-0.091* (0.05)	0.000 (0.03)	0.039 (0.05)	-0.039 (0.05)	0.029 (0.04)	0.042 (0.05)	-0.071 (0.05)	-0.033 (0.03)	0.020 (0.04)	0.013 (0.03)
<i>Woman's ethnic group</i>												
None (ref.)												
Indigenous or Afro-descendant	0.057* (0.03)	-0.045 (0.05)	-0.012 (0.04)	0.064* (0.04)	-0.014 (0.05)	-0.050 (0.03)	-0.015 (0.03)	-0.033 (0.05)	0.048 (0.04)	0.041 (0.03)	-0.082* (0.05)	0.041 (0.04)

(continued)

Table 6.

Table 6.

	Large household purchases		General income expenditures		Take children to doctor		Children's education	
	Alone	Joint	Alone	Joint	Alone	Joint	Alone	Joint
<i>Remarried woman</i>								
No (ref.)								
Yes	0.036*	-0.038	-0.042**	-0.002	-0.032	0.021	0.007	0.015
	(0.02)	(0.04)	(0.02)	(0.04)	(0.03)	(0.04)	(0.02)	(0.03)
Household welfare	-0.001*	0.000	-0.001	0.000	0.001	-0.001	-0.001	0.001**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
<i>Household composition</i>								
Nuclear household (ref.)								
Extended household	0.049*	-0.095**	0.001	-0.004	0.013	0.005	0.099***	-0.075*
	(0.03)	(0.05)	(0.03)	(0.05)	(0.03)	(0.04)	(0.03)	(0.04)
Additional adult members	-0.021**	0.044**	-0.002	0.013	-0.002	-0.004	-0.035***	0.029*
	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
<i>Region of residence</i>								
Managua (capital, ref.)								
Rest Pacific	-0.017	0.057	0.005	0.129**	-0.023	0.060	-0.024	0.031
	(0.02)	(0.05)	(0.03)	(0.05)	(0.04)	(0.05)	(0.03)	(0.05)
Central region	-0.040*	0.136***	-0.096***	0.173***	-0.098**	0.116**	-0.040	0.050
	(0.02)	(0.05)	(0.03)	(0.05)	(0.04)	(0.05)	(0.03)	(0.05)
Caribbean region	-0.046*	0.150***	-0.102***	0.223***	-0.068	0.125**	-0.037	0.091*
	(0.03)	(0.06)	(0.04)	(0.06)	(0.05)	(0.06)	(0.04)	(0.05)
<i>Area of residence</i>								
Urban (ref.)								
Rural	-0.016	0.015	-0.017	0.041	-0.034	0.020	0.008	-0.001
	(0.01)	(0.04)	(0.02)	(0.04)	(0.03)	(0.04)	(0.02)	(0.03)
Observations	1,879	1,879	1,876	1,876	1,829	1,829	1,824	1,824

