

The Determinants of Female Autonomy in Indonesia

By

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Abstract: This paper investigates the determinants of female autonomy in Indonesia using the 2000 *Indonesian Family Life Survey (IFLS3)*. We consider the role of kinship norms and the effect of labor force participation on female autonomy. Our measure of autonomy is based on self-reported answers to an array of questions relating to decision making authority in the household. They include economic and child-related decision making (*household decision making autonomy*), mobility (*physical autonomy*) and access and control over economic resources (*economic autonomy*). Our analysis examines if variations in female autonomy are due to the prevailing kinship norms related to marriage in the community. In keeping with the anthropological literature, our analysis finds that living in patrilocal communities reduces physical autonomy for women, whereas living in uxoriocal communities improves household decision-making autonomy. Estimation results show that labor force participation, higher educational attainment and increases in household wealth all have positive effects on female autonomy.

Keywords: female autonomy, kinship norms, labor force participation, Indonesia

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Introduction

Improvements in female socio-economic status have been positively linked to better demographic outcomes and welfare of children. Studies by Glewwe (2000), and Panjaitan-Drioadisuryo and Cloud (1999) find that maternal control over economic resources improves health and education outcomes for children. Women's personal autonomy is also found to be influential on demographic behaviour and outcomes in many previous studies, including Basu (1992), Eckhardt (1999) and Hogan *et al.* (1999). These studies find that a woman's status in the household is crucially linked to increased contraceptive use.

Despite these benefits from greater female autonomy, in many developing countries, women typically have very little household decision making authority. One explanation for this proposed by the anthropological literature, is to do with the differential effects of traditional kinship norms on female autonomy, and subsequently on outcomes such as education and health. In particular, they distinguish between the patrilineal and matrilineal kinship systems, and its differential implications for female autonomy. Under a patrilineal kinship system, lineage is determined through the father, and the marriage rules specify that daughters upon marriage move to the household of the groom (patrilocal exogamy). Female autonomy is generally low under this kinship system. On the other hand, the matrilineal kinship system traces lineage through the mother, and the post-marital residence is uxorilocal or at the bride's household after marriage. In South Asia, studies from India (Dyson and Moore, 1983; Kishor, 1993; Malhotra *et al.*, 1995; Murti *et al.*, 1995), Pakistan (Fricke *et al.*, 1986) and Nepal (Niraula and Morgan, 1996) attribute the low status of females and the excess female infant mortality to the dominance of the patrilineal kinship norm. However, Levine and Kevane (2004), using Indonesian data find no such patterns.

An alternative hypothesis attributes lower female status in the household to their lower labor market productivity or lower returns from female labor (Bardhan, 1974, 1988). An

implication of this hypothesis is that an improvement in female economic status improves her bargaining position in the household, and also her outside options should the union break up (Brown and Chiappori, 1998).

While the two explanations for differential female autonomy are not mutually exclusive, it raises the question of the extent to which economic factors and kinship norms can help in explaining differences in female autonomy levels. The main purpose of this study, therefore, is to analyze the factors influencing female autonomy in Indonesia by explicitly taking into account the cultural setting. In particular we test the following hypotheses- what are the factors influencing household decision making authority among Indonesian women? Are kinship norms influential in explaining some of these differences? Is female autonomy greater among working women? To this end, we need to first identify some quantifiable measures of female autonomy.

Female autonomy in Indonesia

Female autonomy is a multidimensional concept and therefore a difficult concept to quantify. In previous studies women's autonomy has typically been measured using education, employment status and age differences between spouses as proxies (Heaton *et al*, 2005, Dharmalingam and Morgan 1996; Dyson and Moore 1983). The problem with these measures is the difficulty of establishing a direction of causality between these quantifiable economic proxies and female autonomy. For example, while being employed can potentially confer greater autonomy on women, it is also possible that the direction of causality runs in the other direction. Moreover, much of the focus of the previous literature has been on economic indicators of power and its effects on outcomes (Williams, 1990; Thomas *et al*, 1997).

In traditional societies, women's autonomy (their rights, power and status) is typically defined in the domestic sphere (Bloom *et al*, 2001). Authors such as Basu (1992), Dyson and Moore

(1983), Mason (1984) and Bloom *et al* (2001), Jejeebhoy (2002) define women's autonomy as their ability to influence decisions about themselves or close household members, their ability to control economic resources and information, and their ability to move freely. This definition of female autonomy is widely used in the literature and depending on the context, some studies have additionally also used measures such as domestic violence.

We acknowledge the difficulty of arriving at a universally acceptable definition of female autonomy. For example, the terms empowerment, autonomy and gender stratification are used interchangeably by Mason and Smith (2000), whereas Jejeebhoy (2000) regards both autonomy and empowerment as women "gaining control of their own lives vis-a-vis family, community, society, markets." In contrast, others (such as Malhotra and Mather 1997; Govindasamy and Malhotra 1996; Kabeer 1998) argue that autonomy is not equivalent to empowerment, stressing that autonomy implies independence whereas empowerment may well be achieved through interdependence.¹

A key advantage of our dataset is the rich array of attitudinal questions that are available on household decision making. Hence, in this study, we base our definition of female autonomy on three key dimensions of female autonomy as used in previous studies by Jejeebhoy (2000) and Koenig *et al* (2003). They include economic and child-related decision making (*household decision making autonomy*), mobility (*physical autonomy*) and access and control over economic resources (*economic autonomy*). For each of these three categories of female autonomy, we consider several matters that closely reflect female autonomy in these three areas of decision making. These are discussed in greater detail in the section below.

