The Daughter Tax:

How Daughters Impact Maternal Outcomes in the Developing World

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Sociologists and social psychologists have long established that parental resources and family context have significant implications for children's wellbeing. A wide body of research demonstrates the effects of parents' wealth, education, and social capital on children's educational achievement, attitudes, and behavioral outcomes (Blau & Duncan, 1965; Lareau, 2002; Torche & Costa-Ribeiro, 2012; Torche & spilerman, 2009). Similarly, a sizable body of work explores the effects of family structure, same-sex parenting, birth order, and sibling sex on children (Amato, Loomis, & Booth, 1995; Brown, 2004; Cherlin, Chase-Lansdale, & McRae, 1998; Conley, 2000; Manning & Lamb, 2003). Taken together, these literatures explain much of what we know about variation in children's wellbeing and conduct as it relates to family structure and resources. However, much less is known about the effects of children on parents. This has led to an imbalanced understanding of the family that focuses more on the effects of parents than on the effects of children. To that end, this paper suggests that further consideration should be given to the ways in which children impact parents' lives. Although there are many different characteristics of children that warrant investigation, this article focuses on the sex of offspring because sex and gender are extraordinarily salient categories in many societies, and have become of increasing importance to demographers, international development scholars and policymakers (Malhotra & Schuler, 2005).

The bulk of research on the effects of offspring has been conducted in the United States (Conley & Rauscher, 2010; Washington, 2008), while the strongest evidence for son preference has been established in South Asia, the Middle East, and other developing regions (Arnold, 1992; Haughton & Haughton, 1995; Klasen, 1996; Muhuri & Preston,

1991; Obermeyer, 1996; Repetto, 1972). Consequently, there has been an under-theorization of the effects that child sex has on parents in places where one sex is strongly favored over the other, and thus, the impacts that child sex has on family stability, women's mobility, and household poverty have been overlooked.

In many countries around the world women face lower educational and occupational opportunities than men, resulting in their reduced economic status and diminished capacity to provide for their families financially (Ghose, 2004; Qian, 2008). The expectation that sons will care for their parents but that daughters will not leads to a strong preference for sons (Ebenstein & Leung, 2010; Koolwal, 2007; E. Rose, 1999). But this is not the only reason for son preference. Another explanation is that girls are sometimes associated with higher costs, such as dowries or wedding expenses (Arnold, Choe, & Roy, 1998; Dalmia & Lawrence, 2005; Rao & Rao, 1982; Zhang & Chan, 1999). Or, in patrilocal societies, married women move away from their family of origin to live with their in-laws. Once they do so they no longer contribute to the maintenance of their parents (Dube, 1988; Lahiri & Self, 2007; Vos, 1989). Even when women stay with their progenitors after marriage, parents may still undervalue the domestic contributions of women and girls as compared to the fiduciary contributions of men and boys. Moreover, a plethora of social rationale exists for son preference as well. For example, in many communities men have higher social status than women, are conferred greater property rights, or are believed to have a particular religious value (Freed & Freed, 1989; Ridgeway, 1993; Sandomirsky & Wilson, 1990).

For many reasons, then, parents might often see themselves as rewarded for having sons and penalized for having daughters. In poorer communities, the payoff of

having sons is even higher because additional income has a higher marginal value (Qian, 2008). Thus gender discrimination in the home not only stems from the low social status of female children, but also from the perception that male children represent greater economic security, or, a combination of both. In numerous countries, girls are more likely to die before the age of five, less likely to get immunized or receive any form of healthcare, less likely to attend school, and less likely to eat a nutritious diet than boys (Arnold, 1992; Arnold et al., 1998; Arokiasami, 2002; Choe, Hongsheng, & Feng, 1995; DeRose, Das, & Millman, 2000; Hill & Upchurch, 1995; Karkal, 1987).

If daughters themselves incur all these costs for their sex, it seems probable that mothers too should face some sort of consequence for bearing daughters. I find that, indeed, this is often the case. In many countries in this study, women are more likely to live without husbands when their first child or children are female. This suggests that women with daughters are more likely to be left by their spouses, or conversely, that they themselves are more likely to leave an undesirable relationship. For women who remain coupled, this study finds an increased likelihood of domestic violence when their first two children are female. In addition, I find a higher probability of employment among mothers of daughters than among mothers of sons.

In this paper, I use a natural experiment—the random assignment of a Y chromosome—to demonstrate that having a daughter has substantial consequences for mothers throughout the developing world. To begin, I construct a framework for understanding the effects of daughters on mothers. Because I expect a unique set of consequences for mothers of female children, I label this concept the *daughter tax*. From there I provide potential causes of variation in this tax. By exploiting the random

assignment of sex, I explore differences in the effects of sons and daughters on relationship dissolution, domestic violence, fertility, and maternal labor force participation. Next, I provide theoretical explanations for variation in the results I obtain between regions and between countries with balanced and imbalanced sex ratios. Finally, I highlight the implications of these findings for family stability, reproductive rights policy, and international development strategies.