Note(s): Standard errors in parentheses  
\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
Gender roles index	-0.008 (0.01)	0.034*** (0.01)	-0.025** (0.01)	-0.005 (0.01)	0.032** (0.01)	-0.028** (0.01)	-0.018 (0.02)	0.027 (0.02)	-0.008 (0.01)	0.007 (0.01)	0.02 (0.01)	-0.027*** (0.01)
<i>Woman's employment status</i>												
Unemployed (ref.)	0.036** (0.02)	-0.110*** (0.03)	0.075*** (0.03)	-0.014 (0.01)	0.027 (0.03)	-0.013 (0.03)	-0.007 (0.03)	-0.032 (0.03)	0.039** (0.02)	-0.000 (0.02)	-0.016 (0.03)	0.016 (0.02)
<i>Spouse's employment status</i>												
Unemployed (ref.)	-0.008 (0.03)	-0.025 (0.04)	0.033 (0.03)	-0.013 (0.02)	0.038 (0.05)	-0.025 (0.05)	0.067 (0.05)	-0.041 (0.05)	-0.026 (0.03)	-0.045 (0.04)	0.089 (0.05)	-0.044 (0.04)
<i>Couple's age difference</i>												
Woman older (ref.)	-0.027 (0.02)	-0.024 (0.07)	0.051 (0.06)	0.054 (0.03)	-0.058 (0.07)	0.005 (0.06)	-0.066 (0.07)	0.001 (0.07)	0.065 (0.04)	0.019 (0.05)	-0.090 (0.06)	0.070 (0.05)
Woman younger	-0.007 (0.02)	0.047 (0.03)	-0.040 (0.03)	-0.001 (0.01)	0.022 (0.04)	-0.020 (0.04)	0.000 (0.04)	0.013 (0.02)	-0.013 (0.02)	0.01 (0.03)	-0.028 (0.03)	0.018 (0.02)
<i>Couple's educational difference</i>												
Woman more education (ref.)	-0.026 (0.02)	0.038 (0.03)	-0.012 (0.02)	-0.015 (0.02)	0.067** (0.03)	-0.052 (0.03)	-0.071** (0.04)	0.062* (0.04)	0.008 (0.02)	-0.042 (0.03)	0.037 (0.03)	0.005 (0.02)
Woman less education	-0.020 (0.03)	0.030 (0.04)	-0.010 (0.03)	-0.032* (0.02)	0.097** (0.04)	-0.066 (0.04)	-0.096* (0.05)	0.115** (0.05)	-0.019 (0.02)	-0.051 (0.04)	0.077* (0.04)	-0.026 (0.03)
Years of marriage	-0.003** (0.00)	0.006** (0.00)	-0.003 (0.00)	-0.001 (0.00)	0.004 (0.00)	-0.003 (0.00)	-0.003 (0.00)	0.002 (0.00)	0.001 (0.00)	-0.001 (0.00)	0.001 (0.00)	-0.000 (0.00)

(continued)

**Table 7.** Marginal effects of determinants on decision-making with employment status (II)

	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Woman's age</i>												
15–19 years (ref.)												
20–29 years	0.034*** (0.01)	0.080 (0.06)	-0.114** (0.06)	0.020 (0.01)	-0.000 (0.05)	-0.020 (0.05)	0.053 (0.05)	-0.078 (0.06)	0.024 (0.03)	0.052 (0.04)	-0.06 (0.04)	0.008 (0.03)
30–39 years	0.051*** (0.02)	0.090 (0.06)	-0.141** (0.06)	0.037** (0.02)	0.048 (0.06)	-0.084 (0.06)	0.018 (0.07)	0.006 (0.07)	-0.024 (0.04)	-0.015 (0.04)	-0.002 (0.05)	0.016 (0.03)
40–49 years	0.099** (0.04)	-0.018 (0.09)	-0.082 (0.08)	0.015 (0.02)	0.089 (0.07)	-0.104 (0.07)	0.116 (0.09)	-0.066 (0.09)	-0.050 (0.04)	0.031 (0.06)	-0.109 (0.08)	0.078 (0.06)
<i>Woman's education</i>												
No formal education (ref.)												
Primary education	-0.032 (0.03)	0.013 (0.05)	0.019 (0.04)	-0.039 (0.04)	0.119** (0.06)	-0.080 (0.06)	-0.138*** (0.05)	0.134*** (0.05)	0.003 (0.02)	-0.129** (0.05)	0.097* (0.05)	0.032 (0.03)
Secondary education	-0.020 (0.04)	0.072 (0.06)	-0.051 (0.05)	-0.035 (0.05)	0.185*** (0.07)	-0.150** (0.07)	-0.163** (0.07)	0.162*** (0.06)	0.001 (0.03)	-0.177*** (0.06)	0.174*** (0.06)	0.003 (0.03)
Higher than secondary	-0.049 (0.04)	0.133*** (0.06)	-0.085* (0.05)	-0.029 (0.05)	0.242*** (0.07)	-0.213*** (0.07)	-0.263*** (0.07)	0.270*** (0.07)	-0.007 (0.03)	-0.187*** (0.07)	0.206*** (0.07)	-0.020 (0.04)
<i>Woman's religion</i>												
No religious (ref.)												
Catholic	-0.016 (0.02)	0.038 (0.04)	-0.022 (0.04)	0.025 (0.02)	-0.062 (0.04)	0.037 (0.04)	-0.009 (0.05)	0.070 (0.05)	-0.061* (0.03)	-0.014 (0.03)	0.135*** (0.05)	-0.121** (0.04)
Other	0.001 (0.02)	0.022 (0.04)	-0.023 (0.04)	0.007 (0.01)	-0.022 (0.04)	0.015 (0.04)	-0.001 (0.05)	0.069 (0.05)	-0.068** (0.03)	-0.021 (0.03)	0.161*** (0.05)	-0.139*** (0.04)
<i>Woman's ethnic group</i>												
None (ref.)												
Indigenous or Afro-descendant	-0.007 (0.02)	-0.017 (0.04)	0.024 (0.04)	0.029 (0.02)	-0.059 (0.04)	0.030 (0.04)	0.010 (0.05)	-0.053 (0.04)	0.043 (0.03)	-0.071** (0.03)	0.024 (0.04)	0.047 (0.03)

