From Decision to Employment: Intrahousehold Dynamics and Female Labor Supply in a Developing Economy

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Abstract

This paper investigates how household decision-making patterns link to female labor force participation in a developing economy. This work provides a conceptual framework based on Chiappori's collective household approach, to examine the trade-off within a household arising from the wife's employment: the benefit from household's potential economic surplus from her income contribution weighted against the non-monetary, social cost associated with her employment. These costs involve penalties for deviating from social norms and conservative gender roles, which include the "male breadwinner" norm and that women should prioritize household responsibilities. This framework differentiates between two different cases of household patterns based on relative utilities of the wife and of the husband arising from wife's employment: a conservative patriarchal household and a female agency-oriented household. Using the Indonesian Life Survey dataset that contains a decision-making question on who decides on wife's work, we empirically test the model by examining the link between a woman's decision-making patterns and her employment in the labor market. Using a probit model, we find that on average, the greater the wife's involvement in the decision, the higher her likelihood of being employed, after controlling for individual and household characteristics and including time and regional fixed effects. These findings support the conservative patriarchal model of household behavior, revealing the prevalence of the husband's disutility from his wife's work over her own preferences. Moreover, they suggest that the non-monetary cost of her employment plays a more significant role than the income effect in shaping these outcomes. The results from a dynamic analysis also highlight the persistence of social norms surrounding Indonesian women's labor supply, both over time and across cohorts.

Keywords: female labor supply; intra-household decision making.
JEL Codes: J21, O12

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1   Introduction

It is well documented that women's labor force participation remain much lower compared to men's, especially in the developing world (Jayachandran 2021). As women continue to face structural and social barriers to entering the labor market, reducing these barriers in developing countries can generate substantial gains for both women's welfare and overall economic growth (Jayachandran 2021, Kabeer 2008). Recent strand of literature on barriers to women's employment often emphasizes the role of socio-economic factors, such as patriarchal norms and gender roles, as significant obstacles to women's workforce integration in developing economies. Husbands, for example, may resist their wives' employment, viewing it as a threat to their role as primary providers or as potentially leading to the neglect of household responsibilities (Jayachandran 2015; 2021; Mumporeze, 2020; Cameron et al., 2019; Chen and Ge, 2018; Heintz et al., 2018; Kabeer, 2009; Ford and Parker, 2008). Social norms may also limit women's job choices to roles deemed "appropriate," discouraging employment that involves male interaction or night shifts, thereby perpetuating resistance to their participation in the workforce (Muñoz Boudet et al., 2012; İlkkaracan, 2012; Goldin, 1995).

Using the Indonesian Family Life Survey (IFLS) (1997-2014) and spouses' responses on decision-making involvement question, this paper explores the dependence of female labor force participation on household decision-making patterns regarding a wife's employment within the context of a developing economy. We first construct a conceptual framework that to examine the trade-off arising from the wife working: the gains from household's potential economic surplus (from her income) weighted against the non-monetary, social cost associated with her employment. Based on a collective household approach, our framework differentiates between two different household scenarios: a conservative patriarchal household model, which discourages women's employment; and a female agency-autonomous type of model that supports women's work. Then, using IFLS dataset, we empirically test the model by using a probit model to estimate a probit model of different decision-making patterns

(represented by dummies) on the probability of the wife working.

Our conceptual framework draws from a "collective approach" (Chiappori, 1992), which recognizes each individual within a household have their own rational preferences, and adds to the literature by presenting a model that examines the trade-off between a household's economic surplus and the individual spouses' non-monetary costs associated with the wife's employment. These cost include eventual social penalties for deviating from patriarchal norms and traditional gender roles, which dictate that women prioritize household responsibilities while men serve as primary breadwinners. The contribution of individual costs to the household utility is determined by the weights assigned based on each spouse's decision-making authority over the woman's employment.A significant part of these restrictions arises from male-specific costs that husbands may associate with their wives' labor market participation: Traditional gender roles often dictate that women focus on household responsibilities, while men act as the primary breadwinners (Jayachandran, 2021). A wife seeking employment may challenge these norms, leading to societal disapproval or a perceived threat to the husband's masculinity (Meurs, 2016). Community judgment and concerns about family honor further amplify resistance, as a working wife may be viewed as reflecting financial struggle or dishonoring cultural values. Additionally, norms around modesty and safety concerns for women in public spaces, combined with stigma attached to certain job types, reinforce opposition (Goldin, 1995).

However, these studies primarily examine the socio-economic factors influencing female employment through qualitative or basic descriptive analysis. In contrast, our study takes a more structural approach, moving beyond descriptive narratives to empirically test a model that examines how household decision-making patterns regarding a wife's employment shape her labor market outcomes. Specifically, we relate the spouses' responses on their level of involvement in decision-making regarding a woman's employment to the individual weights assigned to the wife's and husband's costs associated with the wife's employment.

Unlike previous studies that rely only on the women's responses, we incorporate both

spouses' answers to the decision-making question on the wife's work to provide a more comprehensive measure of intra-household bargaining patterns. While previous literature has debated the use of husbands' responses to decision-making questions (Meurs and Ismaylov (2019)), it mainly relies solely on the wife's perspective (e.g. Wiig, 2013; Li and Wu, 2011; Acharya et al., 2010; Rammohan and Johar, 2009; Kishor and Subaiya, 2008) or examines the discrepancies in the spousal answers in relationship to their individual and household characteristics (Ambler et al., Doss 2021 and 2022). We highlight this importance of using nuanced measures of decision-making power by considering both spouses' responses, and thereby contributing to the methodological discourse on measuring intrahousehold bargaining power.

The literature commonly uses decision-making reports on various issues — such as household expenditures, children's health, and education — to measure female bargaining power within households, as comprehensively reviewed by Meurs (2016) and Meurs and Ismaylov (2019). However, our focus is not on measuring bargaining power per se. Instead, we focus on decision-making explicitly related to a woman's work, assuming that this decision precedes her labor market engagement and reflects authority over employment decision and the power dynamics surrounding this issue.

In contrast to previous literature which mainly implicitly model women's employment as an external factor that affects women's intrahousehold bargaining power, our study examines the reverse link from decision-making on wife's work to her labor outcome. This is different from studies relating decision-making questions to women's labor outcomes predominantly by examining the relationship in the reverse direction and exploring how female employment or income affects her bargaining power within the household (e.g. Hanmer and Klugman, 2015; Meurs et al., 2015; Mabsout and van Staveren, 2010; Vaz et al., 2016; Rammohan and Johar, 2009; Anderson and Eswaran, 2009). A notable exception is the recent working paper by Moorena (2024) which also uses IFLS data and refers to Basu's model (2006) by instrumenting spouses' bargaining power. Otherwise, this body of work overlooks the

alternative perspective, which considers how decision-making dynamics influence women's labor supply. Moreover, as noted by Meurs (2016), studies linking female labor supply to bargaining power often face challenges of simultaneity, particularly with decision-making questions related to expenditures or financial matters, where causality can run both ways.

In contrast, literature inspired by Chiappori's collective household model (see Chiappori and Molina, 2020 and Chiappori et al., 2022 for a comprehensive review) emphasizes how intra-household decision-making dynamics shape spouses' labor supply (e.g. Lacroix and Radtchenko, 2011). Our study builds on this perspective by shifting the focus specifically to the decision-making question related to a woman's employment. This specificity enables us to assume that the decision regarding her employment precedes her actual labor market engagement, thereby mitigating concerns about simultaneity. The assumption is supported by empirical evidence, which shows that while other decision-making questions related to household expenditures also correlate with women's labor supply, their correlation are roughly an order of magnitude weaker than that of the employment decision. If the employment decision merely captured general bargaining power, we would expect similar relationships across different household decisions, yet this stark difference suggests that the employment decision is more directly tied to pre-existing household dynamics and norms, allowing us to treat it as exogenous to her labor market outcome.

Our findings support the conservative patriarchal model of household behavior that discourages women's employment in Indonesia, highlighting the dominance of the husband's disutility from his wife's work over her own preferences. Moreover, they suggest that the non-monetary, social costs associated with her employment outweigh the corresponding income effects.

Furthermore, our results highlight the enduring influence of social norms surrounding Indonesian women's labor supply, both over time and across cohorts. In contrasts to previous literature, which present arguments that cultural norms and traditional gender roles are a major factor in Indonesia's persistently low female labor force participation (e.g. Jay-

achandran 2021), our study explicitly demonstrates this connection by providing empirical evidence of the persistence of the main findings.

Finally, we contribute to the thin literature focusing on female labor supply and intra-household dynamics in Indonesia, which is scarce, primarily descriptive, and predominantly focuses on economic, demographic, and human capital factors of woman's employment (e.g. Cameron et al. 2019; Schaner and Das 2016).

Our paper is organized as follows. Section 2 provides an overview of the institutional background and the broader context of women's labor market participation in Indonesia, including key policy developments, demographic trends, and cultural norms relevant to intra-household decision-making. Section 3 outlines the conceptual framework, illustrating how household bargaining dynamics influence women's labor supply decisions. Section 4 describes the data and presents descriptive analysis. Section 5 introduces the empirical strategy. Section 6 presents the main findings and interprets them in light of existing literature, highlighting both the empirical results and their broader implications for understanding gendered labor market participation. Finally, Section 7 concludes by summarizing the key insights.

2 Institutional Context

2.1 Indonesian background

Indonesia is the largest archipelago country in the world, with 922 islands permanently inhabited by an ethnically and culturally diverse population. In terms of ethnicity, the Javanese constitute the largest ethnic group in Indonesia (40.1%), followed by Sundanese (15.5%), Malay (3.7%), Batak (3.6%), Madurese (3%), and other minority groups making

up the remainder (2010 estimates from Adam et al., 2023). In terms of religion, the majority of the population is Muslim (87%), followed by Catholics (2.9%), Hindus (1.7%), and other religions (2010 estimates from Adam et al., 2023).

Despite such diversity, certain social patterns are common across the country. An inherently patriarchal household structure persists, influenced by the long-lasting impact of the New Order regime under Suharto (1967–1998), which emphasized gendered roles in society and women's central role in the home (Blackburn, 2004; Parker, 2016).

