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World Development Vol. 40, No. 3, pp. 583–593, 2012

0305-750X/$ - see front matter

doi:10.1016/j.worlddev.2011.07.002

An Empirical Analysis of Gender Bias in Education Spending in Paraguay

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Summary. — Gender affects household spending in two areas that have been widely studied in the literature. One strand documents that greater female bargaining power within households results in a variety of shifts in household production and consumption. One important source of bargaining power is ownership of assets, especially land. Another strand examines the gender bias in spending on children. This paper addresses both strands simultaneously. In this paper, differences in spending on education are examined empirically, both at the household and individual levels. Results are mixed, though the balance of evidence weighs toward pro-male bias in spending on education at the household level. Results also indicate that the relationship between asset ownership and female bargaining power within the household are contingent on the type of asset.

Key words — gender bias, education, assets, intra-household allocation, Latin America, Paraguay

1. INTRODUCTION

This paper attempts to organize thinking about the impact of gender on household decision-making processes, and to apply that organized framework to the task of assessing the impact of gender on the composition of education expenditures in Paraguay. I explore two aspects of gendered patterns in expenditure decision-making within households. First, I examine the importance of female bargaining power (as measured by the proxies of female land ownership, home ownership, and female income share). Second, I investigate the occurrence of bias in spending on children in the household based on their sex. The empirical analysis takes place both at the level of the household and at the individual level.

Gender bias in decision-making can be divided into two broad categories. The first category includes systematic differences in economic decision making between sexes, presumably the result of gender formation, or more controversially, inherent differences. I call this *subjective gender bias*, since the focus is on the decision maker. The second category includes systematic differences in the allocation of resources depending on the sex of the recipients. These differences could be called *objective gender bias*, since the focus is on the object of the decision. This breakdown could certainly be applied to extra-household phenomena as well as interactions between households and institutions, by characterizing the various sides of such interactions by gender. And so, individuals in households could occupy a number of positions with respect to various instances of gender bias in a given context. For example, a female household head could be on the receiving end of pro-male extra-household gender bias (perhaps by not being approved for a farm production loan that an otherwise identical male household head would receive), while simultaneously being the agent of pro-male intra-household gender bias (e.g., leaving the lion's share of her land to her eldest son). Since this paper explicitly focuses on intra-household phenomena, from this point forward all mentions of gender bias will refer to the intra-household variety.

There is a wide and growing literature within the intersection of development economics and feminist economics on both types of gender bias. Most of the literature falls into one or the other category. Empirical studies tend to focus on subjective gender bias, doubtless due to the data available. The information necessary to assess objective gender bias (information about actual decision-making processes and power) is rarely available. This lack of data means that the presence of objective gender bias must usually be inferred. Data on spending on an individual level are much more common. Therefore the presence of objective gender bias lends itself much more easily to detection in many cases.

Literature that attempts to describe the presence of gender bias frequently focuses on outcomes. The prevalence of such studies is easy to understand, since the analysis is fairly straightforward and the data required are relatively easy to acquire. However, when researchers attempt to directly test for evidence of gender bias in intra-household allocation several obstacles immediately present themselves. First, the ideal data required for analyzing gender bias (information on not only expenditures on every item by individual within household, but also information regarding how decisions are made) are almost never available.

Many of the studies on objective gender bias have focused on outcomes, employing indirect testing for gender bias. The circumstantial evidence for the existence of pro-male bias has been documented widely. In numerous studies, boys are found to have better school outcomes (Behrman, Pollak, & Taubman, 1982; Deolalikar, 1993; Davies & Zhang, 1995; Nkamleu & Kielland, 2006) or to have better health outcomes (Rosenzweig & Schultz, 1982; Bairagi, 1986; Gupta, 1987; Rosenzweig & Wolpin, 1988; Senauer, Garcia, & Jacinto, 1988). However, finding evidence of actual pro-male bias in intra-household resource allocation has been more elusive (Kingdon, 2005).

* I would like to acknowledge the helpful comments of Susana Lasterría-Cornhiel and the participants of the panel "Property Ownership as Protection from Domestic Violence among Women: Taking What We Know from South Asia to Latin America" at the Conference of the Latin American Studies Association in Montreal, Canada, September 5–8, 2007, the helpful comments of anonymous reviewers, as well as the research assistance of YuGai Zhu. Final revision accepted: July 22, 2011.

Much of the literature on intra-household resource allocation focuses on subjective gender bias studies on how decisions are made within the household and the differential impact that bargaining power by gender has on household welfare in general. From a starting point of the unitary household model, in which households are assumed to be units within which egalitarian principles automatically apply to the distribution of resources among members, or are enforced by a benevolent dictator, the theory of the household has moved on to more nuanced analyses of intra-household distributional dynamics.

