

Women's bargaining power and household budget allocation to human capital: Evidence from the Indonesia family life survey (IFLS)

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ABSTRACT

In this paper, we explore the association of women's bargaining power with human capital investment within the household. Using data from the Indonesia Family Life Survey (IFLS), wave 5, we estimate the determinants of bargaining power with multinomial logit models and the association of bargaining power with food, bad goods, education, and health spending with OLS regression models. We find that the wife's higher education level increases the probability of her sole bargaining power in food spending and of joint husband-wife decision-making in education and health spending. The share of food spending is largest in households with joint decision making, the share of spending on bad goods is largest in households where women have no bargaining power, while the association of bargaining power with education and child health spending is more heterogeneous and domain-specific.

KEYWORDS

women's bargaining power, budget allocation, household consumption, human capital investment, Indonesia

JEL

C31, D12, D13, I14, I24

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1. INTRODUCTION

In the United Nations' Agenda for Sustainable Development Goals, key targets include achieving gender equality, empowering women, ensuring quality education, reducing poverty, and promoting health and well-being. A growing body of evidence shows that women's participation at the household level is essential to achieve these goals (Amugsi et al., 2016). Women's empowerment, particularly in the context of intra-household decision-making, plays a crucial role in shaping children's human capital outcomes, including nutrition, education, and health (Duflo, 2003, 2012).

While existing research highlights the importance of women's empowerment for child well-being, significant gaps still remain. First, measuring women's bargaining power remains a persistent challenge (Doss, 2013). Many studies rely on proxy variables that may not capture the nuanced ways in which women influence specific categories of household spending. Second, the underlying mechanisms through which women's bargaining power translates into child human capital investments are not fully understood. Doss (2013) mentions that the mechanism and causal relationship of women's bargaining power and child outcomes are not clear. Much of the literature focuses on final outcomes (e.g., child health or education levels), rather than the intermediate budgetary decisions that lead to them. Finally, questions of endogeneity – whether women's bargaining power is influenced by the same factors that determine spending – are often insufficiently addressed.

This paper seeks to fill these gaps by examining the relationship between women's intra-household bargaining power and household spending on children's human capital in Indonesia. Using nationally representative household survey data from 2015, we analyse how decision-making authority links with the share of household spending devoted to food, education, and health for children.

Thus, by examining these, this paper makes two contributions to the current literature. First, we use a detailed, domain-specific scoring method to capture women's bargaining power across four areas – food, bad goods, education, and health spending. Second, we focus on intermediate outcomes. Instead of final child outcomes, we focus on the allocation of resources, providing insight into the immediate pathways through which bargaining power may shape long-term child development.

We find that a wife's higher education level increases the probability of her sole decision-making in food spending and of joint husband-wife decision-making in education and health spending. The share of food spending is largest in households with joint decision making, the share of spending on bad goods is largest in households where women have no bargaining power, while the association of bargaining power with education and child health spending is more ambiguous. The share of education spending seems lower in households with better women's bargaining power, and joint decision-making seems to result in less household budget allocation to child health spending. These results suggest a complex relationship between women's empowerment and household resource allocation – one that may not always align with the assumption that more power is associated with more spending on child-related goods. Possible interpretations include differences in expenditure composition or prioritisation across categories, although the present analysis does not allow identification of the underlying behavioural mechanisms.

The remainder of this paper is organised as follows. Section 1 presents the institutional background and literature review. Section 2 outlines the methodology and data. Section 3

presents the results. Section 4 concludes with implications, discussions, and future research directions.

1.1. Institutional background in Indonesia

Indonesia's social structure is deeply rooted in familial and communal values, with traditionally extended family systems and collective decision-making playing central roles. However, urbanisation and economic shifts have gradually moved households toward more nuclear family arrangements. While Indonesia remains largely patriarchal – with male heads of households typically holding primary decision-making power – women's roles, though respected, often remain secondary.

Women's empowerment has improved in Indonesia, especially in the public sphere. Female political representation has increased notably, rising from 6% in 1955 to 17% by 2014, with notable progress in the 2019 elections (Aspinall et al., 2021; BPS-Statistics Indonesia, 2015, 2017). However, gender disparities in decision-making within households persist, particularly regarding the allocation of resources for children's needs.

Indonesia continues to face significant challenges in child health and education. Although stunting rates among children under five have declined from 40.4% in 2000 to 31% in 2022, malnutrition remains prevalent, with both under- and over-nutrition affecting children – especially boys (UNICEF et al., 2023a, 2023b). Educational attainment has improved, yet upper secondary and tertiary enrolment remains uneven across regions and income levels (Education Attainment - Adult Education Level - OECD Data, n.d.).

These dynamics create a complex setting in which women's bargaining power may critically shape household spending decisions. Faced with competing demands – such as child nutrition, education, healthcare, and non-essential goods like tobacco – how resources are allocated within households reflects both gender dynamics and broader socio-economic pressures.

1.2. Literature review: Women's bargaining power and child human capital

A growing body of literature shows that women's bargaining power within households plays a critical role in shaping investments in children's human capital. This work emphasises that resource allocation may depend not only on total household income but also on intra-household control over decisions and resources. When women have greater bargaining power, allocations tend to shift toward child-centred goods, reflecting differences in preferences, information, and caregiving responsibilities (Doss, 2013). While early studies established the existence of such effects, more recent work highlights substantial heterogeneity across outcome domains and decision-making structures, underscoring the need for a more mechanism-driven synthesis.

1.2.1. Nutrition and food allocation. The most consistent evidence linking women's bargaining power to child outcomes emerges in the domain of nutrition. Across low- and middle-income countries, stronger maternal bargaining power is associated with more diverse, nutrient-rich diets and greater adherence to recommended feeding practices (Amugsi et al., 2016; Kulkarni et al., 2020; Lépine & Strobl, 2013). Meta-analyses and systematic reviews confirm positive average effects on child anthropometrics, while noting that results vary by region and by how empowerment is measured (Carlson et al., 2015; Pratley, 2016; Santoso et al., 2019).

Country-specific studies from Bangladesh, India, and Senegal show that greater maternal decision-making authority predicts improvements in height-for-age (HAZ), weight-for-age (WAZ), weight-for-length (WLZ), and mid-upper-arm circumference (MUAC) scores (Desai & Kiersten, 2005; Holland & Rammohan, 2019; Lépine & Strobl, 2013; Shroff et al., 2009, 2011). Similar gains are observed when women control productive assets or income streams (Kulkarni et al., 2021). When women enter paid work, their enhanced voice often raises household diet quality (Sangwan & Kumar, 2021). However, evidence from several Nepal and Indian studies finds little or even negative effects, plausibly because employment may reduce time available for childcare (Bose, 2011; Cunningham et al., 2019).

The relative strength of nutritional effects is consistent with the nature of food-related decisions. Food expenditures are frequent, divisible, and largely managed within the household, allowing women's preferences to translate more directly into outcomes when bargaining power increases. Moreover, nutritional investments yield immediate and observable returns, reinforcing maternal incentives to prioritise them. These features make nutrition particularly responsive to shifts in intra-household decision-making authority.

