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Cross-National Variation in Attitudinal Measures of Gender Preference for Children: An Examination of Demographic and Health Surveys from 40 Countries

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ABSTRACT

While much research has examined gender preferences for children by studying behavioral measures such as skewed sex ratios, sex imbalance in infant mortality, and sibling size and order, attitudinal measures have been analyzed less systematically. Using data from 40 Demographic and Health Surveys conducted between 2000 and 2006, this paper advances understanding of gender preferences for children in developing countries by examining attitudinal measures of gender preference cross-nationally. This paper also explores basic socioeconomic determinants of attitudinal gender preference. Findings of this study show that, while the most popular type of preference in the vast majority of countries is balance preference (preference for an equal number of girls and boys), countries and regions vary widely in prevalence of son and daughter preferences. Daughter preference is common in most of Latin America/Caribbean, some of Southeast Asia, and in about one-third of sub-Saharan African countries. Son preference is most common in North Africa, South Asia, some of Southeast Asia, and in about two-thirds of sub-Sahara African countries examined. Of the socioeconomic factors examined, lower educational attainment and lower levels of household wealth generally explain gender preferences for children, particularly in countries where son preference is pronounced.

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INTRODUCTION

Many previous studies have documented gender differentials in infant/child health and survival due to parental gender preferences for children in less developed countries, especially in South Asia, East Asia, North Africa, and the Middle East. Most studies have focused on the extent of son preference by examining such measures of gender preference behavior as sex-selective abortions, imbalance in sex ratios at birth, female disadvantage in infant/child mortality, and gender bias in medical treatment and immunizations. Studies have also examined gender preference in terms of contraceptive use and parity progression of women with certain sex composition of surviving children. Through these studies, scholars have found evidence for female disadvantage to some extent in Bangladesh (Bairagi 2001; Muhuri and Preston 1991; Rahman et al. 1992; Rahman and DaVanzo 1993), China (Arnold and Liu 1986; Coale 1991; Coale and Banister 1994; Johansson and Nygren 1991; Li and Cooney 1993; Poston 2003; Yi et al. 1993), India (Arnold, Kishor, and Roy 2002; Arokiasamy 2002; Griffiths, Matthews and Hinde 2000; Kishor 1993; Murthi, Guio, and Drèze 1995), the Republic of Korea (Arnold 1985; Chung and Das Gupta 2007; Park and Cho 1995), Nepal (Leone, Matthews, and Zuanna 2003), and Vietnam (Bélanger et al. 2003; Johansson et al. 1998). While gender preference has been rigorously examined through behavioral measures, attitudinal measures of gender preference for children are much less systematically analyzed.

Gender preference for children is associated with various types of reproductive behavior, depending on the societal context. Specifically, whether and how women's gender preference is translated into behavior may vary by levels of fertility and by access to certain birth control methods and modern medicine. In the context of relatively low or declining fertility, gender preference is more likely to be manifested by aborting a fetus of the undesired sex or by stopping childbearing once the desired sex composition of children has been achieved. Based on a study of Matlab, Bangladesh, Bairagi (2001) reported that the effect of son preference on reproductive behavior is stronger in low-fertility situations because couples have to achieve their desired number of sons and daughters within a smaller family size. A study of South Korea by Chung and Das Gupta (2007) found that son preference is a significant factor that influences women's practice of induced abortion in a very low fertility context. Moreover, couples in lower fertility societies are more likely to have the means of achieving their reproductive goals. Therefore, in

lower fertility/transitioning societies, atypical sex ratio at birth resulting from sex-selective abortion or women's stopping behavior, as measured by contraceptive use or parity progression, may be appropriate measures of gender preference.

In contrast, in the context of higher fertility and limited access to birth control methods and modern medicine, gender preference may be measured more validly through the assessment of one's post child-bearing behavior. In higher fertility contexts, couples may be less conscious about limiting fertility, but their gender preference may bias the allocation of household resources (either consciously or unconsciously). This bias may result in sex differences in infant/child mortality, health, and treatment. In a study of India, discrimination against girls in healthcare and nutrition, though not universal, is observed in families with a large number of siblings, especially families with older female siblings (Mishra, Roy and Retherford 2004). Thus, in the context of high fertility, the extent of gender bias in health and survival may be appropriate in measuring child gender preference.

Given that appropriate means of measuring gender preferences for children by studying behavior may vary by societal context, I suggest examining the mediating variable, namely one's stated preference, as a way to study patterns and determinants of gender preference cross-nationally. The underlying assumption is that individuals have an ideal gender composition of children and that their attitudes are likely to be translated into reproductive behavior in order to achieve the gender composition they prefer.

Despite the suitability of attitudinal gender preference measures for cross-national research, questions on women's ideal sex composition of children from the Demographic and Health Surveys (DHS) have been underutilized. It appears that no scholars have explored these attitudinal variables from the DHS since the publication of Arnold's 1997 report that presented descriptive statistics from 17 DHS in 15 countries. Also, since Arnold and Kuo's (1984) article that analyzed cross-national survey data from eight countries examined as part of the Value of Children Study in the 1970s, no cross-national studies of attitudinal gender preference for children employing multivariate analyses have been conducted. Because attitudinal questions related to gender preference have been added to DHS starting in 1992, we now have data on a larger number of countries from all regions of the world, providing an excellent basis for cross-national examination of gender preferences.

Socioeconomic Determinants of Gender Preference for Children

While investigating gender preference patterns cross-nationally, I also focus on variations in the effect of socioeconomic variables on gender preference. In particular, I focus on several basic socioeconomic variables that are expected to shape one's attitudes about the ideal numbers of boys and girls to have.

According to the modernization perspective, women with greater exposure to socioeconomic development have less traditional attitudes because they are exposed to more "modern" values. Background variables commonly employed to assess exposure to socioeconomic development are schooling, wealth, participation in the modern economic sector, and place of residence (urban/rural). Education is especially known to affect reproductive behavior because it introduces women to new ideas and changes their ideas, perceptions, and aspirations about childbearing (Caldwell 1980). In terms of gender preferences for children, "modern" women may be likely to be exhibit egalitarian preferences than traditional preferences (including son preference). The modernization perspective also assert that shifts from traditional societies positively affect women, as women's status should improve through the liberation from traditional patriarchal social structures, tedious agricultural labor, and increased opportunities for education and wage labor. This transformation raises the value of females; hence alleviates the magnitude of traditional preference for sons.

Several cross-national studies have investigated the association between socioeconomic development and different measures of gender preference. Findings from these studies are mixed and inconclusive. Arnold and Kuo's 1984 study of attitudinal gender preferences in eight countries using the Value of Children Study found that the strength of boy preference varied across the nations examined. However, they concluded that neither the general level of development of a country nor individual background, such as educational attainment or residence, whether rural or urban, appear to be related to gender preferences. Tabutin and Willems (1995) conducted an exploratory study of 43 countries from the 1980s that looked at the relationship between sex differentials in child mortality (as an indicator of gender preference) and various socio-economic indicators. Contrary to their expectations, they found correlations between child mortality differentials and GDP per capita, average annual growth of GDP, adult literacy, and the UNDP human development index to be weak and not statistically significant. They did, however,

find that larger differences between girls and boys in the level of primary school enrollment were associated with excess female child mortality. Similarly, in a study of 38 countries using DHS data, Hill and Upchurch (1995) reported that higher ratios of female to male enrollment in primary school, an indicator reflecting the social status of women, was associated with smaller sex differences in infant/child mortality.

The findings of these studies may be mixed because they have examined only a small number of countries, or because they have analyzed behavioral measures but not attitudinal measures. We may be able to observe a more consistent pattern when attitudinal measures of preference, an underlying variable that may translate into gender discriminatory behavior, are examined across a large set of countries. In this study I investigate whether a set of basic indicators can explain variations in attitudinal gender preferences for children.

DATA AND METHODS

Data

I examine data from cross-sectional Demographic and Health Surveys (DHS) conducted in 40 less developed countries between 2000 and 2006. I analyze all DHS surveys that were conducted in 2000 or later and contain the ideal sex composition of children variable. If multiple surveys were conducted during this time frame, I only analyze the most recent survey. These criteria yielded 40 countries for examination.

