PAA 2007 Abstract Submission
Session 206, Family Relationships and Exchanges, Hao, Chair (1st choice)
Session 208, Family and Health Over the Life Course, Meadows, Chair (2nd choice)

All for One and One for All? Women's Relative Power and Maternal-Child Health in Haiti

Jennifer Toller Erausquin, MPH

University of California, Los Angeles
School of Public Health & California Center for Population Research
Public Policy Building #4282
337 Charles E. Young Drive East
Los Angeles, CA 90095
jtoller@ucla.edu

INTRODUCTION

Studies from various parts of the world suggest that women's status within the household can affect household labor supply and fertility decisions, as well as child survival, nutritional outcomes, and educational achievement (Quisumbing & Maluccio, 2003; Moss, 2002; Beegle, Frankenberg, & Thomas, 2001; Hallman, 2000; Thomas, 1990 & 1994). Established traditional economic and sociological models of the household, which treat the household as having a single preference, have been shown to be insufficient to explain these findings, and a number of alternative models have been proposed (Bergstrom, 1997). These models allow for individuals within the household to have individual preferences, although the models vary in the mechanism by which these preferences are expressed in household decisions.

Past studies have been challenged by how to measure the relative power of household members. In this paper, I use three primary measures of intra-household power: control over resources, asset ownership, and perceived decision-making ability. Using a nationally representative sample of Haitian households (2000 Haiti Measure DHS+), I examine whether women's relative power in the household predicts women's and children's nutritional status. In doing so, I test the traditional unitary model of the household against a broad class of collective models. This study also explores the feasibility of the type of collective models known as bargaining models, by examining whether the regression models are improved by the inclusion of marriage market factors and community-level gender norms. This study builds upon recent studies of household dynamics in other developing countries, providing empirical evidence from a Caribbean nation. Notably, this study examines women's relative power and maternal-child health in a context where polygamy and non-coresidence of spouses is common.

THE HAITIAN CONTEXT

Haiti is the most economically deprived country in the Americas. More than 70% of the population lives in extreme poverty, 50% of adults are unemployed, and 40% of households face food insecurity (United Nations Development Program, 1999). Acute and chronic malnutrition are endemic to the country. Malnutrition in Haiti has been recognized for over half a century, and several international aid organizations have implemented interventions to address the problem (Nicklas, Kuvibidila et al., 1998). While programs to reduce micronutrient deficiencies among children have seen moderate success, macronutrient and iron deficiencies remain significant problems in both rural and urban areas. In 2000, the Haiti Measure DHS+ found that 23% of

children age 0-5 years had chronic malnutrition (stunting, measured using height for age). In addition, 65% of children and 55% of women of reproductive age were found to be at least mildly anemic (Cayemittes, Placide, Barrere, Mariko & Severe, 2001).

The Haitian context also provides a number of challenges for studying the household. Most adult women are married or in union, and polygamy is common. One-third of married/partnered women are in polygynous relationships (that is, they are one of their husband's multiple wives) (Cayemittes *et al.*, 2001). In addition, one in four wives report living apart from their husband (*ibid*.). *These features of Haitian society have not been examined in previous quantitative analyses of maternal-child health.* The current study investigates whether the association between women's intra-household power and maternal-child nutrition varies by the type of husband-wife relationship.

CONCEPTUAL FRAMEWORK AND RESEARCH QUESTIONS

In brief, the unitary model of the household assumes that the household can be treated as a single unit, either because all the household members share common preferences or because one member dictates all resource allocation decisions (Becker, 1981). In contrast, collective models view the household as a group of individuals, each of whom may have his or her own preferences and resources. In collective models, household decisions such as resource allocations are the result of bargaining or negotiating among the members (McElroy and Horney, 1980; Manser and Brown, 1980; Chiappori, 1997).

I developed a conceptual framework to aid in understanding key aspects of collective models of the household (see Figure 1). The current study will determine the general feasibility of the framework, focusing on the control of resources and the outcome household utility, nutrition status of women and children. Specifically, I test the assumptions of the unitary model among Haitian households, and examine whether key features of bargaining models are important predictors of women's and children's nutritional status. This study focuses on three research questions:

1. Does greater relative intra-household power of women predict improved nutritional status for women and children?
2. Are bargaining factors and community-level gender norms important in predicting the nutritional status of women and children?
3. Does the association between women's intra-household power and maternal-child nutrition vary by the type of husband-wife relationship?