1.2.2. Education outcomes. Evidence on educational outcomes is generally positive but less uniform. Maternal control over income or assets is associated with higher school enrolment, improved test scores, and greater educational spending (Carneiro et al., 2013; Chi & Qian, 2016; Qian, 2008). Evidence from China, Nicaragua, and Pakistan shows fewer grade repetitions when mothers have greater say in household decisions (Andrabi et al., 2012; Gitter & Barham, 2008). At the same time, some transfer programs find no advantage to channelling sources through mothers, and others report non-linear or gender-differentiated effects (Afoakwah et al., 2020; Benhassine et al., 2015).

Compared to nutrition, educational investments involve higher fixed costs, longer time horizons, and interaction with external institutions such as schools and labour markets. These features may attenuate the immediate impact of women's bargaining power, particularly when schooling decisions are normatively shared or dominated by fathers. As a result, increased maternal participation in decision-making may not always translate into effective control over educational choices, helping to explain the more heterogeneous findings in this domain.

1.2.3. Health investments. Women's bargaining power is also linked to higher uptake of preventive care, immunisation, and hygienic practices, contributing to lower child morbidity and mortality in countries including Ghana, Uganda, Vietnam, and Indonesia (Ganle et al., 2015; Novignon et al., 2019; Skoufias, 1999). Allocation effects appear especially pronounced for girls when household resources are scarce, suggesting that women's preferences may counteract gender-biased investment patterns (Duflo, 2003; Thomas, 1994).

Health investments occupy an intermediate position between nutrition and education. Preventive care often aligns closely with maternal preferences and caregiving roles, but access constraints, mobility restrictions, and the need for spousal cooperation can limit women's ability to act on these preferences. Consequently, empowerment may raise health investments most effectively when decision-making authority is accompanied by control over mobility and resources.

1.2.4. Measuring bargaining power and decision-making structure. Researchers measure women's bargaining power using a wide range of indicators, including participation in

household decisions, control over expenditures, mobility, education, employment, wages, and asset ownership. Composite indices, such as the Women's Empowerment in Agriculture Index, integrate multiple domains of empowerment (Holland & Rammohan, 2019), while multidimensional frameworks emphasise empowerment in terms of resources, agency, and achievements (Huis et al., 2017). Other approaches emphasise social participation and workload as central components of women's bargaining power (Kulkarni et al., 2020). Divergent measures partly explain mixed findings and underscore the need for theory-driven, context-sensitive metrics.

Importantly, most empirical studies do not distinguish clearly between sole and joint decision-making, despite theoretical reasons to expect different effects. Sole decision-making may enable women to directly reallocate resources toward child-centred goods, whereas joint decision-making may reflect cooperative or symbolic participation in which women's preferences influence outcomes only when aligned with spousal interests. Failure to account for this distinction may contribute to mixed or attenuated estimates, particularly in domains such as education and healthcare that involve higher stakes or external actors.

Taken together, a large body of literature supports a generally positive, but not universal, relationship between women's bargaining power and children's human capital outcomes. Evidence is strongest and most consistent for nutrition, more heterogeneous for education, and context-dependent for health. These patterns suggest that the effectiveness of women's empowerment depends not only on the level of bargaining power but also on the type of investment and the structure of household decision-making.

Despite substantial empirical progress, recent studies continue to document unexplained heterogeneity across domains and contexts. Existing reviews largely aggregate outcomes and decision measures, offering limited insight into the mechanisms that govern when and how women's empowerment translates into improved child well-being. This paper addresses this gap by explicitly distinguishing between food, education, and health investments and by examining how sole versus joint decision-making shapes the translation of women's bargaining power into child human capital outcomes.

1.2.5. Theoretical expectations. Building on the literature review above, we expect women's bargaining power to be differentially associated with expenditure shares across domains. In line with consistent evidence for nutrition, greater female decision-making authority—particularly in food-related decisions—is expected to be associated with a higher share of food expenditure and a lower share of bad goods. For education and health, where investments involve longer time horizons, institutional constraints, and often joint decision-making, the expected associations are less clear-cut and may vary by the structure of decision authority (sole versus joint). Accordingly, we anticipate more heterogeneous patterns for education and health spending shares than for food-related expenditures.

2. METHODS

2.1. Data

The data we use in this study are the fifth wave of the Indonesia Family Life Survey (IFLS), implemented by RAND Social and Economic Well-being (Strauss et al., 2016a). The Indonesia Family Life Survey is a longitudinal household survey that provides comprehensive information

on individual, household, and community characteristics. Initiated in 1993–1994 (Wave 1), the IFLS captures socio-economic and demographic changes in Indonesia since the 1990s, with subsequent waves in 1997–1998 (Wave 2), 2000 (Wave 3), 2007–2008 (Wave 4), and 2014–2015 (Wave 5). Our study uses cross-sectional data from Wave 5, which is a representative survey of 83% of the Indonesian population (Strauss et al., 2016b). We use Stata 18.5 MP for analysis.

The sample is restricted to households with both a husband and a wife present, allowing for analysis of intra-household bargaining dynamics. Further, we include only households with children. The dataset combines household-level and child-level data. While food and bad goods consumption are measured at the household level, education and health expenditures are tracked individually for each child. Accordingly, we merge household and child-level datasets, where, for instance, parental education is a household-level variable, while a child's educational data is individual-specific.

The target sample includes children aged 14 or younger, as this is the age range covered in the child-level IFLS data. We exclude households with missing child information or with all children older than 14, as well as those whose children are neither biological, adopted, nor grandchildren. A flowchart detailing the data construction process is provided in [Figure A1](#) in the [Supplementary materials](#).

2.2. Variables

From IFLS-5, we extract variables indicating household consumption on food, children's health-care and education, and expenditures on "bad goods" such as spending on betel nut for chewing, traditional drugs, tobacco, cigarettes, and alcoholic beverages from the survey. We treat spending on food, children's health, and education as proxies for household investment in human capital. Conversely, higher expenditures on bad goods are assumed to be negatively linked with such investments. Covering all commodities can make estimates less reliable because many household surveys do not accurately or thoroughly document consumption of items for all categories. Consequently, only the most significant commodity groupings or those with sufficient data quality are frequently included by researchers. For this reason, and for data quality reasons, we limit household expenditures to these categories, excluding durable and non-food items.

2.2.1. Dependent variable. The primary outcome variable is the share of household expenditure allocated to food, bad goods, children's education, and healthcare. Unlike many studies that use final outcomes such as child anthropometric indicators (e.g., height-for-age or weight-for-height z-scores), we focus on these intermediate inputs to capture household investment in child well-being.

2.2.2. Control variables. We control for a comprehensive set of household and individual characteristics, including age, education, employment, income, child's age, gender, health status, school attendance, household size, income group, and urban/rural location.