Asymmetric gender roles are reflected in various socioeconomic outcomes, including labor force participation, land ownership, and marriage legislation[1]. The 1974 Marriage Law assigns the wife the responsibility of taking care of the household, permits polygamy if the wife does not fulfill her obligations, and automatically designates the man as the head of the household (Schaner and Das, 2016; UNFPA, 2015; CEDAW, 2012).

In the case of divorce, joint assets are divided equally between the husband and wife, and each spouse retains any property owned prior to the marriage (UN CEDAW, 2005; Schaner and Das, 2016). However, divorce remains a challenging and lengthy process, often subject to social stigma, which further undermines women's autonomy and limits their exit options. (Parker, 2016). For the Muslim majority of women, marriages are governed by sharia rather than civil law (CEDAW, 2012), which is often even more restrictive. Additionally, access to sexual and reproductive health services is limited to legally married individuals, and a husband's consent is required for certain birth control methods ((Schaner and Das, 2016)).

Since the fall of the New Order regime in 1998, the Reformasi period brought democratization and decentralization of the government, along with civil and social changes affecting households and their operation. On the positive side, the 2004 Law on the Elimination of Domestic Violence was introduced (World Bank, 2020). However, decentralization reforms also enabled various regions and provinces to implement discriminatory policies against women. For example, in Aceh province, restrictions were imposed on women's social and public

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[1]For instance, in 2012, only about 36% of married women aged 15–49 owned land either alone or jointly, while 54% of men owned land (Schaner and Das, 2016).

activities, dress codes, and freedom of movement (CEDAW, 2012).

More generally, the National Commission on Violence Against Women reported in 2013 that since 1999, the government at both national and subnational levels has passed 342 discriminatory laws, including 79 local mandates requiring women to wear the hijab (Harsono, 2014). On the other hand, the government has taken some actions towards gender equality more recently, including putting 30% female quotas on candidates nominated by political parties to the House of Representatives (Quota Project, 2014), but there remain challenges at the national level due to the population's diversity in ideologies (Schaner and Das, 2016).

These political and social shifts, combined with economic shocks, have significantly shaped the experiences of the Indonesian cohorts observed, though, as shown by the time dynamics analysis in section 6.3, they did not necessarily induce lasting socio-cultural shifts.

2.2   Indonesian Female Employment

While the Indonesian economy has grown steadily over the last three decades, except for the 1997 Asian financial crisis, and has seen rapid improvements in narrowing the gender gap in educational attainment, women's participation in the labor market has stagnated since 1990.

Figure 1 shows the female and male working rates for the years used in the analysis: 1997, 2000, 2007, and 2014. Female rates have consistently been lower compared to the high rates for men. The dip in 1997 corresponds to the financial crisis. However, the rates recovered in subsequent years, with male employment returning to approximately 90%, and female employment increasing from 50% before the 1997 crisis to 60% by 2014.
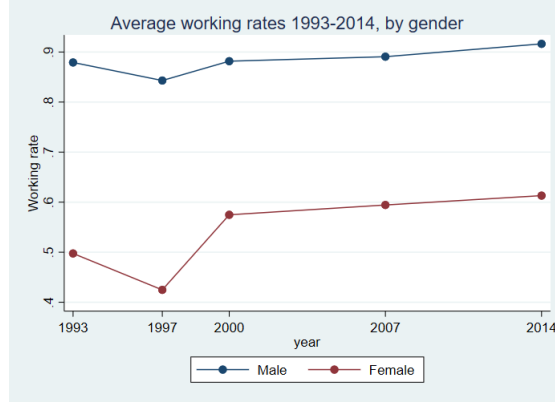
Figure 1: Dynamics of Workforce Employment by Gender. Source: IFLS, 1993-2014

The working sample used consists of women whose working years spanned from 1955 to 2014 (see section 4 for data description). Most worked in agriculture, manufacturing (especially textiles and electronics), retail, domestic work, education, and services. Many held low-wage, labor-intensive jobs with limited job security (Osterreich, 2007, 2020; Sohn, 2015) were driven into the labor force by economic hardship and household financial constraints (Schaner and Das, 2016).

3 Conceptual Framework

A substantial body of theoretical literature has examined female labor supply in developing economies, highlighting barriers to women's workforce integration (*e.g.* Klasen, 2019; Verick, 2014; Göksel, 2013; Fernández et al., 2004). These barriers arise from economic, institutional, and socio-cultural factors, with deeply ingrained cultural norms and societal pressures influencing perceptions of women's roles. In patriarchal and conservative societies, these norms can impose restrictions on women's economic engagement.

A significant part of these restrictions arises from the non-monetary costs associated with the wife working, which are borne not only by the woman but also by the man—potentially more strongly—due to perceived threats to his provider role. Indeed, traditional gender roles often dictate that women focus on household responsibilities, while men act as the primary

breadwinners (Jayachandran, 2021). A wife seeking employment may challenge these norms, leading to societal disapproval or a perceived threat to the husband's masculinity (Meurs, 2016). Community judgment and concerns about family honor further amplify resistance, as a working wife may be viewed as reflecting financial struggle or dishonoring cultural values. Additionally, norms around modesty and safety concerns for women in public spaces, combined with stigma attached to certain job types, reinforce opposition (Goldin, 1995).

Building on the cultural context and institutional background described above, where male employment is nearly full while female employment is only around half, and those who work are predominantly employed in manufacturing with long working hours and low wages, the decision-making dynamics within the household can be modeled to reflect the interplay between cultural, economic, and personal factors influencing a wife's employment status, as outlined in the model framework below.

3.1 Model Framework

Assuming that husbands are primarily engaged in employment activities or are, at the very least, active participants in the labor market, and taking a collective household approach (Chiappori, 1992), we posit that each spouse derives one's own utility, $u^f(.)$ and $u^m(.)$, from the wife's employment. Following Basu (2006), these utilities incorporate the trade-offs between the economic surplus generated by her employment and the non-economic costs of her working, c^f and c^m, borne by the wife and the husband, respectively: $u^f = u^f(Y^{hh}, c^f)$ and $u^m = u^m(Y^{hh}, c^m)$.

Both utilities positively depend on the household income Y^{hh} ($(u^j)'_{Y^{hh}} > 0$, for $j = f, m$) and negatively on the associated costs of woman working c^f and c^m ($(u^j)'_{c^j} < 0$, for $j = f, m$). This framework closely aligns with the standard labor supply model, which balances individual utility between leisure and consumption. However, here c^f extends beyond leisure traded off to include other outcomes also traded off against economic gains, such as home production and socio-cultural factors. Additionally, these factors also represent a cost for

the husband, as reflected by c^m.

The spouses' cost functions differ in their arguments, $\boldsymbol{X^f}$ and $\boldsymbol{X^m}$, and the marginal values of shared arguments, $\boldsymbol{Z}$: $c^f(\boldsymbol{X^f}, \boldsymbol{Z}) \neq c^m(\boldsymbol{X^m}, \boldsymbol{Z})$ and $(c^f)'_Z \neq (c^m)'_Z$. Specifically, the wife's cost of working extends beyond direct monetary trade-offs and is closely tied to her overall utility. This cost includes the time she spends away from home, which reduces her available hours for leisure and home production activities, such as childcare, household management, and other domestic responsibilities. However, the cost is not solely negative; it also incorporates potential non-economic benefits, such as greater autonomy and personal fulfillment, that may offset or even outweigh the burdens of employment, potentially increasing her utility and influencing her decision to participate in the labor market.In this sense, the cost of working is not just a constraint but also an integral part of the wife's utility function, where the psychological and social rewards of employment can effectively lower the perceived cost of working.

The husband's cost function also includes a potential reduction in her home production time and output, but also losses in his status as the main provider, and the family's income status and honor. These factors are closely tied to the behavior and visibility of women, particularly in patriarchal and culturally conservative contexts, where the wife's employment may be perceived as a threat to his social and familial standing.

The wife's decision to work is modeled as an outcome of the household maximand U, which integrates the individual utilities weighting them by a factor θ ($\theta \in [0; 1]$), representing the decision-making power within the household specifically concerning the wife's employment status:

$$U = \theta \cdot u^f(Y^{hh}, c^f) + (1 - \theta) \cdot u^m(Y^{hh}, c^m) \tag{1}$$

The parameter θ reflects the relative influence of the wife and husband in determining her participation in the labor market, and is determined prior to her actual labor market outcome. Unlike consumption or savings decisions, which are typically made after income is

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realized and may adjust dynamically based on the wife's employment status, θ represents a structural aspect of household decision-making that is largely established beforehand. Once employment status is observed, household choices such as consumption or time allocation may adapt accordingly, but the underlying bargaining power remains relatively stable in the short run. This distinction justifies treating θ as predetermined in the analysis ($\theta = \theta^*$) and shaped by long-standing cultural norms, household dynamics, and pre-existing economic conditions, rather than being an immediate response to her actual labor market outcome.

Assuming separability in monetary income and other factors, the utility functions for both spouses can be represented as:

$$u_j(Y^{hh}, c^j) = V^{hh}(Y^{hh}) - c^j \tag{2}$$

where V^{hh} represents the household utility derived from income, with $(V^{hh})'_{Y^{hh}} > 0$. This additive utility structure simplifies the analysis while also providing a framework that can be tested empirically. Disaggregating household income into female labor income (Y^f), male labor income (Y^m), and non-labor household income (Y^{nl}) components, the utility function for an individual spouse can then be expressed as:

$$u_j(Y^{hh}, c^j) = V^{hh}(Y^f, Y^m, Y^{nl}) - c^j \tag{3}$$

The overall household utility then becomes a difference between the household income utility and cost function:

$$U = V^{hh}(Y^f, Y^m, Y^{nl}) - \left[\theta \cdot c^f + (1 - \theta) \cdot c^m\right] \tag{4}$$

This utility function simplifies the decision-making process by capturing both the economic benefits (her income contribution Y^f) and non-economic costs of the wife's employment while factoring in the bargaining dynamics between the two spouses. The household utility is maximized when the sum of these individual costs and benefits is balanced according to

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the spouses' relative decision power.

The wife's working outcome is determined by a trade-off between the household utility gained from her labor income and the weighted costs incurred by both spouses due to her working. The corresponding decision rule can be expressed as:

$$P(W^f = 1) \equiv P\left(V^{hh}(Y^f, Y^m, Y^{nl}) - V^{hh}(0, Y^m, Y^{nl}) > \left[\theta \cdot c^f + (1 - \theta) \cdot c^m\right]\right) \quad (5)$$

where $P(W^f = 1)$ is a probability reflecting the likelihood of the wife working, given the utility and costs involved.