As Jejeebhoy and Sathar (2001) and Malhotra (1997) point out autonomy is a composite of many factors that manifest themselves differently according to the prevailing kinship norms

¹ See Kabeer (1999) for a review of studies on the measurement of female empowerment. She uses the term 'agency' to refer to the decision-making process.

and systems. Hence, although women may have some degree of control over certain aspects of their lives, they may lack decision-making power in other areas. Under these circumstances it is important to take into account the contextual framework under which female autonomy is being discussed. In particular, there is growing acknowledgement among researchers that the gender and family systems found in South East Asian countries such as Thailand and the Philippines are substantially different from those in South Asia (Mason and Smith, 2003). There is also a growing recognition that women in South East Asia are much more involved in managing the household's finances, and there are also fewer restrictions on their physical mobility.

Another strand of literature (see Ghuman, 2003; Morgan *et al*, 2002) has examined the link between Islam and female autonomy in the South East Asian context. They study if the higher fertility rates that are generally observed in Islamic societies is to do with lower autonomy enjoyed by Muslim females, using a summative index of four variables associated with decision making power. They find little evidence of any link between religion and female autonomy and no evidence that female autonomy is related to fertility levels. Both these studies included the South East Asian countries of Malaysia and Thailand but not Indonesia.

This suggests that in South East Asia, religion is less important than customary law. For example, in Mason and Smith's (2003) recent study on the levels of autonomy in five Asian countries, Malaysian women had the highest level of freedom of movement in this group of countries despite Malaysia being a predominantly Muslim country. This is consistent with an earlier study by Karim (1992) who found that in Malaysia, the *adat* or customary laws often take precedence over Islamic rules. These findings are clearly in contrast to the overwhelming evidence from the Indian sub-continent where adverse health outcomes for female children in northern India are often attributed to the low levels of autonomy enjoyed by women in that region.

Studies by Dyson and Moore (1983), Jejeebhoy (2002) in the South Asian context, show that in societies where gender relations are considered inequalitarian, women's role in household decision-making is often severely curtailed. This is more likely under the patrilocal kinship norms practiced in Northern India. Hence, Dyson and Moore (1983) attribute the low levels of female autonomy in Northern India to the practice of patrilocal exogamy kinship rules. In this study, we are able to analyse variations in female autonomy due to the kinship norms that prevail in the communities that the women belong to. In the next section we briefly describe the different kinship norms in Indonesia.

Kinship norms in Indonesia

Previous research on the determinants of female autonomy has mainly focused on the Indian subcontinent, a region with relatively large gender disparities and wide differences in kinship norms between different regions. Little is known however, on the role of kinship norms in explaining differential female autonomy levels in middle-income developing countries with relatively low levels of gender bias. Indonesia is one such country.

Indonesia presents an interesting cultural context in which to study these issues for several reasons. Female autonomy levels in Indonesia are in general higher than those observed in most South Asian countries.

Anthropological studies from Indonesia have found that historically there has been a bias towards male children (Bedner, 1999; Ihromi, 1994; Parker, 1997; Mulatsih, 1994). Despite this, Levine (2001) show that the gender bias in Indonesia is not as pronounced as in the Indian sub-continent, and has been declining over time. Moreover, within Indonesia, we see a wide heterogeneity with regard to kinship systems and marriage norms, with more than 300 ethnic groups co-existing, following different kinship norms, with many following strongly patrilineal or matrilineal kinship systems. In particular the *Minangkabau* tribe of West

Sumatra is the largest matrilineal kinship system in the world. The *Toba Batak* tribe of northern Sumatra, on the other hand, follows strongly patrilineal kinship tradition. The *Atjehnese* (who live in the northern tip of Sumatra), stand between *Minangkabau* and the *Batak* Javanese, with bilateral kinship but uxori-local residence (Dube, 1997).

Under the Toba Batak patrilineal kinship system, male descendants of a patriarch tend to cluster together, share property or enjoy the rights of usufruct to community lands. Other features of this type of kinship system include a strong son preference to continue the line of descent and marriage of daughters to members of other lineages from different *marga* (clan). Marriage rules are exogamic with women moving to the household of their husband after marriage. Other features of this kinship system include a bride-price that is paid by the groom, the female's lineage becoming that of her husband, and limited inheritance rights for females (see Ihromi, 1994).

On the other hand, under the matrilineal descent and inheritance system practised by the *Minang*, kinship ties are passed through the maternal line and females are crucial to the continuity of the matriline. Females have life-long rights to specific pieces of land, and the rights to use are inherited from mothers by daughters, not by sons (Dube, 1997; Blackwood, 1997; Whalley, 1998). This type of kinship system gives females greater power. In uxori-local residence, a daughter brings in adult male labor at marriage and creates more labor by having children. In other words, her role in this kinship system is identical to that of a son under a patrilineal, viri-local system (see Dube, 1997).

Using Indonesian data, Kevane and Levine (2003) examine if investment in females is lower under patrilocal post-marriage residence norms. They compare the health and schooling outcomes for children living under patrilocal (virilocal), ambilocal and uxori-local kinship norms. They find no significant disadvantage for females born under patrilocal kinship norms. We note however, that female autonomy is not a focus of their paper.

Frankenberg and Thomas (2001) also study bargaining power between couples, focusing on decision making power on household expenditure. Their study focuses on both spouses' decision-making power and they use ethnicity as their measure of kinship norms.