2.2.3. Independent variable (bargaining power). The original IFLS survey interviewed respondents with questions about several different areas of household members' autonomy in decision-making. Respondents indicate who makes decisions across seventeen domains, including food purchases, clothing, education, healthcare, socialising, savings, and contraception. Answers can

include one or multiple household members together. Our approach follows (Holland & Ram-mohan, 2019; Lépine & Strobl, 2013), using self-reported decision-making to construct a direct measure of women’s bargaining power over sources and household matters. This method provides a practical, straightforward, data-driven approach that aligns with established literature.

To capture bargaining power, we focus on decision-making over three key areas: food expenditure, children’s healthcare, and education – specifically, we use the survey questions “Who makes the decision on the food expenditure eaten at home; Who makes the decision on your children’s healthcare spending; Who makes decision on your children’s education spending in the family?”. We construct a score based on whether the respondent (assumed to be the mother) is the sole decision-maker, co-decision-maker, or excluded from decision-making. If the mother solely decides on this specific domain, she is coded as having the highest bargaining power in that domain; if only the head (assumed to be the father) or other household members decide, bargaining power is coded as the lowest (see Table 1).

2.3. Empirical model

2.3.1. Association of expenditure shares and bargaining power. This study examines how women’s intra-household bargaining power is associated with household resource allocation toward investments in child human capital, focusing on expenditures on food, education, and health. Drawing on economic theories of household behaviour, women’s bargaining power—proxied by self-reported control over household decision-making—is hypothesised to shift spending toward child-oriented goods that more closely reflect maternal preferences (Lundberg et al., 1997; Thomas, 1990).

Our empirical specification draws on insights from Engel-curve and demand-system ap-proaches—such as the Quadratic Engel Curve (QEC) and the Quadratic Almost Ideal Demand

Table 1. Survey response by mother/wife of the household in IFLS-5

Decision making	WBP score	Bargaining power scale
“I” (alone) make a decision over the consumption	3	Have full bargaining power over the consumption (Wife has full decision-making power)
“Me and my husband (spouse)” (together) make a decision over the consumption	2	Have partial bargaining power over consumption (Wife and husband have joint decision-making power)
“Me and other members of the family” (altogether) make a decision over the consumption	1	Have less partial bargaining power over consumption (Wife, husband and other household members shared decision-making power)
My husband (alone) and/or other members of the family, excluding the mother, make decisions	0	Have no bargaining power over consumption (Wife has no decision-making power)

Source: Authors’ own elaboration.

System (QUAIDS) (Banks et al., 1997) —which highlight that budget shares respond flexibly to total expenditure and preference shifters. While this framework motivates our empirical analysis, data limitations—most notably the absence of price information and the mixed household- and child-level structure of expenditures—preclude estimation of a fully specified demand system. Accordingly, we adopt a reduced-form Engel-curve approach, in which women’s bargaining power enters as a preference shifter in budget share regressions rather than as part of a structural demand system.

We estimate reduced-form Ordinary Least Squares (OLS) regressions of expenditure shares. As defined in the previous section, the empirical analysis focuses on four expenditure categories: food, bad goods, education, and health. These categories serve as proxies for household investments in child well-being. We assume women’s bargaining power to be exogenous and estimate its association with expenditure shares using OLS. Women’s decision-making authority is measured through self-reported control over spending decisions in the domains of food, child health, and education. This helps identify whether greater control by women corresponds with greater household investment in child-related goods. These intermediate outcomes offer valuable insights into how intra-household power dynamics connect with long-term human capital formation. Since bad goods are included among food-related items in the survey, bargaining power in food-related decisions is also used as the relevant measure for the estimation of the share of bad goods.

Expenditure shares are computed using total household expenditure as the common denominator. Given that food and bad goods expenditure are typically shared across the household, corresponding regressions are estimated at the household level. In contrast, health and education expenses are measured at the individual child level, allowing us to capture intra-household variation stemming from child-specific characteristics such as age, schooling status, and health needs.

More precisely, let y_{K_j} denote the expenditure on category $K \in \{\text{food, bad goods}\}$ for household j and let $y_{K_{ij}}$ denote the expenditure on category $K \in \{\text{education, health}\}$ for individual child i in household j . Let z_j represent total household spending, defined as the sum of expenditures across all four categories. The corresponding expenditure shares are defined as

$$\omega_{(K_j)} = \frac{y_{K_j}}{z_j} \text{ for } K \in \{\text{food, bad goods}\} \text{ and}$$

$$\omega_{(K_{ij})} = \frac{y_{K_{ij}}}{z_j} \text{ for } K \in \{\text{education, health}\}.$$

To analyse the determinants of these budget shares, we estimate separate equations for each category, incorporating women’s intra-household bargaining power, household-level controls, and, where relevant, child-specific characteristics. That is, for household-level outcomes $K \in \{\text{food, bad goods}\}$, we estimate

$$\omega_{(K_j)} = \alpha_K + \beta_K \phi_{(K_j)} + \gamma_K \log z_j + \sum_{l=1}^L \delta_{(l_K)} x_{(l_j)} + u_{(K_j)}$$

while, for child-level outcomes $K \in \{\text{education, health}\}$, the equation is

$$\omega_{(K_{ij})} = \alpha_K + \beta_K \phi_{(K_{ij})} + \gamma_K \log z_j + \sum_{l=1}^L \delta_{(l_K)} x_{(l_{ij})} + u_{(K_{ij})}.$$

Here, the term $\phi_{(K_{ij})}$ captures women's bargaining power in the household j in domain K . (In bad goods estimation, the bargaining power in food is used.) The variables x include household-level controls (e.g., household size, number of children, parental age, parental employment, residence type) and, for child-level outcomes (education, health), child characteristics such as age, gender, and schooling status. Finally, u is the error term.

The coefficient of interest, β_K , measures the association between women's bargaining power and the allocation of household resources across expenditure categories. These estimates should be interpreted as reduced-form relationships rather than structural demand parameters.

2.3.2. Determinants of bargaining power. In addition to the budget share analysis, we examine the socio-economic correlates of women's bargaining power. For each domain $K \in \{\text{food, education, health}\}$, we estimate a multinomial logit model for $\phi_{(K_{ij})} \in \{0, 1, 2, 3\}$, the bargaining power in the household j . That is, for each bargaining-power category $m \in \{0, 1, 2\}$, we define a category-specific linear index $S_{(K_{jm})}$ as a function of household and parental characteristics:

$$S_{(K_{jm})} = \alpha_{(K_m)} + \sum_{l=1}^L \theta_{(l_{K_m})} x_{(l_j)}$$

which enters the multinomial logit probability function. With category 3 as the reference group, the choice probabilities are:

$$\Pr \left(\phi_{(K_{ij})} = m | x_{(1_j)}, x_{(2_j)}, \dots, x_{(L_j)} \right) = \frac{\exp(S_{(K_{jm})})}{1 + \sum_{r=0}^2 \exp(S_{(K_{jr})})} \text{ for } m = 0, 1, 2,$$

and

$$\Pr \left(\phi_{(K_{ij})} = 3 | x_{(1_j)}, x_{(2_j)}, \dots, x_{(L_j)} \right) = \frac{1}{1 + \sum_{r=0}^2 \exp(S_{(K_{jr})})}.$$

This analysis provides descriptive evidence on the socio-economic factors associated with women's bargaining power, but it is not intended to establish causal relationships.