The value of the weighted cost impacting the wife's working probability negatively is determined by the distribution of the spouses' costs between the wife and husband, $\frac{c^f}{c^m}$, combined with the relative influence each spouse has on the decision, $\frac{\theta}{1-\theta}$. Meanwhile, the economic surplus from her work may depend on the male labor income (Y^m), and the household non-labor income (Y^{nl}).

Cost Distribution Scenario 1: $\left(\frac{c^f}{c^m} > 1\right)$. In the case where the cost of work is higher for the woman herself , an increase in her decision-making power regarding work (θ) would result in an overall increase in the total cost. This, in turn, would decrease the probability of her working $(P(Work^f = 1))$, such that $P'_\theta < 0$. This scenario is most likely to arise in a household setting where the wife has greater agency over her employment decisions, and the husband incurs relatively little to no cost from her working.

Cost Distribution Scenario 2: $\left(\frac{c^f}{c^m} < 1\right)$. In this case, where the husband's cost is higher and he experiences significant disutility from his wife working, an increase in her decision-making power about her work (θ) would reduce the overall cost. This would, in turn, increase the probability of her working $(P(W^f = 1))$, such that $P'_\theta > 0$. This scenario signals a traditional patriarchal model, where the husband's preferences are shaped by societal pressure and heavily influence the wife's employment decision.

Implication: The sign of P'_θ reflects the relative magnitude of his cost (c^m) compared to hers (c^f):

If $P'_\theta < 0$, it implies that his cost is lower, following the "normal pattern" where the cost of work is more burdensome for the woman herself. Increasing her decision-making power (θ) would raise the overall cost, reducing the likelihood of her working.

If $P'_\theta > 0$, it implies that his cost is higher, characteristic of a "patriarchal conservative pattern" where the man experiences significant disutility from the wife working. Increasing her decision-making power (θ) reduces the overall cost, increasing the probability of her working.

The empirical work below focuses on the implication by examining the relationship between $P(W^f = 1)$ and θ to explore the household dynamics regarding the wife's employment in a developing setting. Additionally, the assumption of additivity in the utility function (4) is tested to assess its validity.

4   Data and Descriptive Analysis

The data come from the Indonesian Family Life Survey, a panel data representative of about 83% of the population in 1993 and covering in 13 out of 17 provinces and years of 1993, 1997, 2000, 2007, and 2014.

The panel dimension of the data is very limited. Around half of the women in the working sample are observed only once, and fewer than 12% are observed across all four periods. On average, the women are observed in just two periods. This is likely due to the large span of the observation window inducing attrition, migration, retirement of older women, and the entrance of younger women into the labor market. We therefore apply cross-sectional techniques to the data analysis.

Our working sample is based on cross-sectional data from 1997 to 2014, which include specific questions related to decision-making information during these years. Sub-Section 4.1

below details the descriptive statistics related to this key information, specifically household decision-making patterns that proxy the spouses' weights (θ, see 3.1), with 4.1.2 examining their joint distribution with women's employment.

The sample consists of 27,590 married women aged 18 to 60, categorized into four age groups — 18-30, 31-40, 41-50, and 51-60 — used to analyze age-related dynamics. These women, born between 1937 and 1996, participated in the labor force between 1955 and 2014. Most women have completed grade school (40%) and practice Islam (90%).

44% of women are not employed, compared to only 4% of men. Employed women tend to be in their early to mid-life, have fewer children under 5, more children aged 6-18, and are more likely to belong to households with a business, compared to non-working women.

The right panel of Table 2, based on the sub-sample of women observed more than once, indicates that individually, female working status is relatively stable over time, providing initial evidence of behavioral persistence despite significant political and economic shocks in Indonesia. Women who are working tend to maintain their working status with a probability of 80%, while non-working women change their status with a probability of 44%. However, it is important to note that these probabilities are unconditional on age and other socio-economic factors, which may influence these dynamics.

Table 1 presents the descriptive statistics for individual and household characteristics used in the analysis. Specifically, it details the distribution of household wealth-related variables driving the household income utility from wife working (V^{hh}, see 3.1), including husband's income, the total value of household assets[2], household non-labor income, which is earned by approximately 22% of households, as well as individual and household demographic characteristics.

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[2]The assets include house(s) and land(s) occupied by the household, poultry/livestock, vehicles, household appliances, savings, certificates of deposit, stocks, receivables, jewelry, furniture, and utensils. Non-labor income comprises earnings from renting, leasing, interest, or profit-sharing of household assets (owned by 7% of households) and other non-asset sources, such as government assistance (including pensions, retirement funds, government scholarships, private scholarships, insurance payouts, and lottery winnings, which are received by 16% of households).

Table 1: Descriptive Statistics of Control Variables by Women's Employment Status

	Work status		
	0	1	Total
N	12,098 (43.9%)	15,484 (56.1%)	27,582 (100.0%)
Age group			
Age: 18-30	5,272 (43.6%)	4,244 (27.4%)	9,516 (34.5%)
Age: 31-40	3,620 (29.9%)	5,338 (34.5%)	8,958 (32.5%)
Age: 41-50	1,977 (16.3%)	3,892 (25.1%)	5,869 (21.3%)
Age: 51-60	1,229 (10.2%)	2,010 (13.0%)	3,239 (11.7%)
Cohorts			
Born: 1937-1947	563 (4.7%)	548 (3.5%)	1,111 (4.0%)
Born: 1947-1956	1,232 (10.2%)	1,945 (12.6%)	3,177 (11.5%)
Born: 1957-1966	2,328 (19.2%)	4,238 (27.4%)	6,566 (23.8%)
Born: 1967-1976	3,462 (28.6%)	4,372 (28.2%)	7,834 (28.4%)
Born: 1977-1986	3,414 (28.2%)	3,479 (22.5%)	6,893 (25.0%)
Born: 1987-1997	1,099 (9.1%)	902 (5.8%)	2,001 (7.3%)
Education			
Unschooled	772 (6.4%)	1,282 (8.3%)	2,054 (7.4%)
Grade school	4,850 (40.1%)	6,405 (41.4%)	11,255 (40.8%)
Jr. High school	2,146 (17.7%)	2,076 (13.4%)	4,222 (15.3%)
Sr. high school	1,187 (9.8%)	1,254 (8.1%)	2,441 (8.8%)
Higher education	2,238 (18.5%)	3,559 (23.0%)	5,797 (21.0%)
Muslim schools	905 (7.5%)	908 (5.9%)	1,813 (6.6%)
Religion			
Islam	11,180 (92.4%)	13,562 (87.6%)	24,742 (89.7%)
Protestant	334 (2.8%)	651 (4.2%)	985 (3.6%)
Catholic	157 (1.3%)	249 (1.6%)	406 (1.5%)
Hinduism	427 (3.5%)	1,022 (6.6%)	1,449 (5.3%)
Young children under 6	0.663 (0.688)	0.441 (0.623)	0.539 (0.662)
Children age 6-17	0.863 (1.037)	0.942 (1.036)	0.908 (1.037)
HH size	4.756 (1.913)	4.452 (1.753)	4.585 (1.831)
Female in-laws			
Doughter-in-law	976 (8.1%)	1,069 (6.9%)	2,045 (7.4%)
Mother-in-law	175 (1.4%)	316 (2.0%)	491 (1.8%)
Number of elderly	0.145 (0.394)	0.170 (0.423)	0.159 (0.411)
Husband unemployed			
1	496 (4.1%)	559 (3.6%)	1,055 (3.8%)
Ln(Husband's Income)	15.252 (3.487)	15.205 (3.383)	15.226 (3.429)
Non-labor income >0			
1	2,601 (21.5%)	3,353 (21.7%)	5,954 (21.6%)
Ln(HH Non-labor income)|>0	14.217 (1.867)	13.974 (1.918)	14.080 (1.899)
Ln(HH total assets)	17.435 (1.707)	17.638 (1.650)	17.549 (1.678)
HH owns farm business			
1	3,855 (31.9%)	6,890 (44.5%)	10,745 (39.0%)
HH owns nonfarm business			
1	4,096 (33.9%)	8,166 (52.7%)	12,262 (44.5%)
Urban			
1	6,566 (54.3%)	7,464 (48.2%)	14,030 (50.9%)
year			
1997	2,640 (21.8%)	2,036 (13.1%)	4,676 (17.0%)
2000	2,940 (24.3%)	3,704 (23.9%)	6,644 (24.1%)
2007	3,407 (28.2%)	4,855 (31.4%)	8,262 (30.0%)
2014	3,111 (25.7%)	4,889 (31.6%)	8,000 (29.0%)

4.1   Household Decision-Making Patterns

The decision-making process regarding female labor market participation is measured using the following survey questions: "Who makes the decision about whether you work?" and "Who makes the decision about whether your spouse works?". Each spouse has three options for reporting their degree of participation in the decision-making process: "Spouse decides"; "Joint with spouse"; "Decide alone". We therefore define variables A^f and A^m to represent the female and male answers: $A^j = \{0, 1, 2\}$ corresponding to {not participating in the decision process; jointly deciding; deciding individually}, with $j = f, m$.

   The resulting household decision-making is described by $A^{fm} = \{00; 01; 02; 10; 11; 12; 20; 21; 22\}$, which represents the joint outcomes reported by the spouses when answering the question.

4.1.1   Heterogeneity of the Decision Making Process

Despite the predominantly patriarchal structure of Indonesian society, decision-making patterns related to female labor supply vary significantly across households. The tabulation of decision-making patterns (Figure 2, even rows) indicates that the predominant pattern involves joint decision-making between spouses, as highlighted by the intense blue shading. This implies that many couples actively share decision-making responsibilities regarding female labor market participation. In what follows, we will refer to this mainstream scenario as the baseline outcome.

   In about 17% of households, the husband is the sole decision-maker, as attested by both spouses, whereas in less than 1% of households, both spouses agree that the woman is the sole decision-maker.