A key advantage of our dataset is that in addition to an array of attitudinal questions which we use to construct our measure of autonomy, our dataset also contains information on the prevailing kinship norms in the community. These are based on a series of questions that were asked of community experts who were asked to nominate the kinship norms with regard to marriage that prevailed in the community. We use questions from this part of the questionnaire to assess whether our female respondents live in a community with patrilocal, matrilineal or ambilineal kinship norms. These questions are described in further detail in subsequent sections. We note that while we know the ethnicity of the respondent's father, which can indirectly be used to infer her kinship norm (as in Frankenberg and Thomas, 2001), there is no direct question that asks the respondents of the kinship norm they practiced in their household. We did not use father's ethnicity as a measure of a woman's kinship norm because we cannot confirm that the kinship norms followed in a woman's marital household follows her father's ethnicity practices. On the other hand, it is much more likely that the norms followed by a majority of the individuals in the community that the respondent lives in has a larger influence on her household.

Empirical Framework

The data used for this analysis comes from the third wave of the *Indonesian Family Life Survey* (IFLS3) conducted in 2000. The IFLS3 is a nation-wide random sample survey, covering thirteen of the 27 provinces, where approximately 83 percent of the population resides. Four provinces are located in Sumatra Island (North, West and South Sumatra, Lampung), five in Java Island (West, Central and East Java, DKI Jakarta, Yogyakarta), and the four remaining provinces are Bali, NTB, South Kalimantan and South Sulawesi. The

IFLS dataset is unique and rich, hence is well-suited for our analysis and in particular, it contains a series of questions that are aimed at assessing the decision making authority of every adult respondent (household member) who is currently married. To complement this information, the IFLS team also collects information at the community-level on norms held by members of the community, infrastructure conditions, the quality and accessibility of public facilities.

As several of the household decisions are related to children (see below), we focus on ever-married adult females (aged over 15 years) with at least one child living in the household, for whom complete information is available on individual, demographic, economic and labor market characteristics. The final sample consists of 6,011 ever-married women.

In Table 1, we present the descriptive statistics for the variables used in our analysis. A comparison of the full sample with the sample of women who have low autonomy shows that while 32 per cent of the women in the low autonomy sample have never worked, the proportion is considerably lower in the full sample with 26 having never worked. We note that the proportion of women with no education is also higher in the low autonomy sample, where 21 per cent of women have no education compared to the full sample where 13 percent of the women have no education. In terms of kinship norms, our descriptive statistics show that there are approximately 4 per cent more women in communities with patrilocal norms in the low autonomy group than there is in the full sample.

A. Dependent variables

The principle aim of this paper is to examine the role of kinship norms and labor market participation on female autonomy. As in Rahman and Rao (2004), we base our dependent variables on responses from women only, because their autonomy is influenced by their perceptions or experience of their household decision making authority and control over

finances. We define autonomy as having the ability to make decisions on a range of issues that reflect a woman's decision-making authority in the household, both with regard to herself, her children, her control over household finances and her freedom of movement.

In the survey, respondents were asked who in the household typically made decisions on a range of household issues. More specifically, we select ten aspects that closely reflect a woman's decision-making autonomy in the household, with regard to herself, her children, her control over household finances and her freedom of mobility to interact socially. Specifically, the respondents were asked- in your household, who makes decisions about: (i) your clothes; (ii) your children's clothes; (iii) your children's education; (iv) your children's health; (v) large expensive purchases for the household (i.e., refrigerator or TV); (vi) giving money to your parents or family; (vii) gifts for parties or weddings; (viii) money for monthly savings; (ix) your participation in monthly *arisan* (savings lottery) meetings²; and (x) time that you can spend socializing.

Based on answers to these questions, we classify the responses into one of three categories of autonomy- Questions (i)- (iv) provide a measure of a woman's *household decision-making autonomy* with regard to herself and her children. Questions (v) – (viii) give an indication of the woman's control over household's economic resources or *economic autonomy*; and questions (ix) and (x) relate to a woman's *physical autonomy* or her freedom of movement.

² The *arisan* is a popular form of women's gathering in Indonesia. It is a group lottery where each member contributes a pre-determined amount of money at periodic meetings. The member whose name comes out at a random drawing keeps the sum of all contributions at that meeting, and is to host the next meeting at her house where the next drawing takes place. *Arisan* is particularly popular among women because in addition to its financial aspect, it is a form of informal social gathering, and is seen as an important means of information sharing. In general, *arisan* participation is voluntarily (sometimes by invitation) and members know each other quite well. The community *arisan* is typically attended by older, married women, while younger women tend to participate in their workplace's *arisan*.

We examine each of these three categories of autonomy separately. A woman is described as being fully autonomous if in consultation with at least one other household member, she is fully involved in household decision making with regard to all the variables in each sub-category. Our reasons for using a more consensual definition of autonomy rather than a more restricted definition of autonomy are as follows- First, as many of the decisions that constitute our definition of autonomy involve other household members, we allow for decision making in consultation with other family members (*musyawarah* or open consultation with those who are most affected by these decisions). Moreover, for many of these decisions (e.g., child-related or gift purchases), it may be difficult to regard a jointly-determined solution as being less desirable than if it is solely-determined. Furthermore, only about a sixth of the women in the sample are not *fully* involved in any one of household, economic and physical aspects of autonomy. This is an interesting contrast to the situation in other low- to middle-income Asian countries such as India and Bangladesh where household autonomy levels are substantially lower.

However, since we allow for consultation with other household members, we impose the condition that in order to be described as being fully autonomous the woman should be involved in all aspects of decision making for each category of autonomy. Thus, the dependent variable takes on a value of 1 for the household decision making, control over economic resources and physical mobility categories if the woman in conjunction with other household members makes decisions with regard to (i)-(iv), (v)-(viii) and (ix)-(x) respectively.