The DHS collects data on a wide range of population and health topics and provides comparable measures across more than 75 countries. The DHS has incorporated questions about child gender preferences since 1992 and is currently the only source for doing cross-national examination of attitudinal measures of child gender preference in less developed countries. For most countries, data were collected from a sample of women of reproductive age (15-49) at the time of the survey. Women were sampled regardless of their marital status, except for a few countries that only surveyed ever-married women. For my study, I only analyze never-married women and currently married women (including women who are currently in a stable union such as living together). I am interested in the gender preferences of women who have future prospects of reproducing and whose gender preferences may be translated into certain behavior that favors one sex over the other. Currently married or cohabiting women are also appropriate for my analysis as they are likely to be in their prime reproductive time. I am less interested in widowed or divorced women because they may have already completed reproduction and/or have low prospects of childbearing in the near future.

Below are details of the dependent and independent variables used in my analyses. A summary of each of the variables included, are also presented in Table 1.

Table 1: Description of Dependent and Independent Variables

Variables	Description	Type and Coding
Dependent Variables		
Gender preference	Has son, daughter, or balance preference	Categorical (1=yes, 0=no)
Son preference	Has son preference	Categorical (1=yes, 0=no)
Demographic and Socioeconomic Variables		
Age	Age in years	Continuous
Marital status[1]	Currently married (includes "living together")	Categorical (1=yes, 0=never married)
Children	Has living children	Categorical (1=yes, 0=no)
Number of children[2]	Number of living children	Continuous
Sex composition of children[2]	More boys (boys>girls)	Categorical (1=yes, 0=no)
	More girls (girls>boys)	Categorical (1=yes, 0=no)
	Equal number of boys and girls (boys=girls)	Categorical (1=yes, 0=no)
Residence	Urban-rural residence	Categorical (1=urban, 0=rural)
Education	Years of education	Continuous
Occupation	Not working	Categorical (1=yes, 0=no)
	Agricultural/self-employed	Categorical (1=yes, 0=no)
	Non-agricultural employment	Categorical (1=yes, 0=no)
Household wealth	Household wealth index	Categorical (1=poorest, 2=poorer, 3=middle, 4=richer, 5=richest)

[1] Marital status not included in the following surveys because only married women were surveyed: Egypt, Bangladesh, Indonesia, Nepal, and Vietnam

[2] Among women with living children only

Dependent variable

In the DHS, women with living children were asked, “If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?” Women without living children were asked, “If you could choose exactly the number of children to have in your whole life, how many would that be?”

Women were then followed up by the question, "How many of these children would you like to be boys, how many would you like to be girls and for how many would the sex not matter?"

Using responses to these questions, I create a four-category variable measuring type of gender preference: no gender preference (No GP), balance preference (BP), son preference (SP), and daughter preference (DP). No GP is assigned to women who reported their ideal number of boys, girls, and child of either sex are "other" (i.e. up to god). No GP is also assigned to women whose ideal number of either sex of child is 1 or more *and* their ideal number of boys and girls are none. BP is assigned to women whose ideal number of boys is equal to the ideal number of girls. Women whose ideal number of boys is greater than the ideal number of girls are assigned to SP, and those reporting a preference for more girls than boys are assigned to DP. A small percentage of women in each country indicated that their ideal is to have no children. Since these women were not followed up with the question on their ideal sex composition of children, they are not included in the analyses. In my multivariate analyses, I make the distinction between women with son preference versus any other type of preference (No GP, BP, and DP). I also compare those with gender preference including balance preference, son preference, and daughter preference as opposed to those without any specific preference.

Socioeconomic variables

Place of residence is a binary variable that distinguishes those who live in urban areas to those who live in rural areas. Rural residents are the reference group.

Women's education is a continuous variable that assesses how many years of schooling a respondent has had. Although the range of values for this variable slightly varies across countries, it typically ranges from 0 years (no education) to about 18 years.

Women's occupation is a categorical variable based on the woman's self-reported occupational category. Women are assigned to one of the following three occupational categories: not working, agricultural, and non-agricultural employment. The non-agricultural category consists of women who are in professional, technical, managerial, clerical, sales, or skilled/unskilled manual labor. These three categories are each transformed into dummy variables, and the non-working is my reference category.

Household wealth index assesses the relative wealth of an individual household (relative to other households within the same country). The index places each household on a continuous scale of relative wealth based on each household's ownership of selected assets, dwelling characteristics, and types of water access and sanitation facilities. Standardizing these scores, each household is assigned to one of the following quintiles: 1=poorest, 2=poorer, 3=middle, 4=richer, and 5=richest. This index is pre-calculated and readily available in DHS datasets. Women in the poorest quintile are the reference group.

Demographic variables

Age. Women's age is a continuous variable measured in years. Age ranges from 15-49, reflecting the reproductive age group.

Marital status. As mentioned, I limit my analysis to never married women and currently married/cohabiting women. I create a dummy variable that distinguishes between the two statuses. Never married women are the reference group.

Sex composition of living children (only among women with living children). Since women with children may report an ideal in accordance with the sex composition of children they already have (i.e. rationalization), a set of dummy variables controlling for sex composition of living children are created. Women whose number of living boys and girls are equal are in one category. Women with more living boys than girls are in another category. Women whose number of living daughters exceeds the number of living sons are assigned to yet another category. Women with an equal number of sons and daughters are the reference category.

Analysis

I first show cross-national patterns of gender preference for children and descriptive information of my variables. Second, I present results from my logistic regression analysis. I report odds ratios predicting type of gender preference. While I have identified four possible types of gender preference (No GP, BP, SP, DP), in this paper I only focus on distinguishing two types of gender preference. In the first model, I estimate the odds of having gender preference (BP, SP, or DP) versus no gender preference (No GP). In the second model, I focus on the odds of having son preference. Hence I estimate odds of having son preference (SP) versus all other

types of gender preference (No GP, BP, DP). To facilitate presentation of my results, I show in four separate tables the results of the effect of each of the four major explanatory variables (education, household wealth, place of residence, and occupation).

All estimates are based on controlling for all other explanatory variables. Since I control for sex composition of living children for women who have children, I run analysis separately for those who have living children and those who do not. To account for the complex survey design employed by the DHS, all descriptive statistics and multivariate analyses are conducted using appropriate survey weights and survey estimation procedures in Stata 10.0.

RESULTS

Descriptive Statistics

Table 2 shows survey year, sample size, and descriptive statistics on gender preference and selected socioeconomic and demographic variables by country. Of the 40 countries in my sample, 23 of them are sub-Saharan African countries. Of the remaining 17 countries, 1 is in Central Asia, 7 are in Latin America and Caribbean, 2 are in North Africa, 3 are in South Asia, and 4 are in Southeast Asia. The distributions of the socioeconomic variables differ widely across the countries. For instance, the percentage of the sample living in urban areas ranges from 79.7% in Gabon to only 15.6% in Nepal. Occupational distributions vary as well. The percentage of women in the non-agricultural labor force varies from a high of 70.5% in Colombia to a low of 7.2% in Bangladesh. Levels of education differ substantially. Twelve of the countries in the sample have an average of seven or more years of education, while in several countries in sub-Saharan Africa the average is less than two years, suggesting that the majority of women in these countries have not had any formal schooling.