(continued)

	Children's disciplining			Visit to family and friends			Daily meals preparation			Contraceptive use		
	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else	Alone	Joint	Someone else
<i>Remarried woman</i>												
No (ref.)												
Yes	0.021 (0.02)	0.015 (0.03)	-0.037 (0.02)	0.017 (0.02)	-0.005 (0.03)	-0.012 (0.03)	-0.028 (0.04)	0.010 (0.04)	0.017 (0.02)	0.025 (0.03)	-0.027 (0.03)	0.002 (0.03)
Household welfare	0.000 (0.00)	0.001 (0.00)	-0.001* (0.00)	-0.000 (0.00)	0.001 (0.00)	-0.000 (0.00)	-0.002** (0.00)	0.002** (0.00)	0.000 (0.00)	-0.001 (0.00)	0.001 (0.00)	0.000 (0.00)
<i>Household composition</i>												
Nuclear household (ref.)												
Extended household	-0.004 (0.02)	0.048 (0.04)	-0.044 (0.03)	0.027 (0.03)	-0.032 (0.04)	0.005 (0.04)	0.031 (0.05)	-0.007 (0.05)	-0.024 (0.02)	0.035 (0.03)	0.006 (0.04)	-0.042 (0.03)
Additional adult members	0.002 (0.01)	-0.022 (0.02)	0.020 (0.01)	-0.018 (0.01)	0.052*** (0.02)	-0.034** (0.02)	-0.011 (0.02)	-0.004 (0.02)	0.015* (0.01)	-0.007 (0.01)	-0.009 (0.02)	0.016 (0.01)
<i>Region of residence</i>												
Managua (capital, ref.)												
Rest Pacific	-0.030 (0.02)	0.047 (0.04)	-0.018 (0.04)	-0.018 (0.03)	0.038 (0.03)	-0.020 (0.04)	-0.054 (0.05)	0.069 (0.05)	-0.015 (0.03)	0.041 (0.03)	-0.018 (0.04)	-0.023 (0.03)
Central region	-0.033 (0.02)	0.060 (0.04)	-0.027 (0.04)	-0.037 (0.03)	0.107** (0.05)	-0.070 (0.05)	-0.125** (0.05)	0.167*** (0.05)	-0.043* (0.03)	0.021 (0.03)	0.003 (0.04)	-0.024 (0.03)
Caribbean region	0.004 (0.03)	0.043 (0.05)	-0.047 (0.04)	-0.032 (0.03)	0.087 (0.05)	-0.054 (0.05)	-0.111* (0.06)	0.138** (0.06)	-0.027 (0.03)	0.128*** (0.05)	-0.068 (0.06)	-0.060* (0.04)
<i>Area of residence</i>												
Urban (ref.)												
Rural	0.014 (0.02)	-0.003 (0.03)	-0.011 (0.03)	-0.012 (0.01)	0.041 (0.03)	-0.029 (0.03)	0.016 (0.04)	-0.050 (0.04)	0.034 (0.02)	-0.001 (0.03)	-0.001 (0.03)	0.002 (0.02)
Observations	1,831	1,831	1,831	1,879	1,879	1,879	1,880	1,880	1,880	1,853	1,853	1,853

**Note(s):** Standard errors in parentheses  
\* $p < 0.10$ , \*\* $p < 0.05$ , \*\*\* $p < 0.01$

Table 7.

comparison to women with lower levels of education with respect to visits to family and friends, daily meals preparation, general incomes expenditures and children's education; while women with less education are more likely to make joint decisions.