   Two other frequent patterns involve a joint decision being attested by only one of the spouses. In 14% of households, the man claims it was his solo decision, while in another 9%, the woman claims it was hers. These types of discrepancies are addressed in the literature, which suggests they may arise from different gendered interpretations of survey

questions, as individuals self-report their decision-making involvement in various aspects of household operations. For instance, Ambler et al. (2022; 2021) and Liaqat et al. (2021) find evidence of gender asymmetry using data from Nepal, Bangladesh and the Philippines, respectively. These studies highlight that wives tend to report stronger involvement in decision-making than their husbands' evaluations suggest, indicating differing perceptions of who holds decision-making power within the household.

Question: Whether you/your spouse works?	Husband's answer:		
Wife's answer:	Spouse decides (=0)	Jointly with spouse (=1)	Decide alone (=2)
Spouse decides (=0)	0.310	0.377	0.202
Spouse decides - obs.	326	2863	5446
Jointly with spouse (=1)	0.671	0.74	0.464
Jointly with spouse - obs.	477	15550	4513
Decide alone (=2)	0.776	0.702	0.362
Decide alone - obs.	255	1110	914

Figure 2: Distribution of Household Decision-Making Patterns (even rows) and Wives' Working Rates (odd rows)

The sub-sample of women observed two or more times allows for tracking changes in their reported degree of involvement in decision-making (left and central panels of Table 2). The mainstream outcome of 1 (joint decision-making) remains quite stable, with an 0.8 probability of being reported again after it has been reported once as implied by the within percentage. This indicates a strong persistence of joint decision-making over time within households.

Less frequent outcomes, such as 0 (not participating) or 2 (deciding alone), tend to be less stable and exhibit gender asymmetry in line with the asymmetry reported above. Men frequently report a decision outcome of 2 (deciding alone), while women more often report 0 (not participating). However, when changes occur, both men and women tend to switch to outcome 1 (joint decision). This suggests that, over time, households might either gravitate towards more cooperative decision-making or adjust their interpretation of what constitutes joint decision-making.

Yet, women are more likely to shift to a joint decision-making pattern from making decisions independently, while men tend to move towards sharing the decision-making process

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when previously uninvolved. Conversely, when responses shift away from joint decision-making, the reverse is true. This gendered gravitation around joint decision-making highlights a persistent gender imbalance in decision-making roles across multiple households.

		Decision		making							Working status		
		Women					Men					Women	
	0	1	2	Total	Within %[a)]	0	1	2	Total	Within %[a)]	0	1	Within %[a)]
0	34	58	8	100	67	6	62	32	100	53	56	44	77.4
1	22	70	8	100	82	3	67	30	100	80	20	80	81.5
2	26	64	10	100	53	3	55	42	100	67		0 /1: no/yes	

a) Within %: % of observations having the given outcome for the same individual

0 / 1 / 2: no/ joint /solo decision

Table 2: Individual transitions between degrees of participation in the decision-making

4.1.2 Woman's Employment and Decision-Making Power: Joint Distribution

Figure 2, which provides a tabulation of decision-making patterns (even rows), also shows the corresponding female working rates (odd rows). The table uses a yellow-to-green gradient to represent increasing magnitudes, with more intense green shades highlighting stronger female working rates and yellow shades indicating weaker rates. The more intense rates are clearly visible in the lower left part of the table, corresponding to stronger degrees of women's involvement in decision-making about their labor market participation. This contrasts with the more frequent, blue-shaded central and upper right sections, where female working rates are the lowest (yellow-shaded areas).

This pattern suggests that greater involvement in decision-making is associated with higher female working rates, while less involvement tends to correspond with lower participation. The empirical analysis below explores this relationship in depth, examining how decision-making within households influence women's labor market participation.

4.1.3 Determinants of the Decision-Making Process

The degree and expression of patriarchy in household decision-making slightly vary based on individual characteristics, household structure, education, and religion. Estimates from the

multinomial logit regression (Appendix, Tables 5-6) suggest that older women are more likely to make decisions independently, aligning with the literature (Meurs, 2016; Mabsout and van Staveren, 2010, for Ethiopia; Kishor and Subaiya, 2008, for multiple developing countries). Women with children under 6 are less likely to participate in work-related decisions, though more school-aged children increase their involvement. This contrasts with (Kishor and Subaiya, 2008), which found no correlation between children and joint decision-making.

The distribution of education within households serves as a subtle factor influencing power dynamics: a wife's higher level of education increase her decision-making involvement, whereas a husband's higher level of education tends to reduce it. Couples where women are Protestant tend to follow joint decision-making, consistent with previous findings from Indonesia, Malawi, Morocco, and Nigeria (Kishor and Subaiya, 2008).

Husband's labor income slightly influences the power distribution within decision-making, though the effect is minimal: a 10% increase in his income shifts the probability of joint decision-making toward his solo decision-making by only 0.1%. The effect is only pronounced when comparing the highest and lowest quartiles of male income: the relative likelihood (odds) of his solo decision-making compared to joint decision-making is 30% higher at the top quartile.

Household business ownership also reduces her involvement in decision-making, potentially because the business is owned by the husband. Conversely, his unemployment decreases the likelihood of his solo decision-making by 6%, favoring her decision autonomy instead (the corresponding odds increasing to 12.5 times).

5 Empirical Model

The baseline empirical analysis of the female labor market participation across households with different decision-making patterns builds on the full working sample of married women and the following Probit model related to the work decision rule defined by equation (5):

$$W_{it}^f = \begin{cases} 1 & if \ \ U_{it}^* \geq 0 \\ \\ 0 & if \ \ U_{it}^* < 0 \end{cases} \tag{6}$$

where the dummy W_{itr}^f describes working status of woman i observed in year t.

U_{itr}^* is the latent function associated with the household utility surplus from the wife's employment:

$$U_{it}^* = \beta_0 + \boldsymbol{A}_{it}^{fm}\boldsymbol{\alpha} \ + \boldsymbol{X}_{it}\boldsymbol{\beta} + \boldsymbol{Y}_{it}\boldsymbol{\gamma} + \lambda_t + \pi_r + \varepsilon_{it} \tag{7}$$

It therefore depends on wealth-related variables that shape the income utility from the wife working, represented by the vector $\boldsymbol{Y}_{it}$, as well as individual and household characteristics that shape household income utility and the spouses' costs associated with the wife working, represented by the vector $\boldsymbol{X}_{it}$.

The key variables are $\boldsymbol{A}_{it}^{fm}$, which represents a vector of dummy variables capturing different decision-making patterns associated with decision power θ (as specified in (5)). Specifically, $A^{fm} = \{00; 01; 02; 10; 11; 12; 20; 21; 22\}$, excluding A^{fm} of 11 used as a baseline (reference) pattern (see Section 4.1).

$\boldsymbol{\alpha}$, $\boldsymbol{\beta}$, and $\boldsymbol{\gamma}$ are the coefficient to be estimated. ε_{it} is the error term representing individual heterogeneity heterogeneity of the women and their households and following the standard normal distribution ($\varepsilon_{it} \sim N(0, 1)^3$. λ_t and π_r represent time and regional province fixed effects.

Time dynamics

To test the persistence of the relationship between the female working outcomes and decision-making patterns, we extent the model by allowing the model parameters differ across age

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[3]The error terms e_{it} are supposed to be independent across all the observations since the data do not allow for modeling time-invariant unobserved heterogeneity due to the weak panel dimension as discussed in Section 4.

groups or cohorts, a, and years, t:

$$U_{ait}^* = \beta_{a0} + \boldsymbol{A}_{it}^{fm} \boldsymbol{\alpha_{at}} + \boldsymbol{X}_{it} \boldsymbol{\beta_{at}} + \boldsymbol{Y}_{it} \boldsymbol{\gamma_{at}} + \lambda_{at} + \pi_{ar} + \varepsilon_{ait} \tag{8}$$

Additionally, using the sub-sample of women observed twice or more and a transition model, we explore response of the working status to changing decision-making process. Specifically, we test the impacts of the behavioral changes on the woman's probability of transiting from state k to state l (k and l take on values of 1 or 0 depending on the woman's working status, with $k \neq l$):

$$P(W_{i,t}^f = k | W_{i,t-1}^f = l) = \Phi(\alpha_0 + \alpha_1 A_i^{00} + \alpha_2 A_i^{22} + \sum_{p \neq s, p, s = 0}^{2} \alpha_{ps} A_i^{ps} + \boldsymbol{X}_{it} \boldsymbol{\beta} + \boldsymbol{Y}_{it} \boldsymbol{\gamma} + \lambda_t + \pi_r) \tag{9}$$

where Φ is the cumulative density function of the standard normal distribution. A_i^{ps} stands for the transition dummies taking value of 1 if the woman's response to the decision-making on her work changes from p to s, with $p, s = \{0; 1; 2\}$; and A_i^{ss} represents unchanging pattern with the reference group of A_i^{11}.

6   Results

6.1   Decision-Making Patterns: from Decision to Work

Figure 3 below and Tables 7-9 (Appendix) present the baseline model results. Figure 3 highlights the key findings, specifically it plots $\boldsymbol{\alpha}$ estimates that relate different patterns of decision-making A^{fm} to the wife's probability of working, as defined by equation (7).

The estimates show the differences in the probability of wives working across households with varying decision-making patterns, compared to the mainstream pattern of joint decision-making by both spouses as mutually attested by them ($A^{fm} = 11$). To interpret the results, note that the A^{fm} scale is ordered from the lowest ($A^{fm} = 02$, at the bottom), to the highest

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$(A^{fm} = 20$, at the top) degree of the wife's involvement in decision-making about her work $(A^{fm} = 20)$.

The full set of patterns A^{fm} includes both joint outcomes, those which imply consistent decision-making patterns ($\{02\}$ - his solo decision , $\{11\}$ - joint decision, $\{20\}$ - her solo decision), and outcomes reflecting differing patterns as indicated by spouses' responses: $\{02; 00; 12; 10; 22; 21\}$. The patterns are ordered by prioritizing the wife's response first, followed by the husband's response next, yielding the sequence:

$A^{fm} = \{02; 01; 00; 12; 11; 10; 22; 21; 20\}$.