Table 2: Sample Size and Descriptive Statistics on Type of Gender Preference and Selected Demographic and Socioeconomic Variables by Survey

			Type of Gender Preference				Demographic and Socioeconomic Variables						
			%	%	%	%	%	%	%	%	Means		
Country	Survey year	Sample Size	No gender preference (No GP)	Balance preference (BP)	Son preference (SP)	Daughter preference (DP)	Living in urban	Non-ag labor force	Married or living together	With living children	Nummbr of living children[1]	Age	Years of education
Central Asia													
Armenia	2005	6,049	6.6%	60.6%	19.9%	12.9%	63.1%	21.2%	66.8%	62.7%	2.3	30.5	9.2
Latin America & Caribbean													
Bolivia	2003	15,171	17.6%	50.5%	17.5%	14.5%	69.1%	42.3%	66.5%	66.5%	3.3	28.6	8.0
Colombia	2005	34,035	15.3%	50.9%	12.8%	20.9%	76.0%	70.5%	57.0%	59.2%	2.5	28.2	8.5
Dominican Republic	2002	19,173	10.7%	41.3%	13.5%	34.5%	67.3%	38.3%	72.1%	67.4%	2.9	28.8	8.6
Haiti	2005	9,706	12.1%	57.3%	7.4%	23.2%	46.0%	40.3%	64.8%	56.3%	3.3	27.5	5.2
Honduras	2005	16,769	26.9%	36.9%	16.9%	19.3%	52.8%	34.6%	67.9%	66.2%	3.3	27.8	7.0
Nicaragua	2001	10,782	25.3%	42.1%	11.3%	21.3%	61.3%	38.5%	69.1%	65.9%	3.4	27.7	6.4
Peru	2000	24,951	24.6%	50.5%	11.9%	13.0%	69.6%	40.0%	61.3%	62.0%	3.0	29.0	8.9
North Africa / West Asia													
Egypt[2]	2005	18,070	46.8%	36.3%	11.4%	5.5%	41.2%	15.9%	100.0%	90.2%	3.1	32.7	6.7
Morocco	2003	15,801	27.3%	57.1%	8.2%	7.3%	60.1%	12.9%	55.5%	49.6%	3.4	29.2	4.0
South Asia													
Bangladesh[2]	2004	10,455	20.2%	59.7%	18.0%	2.0%	22.3%	7.2%	100.0%	88.2%	2.9	29.4	3.5
India	2005	117,084	22.4%	52.9%	22.1%	2.5%	32.8%	16.5%	78.8%	70.2%	2.0	28.7	5.2
Nepal[2]	2006	10,363	17.4%	51.7%	29.2%	1.6%	15.6%	11.3%	79.5%	71.2%	3.0	28.4	3.2
Southeast Asia													
Cambodia	2005	15,222	5.3%	53.4%	14.5%	26.8%	17.7%	31.3%	66.2%	61.1%	3.3	29.1	4.3
Indonesia[2]	2002	27,739	28.9%	50.4%	10.3%	10.4%	45.8%	27.5%	100.0%	92.1%	2.6	33.5	6.9
Philippines	2003	12,768	7.8%	53.3%	16.0%	22.8%	57.2%	46.8%	67.6%	63.1%	3.3	29.8	9.6
Vietnam[2]	2002	5,340	21.5%	64.1%	10.9%	3.4%	18.8%	34.5%	100.0%	95.0%	2.5	34.7	7.3

(Cont'd)

Table 2: Sample Size and Descriptive Statistics on Type of Gender Preference and Selected Demographic and Socioeconomic Variables by Survey (Cont'd)

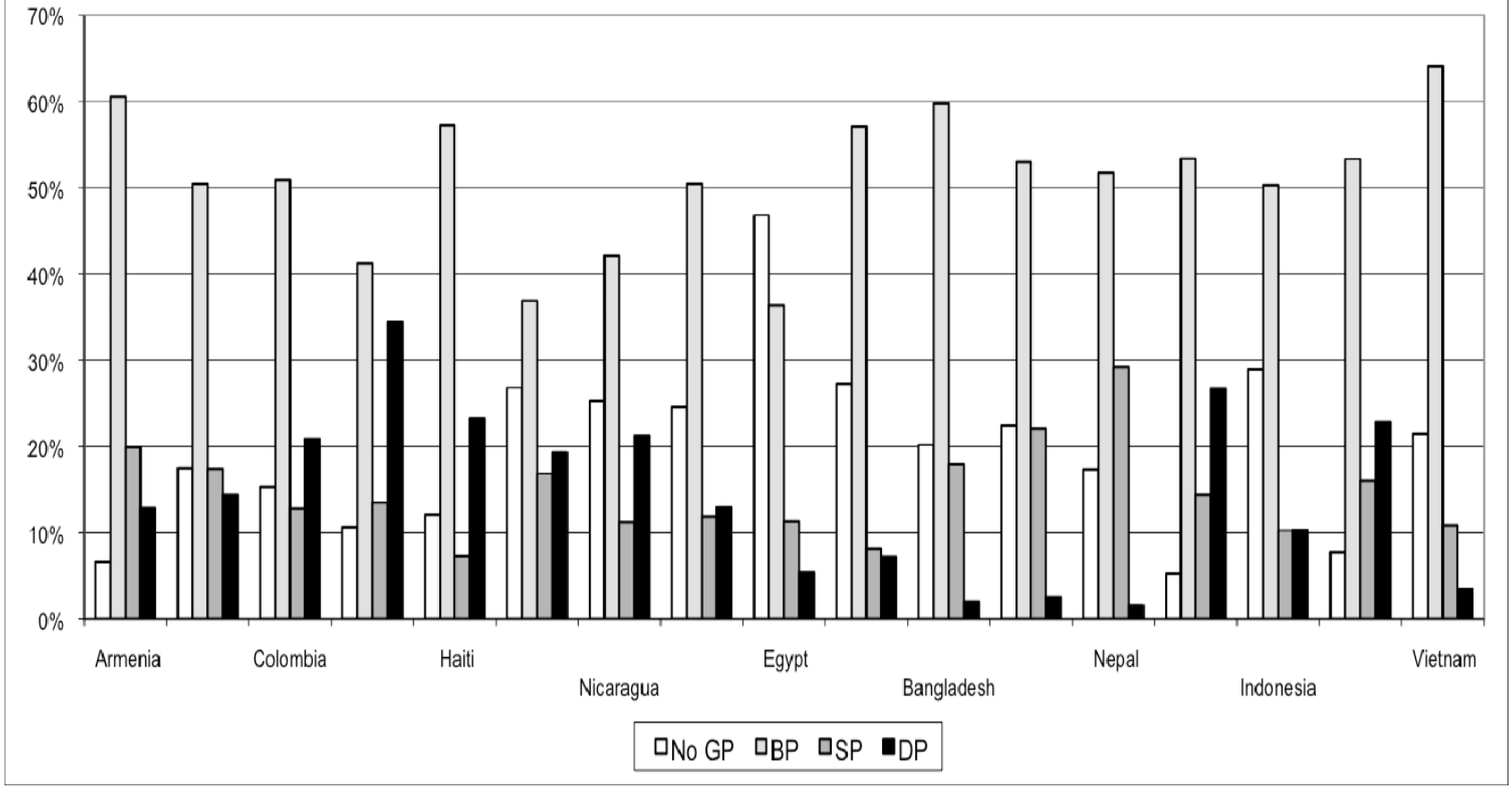
			Type of Gender Preference				Demographic and Socioeconomic Variables						
			%	%	%	%	%	%	%	%	Means		
Country	Survey year	Sample Size	No gender preference (No GP)	Balance preference (BP)	Son preference (SP)	Daughter preference (DP)	Living in urban	Non-ag labor force	Married or living together	With living children	Nummbr of living children[1]	Age	Years of education
Sub-Saharan Africa													
Benin	2006	16,737	26.4%	48.7%	15.1%	9.8%	40.8%	50.0%	79.2%	75.4%	3.5	28.5	2.3
Burkina Faso	2003	11,956	23.1%	33.1%	33.3%	10.5%	20.7%	19.1%	80.5%	74.1%	3.5	28.3	1.3
Cameroon	2004	9,639	37.0%	30.0%	15.5%	17.5%	54.0%	28.4%	73.8%	66.8%	3.4	26.9	5.6
Chad	2004	5,426	28.1%	36.1%	23.6%	12.3%	20.0%	17.2%	84.3%	76.5%	3.8	27.6	1.2
Congo Brazzaville	2005	5,993	27.1%	33.5%	17.9%	21.6%	55.8%	33.9%	65.8%	67.9%	2.9	27.1	7.1
Ethiopia	2005	11,344	14.5%	55.9%	22.0%	7.6%	17.2%	15.2%	72.5%	66.2%	3.8	27.3	2.0
Gabon	2000	5,297	16.3%	51.2%	12.4%	20.0%	79.7%	30.4%	62.0%	66.7%	3.2	26.6	6.9
Ghana	2003	5,147	13.8%	48.6%	20.9%	16.8%	48.3%	48.1%	68.8%	65.0%	3.3	28.4	5.9
Guinea	2005	7,499	21.3%	40.9%	26.5%	11.4%	30.2%	35.5%	83.3%	76.8%	3.4	29.4	1.4
Kenya	2003	7,241	28.6%	43.7%	15.1%	12.5%	24.6%	25.2%	67.3%	68.6%	3.4	27.5	7.3
Lesotho	2004	5,866	6.1%	56.7%	18.8%	18.4%	23.7%	24.4%	62.4%	63.2%	2.7	27.2	7.4
Madagascar	2003	6,809	15.8%	56.7%	16.3%	11.2%	24.7%	21.6%	75.5%	73.2%	3.4	28.8	4.6
Malawi	2004	10,131	11.1%	54.7%	13.1%	21.2%	18.1%	14.7%	81.2%	75.4%	3.2	27.0	4.8
Mali	2001	13,337	36.0%	32.0%	25.0%	8.0%	28.0%	35.1%	87.1%	79.1%	3.6	28.6	1.1
Mozambique	2003	10,580	8.0%	53.0%	18.4%	20.6%	35.0%	12.1%	81.8%	75.7%	3.2	28.2	2.5
Namibia	2000	5,973	14.4%	49.1%	14.9%	21.6%	40.9%	31.1%	42.0%	66.5%	2.9	27.8	7.6
Niger	2006	8,652	35.6%	25.5%	27.8%	11.2%	18.8%	26.9%	89.9%	80.6%	3.7	28.4	1.0
Nigeria	2003	7,232	21.2%	39.6%	28.4%	10.8%	34.1%	45.2%	73.5%	66.3%	3.5	27.7	5.1
Rwanda	2005	9,633	17.9%	51.4%	18.3%	12.4%	16.7%	10.1%	56.8%	56.6%	3.5	27.0	3.8
Senegal	2005	13,775	25.9%	30.0%	36.5%	7.6%	47.0%	32.1%	71.9%	62.4%	3.6	27.5	2.6
Tanzania	2004	9,284	15.4%	49.2%	19.0%	16.4%	28.0%	15.1%	74.7%	72.0%	3.4	27.6	5.2
Uganda	2006	7,363	17.5%	56.0%	10.3%	16.1%	16.2%	17.6%	72.7%	71.7%	4.0	27.2	5.1
Zambia	2001	6,545	18.9%	44.2%	14.1%	22.8%	39.5%	16.8%	71.4%	70.5%	3.4	26.7	5.9