Bargaining models allow us to consider the role of the relative bargaining positions of different household members in distribution decisions (Folbre, 1984). For the most part these models assume binary pairs of "players", bargaining over who gets what. Early models assumed Pareto efficient outcomes, but empirical evidence does not support that assumption. The result is an analysis in which outcomes are determined by the relative bargaining positions of household members and the institutional structures within which they interact, and which need not necessarily be technically, allocatively, or Pareto efficient (Udry, 1996; Agarwal, 1997; Quisumbing, 2003).

In many studies, the gender balance of power is measured using income. Studies of income effects on household welfare show that female income provides an advantage (Senauer *et al.,* 1988; Thomas, 1990; Brown, Yohannes, & Webb, 1994). Refinements of this type of study have examined the "lumpiness" of income to show that food expenditures depend on gender-disaggregated seasonal income flows (Hopkins, Levin, & Haddad, 1994). The general conclusion drawn from these studies is that greater female income leads to greater spending on household welfare (food, health care, and education). Others have theorized that control over land should have a similar affect (Agarwal, 1994). The extension of this argument to ownership of homes will be included in this study. Generally, research indicates that greater female resource control leads to better outcomes, including education (Quisumbing, 2003).

Latin America is ahead of other less-developed regions in terms of gender equity in educational outcomes (King & Hill, 1993; Wils & Goujon, 1998). For example, the male–female gap in literacy rates in the 1980s is generally smaller in Latin American countries than others and literacy rates are higher generally. Paraguay actually ranks near the top in this measure, both in literacy rates and smallness of the gender gap (King & Hill, 1993, p. 3). By 1990, only developed countries had a smaller gender literacy gap than Latin America's (Wils & Goujon, 1998, p. 359). Within Latin America only Argentina, Uruguay, Cuba, Costa Rica, and Chile had higher female literacy rates than Paraguay in the 1980s (King & Hill, 1993, p. 181).

Nevertheless, Paraguay's educational system is not without its problems. Education reform passed in 1998 mandated free, universal primary education (three cycles of three years each), but there is a drop-off in enrollments after primary school. While there are a number of semi-private (public-subsidized salaries for teachers) or private schools, most schools in Paraguay are public. However, the public school system in Paraguay is burdened with a long history of corruption and politicization (under Colorado Party rule, which ended only in 2008, all teachers had to be Party members). A combination of poor teacher training, a lack of infrastructure, and the misallocation of resources keeps the quality of public education in Paraguay low (Brizuela Speratti, 2008).

Table 1 shows that there are gendered differences in educational outcomes in Paraguay, though regional differences are more striking. Illiteracy is significantly higher among women in urban areas and in rural than in urban areas. Enrollment rates and private school attendance rates are significantly lower in rural areas. Enrollment rates are lower and private school attendance rates are higher, but not significantly so, for females, in both rural and urban areas. [1]

Table 1. *Literacy, enrollment, and private school enrollment by area and sex*

Sex	Rural	Urban
Literacy (% of adults)		
Female	80.5	95.8
Male	83.9	97.9
t	1.469	2.206**
Enrollment (% of school age children)		
Female	71.8	85.8
Male	72.1	85.9
t	0.085	0.030
Type of school (% of enrolled school age children in public schools)		
Female	96.2	66.2
Male	98.0	69.0
t	−1.525	−0.844

Source: Author's calculations from MECOVI (2001).
***1% Significance level.
** 5% Significance level.
*10% Significance level.

Education spending is broken down by area and school type in Table 1a below. Registration and books are a much smaller share of the overall spending in the rural areas than the urban areas. This is due to the higher prevalence of assistance for these categories in the rural areas. Overall average spending (for those households with positive education expenditures) is nearly three times as high in the urban areas (G303,000) than in rural areas (G113,000). Registration, the amount households pay to enroll their children, accounts for the bulk of spending in private schools, while uniforms make up the greatest share in public and subsidized schools. Assistance, in the form of free enrollment, uniforms, books, supplies, meals or other materials, accounts for at least the difference between public and subsidized school spending and private school spending. [2] Half of the individuals in the former category receive assistance for books, while only 10% of private school students do.

Few studies attempt to analyze both aspects of gender's impact on household welfare simultaneously. This narrow scope can be a serious problem if the effects are not independent. This paper attempts to address both types of gender bias simultaneously in the Paraguayan context using household survey data collected in 2000 and 2001. It also uses both income and wealth as proxies for female bargaining power within Paraguayan households. The rest of the paper is organized as follows. Section 2 lays out the data I use in my analysis, the methods I employ, and the model I use. Section 3 presents the results of the analysis for household-level spending. Section 4 presents the results of the analysis of individual-level spending. And Section 5 summarizes the conclusions to be drawn from the analysis and suggests some ways forward.

2. DATA AND METHODS

The data used in this analysis are from the 2000–2001 Encuesta Integrada de Hogares (MECOVI, 2001). The survey is based on the World Bank Living Standards Measurement