To test the reliability of our definition of female autonomy, we re-estimate our model specifying the autonomy indicator to be 1 if the woman has sole decision making authority in all the components of each of the household, economic and physical autonomy categories. Not surprisingly, the proportion of women who are sole decision makers is considerably

smaller than our previous definition where we allow for decision making in conjunction with other household members. In Table 1 (in the Appendix) we present the decision making autonomy in each of the ten decision making variables, disaggregated by kinship norms. We note that less than 7 per cent of the women in our sample enjoy sole full-decision-making in all the ten household decision-making variables.

Our estimation results using this definition of autonomy are qualitatively similar to those using our preferred definition of decision making in conjunction with other household members. Table 2 (in the Appendix) summarizes the decision making process in Indonesian households, according to whether the decision making authority in a particular category lies solely with the female, the female and her husband, or the female and a household member other than her husband.

According to Table 2, only 8.8, 1 and 13 per cent of the females are sole decision makers in the household, economic and physical autonomy categories respectively. On the other hand, when we allow for decision-making with other household members, the corresponding proportions are 69, 32 and 50 per cent respectively.

It is noteworthy that the low proportion of women involved in decision making about monthly savings is partly due to the small number of women reporting positive amount of savings – hence decision making with regard to this particular issue is regarded as ‘irrelevant’ to them by the survey. Here, we treat women with no savings in the same way as women who are not involved in decision making regarding savings (i.e., the ‘zero’ case). However, since the economic autonomy category includes three other aspects of decision making, it takes on the same value for women who for instance, do not have any savings but are involved in making decisions on at least one of the other aspects in the economic autonomy category. In our sample, women with no savings and who are not involved in any other aspects of economic decision making constitute just 1 per cent of the sample. Hence, we argue that this pooling

between women with no savings and women who are involved in decision making about savings is unlikely to create a serious bias to our results. A similar problem occurs with regard to *arisan* participation in the *physical autonomy* category of decision making, since not all women join *arisan* groups, this particular decision is redundant for non-members. However, since the proportion of women who are members of an *arisan* group and who are also not involved in decision making with regard to time spent socializing is very small (0.3 per cent), we can pool them together with the ‘zero’ case.

B. Explanatory variables

As previously discussed, in evaluating the factors influencing women’s autonomy, kinship norms have been found to be influential in demographic outcomes. Hence, key explanatory variables in our analysis include the kinship norms followed in the community. To construct this variable we rely on a unique feature of the IFLS dataset (1997), where a supplementary booklet (*adat* book) was sent to each village head who was asked to name a local expert in traditional law or customs (*adat*). This local expert was then required to answer a series of questions relating to local customs and traditional law that is generally practiced by a majority of the members in the community.

For the purposes of our analysis, we use a specific question from the *adat* survey relating to the norm in the community with regard to the post-marital residence of the married couple. Specifically, the *adat* experts were asked, “putting aside economic constraints, where does the newly married couple live after the wedding?” We use this question to determine whether a woman lives in a community that is influenced largely by marriage norms that stipulate *patrilocal* or *virilocal* exogamy, *uxorilocal* or is in between (ambilocal). If the *adat* expert indicated that the couple would reside in the household of the bride, her parent’s or her relative’s household, the local norm was deemed to be *uxorilocal*. The local norm was assumed to be *patrilocal*, if the expert indicated that after the wedding the couple would move

to the groom's, his parent's or relatives' household. Finally, if no pattern could be identified, then the local norm was deemed to be ambilocal. Therefore, based on the responses from the adapt expert, for each female respondent we are able to identify the norm that that is followed in their community with regard to post-marriage location. There is however no question in the dataset that allows us to identify the specific norms that are followed in the woman's household or whether they live close to their parent's household. Our definition of kinship norms using the *adat* expert's opinion of norms followed in the community is able to overcome many of the endogeneity problems identified by Rahman and Rao (2004).

Table 3 presents the decision-making authority enjoyed by women in ten aspects of household decision making, classified by the kinship norm followed in their community. We note that in general, decision-making autonomy with regard to household decision making and control over economic resources seems to be fairly similar across the three kinship norms. Women from communities following patrilocal norms, however, have a slightly lower decision making autonomy with regard to some of the economic variables. For example, they are less likely to participate in *arisan* or be involved in decision making with regard to large expenses and savings, relative to women from ambilocal or uxorilocal kinship norms. We note however that, surprisingly, women from patrilocal societies appear to have a greater say in time that they can spend socializing relative to women from ambilocal and uxorilocal societies. As the next section shows though, this may not be true once we control for other relevant factors. Also from Table 3, we note that regardless of norms, there is a greater involvement of women in issues that relate to them personally. For example, more than 90 per cent of women in the sample enjoy decision making autonomy with regard to their clothes, and over 80 per cent of women are involved in decision-making on issues such as giving money to their parents and the time that they can spend on social activities.

Female labor force participation is another important factor that is likely to affect female autonomy. The hypothesis is that participation in the labor market provides women with an independent source of income and can potentially increase her networks, which in turn can improve her bargaining power in the household. The problem with the variable current labor force participation is that participation in the labor market may in itself be the outcome of the greater autonomy that the woman enjoys. The endogenous nature of this variable will mean that the direction of causality cannot be established, and this may bias our estimation results. To deal with this problem, we use instrumental variable (IV) techniques and instrument current labor force status using the variable past (lifetime) labor force status. While past and current labor market employment status are related, current autonomy levels cannot affect past labor market history. Hence, we argue that conditional on using control variables, past labor force status has no direct effect on current household decision making (except through current labor force participation).