[1] Among women with living children only

[2] Only ever married women were surveyed in these countries

Figures 1 & 2 provide visual presentations of cross-national patterns of gender preference for children. Figure 1 shows that in all but 1 of 17 non-sub-Saharan countries studied, balance preference is the most popular category of gender preference. The exception is Egypt where having no specific gender preference is most common of all preferences. In the majority of these countries, the second most popular type is to have no gender preference. Focusing on son preference and daughter preference, a variation across regions and countries can be observed. When comparing the percentage of women who have son preference and daughter preference, in all Latin American/Caribbean countries except Bolivia, more women report having a preference for daughters rather than sons. The percentage of women having daughter preference is especially high in the Dominican Republic (34.5%), and Haiti (23.2%). This pattern is consistent with anthropological research that has found matrifocal kinship patterns to be prevalent in the Caribbean, where daughters are valued (Gonzalez 1984). Daughter preference also prevails over son preference in Cambodia (26.8%) and the Philippines (22.8%). In Indonesia, the percentage of women with daughter preference (10.3%) is about the same as the percentage with son preference (10.4%). This finding is in line with Arnold and Kuo's (1984) study, which found a tendency for daughter preference in a few Southeast Asian countries with a Malayo-Polynesian background, including Indonesia and the Philippines. Consistent with findings from earlier studies, son preference is more common than daughter preference in countries of North Africa, West Asia, and South Asia. The percentage of women with son preference is highest in Nepal at 29.2%. Countries with high percentages of son preferences also appear to have extremely low percentages of daughter preference. In Bangladesh, Egypt, India, Nepal, and Vietnam, only 2.0%, 5.5%, 2.5%, 1.6%, and 3.4% of women have daughter preference, respectively.

Figure 1: Percentage in Each Gender Preference Category by Country (Non-Sub-Saharan African Countries)



Within sub-Saharan Africa (Figure 2), the most common type of gender preference is balance preference. Of the 23 sub-Saharan African countries in the sample, balance preference is most popular in 18. Having no gender preference is the most common type in 3 of the 19 countries and it is the second most popular type in 5 of these countries. Comparing the percentage of women with son preference to those with daughter preference, some variation can be observed. In 15 of the 23 sub-Sahara African countries, more women have son preference than daughter preference. Sub-Saharan African countries that had substantial son preference as reported in DHS surveys from the early 1990s (Arnold 1997) continue to have considerable son preference in the 2000s (i.e. Mali and Senegal). Son preference is especially prominent today in Burkina Faso and Senegal, where more than 30% of women have son preference than daughter preference. In 8 of the 23 countries, daughter preference is more prevalent than son preference.

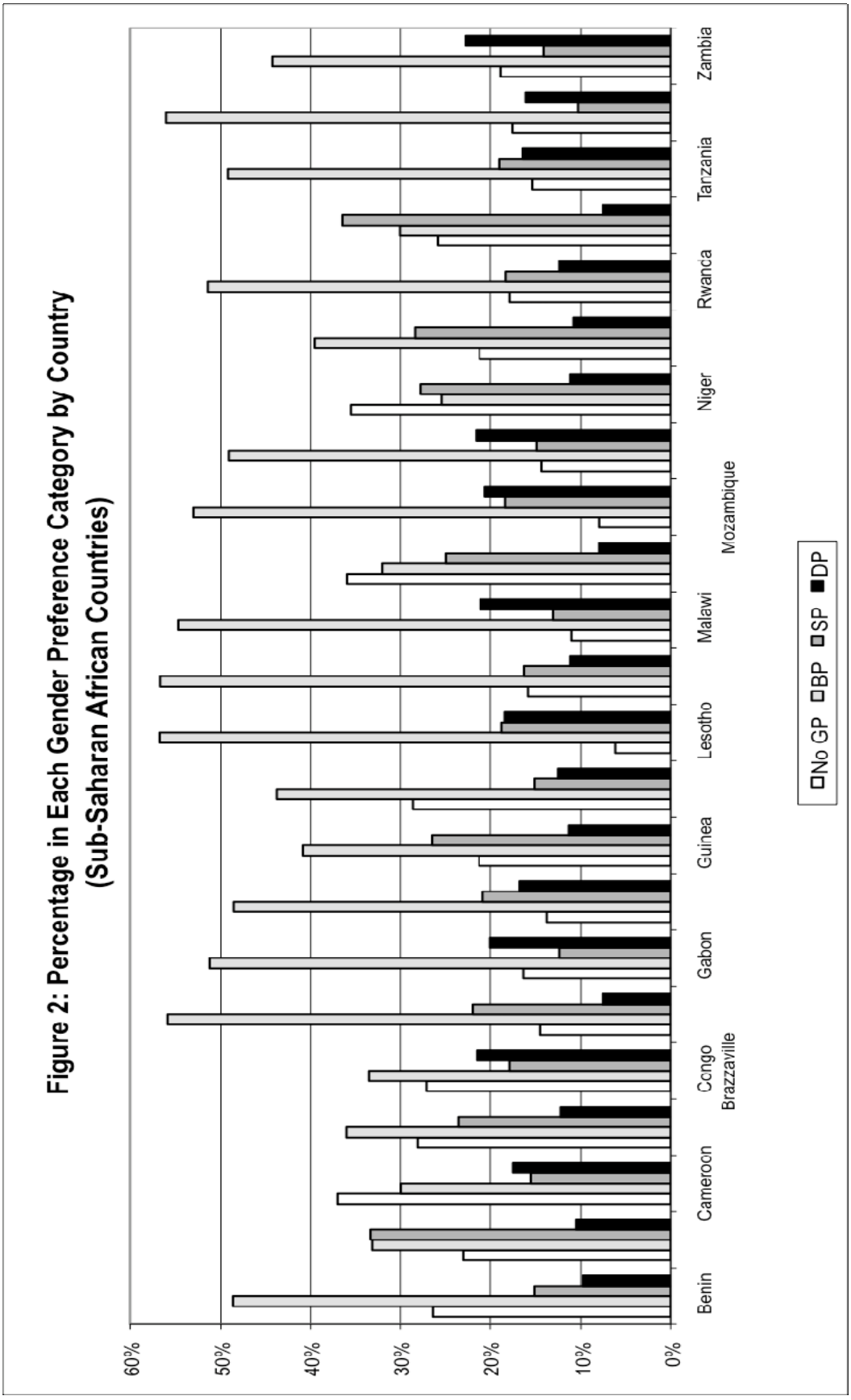


Figure 2: Percentage in Each Gender Preference Category by Country
(Sub-Saharan African Countries)
60%
50%
40%
30%
20%
10%
0%
Benin
Cameroon
Congo Brazzaville
Gabon
Guinea
Lesotho
Malawi
Mozambique
Niger
Rwanca
Tarzania
Zambia
No GP
BP
SP
DP

Multivariate Results

Tables 3 -6 present summary results from my multivariate analysis. These tables show odds ratio estimates from logistic regressions of the effect of education (Table 3), household wealth (Table 4), place of residence (Table 5), and occupation (Table 6) on type of gender preference.