3. RESULTS

3.1. Descriptive statistics

Table 2 presents summary statistics for key variables related to household expenditures, bargaining power, and control variables. On average, 65.5% of total expenditure is allocated to food, 9.1% to bad goods, 13.9% to education, and 2.0% to health.

Table 2. Summary statistics

Variable	Obs	Mean	Std. dev.	Min	Max
<u>Outcome variables</u>					
Share of food expenditure	8,834	.655	.207	.006	1
Share of bad goods expenditure	8,834	.091	.100	0	.728
Share of education expenditure	14,127	.139	.165	0	.928
Share of health expenditure	14,551	.020	.070	0	.990
<u>Treatment variables</u>					
Wife's bargaining power in food					
No bargaining power	7,785	.133	.340	0	1
Less partial bargaining power	7,785	.029	.168	0	1
Partial bargaining power (joint)	7,785	.167	.373	0	1
Full bargaining power	7,785	.671	.470	0	1
Wife's bargaining power in education					
No bargaining power	7,785	.140	.347	0	1
Less partial bargaining power	7,785	.030	.171	0	1
Partial bargaining power (joint)	7,785	.581	.493	0	1
Full bargaining power	7,785	.249	.432	0	1
Wife's bargaining power in health					
No bargaining power	7,785	.092	.288	0	1
Less partial bargaining power	7,785	.012	.110	0	1
Partial bargaining power (joint)	7,785	.616	.486	0	1
Full bargaining power	7,785	.280	.449	0	1
<u>Covariates</u>					
Urban rural					
Rural	8,834	.424	.494	0	1
Urban	8,834	.576	.494	0	1
Child age	14,127	6.621	4.275	0	14
Child gender (female = 1)	14,127	.484	.500	0	1
Husband age	8,829	42.036	11.456	18	91
Husband's education					
No education	8,785	.027	.162	0	1
Elementary, Junior high	8,785	.516	.500	0	1
Senior high	8,785	.327	.469	0	1
Higher education	8,785	.130	.336	0	1

(continued)

Table 2. Continued

Variable	Obs	Mean	Std. dev.	Min	Max
Husband's work status (employed = 1)	8,827	.891	.312	0	1
Husband smoking (husband smokes = 1)	7,748	.694	.461	0	1
Wife age	8,832	37.641	10.642	15	83
Wife's education					
No education	8,803	.045	.206	0	1
Elementary, Junior high	8,803	.554	.497	0	1
Senior high	8,803	.281	.450	0	1
Higher education	8,803	.120	.325	0	1
Wife's work status (employed = 1)	8,828	.419	.493	0	1
Wife smoking (wife smokes = 1)	8,140	.018	.133	0	1
Child number	8,834	1.706	.818	1	8
Family size	8,834	5.711	2.623	3	36
Income group					
0-5M	8,834	.299	.458	0	1
5M-10M	8,834	.421	.494	0	1
10M-15M	8,834	.171	.376	0	1
15M+	8,834	.110	.313	0	1
<u>Education variables</u>					
Child School type (Public = 1)	7,440	.804	.397	0	1
Child School attendance	13,889	.537	.499	0	1
<u>Health variables</u>					
Child health status					
unhealthy	13,886	.004	.06	0	1
somewhat unhealthy	13,886	.114	.318	0	1
somewhat healthy	13,886	.562	.496	0	1
very healthy	13,886	.321	.467	0	1
Wife's health insurance (has insurance = 1)	8,128	.513	.5	0	1
Husband's health insurance (has insurance = 1)	7,735	.515	.5	0	1
Wife's health insurance - JKN (wife has JKN = 1)	8,128	.464	.499	0	1

(continued)

Table 2. Continued

Variable	Obs	Mean	Std. dev.	Min	Max
Husband's health insurance – JKN (husband has JKN = 1)	7,735	.463	.499	0	1

Note: Education and health expenditure are measured on the child level, food and bad goods expenditure are measured on the household level. Descriptive statistics of the treatment variables and of the non-child-specific covariates are shown on the household level. Descriptive statistics of the child-specific covariates are shown at the child level.

Source: Authors' own calculation from (Strauss et al., 2016a, 2016b).

Although approximately 67% of food expenditure decisions are made solely by the wife, decisions regarding education and health are predominantly made jointly by both husband and wife, accounting for about 58 and 62%, respectively. This means that in half of households, husband and wife make decisions over consumption together. Slightly more than half of husbands and wives have elementary or junior high school, and around 30% have a senior high school education. While 89% of husbands are employed, 42% of wives are employed. The average age of husbands and wives is 42 and 37 years, respectively. A larger proportion of households fall within the middle-income bracket, earning between 5 and 10 million Indonesian Rupiah (approximately USD 305 to 610, based on an exchange rate of 1 USD = 16,380.30 IDR).

3.2. Determinants of Women's bargaining power

First, we identify the covariates that are associated with varying levels of women's bargaining power using a multinomial logit model. Here, the primary dependent variable is the categorical variable of Women's Bargaining Power (WBP), disaggregated across three domains: food, education, and health. (We keep the category with minimal bargaining power despite its relatively small sample size). Independent variables include a range of socio-demographic indicators, such as the educational attainment, employment status, and age of both spouses, as well as urban residency and total household expenditures.

3.2.1. Women's bargaining power in food spending. As shown in summary statistics, most food expenditure decisions are made solely by wives, followed by joint decisions between husbands and wives. While the parameter estimates of the multinomial logit model are reported in the [Supplementary materials](#) for reference ([Table A1](#)), we focus here on the average marginal effects (see [Table 3](#)). These results indicate that higher levels of wife education sharply reduce the likelihood of women having no say in food expenditure and significantly increase their chances of having full decision-making power. Education thus emerges as a key factor in enhancing women's autonomy. Employment also increases women's bargaining power, though it tends to promote more joint decision-making rather than full autonomy. Furthermore, residing in urban areas is associated with a decreased likelihood of women having no say in food-related decisions and an increased likelihood of women having full decision-making authority. In high-income

