Disaggregating Clustered Neighborhood Disadvantage from Individual Instrumentality: Muslim and Non-Muslim Differences in Maternal and Child Health in India

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ABSTRACT

Although post-ICPD discourse highlighted women's empowerment as a means of demographic change, there is increasing anxiety over a diminishing welfare state and an overemphasis on individual responsibility. Moreover, politicized discussions about religion and maternal-child health outcomes among Muslims in India tend to focus on individual-level explanations suggesting the restrictive nature of Islam on women's empowerment, rather than macro-level factors such as infrastructure or socioeconomic development. By using data from the 2004/05 IDHS, our paper addresses this macro-micro debate through the following questions: Does residing in an ethnic enclave concentrate health advantages of networks or conversely does it restrict access to health-promoting resources common in more advantaged neighborhoods? What are the pathways whereby advantage or disadvantage of residing in these ethnic enclaves is transmitted? Consequently, if Muslim women and their children do indeed experience poorer health outcomes, are these differences reflective of group membership or structured disadvantage *due* to group membership?

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The "Religion" Effect: Real or Biased?

Religion, especially Islam, has been particularly politicized in India (and other countries that have a sizeable Muslim population) due to myriad reasons such as personal prejudices, perceived disparities between groups, or rising fundamentalism in the face of globalization. Indeed, demographic outcomes such as higher fertility and infant/child mortality, pronatalism, as well as lower contraceptive or immunization uptake among Muslims become highly charged topics because of unsupported fears about a "rapidly growing" (and hence, "problematic") Muslim population, with explanations stressing individual rather than structural factors.

An apt way to examine the debate surrounding the possible linkages between religion and demographic processes such as maternal and child health/survival is to disentangle the effects of individual instrumentality from structural disadvantage due to residential clustering. Because women are the primary care-takers of infants in most societies, one set of researchers argue that Islamic restrictions on women's decision-making power and autonomy often compromises their ability to secure good health for their children and themselves (Caldwell 1986; Youssef 1978; Kirk 1968). Another body of literature downplays the observed differences between Muslims and non-Muslims by positing that a specifically Islamic pattern of demographic outcomes is a simplistic concept (Karim, 2009). Instead, religious identity is often confounded with economic disadvantage stemming from lack of access to infrastructure (e.g. health, preventative, or family-planning programs available) and socioeconomic development, along with diverse child-care practices, disease conditions, and other health- influencing factors (Ghuman, 2003).

Using data from the 2004-05 India Human Development Survey (IHDS), we test these conflicting debates by examining the relationship between context, women's empowerment, and maternal-child health outcomes. Using multilevel models that incorporate individual-, household-, and regional-level data, we address the following questions:

1. Are there Muslim and non-Muslim differences in maternal and child health outcomes such as under-5 survival and completeness of immunization in India?

2. Does residing in an ethnic enclave concentrate the health advantages of networks or conversely does it restrict access to health-promoting resources common in more advantaged neighborhoods? What are the pathways whereby the advantage or disadvantage of residing in these ethnic enclaves is transmitted?

3. Consequently, if Muslim women and their children do indeed experience poorer health outcomes, are health differences reflective of group membership (i.e. lower autonomy among women) or the indirect effect of discrimination *due* to group membership (e.g. lower socioeconomic status)?

Thus, the paper contributes to the existing volume of literature on gender, health, and critical demography by asking a pertinent sociological question: in what way *does* group membership determine behavior? In subsequent sections, we briefly present the Indian background (Section 2) and a theoretical framework (Section 3) examining the various debates surrounding the possible linkages between context, religion, women's empowerment, and various demographic processes. After identifying the hypotheses, we discuss the data, variables, and methodology employed in Section 4. We use multilevel stepwise models to support our hypotheses: Model 1 estimates the effect of women's autonomy on several maternal and child health outcomes, while Model 2 introduces various contextual factors. Model 3 includes both the compositional and

contextual variables to evaluate (1) the robustness of the compositional effect—i.e.., women's autonomy, and (2) the extent to which contextual factors explain changes, if any, in the observed relationship. Results will be discussed in Section 5, after which we conclude the paper by discussing data limitations, relevant policy issues, and future avenues of research in Section 6.