All the coefficients are highly statistically significant (see Table 7 for the standard errors).
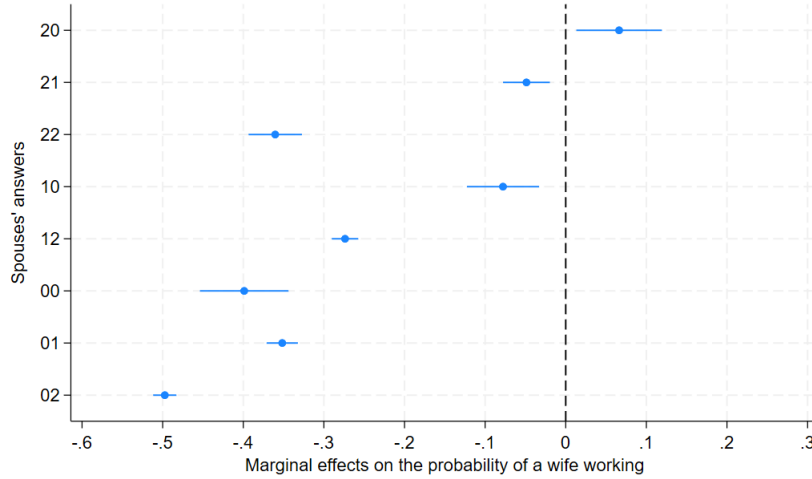
Figure 3: Changes in the Probability of the Wife Working with deviations in A^{fm} form the baseline $A^{fm} = \{11\}$: point estimates with 95% CI.

6.1.1 Spouses' costs

The results are striking in several respects. First and foremost, as A^{fm} goes up along its scale, the α estimates rise along the diagonal, indicating a higher probability of the wife working with increasing involvement in decision-making, $P'_\theta > 0$. This aligns with the descriptive analysis and Figure 2 discussed in Section 4.1, strongly confirming the influence of varying degrees of spousal decision-making power on women's participation in the labor market.

More generally, $P'_\theta > 0$ indicates that the husband's cost associated with the wife working is greater for him than for her (as outlined in 3.1). An increase in her decision-making power (θ) reduces the overall cost, thereby increasing the probability of her employment. The observed Indonesian pattern, therefore, aligns with the conservative patriarchal framework, where the husband incurs significant disutility from his wife working.

Specifically, in the case of husband's solo decision ($A^{fm} = \{02\}$), the probability of the wife working, $P(W^f = 1|.)$, is about 50% lower compared to the mainstream pattern ($A^{fm} = \{11\}$) of joint decision-making in households. On the contrary, wife's solo decision ($A^{fm} = \{20\}$, at the top) implies about 5% higher probability of her working compared to the likelihood of wives working in households with joint decision-making.

While the estimates may be overstated due to potential reverse causality, Table 10 suggests that any resulting bias is relatively small and does not alter the overall interpretation. Indeed, regressions using other household decision-making variables, such as household purchases, show a similar directional relationship with women's labor supply but at an order of magnitude weaker and subject to statistical uncertainty, with most estimates not reaching statistical significance. Unlike the employment decision, these expenditure-related decisions are much more susceptible to reverse causality, as household consumption patterns are directly influenced by a woman's income and work status. Even if their correlation with her employment were entirely driven by reverse causality, it would suggest only a modest upward bias in our estimates without challenging the results interpretation.

6.1.2   Spouses' scales

In general, the probability of the wife working $P(W^f = 1$ increases as her response moves from $A^f = 0$ (not participating in decision-making) to $A^f = 1$ (participating jointly with husband), such that

$$P(W^f = 1|A^f = 0, .) < P(W^f = 1|A^f = 1, .)$$

Interestingly, the corresponding probability difference varies with the husband's response (A^m), and, more importantly, also follows an ordered pattern, as illustrated in Figure 4:
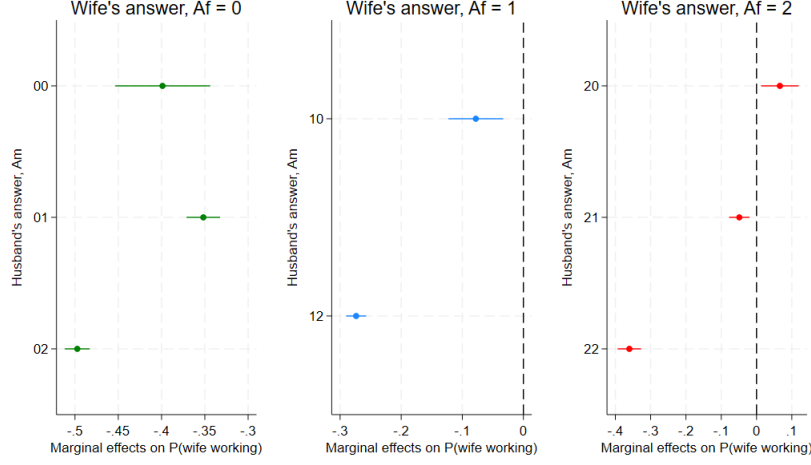
Figure 4: Changes in the Probability of the Wife Working with deviations in A^m conditional on A^f.

Figure 4 shows that, keeping the wife's response (A^f) fixed at 0, 1, or 2 (corresponding to the green, blue, and red graphs, respectively), her probability of working increases as the husband's reported involvement in decision-making regarding her work decreases (moving up the vertical axis), such that

$$P(W^f = 1 | A^f = 0, A^m = 2, .) \quad < \quad P(W^f = 1 | A^f = 0, A^m = 1, .)$$

$$P(W^f = 1 | A^f = 0, A^m = 2, .) \quad < \quad P(W^f = 1 | A^f = 0, A^m = 0, .)$$

$$P(W^f = 1 | A^f = 1, A^m = 2, .) \quad < \quad P(W^f = 1 | A^f = 1, A^m = 0, .)$$

$$P(W^f = 1 | A^f = 2, A^m = 2, .) < P(W^f = 1 | A^f = 2, A^m = 1, .) < P(W^f = 1 | A^f = 2, A^m = 0, .)$$

Therefore, the probability of the wife working is higher when the husband's involvement in decision-making is lower, as reported by him, but not necessarily by the wife. This

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suggests that discrepancies in spousal responses—leading to differing patterns of decision-making regarding the wife's employment—are not random. Men and women appear to use slightly different scales when interpreting the decision-making question. This divergence results in differing subjective evaluations of the decision process, with women ultimately overestimating their degree of involvement (the same effect, where women report higher involvement compared to what is attested by their husbands, has been documented in the literature: *e.g.* Ambler et al. (2021) and Liaqat et al. (2021). The observed ordering suggests that the husband's response is meaningful and aligns with a nuanced household scale for measuring the decision-making process.

This is further confirmed by the pattern where $A^{fm} = \{22\}$ stands out, aligning more closely with $A^{fm} = \{02\}$ than with $A^{fm} = \{20\}$ in terms of the wife's working outcomes. $A^{fm} = \{22\}$ represents the most conflicting and rare spousal response (found in less than 3% of households), where both spouses claim sole decision-making authority. In this case, the wife's probability of working is more similar to the outcome when the husband is the sole decision-maker $A^{fm} = \{02\}$ than when the wife is the sole decider $A^{fm} = \{20\}$, suggesting again that some women may overestimate their role in decision-making.

6.2   Economic and Social Factors

The results above are obtained while controlling for observable economic and social factors, which may influence female employment outcomes by affecting the spouses' costs of her working or shaping the household's utility derived from her working income.

On the economic side, the results provide empirical evidence of a negative income effect on the economic surplus generated by a woman's employment. First, the husband's labor income negatively impacts the likelihood of the wife working, with a tangible effect observed across income quartiles: her probability of employment decreases by 1% to 5% as his income increases from the lowest to the highest quartile (Tables 9).

Similarly, household non-labor income (earned by approximately 20% of households) also

reduces the probability of the wife working. The effect is particularly noticeable when comparing quartiles: a one log-point increase in non-labor income corresponds to approximately a 1% decrease in the likelihood of the wife working. Notably, a one log-point difference in non-labor income aligns with moving between the income quartiles.

On the other hand, household ownership of a farm or non-farm business increases the likelihood of the wife working by 9%–14%. These forms of ownership often require active management and labor input, encouraging and facilitating her economic participation, which might otherwise face barriers in the formal labor market. The results align with the notion that asset ownership, particularly of income-generating resources like farms or businesses, transforms the wife's role into a more productive capacity within the household economy.

Regarding social factors, women are marginally more likely to work as they age, with a marginal effect of 0.004 decreasing further as they get older. The results also support a well-established finding that the presence of a child reduces a woman's likelihood of working. Specifically, having a child under 6 years old decreases the likelihood by approximately 7% in Indonesia, while the effect gets to 1% for older children.

Woman's higher education increases her likelihood of working by about 7%, a pattern commonly observed in developing countries. In contrast, the husband's education tends to decrease the probability of the wife working by 5%-6%.

Finally, the results show a positive impact of Protestant religion, which increases the likelihood of a wife working by about 7% compared to Muslim households (which make up the majority, approximately 90%). This emphasizes the more conservative gender roles inherent in Muslim culture relative to Protestantism (with other religions being rare in Indonesia) and helps explain, to some extent, the persistence of the Indonesian norms evidenced in the next section.

6.2.1 Normative vs Economic Factors

While the household economic side matters, as discussed above, the results imply that the contribution of economic factors driving a wife's employment is smaller compared to the influence of normative household practices related to the decision-making process about her work:.

Table 3 shows that the likelihood function value drops substantially with the exclusion of the decision-making variables (A^{fm}) but remains relatively stable with the exclusion of wealth-related variables (including husband's income categories, household ownership of a farm or non-farm business, and the value of total household assets). The significance of the drop is confirmed by the likelihood ratio statistics reported in the table.

This suggests that normative household practices, as reflected in the decision-making process about the wife's work, play a more dominant role in shaping her employment outcomes than purely economic factors. In terms of the conceptual framework, this means that the overall cost of the wife working—determined by the distribution of decision-making power between spouses—has a more significant impact than the household's utility derived from income.

	Full Model	Wealth variables excluded	Decision-making variables excluded (A^{fm})
$Log - likelihood$	-14953	-14981	-17408
$LR\,\chi^2 - statistics$		55	4910

Table 3: Relative Contribution of Economic and Decision-Making Factors. ***$p < 0.001$

6.3 Time Dynamics and the Persistence in the Relationship Between Female Employment and Household Decision-Making

The previous analysis provides insights into the associations between female employment status and household decision-making patterns at a given point in time. However, section 4.1 shows some dynamics in the household patterns. This section complements the static analysis

with a dynamic perspective testing the fluidity and persistence of household decision-making norms in influencing female employment outcomes over time. Additionally, it examines the heterogeneity of the relationship between household decision-making and female employment across age and cohort groups to explore socio-cultural evolution.