The first research question investigates whether the assumptions of the unitary model hold for households with at least one child age 0-5 years in Haiti. If the unitary model is rejected, logistic regression will show that after controlling for confounding factors such as overall household socioeconomic status, greater relative power of women has a significant effect on the odds for poor nutritional status (stunting, wasting, and anemia) among women and among their children. The second research question builds upon the limited studies that have attempted to control for the effect of the broader social environment. Community-level gender norms affect women's opportunities and status both inside and outside the home. The inclusion of community gender norms will provide evidence for whether the observed outcomes are the result of the social environment or of individual women's greater relative power in the household (Roushdy 2004). Finally, the third research question examines how intra-household power differs by two key relationship characteristics: polygamy and non-coresidence of spouses.

DATA SOURCE AND METHODOLOGY

The 2000 Haiti Measure DHS+ is a nationally-representative sample of households in Haiti. A total of 9595 households in the nine departments of the country were surveyed as part of the multistage stratified sample. In all households, all women age 15-49 were interviewed, resulting in sample of 10,159 women. In addition, one-half of households were randomly selected for additional survey modules, including a women's status questionnaire and anthropometric measurements (height, weight, and hemoglobin).

The current study focuses on households with married/partnered women age 15-49 who have at least one living child age 0-59 months (age 0-5 years). The samples used in the current analysis were determined as follows: 4822 households were randomly selected for the additional survey modules (women's status and maternal anthropometry). Within these 4,822 households, 5,074 women age 15-49 were interviewed. Fifty-nine percent of these women (2,968) were married; of these, 65% had at least one living child age 0-5 years. This resulted in 1,933 family units (consisting of a married woman and her children age 0-5 years) eligible for inclusion in the current study. After listwise deletion of cases with missing data on the outcome variables, the final analytic samples were N=1843 for the subsample of women, and N=2433 for the subsample of children age 0-5 years.

Dependent variables

My goal is to examine the relationship between women's relative power and maternal-child nutritional status. My measures of nutritional status include anemia, stunting (children), and wasting (adult women). My measure of anemia is a hemoglobin count <10.0 g/dL, after adjusting for altitude and current pregnancy of adult women. I use stunting as a measure of malnutrition in children. It is determined by comparing the child's height for age z-scores to an international standard growth chart for the appropriate gender. A score of -2 standard deviations or more from the reference is categorized as moderately or severely stunted. I use wasting as a measure of malnutrition in women. It is determined by comparing women's weight for height z-scores (adjusted for current pregnancy) to an international reference for adult women; ≥ -2 standard deviations from the reference is considered moderately or severely wasted.

Independent variables

The main independent variables in this study represent women's relative power in the household. I use women's responses to multiple items about their control of household resources. These items encompass: 1) perceived decision-making ability over the household budget; 2) ownership of assets such as land, the dwelling, and livestock; and 3) control over money for the woman's own use. In addition to these more "direct" measures of control over resources, I include factors believed to affect household bargaining, including characteristics of the marital relationship (polygyny, women's age, and differences between spouses in age and education) and community-level gender norms. I account for community gender norms using primary sampling unit (PSU)-aggregate responses to a gender norm subscale.

PRELIMINARY RESULTS

Table 1 shows descriptive characteristics (weighted percentages or means) of the households under study. Since all households had at least one young child, the women in the study are relatively young, with a mean age of 30.8 years. Women's mean years of education is low (2.8 years), and they tend to be younger and less educated than their husbands. Forty percent of the women are in polygamous marriages, and 26% do not have the husband living in the

household. While women's asset ownership is low, most women have control of some money for their own use, and many women are involved in household budget decisions.

In Table 2 I show bivariate relationships (weighted percentages) between the nutritional status variables and the independent variables of interest. Several patterns emerge. As women's age (5-year categories) increases, a greater percentage of women are wasted and a greater percentage of children are stunted. With regard to number of young children in the household, the lowest percentages of poor nutritional outcomes for both women and children are within households with only one child under age five. Similarly, with regard to women's education, the percentages of poor nutritional outcomes for both women and children are lowest in households where the woman has a secondary education or higher. In addition, these data indicate that greater wealth is associated with lower proportions of stunting among children, but is not associated with lower wasting among women.