The Indian Background

After China, India has the second largest population in the world at 1028 million in 2001. Over the last two decades, India has made sustained progress on a scale, size and pace that is unprecedented in its own history: since 1990s—a period marked by structural reforms in the Indian economy. A low income country with mass poverty at the time of independence in 1947, India now ranks among the 10 fastest growing economies of the world with an average GDP growth rate of 9% over the last four years. However, despite substantial improvements in certain key socio-demographic variables—e.g., infant mortality rate, maternal mortality rate, contraceptive prevalence rate, and total fertility rate—India's current status with regard to literacy, health, education and gender equality is not encouraging. Indeed, India's rank in the Human Development Index among 177 countries has only risen by two positions: from 128 in 1999 to 126 in 2004 (United Nations Development Program, 2006).

In terms of demographic variations by religion, Muslims constitute approximately 12 percent of the Indian population, with 81 percent being Hindus, 2 percent Christians, 2 percent Sikh, and about 3 percent belonging to Parsi, Buddhist, Jain, or other religions. The partition of India in 1947 witnessed the rise of communalism, religious polarization, and Hindu-Muslim animosity. Indian Muslims today tend to be predominantly urbanized, have lower levels of educational attainment and literacy, and have also been traditionally concentrated in certain

occupations and regions. They face discrimination in employment through a segmented labor market which tends to favor Hindus over non-Hindus and women and men earning less in the unprotected wage and protected wage sector respectively (Khandker, 1992). Muslims tend to be self-employed, concentrated in casual work and in petty production and trading, which has a direct impact on their income and location. Thus, they are typically disadvantaged in terms of socioeconomic status as well as access to healthcare facilities, sanitation, and infrastructure (Jeffery & Basu, 1996). Yet, despite the socioeconomic discrimination through employment and political representation, infant and child mortality rates among Muslims are lower than those for Hindus: 59 live deaths/per 1000 births compared to 77 for Hindus, although immunization rates and fertility rates are higher (NFHS, 2004-5).

Finally, India continues to have fairly rigid gender norms, with marked disparities in human development outcomes among women across different religious and socioeconomic groups as well as restricted decision-making authority and freedom of movement among women. A majority of currently married women do not take any decision in the household by themselves, with variations across religious groups: Christian women (56 percent) having the highest participation in specific household decisions (e.g. own health care, purchases and visits to family or relatives) compared to Muslim women (33 per cent), who have the lowest. As far as participation in specific household decision making, only 33 percent of women in the country as a whole are allowed to go alone to the market, health facility and places outside the community. Again, Muslim women (26 per cent) have more restricted in their physical mobility compared to their Hindu counterparts (34 percent; NFHS, 2004-5). Finally, women are only 70% as likely as men to be paid in cash and 5 times as likely as men to not receive any earnings at all (NFHS,

2004-5). On an average, women in the Southern India did better in the GEI index as compared to women in Northern India, with relatively little variations by religion.

Context, Religion, Women's Empowerment, and Health Outcomes

According to Caldwell (1986), developing countries that have a higher than normal infant and child mortality rates in relation to their GDP tend to have high proportions of a Muslim minority or a large Muslim population. Two main theoretical arguments have been advanced to explain the potential dynamics between religion, demographic behavior and maternal-child health outcomes. The *first* argues that in Islamic settings, women occupy a separate and distinctive position that effectively denies them education and autonomy. Focusing on women's limited mobility, Caldwell offered an explanation that highlighted the "separate and distinctive position of women operating partly through their access to education and also in many other ways" that is "based on the Koranic injunction for men to protect their womenfolk" (Caldwell, 1986: 175). Also the practice of purdah and the Islamic view that seclusion of women is a way of preserving honor/personal security, cultural identity and traditions, thereby curtailing her decision making authority about women's own and their children's health has also been suggested in studies from both Arab and South-Asian Muslim societies. The *second* global explanation (which feeds back to the first explanation) centers on religion as symbolizing group membership in minority and majority groups. The particular insecurities and constraints a group faces can produce certain demographic responses. This explanation is however used in the context of fertility (that argues that Muslims are more pronatalist and less approving of contraception than other groups on the basis of Islamic dogma), but can be extended to mortality as well. Constraints on behavior stemming from strongly patriarchal system, could result in a

desire for more children as well as less decision-making power and control over own and children's health, particularly in low income households.