Education

Table 3 presents odds ratios estimates of the effect of education on type of gender preference. The effect of education on gender preference varies somewhat by country and region. In Latin America and the Caribbean, education is generally not associated with having any gender preference, or with son preference. Among Bolivian women with children, higher education decreases the odds of son preference. In Peru, however, education increases the odds of having some type of gender preference, both among Peruvian women with living children and those without any.

A somewhat consistent pattern is evident in North Africa/West Asia and South Asia. In Egypt and Morocco, the odds of having son preference decrease with education, among women with children. In other words, women with less education tend to prefer sons. In all South Asian countries, higher education significantly decreases women's odds of having any gender preference. Moreover, higher levels of education are associated with a lower likelihood of son preference, a finding that lends support to the modernization perspective. A supplemental finding (not reported in the tables) is that the sex composition of living children included in the analysis of women with children to control for rationalization has an interesting effect only in India. In all other countries examined, having a greater number of boys than girls is associated with reporting son preference while having more daughters than sons decreases the odds of indicating son preference, as expected. However, only in India, women with more daughters than sons are significantly more likely to exhibit son preference.

In Southeast Asia, the effect of education on gender preference is mixed. Among Cambodian women with children, higher education is associated with having gender preference. In contrast, having more education decreases Vietnamese women's odds of exhibiting any gender preference, and also son preference.

Overall, in non-sub-Saharan African countries, lower levels of education generally appear to be associated with having a gender preference. Additionally, lower educational attainment is associated with son preference in countries where son preference exceeds daughter preference.

In sub-Saharan Africa, higher education, if any, tends to increase the odds of having any gender preference and son preference. Education is especially associated with having gender preference among women without children and women with children even after controlling for the sex composition of women's living children. Women with children who have had some formal schooling tend to have a specific gender preference (either balance preference, son preference, or daughter preference), regardless of the prominent type of gender preference in a given country.

Table 3: Odds ratios of the effect of education predicting type of gender preference

	No living children				Have living children			
Country	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Central Asia								
Armenia	1.04		1.01		0.97		1.00	
Latin America & Caribbean								
Bolivia	0.99		1.00		0.98		0.97	***
Colombia	1.02		1.02		0.99		1.00	
Dominican Republic	1.01		1.03		1.00		1.00	
Haiti	1.02		1.02		1.00		1.02	
Honduras	1.01		1.00		0.99		0.99	
Nicaragua	1.01		1.02		0.99		0.99	
Peru	1.04	**	1.01		1.02	**	0.99	
North Africa / West Asia								
Egypt	1.00		0.99		1.00		0.98	*
Morocco	1.02	**	1.02		1.01		0.97	*
South Asia								
Bangladesh	0.99		0.94		0.98	*	0.95	***
India	0.95	***	0.89	***	0.96	***	0.93	***
Nepal	0.90	***	0.78	***	0.92	***	0.88	***
Southeast Asia								
Cambodia	1.06	**	1.01		1.00		1.00	
Indonesia	1.02		1.05		1.02	**	1.02	*
Philippines	0.99		1.01		1.00		1.01	
Vietnam	0.91	*	0.91		0.95	**	0.93	***

(Cont'd)

Table 3: Odds ratios of the effect of education predicting type of gender preference (Cont'd)

	No living children				Have living children			
Country	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Sub-Saharan Africa								
Benin	1.04	**	1.04	*	1.02	*	1.00	
Burkina Faso	1.03		1.00		1.03		0.99	
Cameroon	1.07	***	1.01		1.08	***	1.01	
Chad	1.02		1.04		1.07	**	1.03	
Congo Brazzaville	1.14	***	1.06		1.04	**	1.02	
Ethiopia	1.13	***	1.00		1.13	***	0.97	
Gabon	1.07	*	1.10	**	1.09	***	1.06	*
Ghana	1.00		1.03		1.04	**	0.98	
Guinea	1.12	***	1.01		1.07	***	1.01	
Kenya	1.00		1.01		1.06	***	1.03	*
Lesotho	1.03		1.09	**	0.97		0.99	
Madagascar	1.04		1.05		1.06	*	1.03	
Malawi	0.95		1.06		1.03		1.00	
Mali	1.10	*	0.99		1.06	***	1.00	
Mozambique	1.03		1.02		1.12	***	1.01	
Namibia	1.04		1.02		1.00		1.00	
Niger	1.08	***	1.07	***	1.05	**	1.02	
Nigeria	1.11	***	1.06	***	1.07	***	1.02	*
Rwanda	0.98		1.01		0.99		0.98	*
Senegal	1.10	***	1.02	*	1.09	***	1.02	*
Tanzania	1.01		1.06	*	1.01		1.01	
Uganda	1.05	*	1.05	*	1.03	*	0.96	*
Zambia	1.08	***	1.08	*	1.13	***	1.02	

Level of significance: * p<.05; ** p<.01; *** p<.001

Note: controlling for all other social and demographic variables

Household Wealth

Table 4 presents logistic regression results of the effect of household wealth on type of gender preference. In several North African and Asian countries, having more household wealth significantly decreases the odds of having gender preference (India and Nepal) and son preference (Morocco, India, Nepal, Cambodia). This finding is consistent with the notion that sons are valued in patriarchal societies because they are expected to bring wealth to the family, and thus poorer families have more incentive to have sons. An interesting finding on Latin America and the Caribbean is that in Haiti, a country with overall daughter preference, women with children who are in lower quintiles are more likely to have son preference as opposed to any other type of gender preference.

In sub-Saharan Africa there appears to be no systematic pattern in the effect of household wealth on gender preference. In several countries, among women with living children, those with more wealth are less likely to have any gender preference (Burkina Faso, Kenya, Lesotho, Senegal, and Zambia), or son preference (Guinea, and Mali). However, among women without children, being in a higher wealth quintile is associated with having gender preference (Cameroon, Gabon, Mozambique, and Uganda). Childless Kenyan women who are in the middle wealth quintile are less likely to have son preference than women with the least wealth. In Madagascar, women without children who are in the highest wealth quintile tend to have a preference for sons.