With regard to the three variables measuring women's relative intra-household power, first, polygyny is not clearly associated with differences in nutritional outcomes of women or children. Next, women controlling money for their own use appears "protective" for child stunting, but appears "risky" for the woman's own nutrition. Nineteen percent of children whose mother controls money for her own use are stunted, as compared with nearly 30% of children whose mother does not. However, 23% of women who control money for their own use are anemic, compared with 17% of women who do not. This suggests a possibility that women's money is being spent on food for their children. Finally, the bivariate relationships indicate that spouses jointly deciding about the household budget is associated with the lowest percentages of poor nutritional outcomes for women and children, with the exception of women's anemia.

Preliminary logistic regression models *using samples limited only to two-parent coresident households* (results not shown here) indicate that economic factors and bargaining factors were important predictors of nutritional status for both women and children, across all measures of nutritional status. Higher household wealth, greater women's education, and the woman having some say in the household budget were associated with reduced odds for poor nutritional outcomes for both the women's and the children's sample. The number of children under age five in the household, as well as male-dominant community-level gender norms, were associated with increased odds for poor nutritional outcomes.

FUTURE WORK

I plan several refinements to this analysis. First, I will further examine how the measures of relative intra-household power differ by monogamous/polygamous marriages and by coresident/non-coresident spouses. Second, I will explore the potential for interactions between these relationship characteristics and other predictor variables, including but not limited to woman's age and education, and household wealth quintile. Third, I will determine whether alternative measures of malnutrition, particularly underweight (Body Mass Index <18.5), provide a clearer picture of chronic malnutrition for women and children. In addition, I will develop measures of women's power at the household and community levels that are more relevant to the Haitian context, and account better for the normative economic roles of rural Haitian women (Lowenthal, 1983). After these additions are complete, building on my preliminary logistic regression model using two-parent coresident households, I will then analyze the women's and children's samples (now including households with non-coresident spouses), using a refined logistic regression model.

Table 1. Selected characteristics of Haitian households with married women ages 15-49 and at least one child age 0-5 years, 2000 (N=1843).

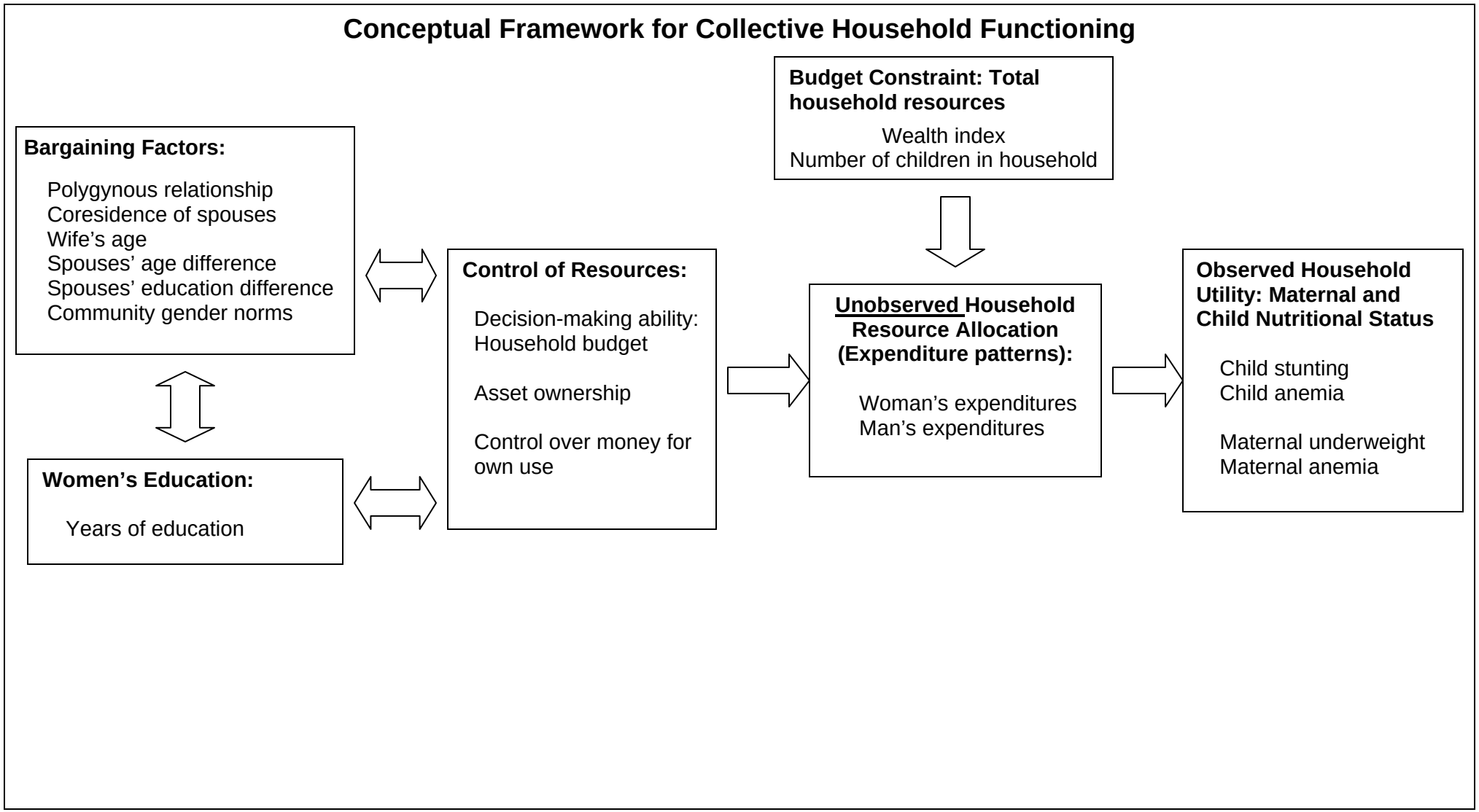
Woman's age (mean number of years)	30.8
Mean age difference (wife's age - husband's age)	-5.9
Woman's education (mean number of years)	2.8
Mean education difference (wife's education – husband's education)	-1.3