It should, however, be recognized that there are still considerable ambiguity towards Islamic doctrine and how it shapes demographic outcomes (Ghuman, 2003). Empirical findings indicate inconsistent influences of religion in shaping women's empowerment. Jejeebhoy (2000) finds little support for the argument that Muslim women are at a disadvantage in terms of women's autonomy in India. After controlling for region and religion, Indian women do appear to have less decision making power than do Pakistani women (Jejeebhoy and Sathar, 2001). The authors conclude that there may be a greater distinction in women's empowerment by broad north-south regional location than by religious ascription. Feminist sociologists have also critiqued the Western empirical discourse on the relationship between Islam and socioeconomic inequality. They argue that there is "an inherent reductionism in the scholarship on women in Islamic countries" that leads to a discourse that not only creates a false sense of commonality between and among Muslim women but also subsumes them under the broad umbrella of religion without paying attention to their respective histories and contexts (Mohanty, 2003).

It is also important to consider that religious identity is, at least in some part, confounded with socioeconomic status, health infrastructure, or other important determinants of mortality that is not observed. Neighborhood attributes influence one's access to critical resources such as quality education, employment opportunities, and health care that can help prevent illness or provide effective treatments. Because certain ethnic groups such as Muslims are concentrated in systematically disadvantaged neighborhoods, one could posit that their well-being is negatively affect. Weeks (1988) showed that rates of infant and maternal mortality are substantially lower among high-income groups in both the Muslim and non-Muslim countries he examined. He

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suggested that mortality levels have more to do with socioeconomic status than with religion. Studies from contexts like India and Morocco have indicated that the demarcation between women's use and nonuse of modern health-care services is due not necessarily to constraints to their autonomy, but rather, to more immediate practical matters, such as the availability of transportation to a health facility, the degree of complications in pregnancies, costs, the preference for at-home births, and the presence of other relatives to assist in home-delivery (Griffiths and Stephenson, 2001; Obermeyer, 1993). Or conversely, residential segregation may have beneficial outcomes for subordinate groups because it may create social networks that act as valuable sources of information or support. Whether residential segregation harms or helps its members is an open question for Muslims in India.

The intractable fact is that in many countries, religion is inseparable from economic disadvantage or other often unobserved factors. Hence in our analysis we have tried to take into account these theoretical concerns and have developed a multilevel analytic strategy to avoid overtly simplistic association between Islam and health outcomes and also debunk the arbitrarily constructed singular, monolithic image of "oppressed Muslim women" as opposed to their non-Muslim counterparts.

Data and Methodology

Data is from the India Human Development Survey (IHDS) conducted by the University of Maryland, College Park, in conjunction with the National Council of Applied Economic Research (NCAER), India, with funding provided by the National Institutes of Health. The IHDS is a nationally representative, multi-topic survey of 41,554 households in 1503 villages and 971 urban neighborhoods across all states and union territories of India (except

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Lakshwadeep and Andaman-Nicobar Islands). Using cluster sampling procedures, the survey collected extensive information from 33,480 ever-married women between the ages of 15-49 about their birth history, fertility preferences, maternal and child health and health-seeking behaviors, contraceptive usage, and other relevant demographic variables. The IDHS is particularly useful because, in addition to extensive child health measures (infant immunization and anthropometric records), the women's status module provides a wealth of data on one of the main explanatory variables in this analysis, women's empowerment. Questions pertaining to the respondent's past/current labor force participation, intra-household relationships, education, respondents' attitudes towards domestic violence, freedom of movement, etc were asked of all women. Specific household- as well as village-level information tapping into material possessions, farm (agricultural land owned and crops grown) and nonfarm activity, wages, access to health care, etc. was also collected.