Table 3. Average marginal effects for women's bargaining power in food

Variables	(1) Bargaining power No (WBP Food = 0)	(2) Bargaining power Partial (less) (WBP in Food = 1)	(3) Bargaining power Partial (joint) (WBP in Food = 2)	(4) Bargaining power Full (WBP in Food = 3)
Wife age	-0.0005 (0.0009)	0.0010** (0.0004)	-0.0000 (0.0010)	-0.0004 (0.0012)
Wife's Education (baseline: no education)				
Elementary, Junior high	-0.0992*** (0.0295)	-0.0236** (0.0118)	-0.0107 (0.0261)	0.1335*** (0.0333)
Senior high	-0.1537*** (0.0310)	-0.0172 (0.0133)	-0.0079 (0.0280)	0.1788*** (0.0357)
Higher education	-0.1647*** (0.0328)	0.0038 (0.0166)	0.0267 (0.0318)	0.1342*** (0.0398)
Wife works	-0.0326*** (0.0078)	-0.0001 (0.0039)	0.0196** (0.0089)	0.0130 (0.0111)
Husband age	-0.0003 (0.0008)	0.0001 (0.0004)	-0.0024** (0.0009)	0.0026** (0.0012)
Husband's Education (baseline: no education)				
Elementary, Junior high	0.0077 (0.0238)	0.0011 (0.0098)	-0.0386 (0.0338)	0.0299 (0.0380)
Senior high	-0.0134 (0.0251)	0.0025 (0.0110)	-0.0501 (0.0351)	0.0611 (0.0397)
Higher education	-0.0184 (0.0280)	0.0036 (0.0121)	-0.0337 (0.0376)	0.0485 (0.0430)
Husband works	-0.0133 (0.0134)	0.0015 (0.0059)	0.0064 (0.0148)	0.0053 (0.0184)
Income Group (baseline: 0-5M)				
5M-10M	-0.0044 (0.0092)	-0.0028 (0.0047)	-0.0118 (0.0105)	0.0190 (0.0130)
10M-15M	-0.0034 (0.0123)	0.0023 (0.0062)	-0.0165 (0.0136)	0.0176 (0.0171)

(continued)

Table 3. Continued

Variables	(1) Bargaining power No (WBP Food = 0)	(2) Bargaining power Partial (less) (WBP in Food = 1)	(3) Bargaining power Partial (joint) (WBP in Food = 2)	(4) Bargaining power Full (WBP in Food = 3)
15M+	−0.0090 (0.0156)	0.0034 (0.0076)	−0.0309* (0.0161)	0.0365* (0.0209)
Child number	0.0020 (0.0049)	−0.0051* (0.0026)	−0.0015 (0.0056)	0.0046 (0.0069)
Urban	−0.0104 (0.0081)	−0.0040 (0.0042)	−0.0118 (0.0091)	0.0261** (0.0114)
Observations	7,748	7,748	7,748	7,748

Standard errors in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

Source: Authors' own calculations.

households, women are more likely to have full control over food expenditure decisions and less likely to share or lack decision-making power.

3.2.2. Women's bargaining power in education spending. Based on average marginal effects from the multinomial logit model (see Table 4), as a wife's education increases, the probability of no power in education spending decreases significantly, with a strong shift toward joint decision-making. However, a higher level of education does not significantly increase full (sole) bargaining power. This implies educated women are more likely to share power rather than dominate decisions in children's education spending. An increasing level of the husband's education sharply boosts joint decision-making while reducing the wife's sole authority. With the husband being more highly educated, the bargaining structure over child education spending becomes more collaborative rather than matriarchal.

Considering individual characteristics, a slightly older wife is less likely to decide alone and slightly more likely to have no say over the spending. Wife's employment discourages no bargaining power for women.

3.2.3. Women's bargaining power in health spending. According to the average marginal effects shown in Table 5, the education level of the wife is the clearest driver of shared decision-making over child health spending. A higher level of schooling for either wife or husband sharply raises the probability that medical spending on children is discussed and decided together, while it lowers the chances of both "wife has no say" and "wife decides alone". Resources and environment, for example, income, urban living, and larger families, push the balance towards greater wife autonomy, not toward joint decision-making. Employment of spouses empowers joint decision-making; however, ageing exhibits lower bargaining power of women and less joint decision-making.

Table 4. Average marginal effects for women's bargaining power in education

Variables	(1) Bargaining power No (WBP in education = 0)	(2) Bargaining power Partial (less) (WBP in education = 1)	(3) Bargaining power Partial (joint) (WBP in education = 2)	(3) Bargaining power Full (WBP in education = 3)
Wife age	0.0024 ^{***} (0.0009)	0.0022 ^{***} (0.0005)	−0.0028 ^{**} (0.0013)	−0.0018 (0.0011)
Wife's Education (baseline: no education)				
Elementary, Junior high	−0.0302 (0.0242)	0.0156 ^{***} (0.0055)	0.0187 (0.0327)	−0.0042 (0.0272)
Senior high	−0.0654 ^{**} (0.0262)	0.0285 ^{***} (0.0077)	0.0592 [*] (0.0354)	−0.0223 (0.0296)
Higher education	−0.0994 ^{***} (0.0274)	0.0192 ^{**} (0.0089)	0.1283 ^{***} (0.0391)	−0.0481 (0.0334)
Wife works	−0.0249 ^{***} (0.0080)	−0.0006 (0.0040)	0.0141 (0.0114)	0.0114 (0.0101)
Husband age	0.0012 (0.0008)	−0.0002 (0.0004)	−0.0032 ^{***} (0.0012)	0.0023 ^{**} (0.0010)
Husband's Education (baseline: no education)				
Elementary, Junior high	0.0019 (0.0221)	0.0093 (0.0112)	0.1240 ^{***} (0.0395)	−0.1351 ^{***} (0.0393)
Senior high	0.0246 (0.0240)	0.0009 (0.0117)	0.1851 ^{***} (0.0413)	−0.2106 ^{***} (0.0409)
Higher education	0.0420 (0.0277)	0.0112 (0.0131)	0.2425 ^{***} (0.0442)	−0.2957 ^{***} (0.0419)
Husband works	0.0109 (0.0123)	0.0074 (0.0052)	0.0018 (0.0187)	−0.0201 (0.0167)
Income Group (baseline: 0–5M)				
5M–10M	0.0022 (0.0100)	0.0131 ^{***} (0.0042)	−0.0060 (0.0133)	−0.0093 (0.0116)
10M–15M	−0.0030 (0.0122)	0.0206 ^{***} (0.0060)	−0.0293 [*] (0.0175)	0.0116 (0.0156)

(continued)

Table 4. Continued

Variables	(1) Bargaining power No (WBP in education = 0)	(2) Bargaining power Partial (less) (WBP in education = 1)	(3) Bargaining power Partial (joint) (WBP in education = 2)	(3) Bargaining power Full (WBP in education = 3)
15M+	0.0122 (0.0157)	0.0212 ^{***} (0.0075)	−0.0757 ^{***} (0.0217)	0.0423 ^{**} (0.0203)
Child number	−0.0009 (0.0050)	−0.0042 [*] (0.0025)	−0.0085 (0.0070)	0.0135 ^{**} (0.0061)
Urban	0.0069 (0.0083)	0.0045 (0.0041)	−0.0478 ^{***} (0.0116)	0.0364 ^{***} (0.0102)
Observations	7,748	7,748	7,748	7,748

Standard errors in parentheses. ^{*} $P < 0.1$, ^{**} $P < 0.05$, ^{***} $P < 0.01$.

Source: Authors' own calculations.

3.3. Effects of bargaining power on spending shares

Table 6 presents the results from the baseline models of spending shares, which include only the treatment variable (women's bargaining power) and the log of total spending. In the estimation of child-level shares (education and health), the standard errors are clustered at the household level. As indicated earlier, we use bargaining power in food spending as the main treatment variable in the estimation of the share of bad goods spending.