We also examine if labor market participation leads to greater autonomy. In Indonesia, female labor force participation levels are relatively high compared to that in South Asian countries. A significant proportion of female labour market activities are in the informal sector with limited opportunities for wage employment in the formal sector economy. In our sample, over 40 per cent of the women reported income-generating activities as their primary activity in the past week. This includes both formal and informal sector employment (e.g., working in the family business). Plausible explanations for this figure, should one consider it to be fairly low, include the irregularity of work in informal sector (e.g., occasional catering) and women might consider housekeeping as their main role. However, causal link between female labor force participation and improvements in female household decision making autonomy is not straight forward to establish. It is unclear to the researcher whether a woman is working because she enjoys high levels of autonomy or whether being employed enhances her

autonomy. Therefore, in our estimation, we take this into account using prior labor market participation as our instrumental variable.

We also include the respondent's education level, age, religion, husband's age and education, female headship, household size, number of children, number of siblings alive, parental background and household assets. In our dataset, educational attainment is measured in terms of the highest level of education attained. For both the respondent and their husband, three dummy variables are created for primary school, junior high school and senior high school or higher levels of education (with no schooling as the reference category). They correspond to 6, 9 and 12 years or more of schooling respectively. Graduates from Islamic schools and government programs are categorized according to their certificate-equivalence. Women who are tertiary level graduates are pooled with senior high school graduates due to their small size. In the sample, nearly half the women have primary education and around 12 per cent have no education. We also include total household wealth as an explanatory variable to control for the economic status of the household.

To take into account initial differences in socio-economic status between the woman and her husband, we include indicator variables for the woman's father's job status relative to that of her father-in-law, and her mother's education level relative to that of her mother-in-law's. These variables refer to conditions at the time of the marriage. In addition, we control for location and regional effects by including dummy variables for urban residence and regions.

Table 3 presents selected summary statistics for the full sample and a sub-sample of women who are not fully involved in at least one of our three categories of autonomy (i.e., these women have no household, economic and physical autonomy). Not surprisingly, the figures show that compared to the full sample, women with low autonomy are less likely to be engaged with the labor market, either currently and in the past, they typically live in patrilocal communities, have low levels of education, are older women and reside in rural areas. Hence,

these raw statistics support our *apriori* expectation that labor force participation and ambilocal kinship norm have positive relationship with female autonomy. In later sections, we examine if these relationships are systematic and causal.

C. Methodology

To analyse the determinants of female autonomy, as discussed previously, we begin by categorizing female household decision making autonomy into three groups- ‘household decision-making autonomy’ (HH), ‘economic autonomy’ (ECON) and ‘physical autonomy’ (MOVE). We define an autonomous woman in each of these 3 categories. A woman with full ‘household decision-making autonomy’ is defined by means of an indicator variable, namely HH, which takes a value of one if the woman in consultation with other household members can make decisions relating to own clothes, children’s clothes, children’s education and child health. Similarly, a woman has ‘economic autonomy’, ECON=1, if she is involved in decision making with regard to large expenses, money to parents, gifts for festivities and savings. Finally, a woman is assumed to have ‘physical autonomy’ (MOVE) if she can make decisions on either the time that she spends socializing or on *artisan*-related activities.

We estimate a probit model on the likelihood of having full autonomy in each of these characteristics assuming initially that labor supply is exogenous. Formally:

$$Y_i = \alpha + \beta_1 LF_i + \delta_1 NORM_i + \theta X_i + v_i \quad (1)$$

where Y , the dependent variable, indicates whether or not the female enjoys full decision making autonomy in HH, ECON and MOVE. The term LF is the dummy variable that takes on a value of one if the female is observed to be currently working, and $NORM$ is a vector for the kinship norms (ambilocal, patrilocal and uxorilocal) prevailing in the community. The term X includes the individual, demographic and household characteristics included in the

analysis, such as age, education levels, spouse's age and education levels, community dummy variables, log of household assets, number of children and household size.

As pointed out previously, the direction of causality between labor force participation and autonomy may be ambiguous. If it is the case that women with higher autonomy levels are also more likely to enter the workforce, then ignoring endogeneity issues would produce an upward bias on the labor force coefficients. In recognition of the potential endogeneity of labor force participation, we estimate a 2SLS (two-stage least squares) model assuming linear probability. We use prior labor market experience to instrument for labor force participation.³ This variable affects the likelihood of current labor force participation decisions, but does not directly influence household or personal decision making.

Estimation Results

The results of our analysis are presented in Tables 4-6 of the appendix. Table 4 reports the results of the binary probit model assuming that labor supply is exogenous, in Table 5 we present the second-stage results of the 2SLS model taking into account the endogeneity of labor supply. In both tables, we estimate the model for the household, economic and physical autonomy separately, and define an autonomous woman as someone who in conjunction with at least one other household member has full-decision making autonomy for all the variables in each of our three categories of autonomy. To test the reliability of our results we also re-estimate the model by re-defining female autonomy- as a woman who has sole decision making authority in all the decision-making variables under each of the three categories. These results are presented in Table 6. To keep the analysis tractable we focus on the more important results.

³ We are grateful to an anonymous referee for pointing us in this direction.

Role of labor market participation

Our estimation results from Table 4 show substantial and significantly positive effects from being in the labor force, when we ignore labor market endogeneity issues. In particular, women who are in the labor force are also more likely to enjoy high levels of autonomy in all our three categories of decision-making (household decision-making, economic and physical movement).