A longer relationship is associated with a higher probability of women's participation in joint children-related and contraceptive use decisions, which might indicate that longer experience in processes of cooperation (and conflict) and a sense of stability increase joint involvement in long-term decisions, such as those related to children.

*4.1.3 Women's characteristics.* Age and education are consistent determinants in most decision-making areas, indicating that older and more educated women are more likely to participate in household decisions. These findings are in line with earlier research on women's status (Abadian, 1996).

Except for sole decisions regarding household income expenditures, the probability of women's participation in decision-making is not different between remarried and first-marriage couples. Previous studies showed that past marriages increased the caution of joint incomes management and gave rise to individual decision-making (Burgoyne & Morison, 1997; Yusof & Duasa, 2010), but the opposite holds for Nicaragua. A possible explanation is that a more credible possibility of exit from marriage increases cooperation and joint participation or excludes women from the decision completely as a wary action.

Belonging to an indigenous or Afro-descendant community is associated with wife-dominant decision-making for large household purchases and income expenditures. Meentzen in Levy, Gool, Houston, Rios-Zertuche, and Munar (2018) reported that in indigenous communities of Mexico and Central America, each partner is responsible for making decisions in the areas assigned to them, and women are usually responsible for managing scarce resources.

*4.1.4 Household-related characteristics.* Residing in the Central and Caribbean region of the country is associated with higher probabilities of joint participation than those residing in the capital city, who are instead more likely to make decisions alone. No differences among the region of residence are found for decisions regarding children's education and discipline, indicating that decision-making patterns in these areas are adopted nationwide.

Aside from the region of residence, household-related characteristics explain very little in the participation in decision-making. Particularly, the area of residence does not have a statistically significant association with women's participation in any decision-making area. These findings are similar to Kishor and Subaiya (2008).

#### *4.2 Employment status and decision-making participation*

The relationship between relative employment status and decision-making participation is similar to the findings for relative income contributions, with some highlights described below. For general income expenditures, women engaged in an income generation activity are more likely to decide how to spend the available incomes. Their participation occurs jointly with their partners when both are working but women are more likely to make these decisions alone when they are the sole income generators. This example shows direct proof of control over resources and the ability to decide over the resources.

However, this does not hold for all economic domains. As regards large household purchases, model 2 confirms that women's employment status is not relevant to their participation in these decisions, even if they are the main income generators, rather their partner's employment status is decisive. Employment is, then, significant in defining women's status and deservedness in specific areas where the partner's employment situation is seen as the primary source of household income.

The second model specification reveals that it is highly likely that women dominate decisions on children's discipline, and it is sensitive to women's participation in the labor



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market and generation of incomes. Women's work status might have two divergent effects on their participation in this area: either they take decisions alone (due to higher decision-making power) or do not participate in the decision-making process at all (due to redistribution of their time), the latter being more likely to occur. It is worth mentioning that in the Nicaraguan context, decisions on children's disciplining could have the meaning of supervising children throughout the day, which requires physical presence in the household. Analogously, women's participation in the labor market reduces their participation in daily meals preparation. In contrast, the partner's employment status is not relevant to this decision-making domain.

## 5. Conclusions

This paper contributes to the literature on the influence of non-bargaining factors, namely gender roles, in household decision-making processes by examining the determinant factors of married women's intrahousehold decision-making participation in Nicaragua. It provides broader insights into the literature examining intrahousehold dynamics and their determinants. It also contributes to the understanding of specific settings where women's relative characteristics improve while not necessarily leading to changes in decision-making patterns due to its interaction with traditional gender roles.

As suggested by previous research, our findings show that women's incomes or employment alone do not immediately place women in a predominant decision-making position. Decision-making is rather explained by women's conceptualization of their position within the household in relation to their husbands, especially in areas traditionally dominated by men, such as making large household purchases. Then, interventions dedicated to increasing women's participation in household decisions should not only focus on economic endowments or on increasing women's relative position but also comprehend and incorporate the gendered dynamics governing intrahousehold processes according to the context. Relative employment plays an important role in how incomes are perceived and its translation into decision-making power.