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference

	No living children				Have living children			
	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Central Asia								
Armenia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.65		0.82		1.21		1.39	
Middle	1.44		0.85		0.95		1.32	
Richer	1.81		1.03		0.80		1.00	
Richest	1.35		1.14		0.85		1.33	
Latin America & Caribbean								
Bolivia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.08		0.52	**	1.37	**	1.14	
Middle	1.01		0.70		1.26		1.22	
Richer	0.81		0.84		1.13		1.35	*
Richest	0.78		0.82		0.97		1.49	**
Colombia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.92		1.00		0.88		1.13	
Middle	0.81		1.11		0.82		1.20	
Richer	0.83		1.11		0.75	**	1.16	
Richest	0.89		1.02		1.03		1.09	
Dominican Republic								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.95	**	1.12		0.99		1.04	
Middle	1.03		1.05		0.98		1.20	
Richer	1.04		0.97		0.81		1.15	
Richest	1.08		1.20		0.86		0.93	

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children			Have living children		
	GP vs. No GP		SP vs. Others	GP vs. No GP		SP vs. Others
Haiti						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.06		0.55	0.90		0.75
Middle	1.03		0.73	1.16		0.60 *
Richer	0.88		0.62	1.04		0.49 **
Richest	0.95		0.49	0.82		0.43 **
Honduras						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.10		1.04	1.12		0.91
Middle	0.98		0.89	1.35	***	1.08
Richer	1.02		0.93	1.27	*	1.00
Richest	1.19		1.06	1.46	**	1.03
Nicaragua						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.25		0.93	1.10		0.97
Middle	1.17		0.80	1.06		0.81
Richer	1.22		0.75	1.19		0.72
Richest	1.58	*	0.71	1.39	*	0.76
Peru						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.35	*	1.28	1.31	***	1.00
Middle	1.45	*	1.17	1.45	***	0.89
Richer	1.39	*	1.10	1.25		0.88
Richest	1.48	*	1.38	1.07		0.84
North Africa / West Asia						
Egypt						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.13		1.18	0.96		1.05
Middle	1.37		2.52 **	1.05		1.01
Richer	1.51	*	1.43	1.11		0.85
Richest	1.92	*	0.98	1.29	**	1.02
Morocco						
Poorest†	1.00		1.00	1.00		1.00
Poorer	1.08		0.81	1.12		0.84
Middle	1.39	*	0.85	1.23		0.80
Richer	1.22		0.62 *	1.13		0.88
Richest	1.03		0.57 *	1.10		0.77

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children				Have living children			
	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
South Asia								
Bangladesh								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.81		0.69		1.10		0.87	
Middle	0.73		0.63		1.24	*	0.84	
Richer	0.78		0.60		1.11		0.89	
Richest	0.62		0.66		1.02		0.79	
India								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.91		0.96		0.96		0.84	***
Middle	0.83	*	0.78	***	0.82	***	0.75	***
Richer	0.75	***	0.66	***	0.77	***	0.72	***
Richest	0.60	***	0.75	**	0.68	***	0.72	***
Nepal								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.05		1.15		1.37		1.14	
Middle	0.66		0.97		0.93		1.06	
Richer	0.38	***	0.77		0.67	*	0.74	**
Richest	0.37	***	0.53		0.67	*	0.58	***
Southeast Asia								
Cambodia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.20		0.93		1.20		1.13	
Middle	0.93		0.73		1.22		0.94	
Richer	1.17		0.60	**	1.38		0.87	
Richest	0.81		0.56	**	0.79		0.74	*
Indonesia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.11		0.53		1.10		0.96	
Middle	1.04		0.44	*	1.04		0.88	
Richer	0.65		0.61		1.07		0.79	
Richest	0.63		0.42		1.00		0.78	
Philippines								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.31		1.16		1.41	*	1.06	
Middle	1.23		0.89		1.44	*	0.93	
Richer	1.12		1.06		1.52	*	1.00	
Richest	1.07		0.99		1.32		0.95	

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children				Have living children			
	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Vietnam								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.74		2.08		0.97		1.09	
Middle	0.80		0.43		0.71		1.41	*
Richer	3.73	*	0.80		0.89		1.34	
Richest	1.20		2.54		0.85		1.75	
Sub-Saharan Africa								
Benin								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.99		1.09		0.99		0.92	
Middle	0.92		1.24		0.90		0.88	
Richer	0.89		0.79		0.87		0.73	
Richest	1.04		0.81		0.84		0.68	
Burkina Faso								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.76		0.99		0.83		0.94	
Middle	0.75		0.94		0.75	**	0.95	
Richer	1.01		1.38		0.81		1.07	
Richest	0.74		1.02		0.66	*	0.81	
Cameroon								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.55	*	1.24		1.07		0.94	
Middle	1.62	**	1.69	*	1.18		1.27	
Richer	1.84	**	1.40		1.26		1.19	
Richest	1.45		1.23		1.39	*	0.98	
Chad								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.08		0.95		1.10		0.89	
Middle	0.89		0.87		1.54		1.23	
Richer	0.87		0.66		1.40		1.08	
Richest	1.54		0.78		1.09		1.09	
Congo Brazzaville								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.55	*	0.58		1.10		0.87	
Middle	0.87		1.46		1.08		0.73	
Richer	0.83		1.14		1.07		0.80	
Richest	0.84		1.23		0.83		0.73	

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children				Have living children			
	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Ethiopia								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.12		0.94		0.99		0.94	
Middle	1.50		0.88		1.23		1.13	
Richer	1.78		0.74		1.22		0.96	
Richest	1.59		0.73		1.03		0.94	
Gabon								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.33		0.95		1.19		0.99	
Middle	1.57		1.92		1.34		1.33	
Richer	1.48		1.62		1.26		1.21	
Richest	1.96	*	1.96		1.06		0.97	
Ghana								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.28		0.59	*	1.27		0.76	
Middle	1.33		0.66		1.03		0.66	**
Richer	1.63		0.88		0.93		0.66	
Richest	1.82		0.69		0.71		0.65	
Guinea								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.79		1.21		1.14		0.84	
Middle	1.09		1.27		0.92		0.76	*
Richer	0.73		1.19		0.68	**	0.66	**
Richest	1.18		1.91	*	1.23		0.99	
Kenya								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.40		0.50	*	1.08		0.81	
Middle	1.63	*	0.43	**	0.88		0.76	
Richer	1.29		0.60	*	0.77		0.83	
Richest	0.84		0.70		0.63	*	0.67	
Lesotho								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	0.77		1.01		0.52	*	0.85	
Middle	0.63		1.27		0.54	*	1.03	
Richer	0.75		0.92		0.36	***	0.72	
Richest	0.86		1.05		0.51	*	0.91	
Madagascar								
Poorest†	1.00		1.00		1.00		1.00	
Poorer	1.37		1.37		1.14		1.50	*
Middle	0.93		1.12		0.89		1.51	*
Richer	1.04		1.95		1.00		1.48	
Richest	1.05		2.59	*	0.97		1.27	

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children		Have living children	
	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others
Malawi				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.11	0.98	1.21	1.03
Middle	0.81	1.34	1.05	1.16
Richer	1.00	1.19	1.20	1.10
Richest	1.25	1.16	1.27	1.08
Mali				
Poorest†	1.00	1.00	1.00	1.00
Poorer	0.73	0.84	0.98	0.89
Middle	0.86	0.85	0.88	0.98
Richer	1.22	1.15	0.79	0.85
Richest	1.36 *	1.08	0.72	0.73 *
Mozambique				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.33	1.31	1.11	1.02
Middle	1.06	1.35	1.11	0.99
Richer	2.60 *	1.42	1.51	1.38 **
Richest	1.78	1.25	1.09	1.22
Namibia				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.19	0.57 *	0.78	0.85
Middle	0.87	0.77	0.75	1.27
Richer	0.74	0.84	1.05	1.42
Richest	1.15	0.79	1.19	1.85 *
Niger				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.03	0.75	1.10	1.18
Middle	0.65	0.63	1.00	1.04
Richer	0.92	0.89	1.10	1.20
Richest	0.63	0.64	0.88	0.91
Nigeria				
Poorest†	1.00	1.00	1.00	1.00
Poorer	0.84	1.03	1.18	1.02
Middle	1.24	1.13	1.22	0.92
Richer	0.87	0.95	1.30	0.93
Richest	1.41	0.73	1.11	1.08
Rwanda				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.13	0.94	1.19	0.97
Middle	1.02	0.91	1.20	0.93
Richer	1.03	0.94	1.20	0.97
Richest	1.35	1.12	1.15	1.09

(Cont'd)

Table 4: Odds ratios of the effect of household wealth predicting type of gender preference (Cont'd)