However, given that labor market participation is potentially endogenous, we present the results of a 2SLS analysis in Tables 5 and 6, allowing a comparison of the two different definitions of autonomy. We note that in general, the estimation results using decision making in conjunction with others is qualitatively similar to using a definition of the female being the sole decision maker. The first-stage estimates are identical in both scenarios as only the definition of the second-stage dependent variable has changed.

From Tables 5 and 6, we see that participation in labor markets confers greater autonomy in the economic and physical movement autonomy categories, with no effect on household decision making autonomy. One possible reason for this may be to do with the components of household decision making, which include several questions relating to making decisions on child-related issues and own clothes. These are unlikely to be affected by labor market participation. It is not surprising that labor market participation is positively correlated with economic autonomy, since labor market participation provides women with access to earnings that can in turn improve their economic bargaining power in the household. It is also likely that being in paid employment increases a woman's network of acquaintances and influences decision-making authority with regard to time spent socializing and joining *arisan* groups, many of which are work-based.

Role of kinship norms

Kinship norms have a significant impact on female autonomy. In particular, the coefficient on living in communities with uxori-local kinship norms is positive and highly significant in the household decision making autonomy category using either definition of a fully autonomous woman. Furthermore as predicted in the anthropological literature, we note that living in patrilocal communities reduces physical autonomy for women.

Our finding of an improvement in household decision-making autonomy for women from patrilocal kinship norms (when we use sole-decision maker definition) is at odds with Dyson and Moore (1983). However, our findings are in keeping with Rahman and Rao's (2004) study (both from India), where they find patrilocal exogamy to be positively related to household decision making with regard to children. Other studies from India such as Kishor (1993) and Malhotra *et al.* (1995) find patrilocal exogamy to be detrimental to child mortality.

Our analysis also shows that both economic and physical autonomy are lower among non-Muslims relative to Muslims. This is supported by ethnographic findings from Indonesia which find that the predominantly non-Muslim Balinese follow strongly patrilineal and patrilocal exogamy. Hence, despite Indonesia being a predominantly Muslim country, the local norms appear to take precedence over religion with regard to female autonomy. This is consistent with Ghuman (2003) who found no evidence of a relationship between child health outcomes and female autonomy in her study of 15 Muslim settings.

Role of education

Both own education and the level of education of the spouse appear to have a positive effect on female autonomy. From Table 5, we observe that relative to women with no education, the education levels of both the females and their husband significantly improves their economic and physical autonomy. Interestingly however, we find that in both cases the education level

of the husband has a larger effect on autonomy than the education of the female herself, particularly for economic autonomy. This finding, although not surprising, has several explanations. The most likely explanation for this is the assortative mating hypothesis, where better educated women also marry better educated men and hence they have observable decision-making power. Another possibility is that spousal education is often positively associated with the household's economic circumstances. Nevertheless, the statistical significance of their effect controlling for household wealth suggests an independent education effect. For instance, relative to women whose husbands had no education, those whose spouses are senior school graduates are 13 per cent (16 per cent) more likely to enjoy economic and physical autonomy. It is interesting to note that while own-education has a significantly positive effect on household decision-making autonomy, spouse's education had no effect on this category of autonomy when autonomy is defined as decision-making power in conjunction to other household member. However, for women who have sole decision making power, we note that being married to better educated men (particularly Senior High and college educated) has a negative impact on their household decision making power. One explanation for this may be that better educated men are more involved in household decision-making with regard children.

Role of household economic and demographic characteristics

We also note that household size has a significantly negative effect on all categories of autonomy. It is unclear to us whether this negative effect of household size comes from lower autonomy females having less control over their fertility or whether the women live in more traditional extended households, where their decision making power may be curtailed.

Finally, the significantly positive association between log of assets (our measure of household's economic status) and economic and physical measures of autonomy in the model where joint decision making is allowed suggests that women from more affluent households

enjoy greater autonomy even after controlling for the effects of education, kinship norms and household demographic characteristics. This is at odds with Rahman and Rao's (2004) study from India, where they find women from wealthy households face more restrictions on physical mobility.

The effect of age is non-linear, with women aged between 30 and 50 years having the greatest autonomy in all aspects compared to younger women aged below 30. In particular, older women (aged 50 or older) have less autonomy in household issues than young women, but there is no difference between them for the other two categories of autonomy. This negative effect on autonomy for older women may simply be a manifestation of their greater likelihood of having adult children, so they may have less of a say on matters relating to their children's clothing and education. It is of course possible that these decisions are less relevant to them.

In the last two rows of Table 5, we report the coefficients of the IV in the first-stage regression. As we use just one instrument for one endogenous variable, the plausibility of the selected instrument cannot be directly tested. However, the strong correlation between the IV and the endogenous variable and the high R-square statistic justifies the use of past labor history as an instrument for the current labor force status. In addition, this correction does not seem to affect the results of the other variables which may (re-)confirm that the other variables are exogenous.

Conclusions

This paper investigates the determinants of married women's autonomy in Indonesia using the nationally representative *Indonesian Family Life Survey (IFLS3)* dataset. We consider the interrelationship between kinship norms and economic factors, in particular labor participation status of the woman, to explain differential levels of female autonomy. Our definition of autonomy is based on three categories of decision making- in the areas of

household, economic and physical movement autonomy. Our analysis also explicitly takes into account the cultural setting in which household decision making authority is exercised, by taking into account the marriage norms in the community that the females live in. In keeping with the anthropological literature, our analysis indicates that relative to women living in ambilocal communities, women from uxorilocal communities were much more likely to enjoy greater household decision-making autonomy using either definition of female autonomy. On the other hand, living in communities practicing patrilocal exogamy had a detrimental effect on physical autonomy. Our analysis shows that participation in labor markets confers greater autonomy in the economic and physical movement autonomy categories, with no effect on household decision making autonomy. Education (both own and husband's) has a large, positive and significant effect on female autonomy, when we define autonomy as decisions made in conjunction with other household members. Finally our analysis shows that women from wealthier households are also more likely to enjoy physical autonomy.