6.3.1 Female Employment Transitions through Decision-Making Changes

Using the the subsample of women observed two or more times, section 4.1 highlights a strong persistence of joint decision-making over time within households, with less common outcomes, such as 0 (not participating) or 2 (deciding alone), being less stable. Table 4 builds on this analysis using the same subsample by presenting the results from the estimation of the transition model (9) of female employment status, capturing changes in her working probability in response to shifts in women's decision-making reports (the estimates for the corresponding control variables are omitted from the table for conciseness).

The findings suggest that a shift toward decision-making participation or autonomy for women corresponds to an increased likelihood of entering employment or maintaining employment once achieved. Specifically, a wife transitioning from non-participation to joint or solo participation in decision-making is associated with up to a 31% increase in the probability of entering employment (Panel: Working status $0 \rightarrow 1$) and about a 20% increase in the probability of maintaining employment (Panel: Working status $1 \rightarrow 0$).

Conversely, losing autonomy or participation is linked to employment exits. For instance, a wife transitioning from joint or solo decision-making participation to non-participation experiences an 19%-33% decrease (depending on the initial level of involvement) in the probability of entering employment and a 22%-23% increase in the likelihood of leaving it.

	Working status: $0 \rightarrow 1$			Working status: $1 \rightarrow 0$		
A_f t $t-1$	0	1	2	0	1	2
0		0.31*** (0.18)	0.23*** (0.03)		−0.21*** (0.03)	−019*** (0.05)
1	−0.33*** (0.02)		−0.15*** (0.03)	0.23*** (0.01)		0.02 (0.02)
2	−0.19** (0.08)	0.14* (0.08)		0.22*** (0.07)	0.02 (0.07)	
Observations	6242			7449		

Table 4: Transition Probability of Female Employment Status vs. Decision-Making Changes, conditional on variations in control variables

6.3.2 Persistence in Normative Household Practices

Figures 5 and 6 present the estimates linking various patterns of decision-making A^{fm} to the wife's probability of working, as detailed in 6.1 but with an extension to allow these relationships to vary across different age groups or cohorts, as specified in model (model 8).

The results indicate that the responsiveness of a woman's employment probability to varying degrees of involvement in decision-making about her work remains consistent across age groups, cohorts, and over time. This persistence suggests that the influence of household decision-making norms on female labor market participation is deeply embedded and resilient to socio-demographic and temporal shifts in Indonesia. It underscores the enduring role of intra-household dynamics in shaping employment outcomes for women, regardless of broader societal changes or generational differences.
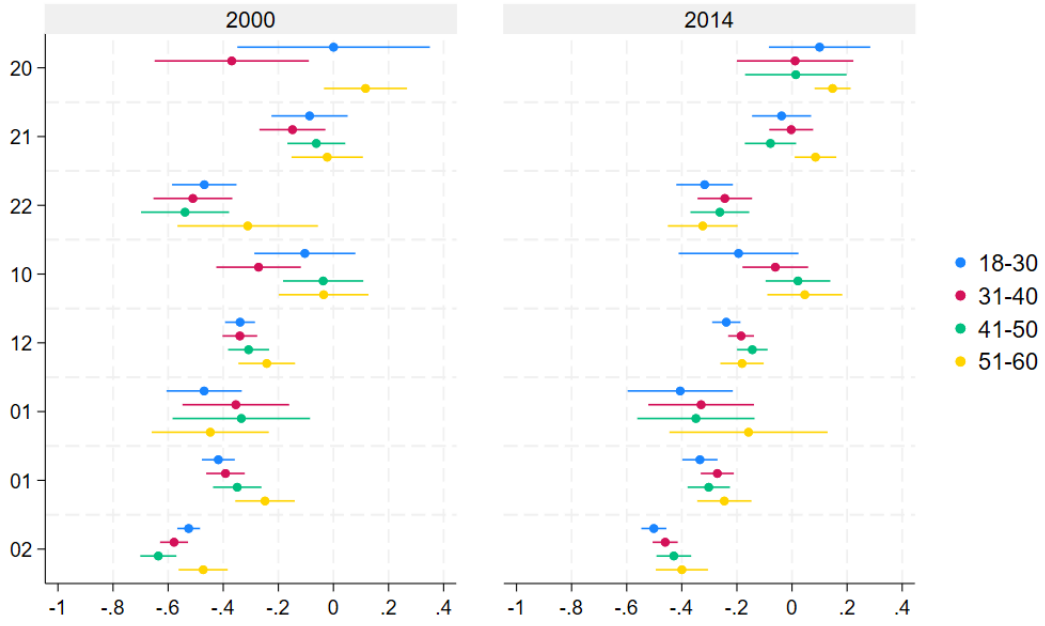
Figure 5: Changes in the Probability of the Wife Working by A^{fm} and Age Groups: point estimates with 95% CI
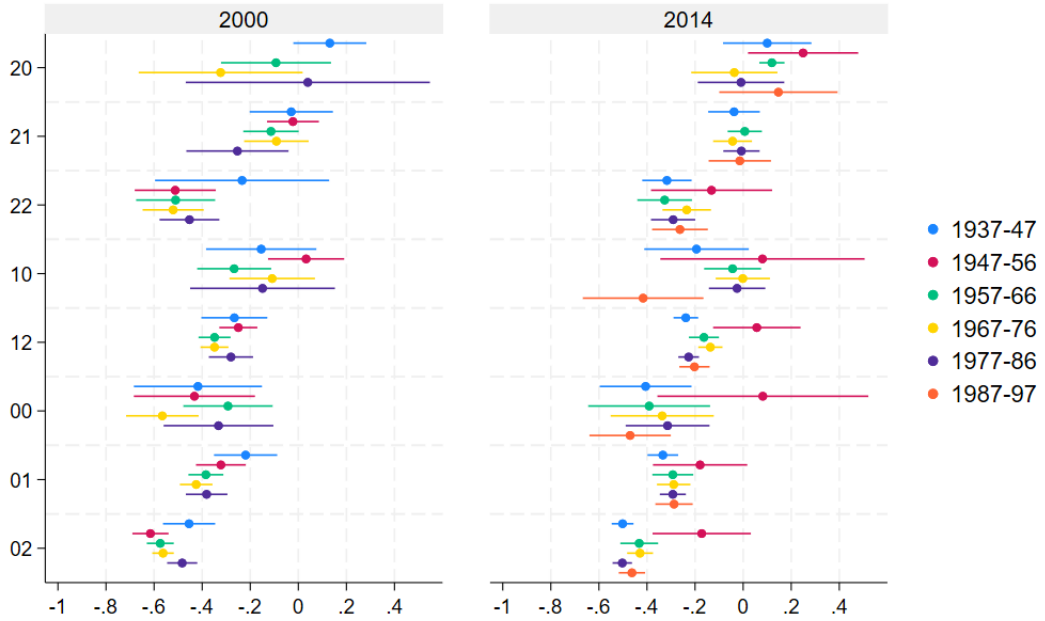

Figure 6: Changes in the Probability of the Wife Working by A^{fm} and Cohorts: point estimates with 95% CI

7 Conclusions

Using the Indonesian data (IFLS 1997–2014) and presenting a conceptual framework of household behavior concerning women's employment in a developing economy—where male labor force participation is near universal but women's participation remains limited—we test the model to distinguish between a conservative patriarchal model and autonomous (defined by female agency) household behavioral patterns by examining the relationship between the spouses' non-monetary costs associated with the wife's employment.

A key finding is the significance of the husband's perspective in the observed hierarchy of decision-making patterns regarding female employment, which is derived by jointly considering both spouses' reports regarding spouses' degree of involvement in the decision-making process regarding wife working. Integrating this perspective nuances the understanding and measurement of the household decision-making process. It also shows that spousal discrepancies in responses stem from different evaluation scales when interpreting the decision-making question, with women tending to overestimate their degree of involvement.

The results show that an increase in a woman's decision-making power regarding her work reduces the household cost of her working, increasing the probability of her employment. This provides empirical evidence supporting a conservative patriarchal model of household behavior, as it indicates that the husband's cost associated with the wife's employment exceeds the cost experienced by the wife, reflecting the influence of cultural expectations, societal pressures, and personal preferences on male behavior.

Yet, the data imply that despite the conservative patriarchal structure of Indonesian society, decision-making patterns related to female labor supply exhibit significant variation across households. The predominant pattern involves joint decision-making between spouses regarding female labor market participation, while in the remaining minority of households, the husband is typically the sole decision-maker.

The results also reveal that the overall non-monetary cost of the wife working has a more significant impact than the household's utility derived from income, while also providing

evidence of a negative income effect on the household economic surplus generated by the wife's employment.

Further, we find the persistence of the relationship between her employment probability and varying degrees of involvement in decision-making about her work across age groups, cohorts, and over time, implying the enduring role of intra-household dynamics in shaping women's employment.

Together with decision-making patterns being weakly related to observable household characteristics, the results collectively suggest that normative household practices regarding women's employment are embedded in cultural traditions, exhibit strong inertia despite the significant political and economic shocks experienced by the Indonesian cohorts observed, and pose a substantial barrier to female employment.

References

Acharya, D. R., Bell, J. S., Simkhada, P., Van Teijlingen, E. R., and Regmi, P. R. (2010). Women's autonomy in household decision-making: a demographic study in Nepal. *Reproductive Health*, 7:15.

Ambler, K., Doss, C., Kieran, C., and Passarelli, S. (2021). He says, she says: Spousal disagreement in survey measures of bargaining power. *Economic Development and Cultural Change*, 69(2):1–24.

Ambler, K., Doss, C., Kieran, C., and Passarelli, S. (2022). Spousal concordance in joint and separate households: Survey evidencefrom nepal. *World Development*, 151:105744.

Anderson, S. and Eswaran, M. (2009). What determines female autonomy? evidence from bangladesh,. *Journal of Development Economics*, 90(2):179–191.

Basu, K. (2006). Gender and say: A model of household behaviour with endogenously determined balance of power. *The Economic Journal*, 116(511):558–580.

Blackburn, S. (2004). Women and the state in modern Indonesia. *Cambridge University Press. https://doi.org/10.1017/CBO9780511492198.*

Cameron, L., Suarez, D. C., and Rowell, W. (2019). Female labour force participation in Indonesia: Why has it stalled. *Bulletin of Indonesian Economic Studies*, 55(2):157–192.