	No living children		Have living children	
	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others
Senegal				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.00	1.21	0.82	0.90
Middle	0.96	1.02	0.84	1.17
Richer	1.07	0.95	0.80	1.03
Richest	1.36	1.13	0.67 *	0.99
Tanzania				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.17	1.30	1.06	0.98
Middle	1.26	1.10	0.86	0.90
Richer	1.62	1.27	0.82	0.81
Richest	0.78	0.98	0.75	0.85
Uganda				
Poorest†	1.00	1.00	1.00	1.00
Poorer	1.37	0.68	1.17	0.96
Middle	1.74	0.67	1.60 ***	0.82
Richer	2.49 ***	0.59	2.01	0.88
Richest	2.70 ***	0.52	2.43	0.69
Zambia				
Poorest†	1.00	1.00	1.00	1.00
Poorer	0.91	0.97	0.96	0.79
Middle	1.17	0.91	0.87	0.95
Richer	0.81	0.83	0.98	0.92
Richest	0.59	1.28	0.67 *	0.83

Level of significance: * p<.05; ** p<.01; *** p<.001

† Indicates reference category

Note: controlling for all other social and demographic variables

Urban Residence

Table 5 shows the effect of urban residence (as opposed to rural residence) on type of gender preference controlling for all other factors. The effect varies substantially among countries. In Armenia, urban women who have children are less likely to have son preference. In Bolivia, childless urban residents are more likely to have gender preference. Urban residents with children in Haiti tend to have son preference than their rural counterparts. When we focus on North Africa, West Asia, South Asia, and Southeast Asia, urban residents are less likely to have any gender preference (India), and son preference (Egypt, Bangladesh, India, Cambodia, the Philippines). This finding is consistent with the modernization perspective, recognizing

urbanization's positive effect on women's status. Interestingly, in two Southeast Asian countries (Cambodia and the Philippines) where daughter preference is more prevalent than son preference, rural residence is associated with son preference among women with children. Unlike other countries in the region, in Bangladesh, urban women with children are more likely to have a specific gender preference for children.

In sub-Saharan Africa there is no apparent trend by urban or rural residence. In some countries urban dwellers are significantly more likely to have gender preference (Madagascar, Rwanda, and Zambia), or son preference (Rwanda), while in others urban residence decreases the odds of having any gender preference (Malawi), and son preference (Ethiopia and Tanzania).

Table 5: Odds ratios of the effect of urban residence predicting type of gender preference

	No living children				Have living children			
	GP vs. No GP		SP vs. Others		GP vs. No GP		SP vs. Others	
Central Asia								
Armenia	0.47		0.85		1.01		0.72	*
Latin America & Caribbean								
Bolivia	1.66	*	1.12		1.14		0.87	
Colombia	1.15		1.20		1.16		0.93	
Dominican Republic	0.96		1.07		1.00		1.05	
Haiti	0.82		1.39		1.11		1.43	*
Honduras	1.06		0.91		1.13		1.12	
Nicaragua	0.84		1.11		0.96		1.18	
Peru	1.17		1.10		1.18		0.92	
North Africa / West Asia								
Egypt	0.91		0.86		0.93		0.76	**
Morocco	1.11		0.80		0.95		0.88	
South Asia								
Bangladesh	1.37		0.88		1.21	*	0.82	*
India	0.89	*	0.60	***	0.83	***	0.78	***
Nepal	0.96		0.83		0.84		0.86	
Southeast Asia								
Cambodia	1.01		1.02		0.81		0.78	*
Indonesia	1.07		1.75		0.93		1.10	
Philippines	0.78		0.81	*	0.92		0.85	*
Vietnam	0.99		0.40		0.85		0.70	
Sub-Saharan Africa								
Benin	0.79		1.02		0.87		0.87	
Burkina Faso	0.94		0.76		0.97		1.00	
Cameroon	1.15		1.04		1.04		0.96	
Chad	0.85		0.88		0.87		0.86	

(Cont'd)

Table 5: Odds ratios of the effect of urban residence predicting type of gender preference (Cont'd)

	No living children			Have living children		
	GP vs. No GP	SP vs. Others		GP vs. No GP	SP vs. Others	
Congo Brazzaville	1.51	0.67		1.15	1.12	
Ethiopia	0.90	0.56	**	1.17	0.64	*
Gabon	0.98	0.94		1.08	0.90	
Ghana	0.87	0.96		1.00	1.04	
Guinea	1.57	0.85		1.04	0.93	
Kenya	0.96	0.76		0.80	1.15	
Lesotho	1.21	1.38		1.30	1.12	
Madagascar	1.21	0.92		1.44	* 0.94	
Malawi	0.57	* 0.98		0.63	0.93	
Mali	1.05	0.97		1.41	1.12	
Mozambique	0.83	0.94		0.78	0.83	
Namibia	0.82	1.43		0.99	0.92	
Niger	1.42	0.84		1.44	1.08	
Nigeria	0.71	0.91		0.84	0.82	
Rwanda	1.00	1.15		1.38	* 1.34	**
Senegal	1.10	1.00		1.18	0.96	
Tanzania	1.13	0.99		0.86	0.75	*
Uganda	0.78	1.47		0.66	1.15	
Zambia	1.94	** 1.10		1.04	1.19	

Level of significance: * p<.05; ** p<.01; *** p<.001

Note: controlling for all other social and demographic variables

Occupation

Finally, logistic regression results of the effect of occupation on type of gender preference are shown in Table 6. As mentioned, my analysis examines occupation in three categories (not working, agricultural labor, non-agricultural labor). Here I contrast women who are working, either in agriculture or in non-agricultural occupations to women who are not working. In Latin America and the Caribbean, aside from a few countries, occupational type does not appear to be associated with type of gender preference. Childless working women (either in agriculture or in the modern sector) are significantly more likely to have any gender preference (Peru), and son preference (Colombia and Peru). Interestingly, among Nicaraguan women with children, those in the non-agricultural labor force have higher odds of exhibiting gender preference but have lower odds of exhibiting son preference than those who are not in the labor force. Since daughter preference slightly exceeds son preference in Peru, perhaps women in the modern sector tend to have daughter preference.

An interesting pattern can be observed in North Africa and in South Asia. Among Moroccan women with children, women in agriculture are more likely to prefer sons. In Nepal, however, agricultural women have significantly lower odds of having son preference. In India and Nepal, consistent with the modernization perspective, women working in the modern sector have lower odds of having any gender preference, and son preference.

In sub-Saharan Africa, working in agriculture appears to be associated with gender preference, although there is no consistent pattern among countries. Agricultural women in many of sub-Saharan countries, especially agricultural women with children, tend to have a gender preference (Benin, Cameroon, Kenya, Nigeria, and Rwanda). But in other countries, they are less likely to have a gender preference (Congo, Gabon, Lesotho, Malawi, Mali, and Zambia). In Benin, Ethiopia, Guinea, Madagascar, and Mozambique, women in agriculture tend to have a preference for sons; but in Chad, Gabon, Mali, and Zambia, such women are less likely to have son preference.

In some sub-Saharan countries, women in non-agricultural employment (the modern sector) are less likely than non-working women to have any gender preference (Cameroon, Chad, Namibia, Niger, and Uganda), or son preference (Cameroon, Guinea). In other countries, however, women in non-agricultural employment are more likely to have a gender preference (Benin, Guinea, Kenya, Mali, Nigeria, and Senegal), or son preference (Mali, Nigeria, and Rwanda).