Due to the hierarchical nature of some hypotheses as well as methodological concerns (discussed later), I use two levels of data. The individual level-1 data is from the India Human Development Survey (IHDS), while the level-2 district-level data is gathered from official published sources and the 2001 Indian Census variables. Unique identifier codes are created to merge both levels so that women are nested within urban and rural districts.

Maternal and Child Health Dependent variables:

Maternal health and health-seeking behavior is measured by (1) *number of children born*, (2) *whether the woman is using a contraceptive and if so, what*, and (3) *whether her delivery was attended by trained personnel or not*. Child health and health-seeking behavior is measured by (1) *infant mortality rate*: the probability of a child dying before the age of 12 months, (2) *child*

mortality: the probability of a child dying between ages 12 to 60 months, and (3) their

immunization status: the probability that a woman's last child born 12 to 60 months prior to the

survey is completely inoculated against six fatal, but preventable diseases.[1]

Contextual and Compositional Independent Variables:

We tap into the presence of a Muslim ethnic enclave through the variable, *proportion of*

Muslims in a district. Other contextual variables in the analysis include: (1) overall *wealth in a*

district and (2) health facilities index: a proxy for health amenities and immunization programs

available. The wealth index serves as a proxy for the socioeconomic status of the district and

averages the proportion of houses in the district with higher quality roofing, wall, and floor

materials, toilets (flush/others), electricity, water (piped water/others), and clean cooking fuels.

A quadratic transformation of wealth is also introduced in the analysis to test for nonlinearity,

with the expectation that poor as well as wealthy districts are likely to benefit the most from

health care programs. While governments are likely to organize health camps in poor areas to

reduce high levels of infant and child mortality, affluent districts tend to have good

immunization facilities because of the social and economic resources already present there. The

health facilities index proxies health programs by measuring a woman's access to *Anganwadi* or

health care facilities that include trained health professionals (formal and informal) in hospitals,

dispensaries, and PC sub centers; such programs are expected to positively affect child health

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[1] For the third dependent variable, the sample is restricted by age (12-60 months) because guidelines issued by the World Health Organization require that infants receive all eight injections *in the first year of life*. As per their schedule, infants should receive one BCG vaccine (for tuberculosis) at birth or soon after, three doses each of DPT (diphtheria, pertussis, tetanus) and oral polio at 6, 10, and 14 weeks of age, and one measles vaccine at 9 months or soon thereafter (WHO, 1984). The issue of concern is more than just that a child should be immunized; *completeness* and *timeliness* of immunizations are also critical aspects of healthcare provision. Data from immunization cards and from mother's recall (if immunization cards were not available) was utilized to estimate vaccination coverage. Studies demonstrating the accuracy of mother's recall are convincing in their argument about not dropping cases where immunization cards are not available, which can result in severe sample attrition (Desai and Alva, 1998; Langsten and Hill, 1998).

and immunization. Unfortunately, a potential drawback of this index is the lack of information about the actual *quality* of these health centers and the facilities provided by them.

At the individual level, empowerment is conceptualized as a two-dimensional construct—in the *private* or domestic sphere and in the *public* sphere—because women can be empowered in one without making similar gains in the other. We make these distinction in order to investigate whether various aspects of women's autonomy have a differential effect on various child health statuses for Muslim and non-Muslim women. Moreover, the public -private dichotomy is important in highlighting the potential independence of the various areas within which women can be empowered—i.e. women can be empowered in the familial sphere without making similar gains in the public sphere. For instance, are Muslim women less empowered in the public sphere due to Islamic strictures on their mobility, and how does that influence their health-seeking behavior, i.e. their child's immunization?