	Percent (weighted)	% base (unweighted)
Rural Residence	67.2	1288
Woman's age		
15-19	5.8	113
20-24	18.6	326
25-29	22.8	425
30-34	21.7	380
35-39	18.1	307
40-44	8.9	194
45-49	4.1	98
Polygamous marriage	40.3	696
Non-coresident husband	26.4	496
Household wealth (national quintiles)		
Lowest quintile	20.0	482
Second quintile	21.9	414
Third quintile	20.2	375
Fourth quintile	21.8	362
Highest quintile	16.1	210
Woman is sole owner of any asset	16.9	355
Number of children age 0-5 years in the household		
1	46.0	787
2	36.0	689
3	13.9	270
4	3.1	64
5	0.9	30
6	0.1	3
Decision-making power: Person having final say on household budget		
Husband alone	22.1	405
Wife alone	34.7	645
Spouses jointly	43.2	793
Woman controls money for own use	61.3	1145

Table 2. Percentage distribution of nutritional outcomes by selected variables, Haitian households with children age 0-5 years, 2000. [Note that all percentages shown are weighted.]

	Women (N=1843)		**Children** (N=2433)	
	Percent wasted	Percent anemic [Hb <10.g/dL]	Percent stunted	Percent anemic [Hb <10.g/dL]
Total sample	8.1%	20.7%	23.3%	34.2%
Residence				
Rural	8.3	17.6	28.4	34.3
Urban	7.6	27.2	11.0	34.1
Woman's age				
15-19	2.1	21.5	14.8	28.7
20-24	1.7	24.3	22.0	39.6
25-29	3.6	19.7	20.6	35.6
30-34	6.4	21.9	18.7	35.5
35-39	19.4	16.9	31.7	31.5
40-44	13.9	22.3	33.0	28.9
45-49	16.4	15.5	23.6	23.1
Woman's highest educational level				
No education	9.4	16.9	31.3	33.9
Primary	8.4	18.6	20.9	35.1
Secondary or higher	3.7	14.0	6.1	32.2
Polygamy				
Woman is only wife	7.6	21.8	23.9	33.4
Woman is in polygynous relationship	8.7	19.0	22.1	35.5
Household Wealth (national quintiles)				
Lowest quintile	10.8	15.2	33.4	31.3
Second quintile	8.4	22.3	30.0	32.0
Third quintile	7.7	12.3	24.3	39.8
Fourth quintile	10.4	30.1	16.5	37.8
Highest quintile	1.5	23.3	4.9	29.5
Woman controls money for own use				
No	8.6	16.9	29.6	32.0
Yes	7.7	23.0	18.9	35.8
Number of children 0-5 in the household				
1	4.3	17.5	15.8	31.6
2	11.5	24.5	23.7	34.1
3	12.1	21.8	33.4	36.6
4	6.4	19.0	19.3	39.7
5	8.8	26.2	24.7	35.7
Relative decision-making power: Final say on total household budget				
Husband alone	8.0	23.7	26.3	39.2
Wife alone	9.9	17.2	25.5	32.2
Spouses jointly	7.0	22.5	24.6	32.4

Figure 1. A simplified conceptual framework of collective household functioning (Erausquin, 2006). Adapted from Manser & Brown (1980), McElroy & Horney (1981), Ulph, (1988), Lundberg & Pollak (1993, 1996), and Woolley (2003).