Table 6: Odds ratios of the effect of occupation predicting type of gender preference

	Agricultural, self-employed (vs. not working)				Non-agricultural employment (vs. not working)			
	No living children		Have living children		No living children		Have living children	
	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others
Central Asia								
Armenia	14.98 *	0.97	1.09	1.37	1.01	1.05	0.99	0.99
Latin America & Caribbean								
Bolivia	0.91	1.11	0.85	1.00	1.00	0.92	1.01	1.04
Colombia	1.00	2.10 ***	0.97	1.28	1.03	1.33 **	1.13	1.03
Dominican Republic	1.74	0.79	1.08	0.94	0.83	1.01	1.10	1.03
Haiti	1.35	0.91	0.73	0.78	1.04	1.09	0.97	0.83
Honduras	1.09	1.00	0.98	1.09	1.05	1.12	1.06	0.99
Nicaragua	1.11	1.27	1.07	1.00	0.85	0.79	1.01 *	0.61 *
Peru	1.21 *	1.31	1.19 *	0.99	1.13 *	1.35 *	1.11	1.13
North Africa / West Asia								
Egypt	0.76	0.79	0.93	0.92	0.90	0.68	0.96	1.15
Morocco	1.03	1.17	1.15	1.54 **	0.95	1.18	0.88	1.24
South Asia								
Bangladesh	1.03	1.04	1.15	0.96	0.66	0.82	0.92	1.15
India	1.13 *	1.01	1.00	0.99	0.95	0.75 ***	0.87 ***	0.87 ***
Nepal	0.90	0.47 ***	0.99	0.63 ***	0.84	0.31 ***	0.58 **	0.39 ***
Southeast Asia								
Cambodia	1.60 *	1.19	1.20	1.32	2.12 ***	0.90	1.33	1.01
Indonesia	1.49	1.52	1.04	1.16	1.16	1.61	1.02	1.13
Philippines	0.64	1.09	1.06	1.09	0.85	1.05	0.91	0.95
Vietnam	1.53	0.65	0.81	1.04	1.16	1.19	0.84	0.84
Sub-Saharan Africa								
Benin	1.33	1.81 ***	1.43 **	1.21	1.11	1.09	1.49 ***	0.94
Burkina Faso	0.74	0.97	1.14	1.13	0.82	0.90	1.21	1.08
Cameroon	1.04	0.87	1.24 *	0.85	0.80 *	1.01	1.14	0.66 **
Chad	1.19	0.63 *	0.94	0.84	0.73	1.02	0.56 ***	1.02
Congo Brazzaville	0.81	1.12	0.60 *	0.75	1.31	0.86	1.15	1.05
Ethiopia	1.68 *	1.19	1.32	1.23 *	1.07	1.09	1.08	0.99
Gabon	0.59	0.55	0.57 ***	0.55 *	0.67	0.93	0.90	1.18

Table 6: Odds ratios of the effect of occupation predicting type of gender preference

	Agricultural, self-employed (vs. not working)				Non-agricultural employment (vs. not working)			
	No living children		Have living children		No living children		Have living children	
	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others	GP vs. No GP	SP vs. Others
Ghana	1.01	1.21	1.12	0.97	1.13	0.79	1.29	0.99
Guinea	1.75 *	1.51 *	0.92	0.82	1.90 ***	1.33	1.24	0.78 *
Kenya	0.85	0.72	1.44 ***	0.96	0.98	1.35	1.34 **	1.04
Lesotho	0.82	0.99	0.64 *	0.97	0.74	0.72	1.27	1.07
Madagascar	1.41	2.19 *	1.13	1.22	1.19	0.82	0.90	1.27
Malawi	1.04	1.26	0.66 ***	0.97	0.95	1.06	0.93	1.07
Mali	0.89	0.95	0.75 *	0.77 *	1.48 **	1.48 **	1.45 ***	1.27 **
Mozambique	0.98	1.51 *	1.08	1.18	0.82	1.38	1.30	1.06
Namibia	0.54	0.81	1.16	1.80 *	1.07	1.06	0.72 *	0.81
Niger	0.85	1.18	1.13	1.06	0.78	0.87	0.80 *	0.86
Nigeria	2.58 **	0.90	1.89 **	1.35	1.16	1.10	1.38 **	1.32 **
Rwanda	1.23	1.04	1.40 **	1.06	1.20	1.50 ***	1.02	1.15
Senegal	1.38	0.99	1.16	1.06	1.28 *	1.20	1.12	0.94
Tanzania	0.93	1.24	1.12	1.03	1.14	1.34	1.08	1.11
Uganda	0.82	1.08	0.78	1.05	0.68	0.82	0.64 *	1.01
Zambia	1.07	1.09	0.80 *	0.79 *	0.71	0.84	0.82	0.96

Level of significance: * p<.05; ** p<.01; *** p<.001

Note: controlling for all other social and demographic variables

DISCUSSION AND CONCLUSION

This study examined cross-national variations in women's gender preferences for children by taking advantage of 40 recent Demographic and Health Surveys that include attitudinal questions about one's gender preference for children. To my knowledge, there are no recent studies that systematically analyze attitudinal gender preferences for children cross-nationally. Moreover, little is known about whether and what basic socioeconomic determinants can explain variations in gender preferences for children.

This research has found wide variation in the distribution of type of gender preference across countries and regions. In the vast majority of countries the most common type of gender preference is balance preference—that is, a preference for an equal number of sons and daughters. In most of the 40 countries examined, having no specific gender preference is the next common attitude among women. Daughter preference prevails in Latin America/Caribbean except in Bolivia. Son preference is prevalent in Central Asia, North Africa/West Asia, South Asia, and Southeast Asia—with the exception of Cambodia and the Philippines where daughter preference exceeds son preference. In sub-Saharan Africa, son preference prevails in about two-thirds of the countries, and daughter preference in the other third.

In sum, the study demonstrates that son preference is not always the dominant type of gender preference, and daughter preference is quite common in some places. The fact that different societies have different attitudes about gender preference calls for more research to understand the context of each specific situation.

There is substantial variation in the effect of socioeconomic variables on type of gender preference and some key findings can be pointed out. My study found no consistent pattern among sub-Saharan African countries. Variation in common gender preference types, as well as variations in the effect of socioeconomic factors, across sub-Saharan African countries may reflect variations in the population's ethnic make-up, religious background, lineage and kinship ties, inheritance laws, and presence of the dowry system, which the present analysis was not able to account for. For instance, one study has observed that rural Kenyan women prefer sons because when they become widows, they are granted access to land only through male children (Kiriti and Clem 2005). Such inheritance laws can be a strong force for son preference regardless of a woman's socioeconomic background.

In countries outside of sub-Saharan African, socioeconomic variables explain gender preferences for children in ways that might be predicted from previous studies, particularly in countries that have pronounced son preference. In countries where son preference exceeds daughter preference, lower levels of educational attainment are generally associated with gender preference, and with son preference. This pattern is consistent with previous research in India (Arokiasamy 2002; Pande and Astone 2007) and Nepal (Leone, Matthews, and Zuanna 2003) showing that increases in women's educational attainment reduce son preference. In several Asian countries, lower levels of household wealth are associated with son preference, indicating that poorer women desire sons that potentially could bring wealth to the family. In some Latin American and Caribbean populations, urban residents are more likely than rural residents to have any gender preference, and son preference in particular. In much of Asia, however, urban residents are less likely to have gender preference and/or son preference. In terms of women's occupation, the effect of agricultural labor is not consistent across countries with widespread son preference, which may be attributed to differences in the prominent type of agriculture in each country. As expected, women in the modern labor sector are less likely to have gender preference and/or son preference in these countries.

Several limitations of this research should be pointed out. First, the reason that the socioeconomic variables did not explain much variation in gender preference of Latin America and Caribbean may be that my analysis heavily focused on predictors of son preference. Daughter preference is prevalent in Latin America and the Caribbean, as well as many Southeast Asian and sub-Saharan African countries. Therefore, when examining on son preference, I was only focused on explaining the effect of socioeconomic variables of a small fraction of women. In future research, I hope to explore factors contributing to daughter preference by contrasting women with daughter preference and women with other types of gender preference. Such analysis will provide a broader understanding of socioeconomic determinants of gender preference around the globe.

Secondly, gender preferences of men were not analyzed in this study. Gender preferences often differ for men and women where women prefer daughters and men prefer sons for their companionship (Williamson 1976). More generally, it has been reported that men and women differ in their reproductive goals in that men often desire more children than woman (Mason and Taj 1987). Therefore, examining women's gender preferences for children may tell only part of

the story. Nonetheless, the fact that sons are still overwhelmingly desired by women in many of the countries examined may suggest these women want sons for economic security and to maintain their status within the patriarchal family structure.

Several policy implications can be drawn from this research. Education plays an important role in alleviating son preference in countries with pronounced son preference (i.e. North Africa, South Asia, some of Southeast Asia). Therefore, continued effort to provide educational opportunities for women would help raise women's status, leading to better acceptance of female children and an improvement in their health and well-being. This study also showed that women's employment in non-agricultural occupations generally alleviates son preference as does increased household wealth particularly in countries where son preference is prevalent. These findings suggest that providing women with more economic opportunities outside agriculture and encouraging them to become economically independent as well as promoting pro-poor economic growth may also help raise the status of women and thus contribute to the well-being of female children.

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