Because a woman's decision-making power may be largely concealed from the public domain, the *decision making index* captures empowerment in the *private sphere* by tapping into a series of five questions about which household member (respondent herself, husband, senior male, senior female and other) makes decision (1) what to cook on a daily basis, (2) whether to buy an expensive item, (3) how many children to have, (4) what to do if a child falls sick, and (5) to whom her children should marry. We use a *mobility index*—tapping into empowerment in the *public sphere*—because women's seclusion and restricted mobility, or conversely, their unaccompanied mobility or ability to "travel alone" has been located in the wider conceptual paradigm of women's autonomy/empowerment literature, particularly in South Asia (Dyson and Moore, 1983; Amin 1995; Jejeebhoy, 1995, 2001; Mumtaz and Salway, 2005). Thus, women's mobility is a dimension of behavior which has a uniquely public character, and becomes

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particularly interesting when we control for variation in socio-cultural contexts (Jejeebhoy and

Sathar, 2001). For the purpose of this paper, we use IHDS questions on mobility which asks the

woman if she can go to the following destinations alone: (1) local health center, (2) home of

relatives or friends, and (3) the kirana shop. Finally, *maternal education* may also enhance child

health by giving her the confidence and knowledge to negotiate for healthcare and resources

within and outside the household (Malhotra and Mathar, 1997). The empirical evidence is fairly

consistent: more educated women report higher levels of empowerment (Mason, 1996, for

Pakistan, Malaysia, and Thailand but not for India; Jejeebhoy and Sathar, 2001, for all three

South Asian states). However, Bloom, et al (2001) or Dharmalingam et al (2001) did not find a

significant education relationship in their India data. We operationalize educational attainment

into three categories: no education (*reference*), middle school (women with 1-7 years of

education, and atleast middle school (women with 8-15 years of education).

Control variables at the *child-level* include: (1) age: a continuous measure in months,

with a quadratic term introduced to test non-linearity, (2) sex: male and female (*reference*), and

(3) birth order: one (*reference*), two or three, four or higher. Control variables at the *maternal-

level* include (1) Age and age-squared, (2) Employment, (3) age at childbirth (continuous

measure in years). Control variables at the *household-level* include (1) socioeconomic status:

index of consumption possessions (ranging from 0-8) and index of basic facilities (0-3), (2)

Caste of the household head, (3) Whether any family member has been exposed to any form of

mass media, (4) Highest educational attainment of a member in the household, and (5)

Household structure (nuclear or extended).

A multilevel approach is necessary for this analysis because it permits simultaneous

estimation of full micro- (individual-level) and macro- (magisterial district-level) models. A

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common concern with other techniques is the extent to which large sample sizes result in very small effects being statistically significant, leading to possible Type I error. By using maximum likelihood estimation, hierarchical linear modeling adjusts correlation as well as standard errors among individuals nested within the same geographical areas and uses the appropriate degrees of freedom for higher-level hypotheses, making it an ideal technique to answer the questions posed here. Thus, methodological problems such as heterogeneity of regression, aggregation bias, and misestimated standard errors that often emerge in single-level equations using variables measured at multiple levels are corrected (Raudenbusch & Bryk, 2002). The analysis is conducted using Hierarchical Linear Modeling (HLM) (Raudenbush, Bryk, Cheong, & Congdon, 2004). The intercept is predicted by several variables at the magisterial district-level with some individual-level variables acting as controls and some as predictors themselves.

Relevance of the Study

This topic has important policy implications in the field of social inequality, women's empowerment, and maternal-child health because it answers two important questions: "What has a greater effect on maternal and child health: individual instrumentality or clustered structural disadvantage? And, how does that interplay with religion, an important basis of inequality in some settings?" For example, while Muslim women's children may not be malnourished (type of diet), compared to women of other religions due to dietary differences, they may have lower immunization rates because of accessibility to health services, a structural factor. Finally, do Muslim/non-Muslim differences in demographic outcomes vary from locale to locale and hence, need to be contextualized, or are they consistent across all settings? This argument in favor of

regional social systems as opposed to religion as the driving force is strengthened by evidence suggesting wide variations the ways in which gender and behavioral norms are manifested across a range of Islamic countries. Finally, the study may highlight the effects of declining state provisions on increased ethno-religious tensions in the current neoliberal climate pervading India. Although post-ICPD discourse highlights women's empowerment as a means of demographic change, it runs the risk of overemphasizing individual (or maternal) responsibility, which is problematic in several debt-ridden countries that are characterized by a neoliberal climate and a declining welfare state (Desai, 2000).