Women's age, education, region of residence and length of the relationship are strong predictors of women's participation in household decision-making. Thus, complementary actions directed to improve these conditions should be considered in programs promoting women's participation through earned incomes. Special attention needs to be paid to couples with adolescents and young women, as they are most likely to be left behind in intrahousehold decision-making. Gender roles are explanatory to household decision-making areas where women have little participation. Therefore, interventions that include a gender component, e.g. in the form of awareness-raising campaigns, training or coaching components, should be considered to trigger their decision-making participation. Since education has a positive impact on women's participation in almost all areas of decision-making, gender-sensitive education should be considered at all educational levels.

In general, there are no differences in participation in household decisions between urban and rural areas, contrary to what was expected. Nevertheless, joint decisions are more likely to occur in households that are not located in the capital city (usually the rest of the Pacific and Central region of the country). This element should be incorporated into program design and monitoring of initiatives aimed at increasing decision-making participation in local communities.

For daily meals preparation and children's disciplining, we can assume that Nicaraguan households follow a household-production logic, reassigning responsibilities to those with more time available inside the household.

Moreover, women with better household relative characteristics do not necessarily have higher probabilities of making decisions alone, imposing their preferences, but usually,

decisions are made jointly with their partners. Many empirical studies interpret decisions made individually by women as being more autonomous or empowering; nonetheless, further information about motivations, preferences and collective decision dynamics is needed to rank the categories of decision-making as more (or less) autonomous or empowering.

Our results reinforce suggestions from previous research on studying separately each area of decision-making and each level of participation. Our study shows that this also holds for decisions that belong to similar domains. To illustrate, the findings support the assumptions of bargaining models for general income expenditures decisions but not for large household purchases, which are instead determined by attitudes towards marital gender roles, among others.

While our study tries to incorporate gender roles in decision-making processes quantitatively, it does not tend to answer the question on determinants as the analysis is limited to the information available in the survey. The study does not fully capture how intrahousehold processes might be embedded in extrahousehold dynamics. Despite this, the study can feed into further research in similar contexts following a similar methodology for measuring attitudes towards gender roles and contrasting decision-making domains. It could also be extended to explore additional household arrays and marital status as women's participation in decisions that affect their own lives does not only concern married but also non-married (or cohabitating) women. Reproductive decisions (such as contraceptive use and childbearing), for example, affect women's life paths directly, and a study of the decision-making process is of equal importance to improve women's wellbeing. Understanding the decision-making processes could be useful in the design of policies and programs oriented to fertility behavior or contraceptive use. Likewise, information on decision-making regarding economic decisions for non-married women might be relevant in households with multiple female earners, especially as regards the determination of women's economic independence.

Furthermore, additional research that incorporates information on non-earned incomes and non-wage contributions to household wellbeing (e.g. unpaid care work) is needed to further broaden our understanding of intrahousehold decision-making participation and how intrahousehold dynamics are linked to participation in extrahousehold processes.

### Notes

1. See [Grabe, Rodríguez-Ramírez, and Dutt \(2020\)](#) for an analysis of reproductive decision-making, and [Grabe \(2010\)](#) for a study of domestic violence.
2. We use threat point, fall-back position, outside option and exit option interchangeably.
3. A seemingly unrelated estimation test was applied to check whether the Independence of Irrelevant Alternatives (IIA) assumption is violated in the model proposed. No evidence against the assumption was found, which eliminates potential inconsistent estimations.
4. [Wiig \(2013\)](#) follows a two-step procedure to identify decision-making participation and focuses only on the cases in which decision-making has effectively taken place in the last 12 months for regular decisions and the last 5 years for investment related decisions.
5. DHS are classified in Standard DHS and Interim DHS. The second one is conducted between rounds of Standards DHS to monitor specific indicators. Until now, interim DHS has not been conducted in Nicaragua.
6. As highlighted by [Doss \(2006, 2013\)](#) and [Antman \(2014\)](#), earned incomes and employment status might be endogenous to the bargaining process; who participates in labor activities and sometimes how many hours is a decision made within the household and thus implies a bargaining process in itself.

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#### Corresponding author

Roxana Gómez-Valle can be contacted at: [gomezvrs@gmail.com](mailto:gomezvrs@gmail.com)