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Appendix

Table 1: Descriptive statistics for the variables used in the analysis

Variable	Full sample N=6016	Low autonomy N= 1036
Individual characteristics		
Age- 50 years and older	0.13	0.24
Age- 30-49 years	0.52	0.30
Uxorilocal kinship norms	0.55	0.53
Patrilocal kinship norms	0.22	0.26
Education- primary	0.48	0.50
Education-Junior High	0.16	0.15
Education- Senior High	0.23	0.14
Labor market status- currently working	0.45	0.31
Labor market status- never worked	0.26	0.32
Household demographic and economic characteristics		
Religion- Non-Muslim	0.10	0.11
Household size	6.35 (2.71)	6.61 (2.72)
Number of children	2.08 (1.18)	2.00 (1.16)
Household head- male	0.89	0.85
Spouse's education- primary	0.46	0.51
Spouse's education-Junior	0.16	0.16
Spouse's education- Senior High	0.22	0.15
Spouse's education- College	0.08	0.04
No. of non-co-resident siblings	3.68 (2.50)	3.09 (2.43)
Father's economic status- higher than father-in-law's		0.11
Father's economic status- same as father-in-law's	0.32	0.31
Father's economic status lower than father-in-law's	0.11	0.10
Father's community status- higher than father-in-law's	0.13	0.11
Father's community status- same as the father-in-law's	0.59	0.57
Father's community status- lower than father-in-law's	0.12	0.12
Mother's education – higher than mother-in-law's	0.11	0.11
Mother's education – same as mother-in-law's	0.51	0.47
Mother's education – lower than mother-in-law's	0.08	0.09
Log of household assets	16.34 (1.60)	16.06 (1.59)
Regional characteristics		
Urban	0.47	0.38
North Sumatra	0.06	0.03
West Sumatra	0.05	0.06
South Sumatra	0.05	0.05
Lampung	0.04	0.03
Jakarta	0.08	0.07
Central	0.13	0.11
Yogyakarta	0.05	0.02
Bali	0.05	0.07
NTB	0.06	0.10
South Kalimantan	0.06	0.04
South Sulawesi	0.06	0.07

Note: Standard deviations for the continuous variables and the count variables appear in parentheses. Only proportions are shown for binary 0-1 dummy variables.

Table 2: Summary statistics on female autonomy according to involvement of others in decision-making process

	Sole decider	Makes decisions with husband	Makes decisions with other than husband
Hh decision making autonomy			
Own clothes	0.59	0.32	0.09
Children's clothes	0.36	0.43	0.22
Children's education	0.12	0.61	0.27
Children's health	0.17	0.69	0.15
<i>All household</i>	0.09	<i>Joint: 0.69</i>	
Economic autonomy			
Large expense	0.07	0.66	0.27
Money to parents	0.12	0.73	0.09
Gift for party	0.20	0.71	0.10
Savings	0.13	0.26	0.08
<i>All Economic</i>	0.01	<i>Joint: 0.32</i>	
Physical autonomy			
<i>Arisan</i> -related	0.24	0.30	0.06
Time spent socializing	0.42	0.48	0.10
<i>All physical movement</i>	0.13	<i>Joint: 0.50</i>	

Note: Mean proportions are shown for all variables

Table 3: Autonomy and Kinship norms

	Ambilocal norms N=3316	Patrilocal norms N=1335	Uxorilocal norms N=1365
Hh decision-making autonomy			
Own clothes	0.92	0.93	0.92
Children's clothes	0.84	0.86	0.85
Children's education	0.79	0.77	0.75
Children's health	0.88	0.90	0.88
Economic autonomy			
Large expense	0.78	0.71	0.78
Money to parents	0.85	0.86	0.84
Gifts for parties	0.92	0.94	0.92
Savings	0.39	0.36	0.44
Physical autonomy			
<i>Arisan</i> -related	0.56	0.45	0.62
Time spent socializing	0.90	0.92	0.89

Note: Mean proportions are shown for all variables

Table 4: Binary Probit model with exogenous labor force participation

	Household decision making autonomy		Economic autonomy		Physical autonomy	
	Coeff.	(std.error)	Coeff.	(std.error)	Coeff.	(std.error)
Working	0.200***	(0.037)	0.280***	(0.039)	0.255***	(0.039)
uxorilocal	0.117**	(0.055)	0.006	(0.062)	-0.071	(0.064)
Patrilocal	0.105	(0.068)	0.026	(0.077)	-0.141	(0.090)
Age- 30-49 years	0.429***	(0.49)	0.131***	(0.050)	0.230***	(0.052)
Age- 50+	-0.305***	(0.099)	-0.001	(0.099)	0.060	(0.103)
Primary	0.188	(0.063)	0.181**	(0.071)	0.279***	(0.060)
Junior	0.183**	(0.086)	0.308***	(0.091)	0.456***	(0.081)
Senior high	0.287***	(0.088)	0.479***	(0.094)	0.447***	(0.086)
Household size	-0.056***	(0.009)	-0.022**	(0.009)	-0.026***	(0.009)
Spouse's education- primary	-0.035	(0.067)	0.149*	(0.086)	0.184**	(0.077)
Spouse's education- Junior	-0.043	(0.078)	0.257***	(0.096)	0.262***	(0.096)
Spouse's education- Senior High	-0.036	(0.087)	0.437***	(0.098)	0.460***	(0.091)
Spouse's education- College	-0.055	(0.109)	0.655	(0.112)	0.494***	(0.116)
Log of assets	0.020	(0.015)	0.098***	(0.015)	0.097***	(0.013)
Number of children	0.153***	(0.021)	-0.012	(0.020)	-0.005	(0.019)
Urban	0.035	(0.050)	0.107	(0.053)	0.125	(0.056)
Sample size	6011		6011		6011	