According to the results, women's involvement in the household budget decision decreases the allocation toward bad goods in the family at each level of involvement compared to no participation. For instance, the difference is −0.007 between partial (joint) participation and no participation, and also between full participation and no participation, which is substantial relative to the average bad goods spending share of 0.091 (see Table 2). Compared to no female decision-making, the share of food spending is larger under partial (joint) decision-making and less partial decision-making, but lower under full female decision-making. (Although only the individual coefficient of less partial decision making is significant, the difference of the parameter of partial and full decision making is also significantly positive.)

Since we know from the multinomial logit results that women's bargaining power is associated with other explanatory variables (that may independently influence the spending shares), in Table 7, we add control variables for household demographics, employment, and other economic factors to the spending share equations. Here, the results for food spending and bad goods spending are similar to those of Table 6, although the levels of significance may differ. For education, compared to households in which women report no bargaining power, the budget share allocated to education is lower in households where women exhibit greater decision-making authority. A similar pattern emerges for health expenditures, where joint decision-making is associated with a smaller share devoted to child health.

Table 5. Average marginal effects for women's bargaining power in health

Variables	(1) Bargaining power No (WBP in health = 0)	(2) Bargaining power Partial (less) (WBP in health = 1)	(3) Bargaining power Partial (joint) (WBP in health = 2)	(4) Bargaining power Full (WBP in health = 3)
Wife age	0.0008 (0.0007)	0.0015 ^{***} (0.0003)	−0.0026 ^{**} (0.0012)	0.0004 (0.0011)
Wife's Education (baseline: no education)				
Elementary, Junior high	−0.0135 (0.0181)	0.0099 ^{***} (0.0031)	0.0146 (0.0318)	−0.0110 (0.0290)
Senior high	−0.0302 (0.0199)	0.0107 ^{**} (0.0042)	0.0724 ^{**} (0.0345)	−0.0529 [*] (0.0315)
Higher education	−0.0232 (0.0225)	0.0052 (0.0045)	0.1119 ^{***} (0.0382)	−0.0939 ^{***} (0.0349)
Wife works	−0.0133 ^{**} (0.0066)	−0.0012 (0.0025)	0.0216 [*] (0.0112)	−0.0071 (0.0104)
Husband age	0.0020 ^{***} (0.0007)	−0.0006 ^{**} (0.0003)	−0.0033 ^{***} (0.0012)	0.0019 [*] (0.0011)
Husband's Education (baseline: no education)				
Elementary, Junior high	−0.0131 (0.0203)	0.0030 (0.0075)	0.0943 ^{**} (0.0392)	−0.0842 ^{**} (0.0381)
Senior high	−0.0052 (0.0218)	0.0010 (0.0079)	0.1570 ^{***} (0.0410)	−0.1528 ^{***} (0.0397)
Higher education	−0.0061 (0.0240)	0.0013 (0.0086)	0.2228 ^{***} (0.0437)	−0.2179 ^{***} (0.0417)
Husband works	−0.0090 (0.0108)	−0.0012 (0.0037)	0.0412 ^{**} (0.0187)	−0.0311 [*] (0.0174)
Income Group (baseline: 0–5M)				
5M–10M	−0.0108 (0.0080)	0.0048 [*] (0.0027)	0.0011 (0.0131)	0.0049 (0.0121)
10M–15M	−0.0010 (0.0104)	0.0079 ^{**} (0.0039)	−0.0148 (0.0172)	0.0079 (0.0160)

(continued)

Table 5. Continued

Variables	(1) Bargaining power No (WBP in health = 0)	(2) Bargaining power Partial (less) (WBP in health = 1)	(3) Bargaining power Partial (joint) (WBP in health = 2)	(4) Bargaining power Full (WBP in health = 3)
15M+	0.0100 (0.0133)	0.0094* (0.0052)	−0.0519** (0.0215)	0.0330 (0.0205)
Child number	0.0003 (0.0041)	−0.0051*** (0.0019)	−0.0090 (0.0070)	0.0138** (0.0064)
Urban	0.0112 (0.0069)	0.0053** (0.0025)	−0.0526*** (0.0114)	0.0361*** (0.0106)
Observations	7,748	7,748	7,748	7,748

Standard errors in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.

Source: Authors' own calculations.

In addition, greater bargaining power may be associated with a reallocation toward other child-oriented inputs—such as improved food consumption or reductions in bad goods—suggesting shifts in the composition of child-related investments rather than lower overall commitment to children's welfare.

Having full bargaining power and less partial control compared to no bargaining power does not make a difference in significance in how much households allocate to health spending. As far as the other variables are concerned, urban households spend a smaller share on bad goods but allocate a larger share to education compared to their rural counterparts (See [Table 7](#)). Larger households dedicate a greater share of their budget to food, reflecting increased overall demand. However, they tend to allocate less to education and health, likely due to resource constraints. Spending on bad goods is relatively higher, which may further reduce investment in essential categories such as education and health. Households with older wives allocate slightly less to food, likely reflecting shifts in consumption preferences. These women appear to place greater emphasis on education spending while reducing expenditures on bad goods. Wealthier households (with higher total spending) allocate a smaller proportion of their budget to food and bad goods, and a larger proportion to health. Households with female and older children spend more on education but less on health, while, understandably, less is spent on health if the child is healthier.

To further assess whether the estimated effects reflect age-related expenditure needs rather than bargaining dynamics per se, we examine how health and education expenditure shares vary across children's age groups. [Supplementary materials Table B1](#) reports the summary of expenditure shares by single-year child age. We observe a noticeable decline in health expenditure shares between ages five and six, which continues until approximately age eight. This pattern is consistent with declining early-childhood medical needs, such as vaccinations and treatment for

Table 6. Effects of women's bargaining power on spending shares (baseline OLS results)

Variables	(1) Share of food	(2) Share of bad goods	(3) Share of education	(4) Share of health
WBP in food = 1 (less partial)	0.0348**	−0.0202***		
	(0.0140)	(0.0064)		
WBP in food = 2 (partial [joint])	0.0076	−0.0069		
	(0.0080)	(0.0043)		
WBP in food = 3 (full)	−0.0103	−0.0077**		
	(0.0066)	(0.0034)		
WBP in education = 1 (less partial)			0.0209**	
			(0.0096)	
WBP in education = 2 (partial [joint])			−0.0048	
			(0.0042)	
WBP in education = 3 (full)			−0.0026	
			(0.0047)	
WBP in health = 1 (less partial)				−0.0065
				(0.0059)
WBP in health = 2 (partial [joint])				−0.0027
				(0.0026)
WBP in health = 3 (full)				−0.0047*
				(0.0027)
Log of total spending	−0.1067***	−0.0240***	0.0313***	0.0102***
	(0.0035)	(0.0018)	(0.0023)	(0.0017)
Constant	2.3339***	0.4770***	−0.3542***	−0.1386***
	(0.0553)	(0.0290)	(0.0364)	(0.0262)
Observations	7,785	7,785	12,717	12,971
R-squared	0.117	0.026	0.016	0.009

Note: The baseline category of WBP is “no bargaining power”.
Standard errors in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.
Standard errors are clustered at the household level.
Source: Authors' own calculations.