References

Becker, G.S. (1981). *A treatise on the family*. Cambridge, Mass., USA: Harvard University Press.

Beegle, K., Frankenberg, E., & Thomas, D. (2001). Bargaining p0ower within couples and use of prenatal and delivery care in Indonesia. *Studies in Family Planning*, 32(2), 130-146.

Bergstrom, T.C. (1997). A survey of theories of the family. In M.R. Rosenzweig & O.Stark (eds.), *Handbook of Population and Family Economics, Vol. 1A*. Amsterdam: Elsevier Science.

Cayemittes, M., Placide, M.F., Barrere, B., Mariko, S., & Severe, B. (2001). *Enquête Mortalité, Morbidité et Utilisation des Services*, Haïti 2000. Calverton: Ministère de la Sante Publique et de la Population, Institut Haïtien de l'Enfance et ORC Macro.

Chiappori, P.A. (1997). "Collective" models of household behavior: The sharing rule approach. In L. Haddad, J. Hoddinott, & H. Alderman (eds.), *Intrahousehold Resource Allocation in Developing Countries: Models, Methods, and Policy.* Baltimore, MD: Johns Hopkins UP for the International Food Policy Research Institute.

Hallman, K.K. (2000). Mother-father resource control, marriage payments, and girl-boy health in rural Bangladesh. *Discussion Paper No. 93*, Food Consumption and Nutrition Division,

Lowenthal, I. (1984). Labor, sexuality, and the conjugal contract in rural Haiti. In C.R. Foster and A. Valdman (eds.), *Haiti: Today and Tomorrow*. New York: University Press of America.

Lundberg, S. & Pollak, R. (1993). Separate spheres bargaining and the marriage market. *Journal of Political Economy,* 93(5), 901–918.

Lundberg, S., & Pollak, R.A. (1996). Bargaining and distribution in marriage. *Journal of Economic Perspectives,* 10(4), 139-158.

Manser, M. & Brown, M. (1980). Marriage and household decision making: a bargaining analysis. *International Economic Review*, 21, 31–44.

McElroy, M.B., & Horney, M.J. (1981). Nash-bargained household decisions: Toward a generalization of the theory of demand. *International Economic Review*, 22, 333–49.

Moss, N.E. (2002). Gender equity and socioeconomic inequality: a framework for the patterning of women's health. *Social Science & Medicine*, 54, 649-661.

Nicklas, T.A., Kuvibidila, S., Gatewood, L.C., Metzinger, A.B., & Frempong, K.O. (1998). Prevalence of anemia and iron deficiency in urban Haitian children two to five years of age. *Journal of Tropical Pediatrics*, 44, 133-138.

Quisumbing, A.R., & Maluccio, J.A. (2003). Resources at marriage and intrahousehold allocation: Evidence from Bangladesh, Ethiopia, Indonesia, and South Africa. *Oxford Bulletin of Economics and Statistics,* 65(3), 283-8.

Roushdy, R. (2004). Intrahousehold Resource Allocation in Egypt: Does Women's Empowerment Lead to Greater Investments in Children? *Population Council Publications*, September 2004. Accessed November 22, 2005 from www.erf.org.eg/11conf_Lebanon/Labor/Rania_Roushdy.pdf

Thomas, D. (1990). Intra-household resource allocation: an inferential approach. *Journal of Human Resources,* 25(4), 635-664.

Thomas, D. (1994). Like father, like son: Like mother, like daughter: Parental resources and child height. *Journal of Human Resources*, 29(4), 950-988.

Ulph, D. (1988). A general non-cooperative Nash model of household consumption behaviour. *Discussion Paper 88/205*, Bristol, England: University of Bristol.

United Nations Development Program. (1999). *Human Development Report.* New York: UNDP.

Woolley, F. (2003). Control over money in marriage. In S.A. Grossbard-Shechtman (ed.) *Marriage and the Economy: Theory and Evidence from Advanced Industrial Societies.* New York: Cambridge.