Note: The estimations include controls for regions, religion, parental background, husband's age, female headship, number of siblings alive and living in village with backward village status (IDT - national definition). The standard errors are robust and are corrected for village clustering (there are 312 villages in the sample). Autonomy defined as whether or not woman has full- decision-making power in conjunction with one other household member in each of the household, economic and physical autonomy categories. ***, ** and * refer to significance at 1%, 5% and 10% levels respectively.

Table 5: Instrumental Variables Two-Stage Least squares estimation (IV-2SLS) - Endogenous labor supply

	Household decision making autonomy		Economic autonomy		Physical autonomy	
	Coeff. (std.error)		Coeff. (std.error)		Coeff. (std.error)	
Working*	0.022	(0.025)	0.079***	(0.02)	0.098***	(0.026)
Uxorilocal	0.038**	(0.018)	0.001	(0.020)	-0.027	(0.023)
Patrilocal	0.035	(0.022)	0.010	(0.024)	-0.052*	(0.031)
30-49 year-olds	0.147***	(0.017)	0.046***	(0.016)	0.079***	(0.019)
50 year-olds/older	-0.125***	(0.034)	0.005	(0.030)	0.020	(0.036)
Primary	0.065***	(0.022)	0.042**	(0.018)	0.094***	(0.021)
Junior	0.060**	(0.029)	0.082***	(0.026)	0.160***	(0.028)
Senior high	0.099***	(0.030)	0.152***	(0.028)	0.155***	(0.030)
Spouse's education-primary	-0.013	(0.023)	0.034	(0.021)	0.059***	(0.025)
Spouse's education-junior	-0.017	(0.026)	0.070***	(0.026)	0.090***	(0.032)
Spouse's education-senior high	-0.015	(0.029)	0.134***	(0.028)	0.160***	(0.031)
Spouse's education-college	-0.021	(0.035)	0.225***	(0.034)	0.168***	(0.039)
Log of assets	0.006	(0.005)	0.030***	(0.004)	0.034***	(0.005)
Household size	-0.018***	(0.003)	-0.007**	(0.003)	-0.009***	(0.003)
Number of children	0.047***	(0.007)	-0.003	(0.006)	-0.001	(0.007)
Urban	0.009	(0.016)	0.033*	(0.017)	0.045**	(0.020)
FS: IV	-0.570	(0.010)***				
FS: R-sq	0.328					
Sample size	6011		6011		6011	

Note: * Instrumented using past labor market experience. FS (IV) reports the first-stage coefficient of the IV. Control variables are included in all regressions. Autonomy defined as whether or not woman has full- decision-making power in conjunction with one other household member in each of the household, economic and physical autonomy categories. ***, ** and * refer to significance at 1%, 5% and 10% levels respectively.

Table 6: Instrumental Variables Two stage Least squares (IV2SLS) estimation- female is the sole decision maker

	Household decision making autonomy		Economic autonomy		Physical autonomy	
	Coeff. (std.error)		Coeff. (std.error)		Coeff. (std.error)	
Working*	0.005	(0.016)	0.013***	(0.004)	0.046***	(0.017)
Uxorilocal	0.025***	(0.009)	-0.002	(0.003)	0.006	(0.012)
Patrilocal	0.034**	(0.014)	-0.003	(0.003)	0.001	(0.016)
Age- 30-49 years	0.037***	(0.010)	-0.001	(0.003)	0.020	(0.013)
Age-50 years or older	-0.017	(0.019)	-0.012	(0.009)	0.011	(0.025)
Primary	-0.005	(0.014)	0.001	(0.004)	0.028**	(0.013)
Junior	0.000	(0.018)	0.002	(0.006)	0.026	(0.018)
Senior high	-0.007	(0.018)	-0.003	(0.005)	0.031	(0.020)
Spouse's education-primary	-0.019	(0.018)	0.011***	(0.004)	0.039**	(0.017)
Spouse's education-junior	-0.029	(0.021)	0.014**	(0.006)	0.046**	(0.020)
Spouse's education-senior high	-0.049**	(0.021)	0.013**	(0.006)	0.050**	(0.023)
Spouse's education-college	-0.072***	(0.023)	0.011	(0.007)	0.059**	(0.029)
Log of assets	-0.0004	(0.002)	0.000	(0.001)	0.008**	(0.003)
Household size	-0.003*	(0.002)	-0.000	(0.001)	0.000	(0.002)
Number of children	0.005	(0.004)	0.000	(0.001)	0.007	(0.005)
Urban	0.025**	(0.010)	0.003	(0.003)	0.031***	(0.012)
FS: IV	-0.570	(0.010)***				
FS: R-sq	0.328					
Sample size	6011		6011		6011	

Note: * Instrumented with past labor experience. FS (IV) reports the first-stage coefficient of the IV. Autonomy defined in terms of whether the woman has sole-decision making power in all the components of household, economic and physical autonomy categories. Control variables are included in all regressions. ***, ** and * refer to significance at 1%, 5% and 10% levels respectively.