Table 7. Effects of women's bargaining power on spending shares (OLS regression results with multiple control variables)

Variables	(1) Share of food	(2) Share of bad goods	(3) Share of education	(4) Share of health
WBP in food = 1 (less partial)	0.0348**	−0.0160**		
	(0.0140)	(0.0065)		
WBP in food = 2 (partial [joint])	0.0065	−0.0064		
	(0.0080)	(0.0043)		
WBP in food = 3 (full)	−0.0102	−0.0058*		
	(0.0066)	(0.0034)		
WBP in education = 1 (less partial)			−0.0147**	
			(0.0067)	
WBP in education = 2 (partial [joint])			−0.0010	
			(0.0029)	
WBP in education = 3 (full)			−0.0062*	
			(0.0033)	
WBP in health = 1 (less partial)				−0.0093
				(0.0061)
WBP in health = 2 (joint)				−0.0044
				(0.0028)
WBP in health = 3 (full)				−0.0038
				(0.0028)
Urban	−0.0108**	−0.0077***	0.0235***	−0.0022
	(0.0045)	(0.0023)	(0.0021)	(0.0013)
Family size	0.0014	0.0018***	−0.0030***	−0.0007**
	(0.0010)	(0.0005)	(0.0005)	(0.0003)
Husband works	−0.0147*	−0.0055	−0.0031	−0.0078***
	(0.0078)	(0.0039)	(0.0034)	(0.0026)
Wife works	0.0158***	−0.0114***	−0.0032	−0.0024*
	(0.0045)	(0.0022)	(0.0021)	(0.0013)
Wife age	−0.0008***	−0.0012***	0.0004***	−0.0001
	(0.0003)	(0.0001)	(0.0001)	(0.0001)

(continued)

Table 7. Continued

Variables	(1) Share of food	(2) Share of bad goods	(3) Share of education	(4) Share of health
Wife's insurance JKN				0.0014
				(0.0015)
Husband's insurance JKN				−0.0026*
				(0.0015)
Log of total spending	−0.1055***	−0.0207***	−0.0061***	0.0175***
	(0.0037)	(0.0018)	(0.0018)	(0.0016)
Number of children			−0.0269***	−0.0089***
			(0.0012)	(0.0008)
Child age (baseline: 6 years for education and 0 for health)				
0			−0.1214***	
			(0.0048)	
1			−0.1258***	−0.0102**
			(0.0049)	(0.0050)
2			−0.1237***	−0.0217***
			(0.0048)	(0.0045)
3			−0.1204***	−0.0210***
			(0.0049)	(0.0047)
4			−0.0898***	−0.0269***
			(0.0055)	(0.0045)
5			−0.0183***	−0.0295***
			(0.0062)	(0.0044)
6				−0.0369***
				(0.0043)
7			0.0661***	−0.0396***
			(0.0070)	(0.0042)
8			0.1115***	−0.0428***
			(0.0065)	(0.0040)
9			0.1128***	−0.0423***
			(0.0064)	(0.0041)

(continued)

Table 7. Continued

Variables	(1) Share of food	(2) Share of bad goods	(3) Share of education	(4) Share of health
10			0.1080*** (0.0065)	−0.0420*** (0.0043)
11			0.1139*** (0.0065)	−0.0428*** (0.0040)
12			0.1168*** (0.0066)	−0.0425*** (0.0043)
13			0.1644*** (0.0073)	−0.0441*** (0.0042)
14			0.1866*** (0.0075)	−0.0488*** (0.0041)
Female (child gender)			0.0100*** (0.0020)	−0.0034*** (0.0012)
Child health status (Baseline: very unhealthy)				
somewhat unhealthy				−0.0124 (0.0153)
somewhat healthy				−0.0298** (0.0151)
very healthy				−0.0327** (0.0151)
Constant	2.3500*** (0.0567)	0.4734*** (0.0294)	0.2661*** (0.0282)	−0.1546*** (0.0280)
Observations	7,782	7,782	12,564	11,933
R-squared	0.121	0.044	0.519	0.076

Note: The baseline category of WBP is “no bargaining power”.
Standard errors in parentheses. * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$.
Standard errors are clustered at the household level.
Source: Authors’ own calculations.

common early-life illnesses. In contrast, education expenditure shares increase sharply between ages four and five and again between ages six and seven, corresponding to the transition into organised childcare and formal primary schooling. These discontinuities are consistent with the idea that age-related institutional and developmental thresholds may play an important role in shaping expenditure allocation.

Motivated by these patterns, we conduct additional analyses using age-restricted subsamples. For health expenditure shares, we estimate the OLS model separately for children aged five and below. Among younger children, the estimated effect of women's bargaining power is slightly stronger than in the full sample, although only full women's bargaining power remains statistically significant. For education expenditure shares, we estimate the model for children aged five and above—those more likely to be enrolled in organised childcare or school—and find stronger and statistically more significant effects compared to the full sample. These results, reported in [Supplementary materials Table B2](#), are also consistent with the main results reported in [Table 7](#), even with the age cut.

To better capture the possibly income-dependent effects of women's bargaining power on spending shares, we compare the average spending shares by bargaining power and income group in [Figure 1](#). Although the estimates are noisy (as reflected by the large confidence intervals), the figures by and large reinforce the results of [Tables 6](#) and [7](#). Within relatively lower income households (with income between 5M and 10M) – where spending constraints are more likely to be important – joint decision making is related to the largest food spending without considering less partial bargaining power due to its smallest sample size, followed by no bargaining power, and then by full bargaining power of the mother ([Figure 1a](#)). In lower-income households, women's absence in decision-making is associated with higher spending on bad goods ([Figure 1b](#)). A stronger differentiation is observed across bargaining power for education spending shares ([Figure 1c](#)). In relatively wealthier groups (income in the range 10M–15M), joint decision-making households spend the most on education, while the opposite is true for poorer households (income less than 5M). Health spending share is low across all groups, with greater variation at higher income levels. Interestingly, in mid- and higher-income groups, households with no female power spend more on health, while female-only and joint decision households show consistently lower health shares ([Figure 1d](#)). Finally, the figure again shows that food and bad goods spending shares are negatively correlated, while education does not show specific patterns across income groups, and child health spending share shows slightly positive, but more stable patterns related to income level. Taken together, these patterns suggest that the association between women's bargaining power and expenditure shares varies across income groups, consistent with income-dependent Engel effects and potentially reflecting differing budget constraints across the distribution.

3.3.1. Robustness checks. As robustness checks, we estimate alternative specifications that account for the fractional nature of expenditure shares and the prevalence of zero expenditures.

First, we implement a fractional logit model for expenditure shares. Overall, the coefficient estimates reported in [Supplementary materials Table B3](#) yield findings that are broadly consistent with the main OLS results, with some differences in statistical significance across specifications, but generally exhibiting similar signs to those reported in [Table 7](#).