CEDAW, U. (2012). Concluding observations of the committee on the elimination of discrimination against women, indonesia. *United Nations Committee on the Elimination of Discrimination Against Women. UN Doc. CEDAW/C/IDN/CO/6-7.*

Chen, X. and Ge, S. (2018). Social norms and female labor force participation in urban China. *Journal of Comparative Economics*, 46(4):966–987.

Chiappori, P. (1992). Collective labor supply and welfare. *Journal of Political Economy*, 100(3):437–467.

Chiappori, P., Giménez-Nadal, J., Molina, J., and Velilla, J. (2022). Household labor supply: Collective evidence in developed countries. *In: Zimmermann, K.F. (eds) Handbook of Labor, Human Resources and Population Economics. Springer, Cham.*

Chiappori, P. and Molina, J. (2020). The intra-spousal balance of power within the family: cross-cultural evidence. *In: Halford WK, van de Vijver F (eds) Cross-cultural family research and practice. Academic, London*, pages 185–209.

Fernández, R., Fogli, A., and Olivetti, C. (2004). Mothers and sons: Preference formation and female labor force dynamics. *The Quarterly Journal of Economics*, 119(4):1249–1299.

Ford, M. and Parker, L. (2008). *Women and work in Indonesia.* Routledge.

Göksel, d. (2013). Female labor force participation in Turkey: The role of conservatism. *Women's Studies International Forum*, 41:45–54.

Goldin, C. (1995). *The U-Shaped Female Labor Force Function in Economic Development and Economic History*, pages 61–90. University of Chicago Press.

Hanmer, L. and Klugman, J. (2015). Exploring women's agency and empowerment in developing countries: Where do we stand? *Feminist Economics*, 22(1):237–263.

Harsono, A. (2014). Indonesian women's rights under siege. *Human Rights Watch. https://www.hrw.org/news/2014/11/25/indonesian-womens-rights-under-siege*, November 25.

Heintz, J., Kabeer, N., and Mahmud, S. (2018). Cultural norms, economic incentives and womens labour market behaviour: empirical insights from Bangladesh. *Oxford Development Studies*, 46(2):266–289.

İlkkaracan, İ. (2012). Why so few women in the labor market in Turkey? *Feminist Economics*, 18(1):1–37.

Jayachandran, S. (2015). The roots of gender inequality in developing countries. *Annual Review of Economics*, 7(1):63–88.

Jayachandran, S. (2021). Social norms as a barrier to womens employment in developing countries. *IMF Economic Review*, 69(3):576–595.

Kabeer, N. (2009). Marriage, motherhood and masculinity in the global economy. In *Global Perspectives on Gender and Work*.

Kishor, S. and Subaiya, L. (2008). Understanding womens empowerment: A comparative analysis of demographic and health surveys (DHS) data. DHS Comparative Reports 20, Calverton, MD.

Klasen, S. (2019). What explains uneven female labor force participation levels and trends in developing countries? *The World Bank Research Observer*, 34(2):161–197.

Lacroix, G. and Radtchenko, N. (2011). The changing intra-household resource allocation in russia. *Journal of Population Economics*, 24(1):85–106.

Li, L. and Wu, X. (2011). Gender of children, bargaining power, and intrahousehold resource allocation in China. *Journal of Human Resources*, 46(2):295–316.

Liaqat, S., Donald, A., Jarvis, F., Perova, E., and Johnson, H. C. (2021). Lost in interpretation: Why spouses disagree on who makes decisions. *World Bank Group, Policy Research Working Paper*, (9883).

Mabsout, R. and van Staveren, I. (2010). Disentangling bargaining power fromindividual and household level to institutions: Evidence on women's position in Ethiopia. *World Development*, 38(5):783–96.

Meurs, M. (2016). Gender and the rural landscape: Agency and access to finance/credit and livelihood resources. *In Food and Agriculture Organization of the United Nations, Lessons from four decades of gender research, programs and policies. FAO*.

Meurs, M. and Ismaylov, R. (2019). Improving assessments of gender bargaining power: A case study from bangladesh. *Feminist Economics*, 25(1):90–118.

Meurs, M., Slavchevska, V., Wang, L., Ismaylova, R., and Woldsenbet, T. (2015). Structural change and household bargaining power in bangladesh 1999-2011. *Background Paper for Asian Development Report. Mandaluyong City,Philippines: Asian Development Bank.*

Muñoz Boudet, A. M., Petesch, P., Turk, C., and Thumala, A. (2012). *On Norms and Agency: Conversations about Gender Equality with Women and Men in 20 Countries.* World Bank, Washington, DC.

Mumporeze, N. (2020). when a mother is employed, her children suffer: A quantitative analysis of factors influencing attitudes towards womens employment and gender roles in Rwanda. *Journal of International Women's Studies*, 21(1):47–67.

Osterreich, S. (2007). Globalization, labour markets and gender inequity: Report on Indonesia. *UNDP Asia Pacific Trade Investment Initiative.*

Parker, L. (2016). The theory and context of the stigmatisation of widows and divorcees (janda) in indonesia. *Indonesia and the Malay World*, 44(128):7–26.

Quota Project (2014). Global database of quotas for women. *https://www.quotaproject.org/uid/.*

Rammohan, A. and Johar, M. (2009). The determinants of married women's autonomy in Indonesia. *Feminist Economics*, 15(4):31–55.

Schaner, S. and Das, S. (2016). Female labor force participation in asia: Indonesia country study. *Asian Development Bank Economics Working Paper Series*, (474).

Sohn, K. (2015). Gender discrimination in earnings in indonesia: A fuller picture. *Bulletin of Indonesian Economic Studies*, 51(1):95–121.

UN CEDAW (2005). United nations committee on the elimination of discrimination against women. *Consideration of reports submitted by States Parties under Article 18 of the Convention on the Elimination of All Forms of Discrimination against Women. Combined Fourth and Fifth Periodic Reports of States Parties, CEDAW/C/IDN/4-5. Indonesia. 27 July. https://www.refworld.org/docid/453778220.html.*

UNFPA (2015). Women and girls in indonesia: Progress and challenges. *United Nations Population Fund. Monograph Series No. 5. Indonesia: UNFPA.*, Retrieved from https://indonesia.unfpa.org/sites/default/files/pub-pdf/Women

Vaz, A., Pratley, P., and Alkire, S. (2016). Measuring women's autonomy in Chad using the relative autonomy index. *Feminist economics*, 22(1):264–294.

Verick, S. (2014). Female labor force participation in developing countries. *IZA World of Labor*, page 87.

Wiig, H. (2013). Joint titling in rural Peru: Impact on women's participation in household decision-making. *World Development*, 52:104–19.

World Bank (2020). Indonesia country gender assessment: Investing in opportunities for women. *World Bank, Washington, DC. http://hdl.handle.net/10986/35310 License: CC BY 3.0 IGO.*

Appendix

Table 5: Decision-Making Patterns: Odds from Multinomial Logit Regression

	RECODE of AfAm (Spousal Responses on Decision-Making about the Wife's Work)								
	02	01	00	12	11	10	22	21	20
Wife's age	0.970***	0.984***	0.974***	0.984***	1.000	1.004	0.997	1.015***	1.015
	(0.002)	(0.003)	(0.007)	(0.002)	(.)	(0.006)	(0.005)	(0.004)	(0.009)
Wife's educ, ref: unschooled									
Grade school	0.931	0.971	0.583*	1.194*	1.000	1.101	1.227	1.095	1.235
	(0.076)	(0.094)	(0.128)	(0.105)	(.)	(0.226)	(0.206)	(0.153)	(0.334)
Jr. High school	0.876	0.973	0.478**	1.158	1.000	0.940	1.038	1.193	1.514
	(0.083)	(0.111)	(0.136)	(0.119)	(.)	(0.244)	(0.207)	(0.203)	(0.515)
Sr. high school	0.680***	0.670**	0.371**	0.874	1.000	1.212	0.978	1.078	1.017
	(0.073)	(0.089)	(0.130)	(0.101)	(.)	(0.351)	(0.217)	(0.211)	(0.421)
Higher education	0.448***	0.507***	0.271***	0.733**	1.000	0.912	0.502**	0.765	0.503
	(0.045)	(0.062)	(0.087)	(0.079)	(.)	(0.247)	(0.108)	(0.140)	(0.203)
Muslim schools	1.000	1.024	0.519	1.130	1.000	0.863	1.056	0.949	0.945
	(0.107)	(0.135)	(0.176)	(0.132)	(.)	(0.273)	(0.243)	(0.202)	(0.441)
Religion, ref: Islam									
Protestant	0.491***	0.649***	0.425	0.550***	1.000	0.398*	0.480**	0.504**	0.615
	(0.054)	(0.083)	(0.195)	(0.061)	(.)	(0.145)	(0.118)	(0.108)	(0.247)
Catholic	0.734	0.796	0.547	0.804	1.000	0.606	0.778	1.103	0.780
	(0.121)	(0.160)	(0.392)	(0.130)	(.)	(0.310)	(0.269)	(0.277)	(0.474)
Hinduism	0.493***	1.021	0.355*	0.694***	1.000	0.923	0.433***	0.858	0.244*
	(0.047)	(0.095)	(0.149)	(0.061)	(.)	(0.207)	(0.099)	(0.130)	(0.144)
HH Structure									
Young children under 6	1.219***	1.080	1.036	1.133***	1.000	0.914	1.180*	1.091	1.047
	(0.037)	(0.043)	(0.116)	(0.038)	(.)	(0.094)	(0.080)	(0.071)	(0.170)
Children age 6-17	0.943**	0.903***	0.876	0.917***	1.000	0.874*	0.939	0.942	0.977
	(0.019)	(0.022)	(0.061)	(0.020)	(.)	(0.052)	(0.040)	(0.036)	(0.087)
HH size	1.105***	1.094***	1.095*	1.060***	1.000	1.075*	1.066*	1.073**	0.987
	(0.013)	(0.016)	(0.043)	(0.014)	(.)	(0.035)	(0.027)	(0.024)	(0.048)
Mother-in-law	1.190	1.149	0.754	1.148	1.000	0.987	0.860	0.898	0.471
	(0.172)	(0.189)	(0.399)	(0.165)	(.)	(0.317)	(0.260)	(0.208)	(0.288)
Daughter-in-law	1.073	1.032	0.961	1.081	1.000	1.232	1.208	1.136	0.944
	(0.077)	(0.094)	(0.249)	(0.083)	(.)	(0.261)	(0.194)	(0.171)	(0.374)
Number of elderly	0.927	0.871*	1.222	0.962	1.000	1.044	0.908	0.921	1.043
	(0.044)	(0.052)	(0.179)	(0.047)	(.)	(0.129)	(0.092)	(0.080)	(0.181)
Observations	27591								

Exponentiated coefficients; Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Decision-Making Patterns: Odds from Multinomial Logit Regression, continued

	RECODE of AfAm (Spousal Responses on Decision-Making about the Wife's Work)								
	02	01	00	12	11	10	22	21	20
Husband's educ, ref: Unschooled									
Grade school	1.114	1.110	0.946	1.029	1.000	1.122	0.852	0.978	0.753
	(0.111)	(0.131)	(0.255)	(0.106)	(.)	(0.284)	(0.160)	(0.162)	(0.226)
Jr. High school	1.451***	1.307*	1.085	1.224	1.000	1.063	0.991	0.966	0.586
	(0.159)	(0.173)	(0.343)	(0.140)	(.)	(0.309)	(0.209)	(0.185)	(0.222)
Sr. high school	1.187	1.248	0.863	1.039	1.000	0.783	0.732	0.976	0.721
	(0.138)	(0.177)	(0.304)	(0.127)	(.)	(0.250)	(0.170)	(0.201)	(0.292)
Higher education	1.072	1.325*	0.514	1.063	1.000	0.667	0.739	0.894	0.769
	(0.121)	(0.179)	(0.181)	(0.124)	(.)	(0.204)	(0.163)	(0.177)	(0.295)
Muslim schools	1.186	1.165	0.953	1.066	1.000	0.920	0.859	0.790	0.646
	(0.154)	(0.188)	(0.384)	(0.146)	(.)	(0.344)	(0.225)	(0.203)	(0.361)
Husband's income, ref: 1st quartile									
2nd quartile	0.929	1.027	0.845	0.999	1.000	0.842	1.063	0.910	0.613
	(0.046)	(0.063)	(0.146)	(0.052)	(.)	(0.128)	(0.109)	(0.089)	(0.155)
3d quartile	1.086	0.996	0.968	1.067	1.000	0.994	1.034	0.950	0.714
	(0.057)	(0.067)	(0.182)	(0.060)	(.)	(0.160)	(0.118)	(0.101)	(0.190)
4th quartile	1.324***	1.153	1.277	1.160*	1.000	1.240	1.280	0.961	0.632
	(0.080)	(0.088)	(0.276)	(0.074)	(.)	(0.222)	(0.168)	(0.117)	(0.200)
Husband Unemployed	0.773*	1.330*	1.966*	1.080	1.000	4.056***	1.457*	3.170***	12.506***
	(0.091)	(0.159)	(0.535)	(0.118)	(.)	(0.751)	(0.277)	(0.422)	(2.760)
No non-labor income	1.158**	1.140*	1.065	0.975	1.000	0.974	0.921	0.983	1.501*
	(0.055)	(0.068)	(0.176)	(0.048)	(.)	(0.130)	(0.089)	(0.086)	(0.291)
HH non-labor income	1.033	1.051	1.008	1.000	1.000	0.966	1.039	0.947	0.854*
	(0.022)	(0.028)	(0.076)	(0.021)	(.)	(0.054)	(0.044)	(0.035)	(0.067)
HH owns farm business	0.736***	0.963	0.728*	0.935	1.000	0.749*	0.860	0.917	0.728
	(0.032)	(0.051)	(0.110)	(0.042)	(.)	(0.094)	(0.079)	(0.076)	(0.138)
HH owns nonfarm business	0.551***	0.676***	0.529***	0.756***	1.000	0.876	0.605***	1.039	0.818
	(0.020)	(0.031)	(0.071)	(0.029)	(.)	(0.092)	(0.047)	(0.073)	(0.125)
Ln(HH total assets)	0.991	0.979	0.968	0.991	1.000	0.959	0.957	0.963	0.960
	(0.012)	(0.015)	(0.042)	(0.013)	(.)	(0.034)	(0.025)	(0.023)	(0.047)
Urban	1.186***	1.098	1.239	1.124**	1.000	1.034	1.388***	1.136	1.552*
	(0.050)	(0.058)	(0.183)	(0.050)	(.)	(0.126)	(0.124)	(0.093)	(0.282)
Observations	27591								

Exponentiated coefficients; Standard errors in parentheses
Time fixed effects included.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7: Women's Employment: Impact of Household Decision-Making

	Coefficients	Average_Marginal_Effects
Household Decision-Making Pattern, ref: 11		
00	-1.189***	-0.399***
	(0.087)	(0.028)
01	-1.048***	-0.352***
	(0.030)	(0.010)
02	-1.521***	-0.497***
	(0.026)	(0.007)
10	-0.255***	-0.078***
	(0.071)	(0.023)
12	-0.822***	-0.274***
	(0.025)	(0.008)
20	0.236*	0.066*
	(0.110)	(0.027)
21	-0.163***	-0.049***
	(0.048)	(0.015)
22	-1.075***	-0.360***
	(0.051)	(0.017)
Observations	27587	27582

Standard errors in parentheses
Conditional on household human capital, structure, and wealth(see below). Time/Provence fixed effects included.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 8: Woman's Employment, continued: Impact of Wife's Education and Household Structure

	Coefficients	Average_Marginal_Effects
Wife's age	0.112***	0.004***
	(0.007)	(0.000)
Wife's age × Wife's age	-0.001***	
	(0.000)	
Wife's educ, ref: unschooled		
Grade school	0.005	0.002
	(0.038)	(0.011)
Jr. High school	-0.062	-0.018
	(0.045)	(0.013)
Sr. high school	0.049	0.015
	(0.052)	(0.015)
Higher education	0.216***	0.063***
	(0.048)	(0.014)
Muslim schools	-0.126*	-0.037*
	(0.052)	(0.015)
Religion, ref: Islam		
Protestant	0.237***	0.068***
	(0.052)	(0.015)
Catholic	-0.054	-0.016
	(0.074)	(0.022)
Hinduism	0.080	0.024
	(0.075)	(0.022)
HH Structure		
Young children under 6	-0.229***	-0.067***
	(0.015)	(0.004)
Children age 6-17	-0.031**	-0.009**
	(0.010)	(0.003)
Number of elderly	0.018	0.005
	(0.021)	(0.006)
Observations	27587	27582

Standard errors in parentheses
Time and Provence fixed effects included.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Woman's Employment, continued: Impact of Husband's Education and Household Wealth

	Coefficients	Average_Marginal_Effects
Husband's educ, ref: Unschooled		
Grade school	-0.105*	-0.030*
	(0.046)	(0.013)
Jr. High school	-0.207***	-0.060***
	(0.052)	(0.015)
Sr. high school	-0.221***	-0.064***
	(0.055)	(0.016)
Higher education	-0.181***	-0.052***
	(0.053)	(0.015)
Muslim schools	-0.164**	-0.048**
	(0.063)	(0.018)
Husband's income, ref: 1st quartile		
2nd quartile	-0.034	-0.010
	(0.024)	(0.007)
3d quartile	-0.071**	-0.021**
	(0.026)	(0.008)
4th quartile	-0.169***	-0.050***
	(0.030)	(0.009)
Husband Unemployed	-0.159***	0.038
	(0.047)	(0.034)
Household's wealth		
No non-labor income	-0.071**	-0.021**
	(0.023)	(0.007)
HH non-labor income	-0.025*	-0.007*
	(0.010)	(0.003)
Ln(HH total assets)	-0.011	-0.003
	(0.006)	(0.002)
HH owns farm business	0.306***	0.089***
	(0.021)	(0.006)
HH owns nonfarm business	0.493***	0.144***
	(0.018)	(0.005)
Urban	-0.085***	-0.025***
	(0.021)	(0.006)
Observations	27587	27582

Standard errors in parentheses
Time and Provence fixed effects included.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 10: Women's Employment: Impact of other Household Decision-Makings

	Food	Routine Purchases	Large Purchases	Own Clothes	Spouse' Clothes	Gifts	His Social Time	Her Social Time
20	-0.020*	-0.002	0.017	0.033***	0.034***	0.018	0.003	-0.006
	(0.010)	(0.011)	(0.017)	(0.009)	(0.009)	(0.011)	(0.029)	(0.008)
21	-0.006	0.020	0.026	0.030**	0.037**	0.002	0.009	-0.001
	(0.013)	(0.013)	(0.013)	(0.010)	(0.012)	(0.009)	(0.017)	(0.009)
22	-0.030	-0.027	-0.037	0.021*	0.035	0.007	-0.001	0.003
	(0.016)	(0.016)	(0.023)	(0.009)	(0.021)	(0.018)	(0.013)	(0.013)
10	-0.014	0.001	0.013	0.009	0.033***	-0.004	0.028	-0.006
	(0.013)	(0.013)	(0.013)	(0.013)	(0.009)	(0.010)	(0.023)	(0.009)
12	0.020	0.003	-0.045***	-0.013	-0.049*	-0.033**	-0.005	-0.003
	(0.023)	(0.027)	(0.010)	(0.012)	(0.019)	(0.012)	(0.009)	(0.015)
00	-0.061***	-0.033*	-0.049*	-0.006	0.013	-0.091***	0.002	-0.016
	(0.016)	(0.017)	(0.023)	(0.021)	(0.009)	(0.024)	(0.017)	(0.014)
01	-0.030	-0.034	-0.060***	-0.066***	-0.004	-0.085***	-0.002	-0.015
	(0.023)	(0.027)	(0.011)	(0.021)	(0.013)	(0.015)	(0.010)	(0.016)
02	-0.065**	-0.111***	-0.120***	-0.070***	-0.052**	-0.093***	-0.021**	-0.064**
	(0.023)	(0.027)	(0.013)	(0.016)	(0.018)	(0.021)	(0.008)	(0.020)
Observations	24954	25146	25921	27126	27215	27231	27555	27537

Standard errors in parentheses
Conditional on household human capital, structure, and wealth(see below). Time/Provence fixed effects included.
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$