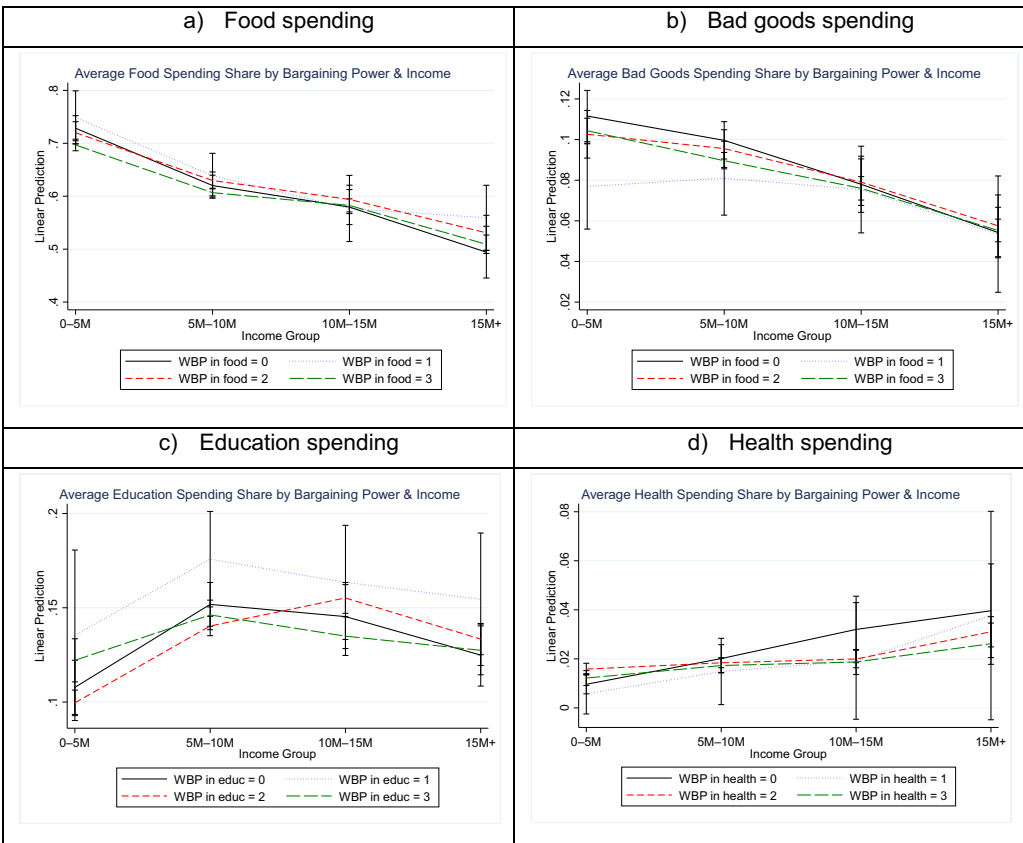


Fig. 1. Average spending shares by women's bargaining power and income group

Note: WBP denotes women's bargaining power in the domains of food, education, and health. The variable is coded as follows: 0 = no bargaining power; 1 = partial (less) bargaining power; 2 = partial (joint) bargaining power; and 3 = full bargaining power.

Source: Authors' own calculations.

Given the mass of zeros in bad goods, education, and health budget shares, we also estimate a two-part model for robustness. (Since the distribution of food spending share lacks zeros and has a very small number of ones, we only perform these exercises for the other three spending categories.) The first part models the probability of a positive share in the given category using a probit specification. In the second part, conditional on positive spending, we estimate the magnitude of the share using OLS applied to a log transformation of the budget share. The results are found in [Supplementary materials Tables B4 and B5](#). The estimated parameters are overall consistent with the baseline findings and do not substantially alter the main conclusion of the paper. For instance, the probit equation for the bad goods yields statistically significant parameters of the same sign as in [Table 7](#), while the parameters are not significant, although of the expected sign, in the second part of the model.

4. CONCLUSION & DISCUSSION

This study examines the association between women's intra-household bargaining power and household budget allocation, with particular attention to expenditures on food, bad goods, education, and health—key channels through which households invest in child human capital. The effects are heterogeneous across domains of decision-making, particularly between sole and joint decisions with spouses.

Women's bargaining power appears to be positively correlated with education, employment, and urban residence. Socio-economic and demographic characteristics, including income level and household composition, also play a central role in shaping spending patterns. Among middle-income households, joint decision-making over education is associated with higher education investment, indicating potential complementarities in spousal cooperation. In addition, greater women's bargaining power is consistently associated with a lower share of household resources devoted to bad goods, a pattern consistent with shifts toward alternative consumption categories.

Overall, the findings indicate that intra-household bargaining dynamics are systematically associated with the composition of household expenditure. The effects are not uniformly positive across all child-related categories; rather, women's bargaining power appears to be linked to reallocations within the household budget. In particular, while greater bargaining power is associated with lower spending on bad goods, its relationship with education and health shares is negative, suggesting shifts in expenditure composition rather than straightforward increases in all child-related investments. These patterns underscore the importance of distinguishing between absolute expenditure levels and relative budget shares when evaluating household investment behaviour.

4.1. Policy relevance

Given the associational nature of the analysis, the policy implications should be interpreted with appropriate caution. Nonetheless, the findings offer policy-relevant insights by highlighting domains in which women's decision-making authority is systematically linked to household investment behaviour. Policies aimed at strengthening women's bargaining position—through legal frameworks, access to education, labour market opportunities, or financial inclusion—may be associated with changes in household expenditure allocation across categories relevant to child development.

The strong association between women's education and bargaining power across decision-making domains highlights female schooling as an important correlate of women's agency and household expenditure allocation, with potential intergenerational implications. Similarly, the patterns observed for joint decision-making suggest that policies promoting educational attainment for both spouses may be associated with more cooperative decision-making over children's schooling, particularly in middle-income households.

Finally, the observed associations for health expenditures point to domains where institutional constraints and access barriers may interact with women's decision-making authority, especially in rural and low-income settings where women's decision-making authority may be more constrained. While causal pathways remain to be established, these patterns point to areas where complementary policy interventions could be explored.

4.2. Limitations and future research

Several limitations should be acknowledged. First, this study relies on expenditure shares as proxies for child outcomes. In this research, we do not use any specific children's nutrition, education, or health standardised measurement or index for defining the outcome; however, we assume that the main channel to improve children's outcome is through spending on those specific items in the household budget. Future research should incorporate standardised measures to assess actual improvements in child welfare.

Second, the measure of bargaining power is based on self-reported decision-making indicators, which, although grounded in observed behaviour, may be subject to reporting bias and endogeneity.

Third, the analysis, although controls for a rich set of explanatory variables, does not fully address issues of causal identification. Unobserved heterogeneity and omitted variable bias may influence the estimated effects. Future research should seek to exploit exogenous variation – such as legal reforms or natural experiments – to strengthen causal claims and explore heterogeneity across institutional or cultural contexts.

Conflict of interest: The authors report no competing interests.

Data availability: The data that support the findings of this study are available from RAND Social and Economic Well-Being (RAND), but registration in advance is necessary to access the IFLS Public Use Data.

SUPPLEMENTARY MATERIAL

Supplementary data to this article can be found online at <https://doi.org/10.1556/032.2026.00231>.

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